

HUMAN DEVELOPMENT

REPORT 2023/2024



Breaking the gridlock

Reimagining
cooperation in
a polarized world

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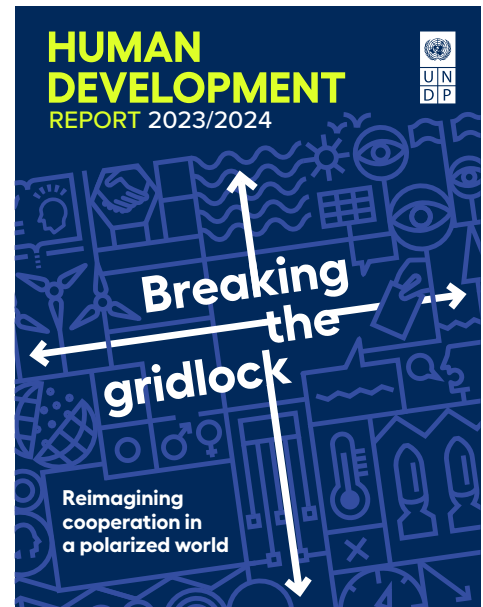
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The 2023/2024 Human Development Report



**HUMAN DEVELOPMENT
REPORT 2023/2024**

Breaking the gridlock

Reimagining cooperation in a polarized world

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Foreword

We live in a tightly knit world. Yet shared, interlinked global challenges, such as runaway climate change, are outpacing our institutions' capacities to respond to them. We face "a global gridlock," exacerbated by growing polarization within our countries, which translates into barriers to international cooperation.

Why, despite all our riches and technologies, are we so stuck? Is it possible to mobilize action to address globally shared challenges in a world that is intensively polarized? These questions motivate the 2023/2024 Human Development Report. Firmly grounded in the advancement made in its predecessors, the Report reminds us that our shared aspirations for development need to go beyond wellbeing achievements to also enable people to feel more in control of their lives, less threatened and more empowered to act on shared challenges.

The human toll of this growing gridlock is huge. In lives lost, in opportunities forgone, in feelings of despair. After 20 years of progress, and for the first time on record, inequalities in Human Development Index (HDI) values—which measure a country's health, education and standard of living—are growing between countries at the bottom and countries at the top of the index. Following the 2020 and 2021 declines in the global HDI value, the world had the opportunity to build forward better. Instead, this Human Development Report shows that our global community is falling short. Deaths in battle and displacement from violent conflicts are increasing, reaching the highest levels since World War II. Leading up to a decade of increasingly higher temperatures, 2023 has been the hottest ever recorded. The path of human development progress shifted downwards and is now below the pre-2019 trend, threatening to entrench permanent losses in human development.

Unless we change course.

We can still redress inequalities in human development, but we must rapidly learn some lessons. To start, the Report argues that we need to capitalize on our global connections, choosing cooperation over conflict. The Report shows how the mismanagement of cross-border interdependencies (the response to the Covid-19 pandemic, for example) is at the root of many contemporary challenges, ranging from debt distress in numerous low- and middle-income countries to threats to food security to a pervasive sense of

disempowerment around the world. New analysis in the Report using data from the World Values Survey shows that only half the global population feels in control of their lives and that only one-third of people believe that their voice is heard in their political system.

Looking ahead, there will only be more globally shared opportunities and challenges. Besides the high economic interdependence, two main drivers of interdependence are likely to shape our future in the decades to come. First, the dangerous planetary changes of the Anthropocene are deepening the global connections among societies, economies and ecosystems: viruses, microplastics in our oceans and forest fires do not care much for national borders. As the Report argues, we may choose to deglobalize, but we cannot "deplanetize." Second, an unfolding Digital Revolution has led to a dizzying increase in the sharing of data, ideas and culture across societies.

To break the gridlock, the Report is an invitation to reimagine cooperation by pursuing three ideas that it encourages the world to fight for.

First, it is imperative to pursue common ground while accepting that people will have the right to retain their diverse interests and priorities. Piercing a fog of false differences, or misperceptions, is one of the most effective ways of changing behaviour towards cooperation that addresses shared challenges.

Second, we must enable people to pursue their legitimate and natural human security ambitions without protectionism. It has now been 30 years since the 1994 Human Development Report introduced the notion of human security. It focuses on what gives people agency to shape their lives free from fear, want and living without dignity. From the energy transition to artificial intelligence, discussion of risks and challenges needs to be rebalanced with the consistent articulation of the potential to live, for the first time ever, with a surplus of energy and with artificial intelligence that augments what people can do.

Third, we need a 21st century architecture for international cooperation to deliver global public goods. This includes the planetary public goods required to navigate the Anthropocene—from climate change mitigation to pandemic preparedness to biodiversity preservation—as well as the digital public infrastructure and digital public goods that would enable the Digital

Revolution to be harnessed to enable people to flourish in more equitable ways. Global public goods are vital for our interdependent future as global citizens and require rethinking international finance to complement development assistance (supporting poor countries) and humanitarian assistance (saving lives in emergencies).

Indeed, we need to recognize the undeniable fact that we now have access to new financial mechanisms,

extraordinary technologies and our greatest asset: human ingenuity and our cooperative capacities. Yet today, psychologists warn that many children report feeling anxious and that they feel they live in a world that does not care about their future. This Report is a rallying cry—we can and must do better than this. It charts ways forward and invites to a conversation on reimagining cooperation.

A handwritten signature in black ink, reading 'Achim Steiner'. The signature is fluid and cursive, with a large initial 'A' and 'S'.

Achim Steiner

Administrator

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How to make sense of producing a Human Development Report at a time of war? Not only of wars between and within countries but also with our planet, with ourselves and with our future? These questions weighed heavily on our minds. But over time they strengthen the resolve of the team, fuelled by the conviction that the recurring messages of successive Human Development Reports are more relevant than ever. They bear repeating and reaffirming, because even though they may have been said many times before, they seem to be pushed more and more into the background. The primacy of people as the purpose and agents of development. The crucial importance of enabling people to live free from want, fear and indignity, still relevant 30 years after the introduction of the concept of human security in the 1994 Human Development Report. Redressing inequalities in human development.

This, as other Human Development Reports, is an examination of the barriers that enable people to live their lives to their full potential and what to do about them. And here there is much that is new in the world today. Building on the 2021/2022 Human Development Report, which identified polarization as a barrier to addressing shared challenges as one of the novel layers of uncertainty confronting the world, this Report does a deep dive into the reasons why polarization is increasing, how that creates gridlock in collective action and how to reimagine cooperation to break the gridlock. The Report was possible only because of the encouragement, generosity and contributions of so many, recognized only imperfectly and partially in these acknowledgments.

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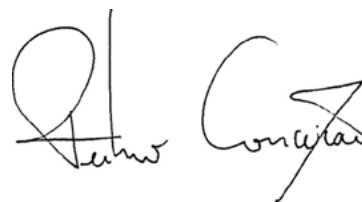
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A handwritten signature in blue ink, appearing to read 'Pedro Conceição', with a stylized flourish at the end.

Pedro Conceição

Director

Human Development Report Office

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Breaking the gridlock

A snapshot of the 2023/2024
Human Development Report

Breaking the gridlock

A snapshot of the 2023/2024 Human Development Report

We can do better than this. Better than runaway climate change and pandemics. Better than a spate of unconstitutional transfers of power amid a rising, globalizing tide of populism. Better than cascading human rights violations and unconscionable massacres of people in their homes and civic venues, in hospitals, schools and shelters.

We must do better than a world always on the brink, a socioecological house of cards. We owe it to ourselves, to each other, to our children and their children.

We have so much going for us.

We know what the global challenges are and who will be most affected by them. And we know there will surely be more that we cannot anticipate today.

We know which choices offer better opportunities for peace, shared prosperity and sustainability, better ways to navigate interacting layers of uncertainty and interlinked planetary surprises.¹

We enjoy unprecedented wealth, knowhow and technology—unimaginable to our ancestors—that with more equitable distribution and use could power bold and necessary choices for peace and for sustainable, inclusive human development on which peace depends.

So why does pursuing the ambitions of the 2030 Agenda for Sustainable Development and the Paris Agreement feel like a half-hearted slog through quicksand?

Why in many places does restoring peace, even pauses or ceasefires as hopeful preludes to peace, feel so elusive?

Why are we immobilized on digital governance while artificial intelligence races ahead in a data goldrush?

In short, why are we so stuck? And how do we get unstuck without resorting myopically to violence or isolationism? These questions motivate the 2023/2024 Human Development Report.

Sharp questions belie their complexity; issues with power disparities at their core often defy easy explanation. Magic bullets entice but mislead—siren songs peddled by sloganeering that exploits group-based grievances. Slick solutions and simple recipes poison our willingness to do the hard work of overcoming polarization.

Geopolitical quagmires abound, driven by shifting power dynamics among states and by national gazes yanked inward by inequalities, insecurity and polarization, all recurring themes in this and recent

Human Development Reports. Yet we need not sit on our hands simply because great power competition is heating up while countries underrepresented in global governance seek a greater say in matters of global import. Recall that global cooperation on smallpox eradication and protection of the ozone layer, among other important issues such as nuclear nonproliferation, happened over the course of the Cold War.

Slivers of hope have emerged even now. The Ukraine grain deal, before its suspension in 2023, averted widespread food insecurity, which would have hurt poorer countries and poorer people most. The production of Covid-19 vaccines, which saved millions of lives, relies on global supply chains, although, tragically, many more lives could have been saved if vaccine coverage had been more equitable.² Countries continue to cooperate on genomic sequencing of variants, even as shameful inequities in vaccine access persist.³ At the 28th Conference of the Parties to the UN Framework Convention on Climate Change, the world established a new loss and damage fund to benefit more than 3 billion people, with pledges totalling over \$600 million.⁴ Global clean energy investment, and the jobs and opportunities that come with it, reached an all-time high of \$1.8 trillion in 2023 (equivalent to the size of the economy of the Republic of Korea), almost twice the amount in 2020.⁵

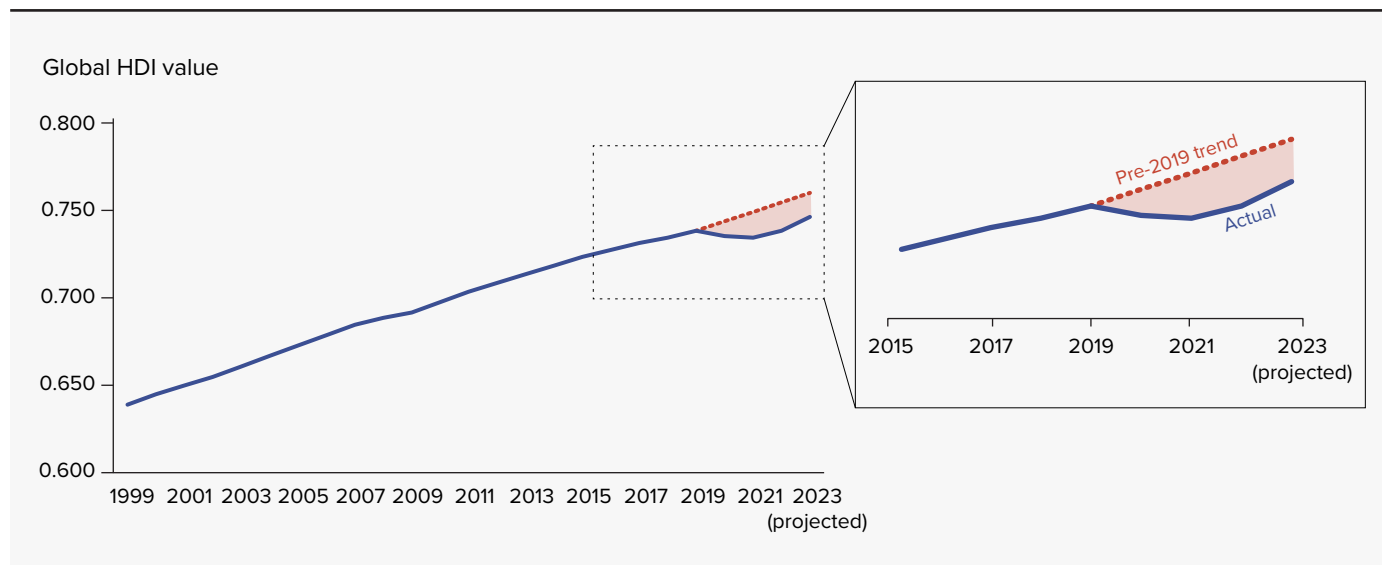
However challenging they are, geopolitics are simply not an excuse to stay stuck in gridlock. There are paths through. Reimagining and fully providing global public goods in ways that meet national development needs at the same time is one of them.

The 2021–2022 Human Development Report argued that a new uncertainty complex is unsettling lives the world over and dragging on human development. The global Human Development Index (HDI) value fell for the first time ever—in both 2020 and 2021.

The global HDI value has since rebounded to a projected record high in 2023 (figure S.1). All components of the global HDI are projected to exceed their pre-2019 values.⁶

Despite being projected to reach a new high, the global HDI value would still be below trend. And the global figure masks disturbing divergence across countries: every Organisation for Economic Cooperation and Development country is projected to have recovered, but only about half of the Least

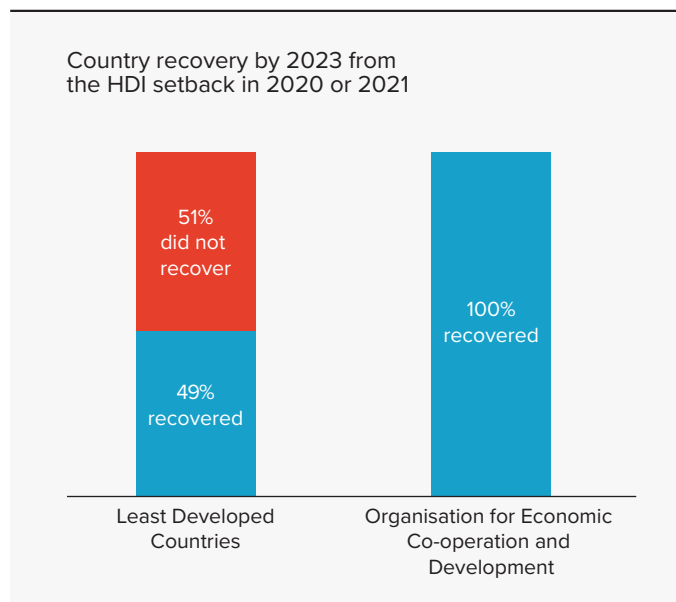
Figure S.1 A permanent shift in the Human Development Index (HDI) trajectory?



Note: The global HDI value for 2023 is a projection. The pre-2019 trend is based on the evolution of the global HDI value in the previous 20 years.

Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023d), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

Figure S.2 Recovery of Human Development Index (HDI) values since the 2020–2021 decline is projected to be highly unequal



Note: Least Developed Countries have low levels of income and face vulnerabilities that make them “the poorest and weakest segment” of the international community (<https://www.un.org/ohrls/content/about-least-developed-countries>). Recovery means that countries that suffered a decline in HDI value in 2020 or 2021 are projected to reach or surpass their pre-decline HDI value by 2023.

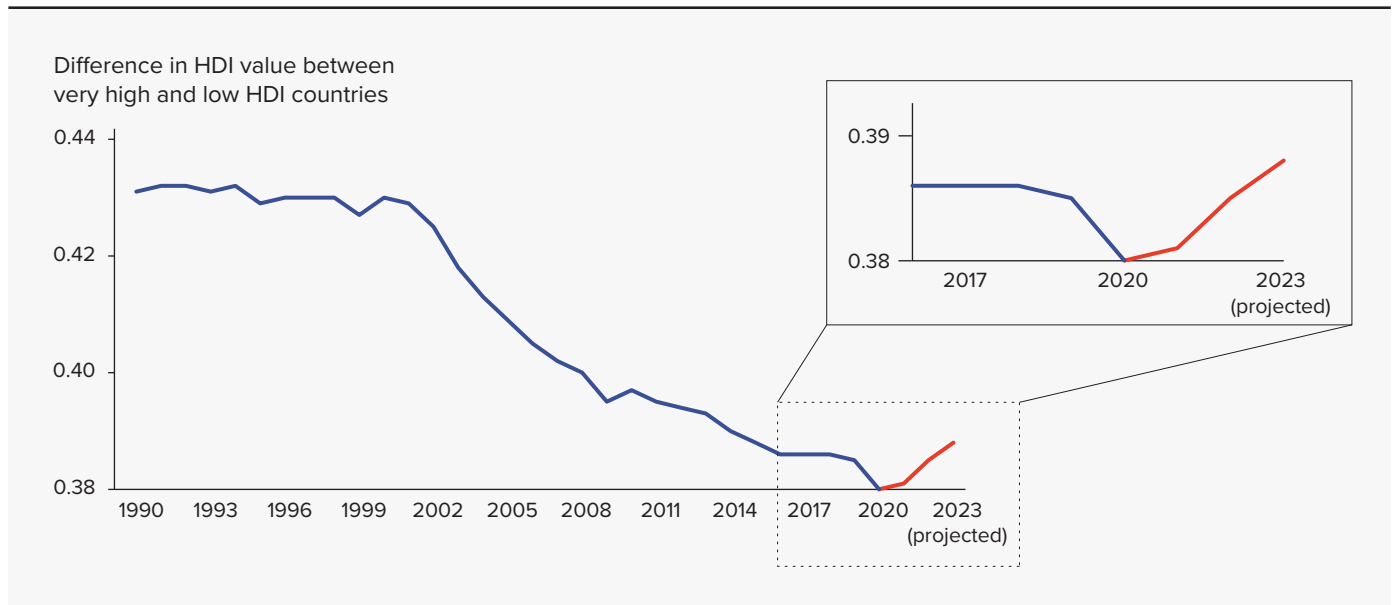
Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023d), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

Developed Countries are projected to have done so (figure S.2). After 20 years of steady progress, inequality between countries at the upper and lower ends of the HDI has reversed course, ticking up each year since 2020 (figure S.3).

If the global HDI value continues to evolve below the pre-2019 trend, as it has since 2020, losses will be permanent. Based on the 1999–2019 trend, the global HDI value was on track to cross the threshold defining very high human development (a value of 0.800) by 2030—coinciding with the deadline to meet the Sustainable Development Goals. Now, the world is off track. Indeed, every region’s projected 2023 HDI value falls below its pre-2019 trend. Whatever its future trajectory, the global HDI value will capture—incompletely, if at all—many other important elements, such as the debilitating effects of chronic illness or the spikes in mental health disorders or in violence against women, all restricting people’s possibilities for their lives. For rich and poor countries alike some losses will never be recovered. Whatever the charts and indicators may say about people today, the Covid-19 pandemic took some 15 million lives.⁷ We cannot get them back. Nor the time siphoned off in so many ways—in isolation, in caregiving, in not attending school.

The HDI is an important, if crude, yardstick for human development. Just a few years ago wellbeing had never been higher, poverty never lower. Yet people

Figure S.3 Inequality between very high Human Development Index (HDI) and low HDI countries is increasing, bucking long-run declines



Note: The difference in HDI values for 2023 is based on projections.
Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

around the world were reporting high levels of sadness, stress and worry (figure S.4).⁸ Those self-reported measures have since risen for nearly 3 billion people.⁹ And while 9 in 10 people show unwavering support for the ideal of democracy, there has been an increase in those supporting leaders who may undermine it: today, for the first time ever, more than half the global population supports such leaders (figure S.5).¹⁰

The uncertainty complex has cast a very long shadow on human development writ large, with recent years marking perhaps an unfortunate and avoidable fork in its path rather than a short-lived setback.

What gives?

Progress feels harder to grasp, especially when planetary pressures are brought into view; our standard development measures are clearly missing some things. One of those things may be the disempowerment of people—gaps in human agency—which is taking combined hits from new configurations of global complexity and interdependence, uncertainty, insecurity and polarization.

People are looking for answers and a way forward. This can be channelled helpfully via shared ambition that brings everyone along (not necessarily on everything) in areas of cooperation that are not zero-sum, enabled by cooperative narratives and

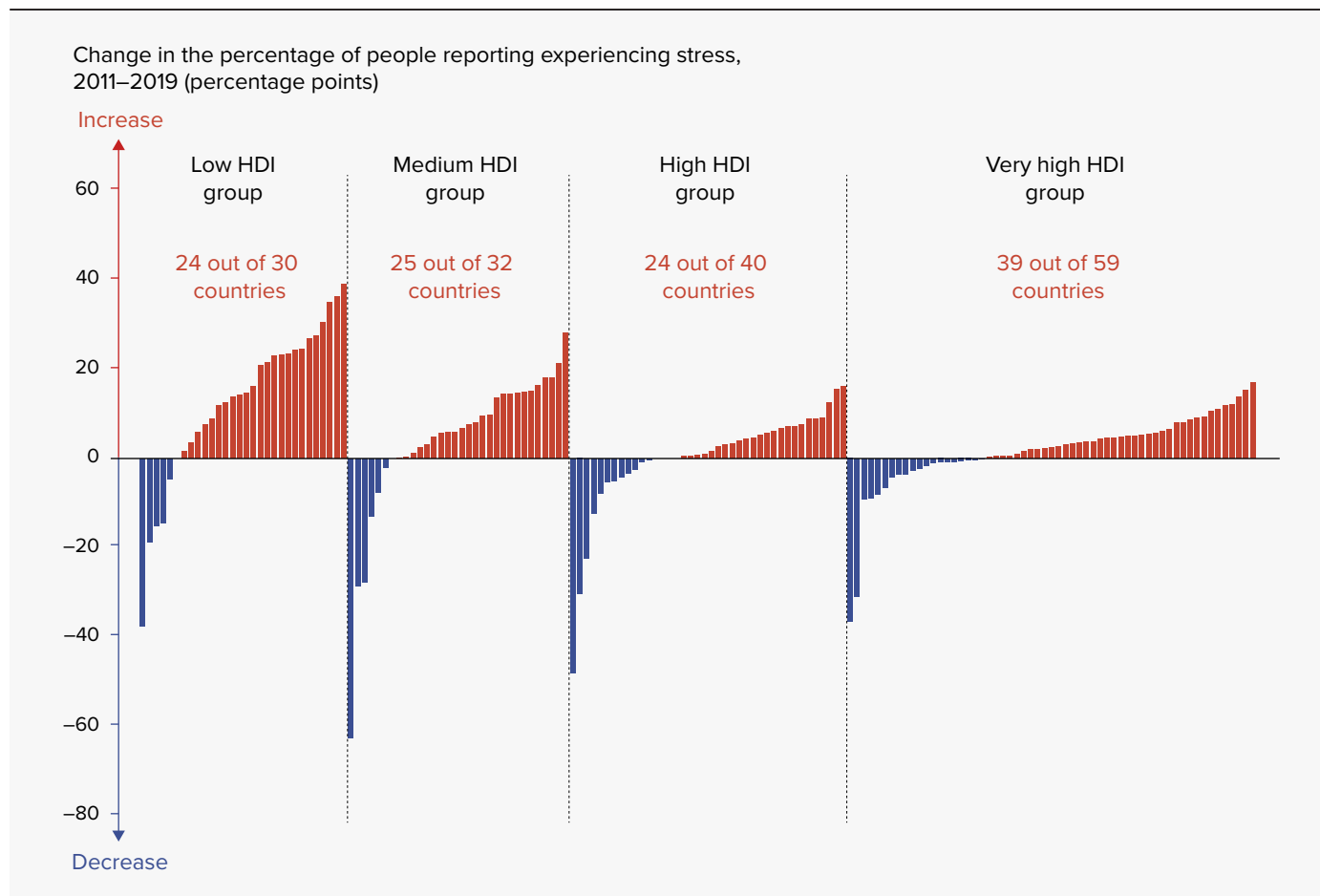
institutions built on a bedrock of generalized trust. Over the past 10 years both very high and high HDI countries have improved their HDI values without increasing planetary pressures, a shift from previous trends of the two increasing together, so there are reasons to hope that this might be possible (figure S.6).

Or it can be channelled, as it seems now, into vicious cycles of demonizing blame games that breed, at best, suspicion and distrust and, at worst, prejudice, discrimination and violence.

Troublingly, populism has exploded, blowing past last century’s peaks, which roughly corresponded to periods of mismanaged globalization.¹¹ That is happening alongside, and in many cases exploiting, wicked forms of polarization, such as the winnowing and hardening of narrow identities, a sort of coercion or unfreedom enabled, if not outright celebrated, by an ongoing fetishization of so-called rational self-interest.

People’s ability to determine for themselves what it means to live a good life, including defining and reassessing their responsibilities to other people and to the planet, has been crowded out in many ways. Metastatic hands-off dogma hides the raiding of the economic and ecological cookie jar. Dog-eat-dog and beggary-neighbour mindsets harken back to mercantilist eras. And policies and institutions—including those

Figure S.4 Self-reported stress rose in most countries, even before the Covid-19 pandemic



HDI is Human Development Index.

Note: Values refer to the change in the percentage of people who reported experiencing stress “during a lot of the day yesterday.”

Source: Human Development Report Office, based on Gallup (2023).

that have mismanaged globalized market dynamics—default to “me” before “we.”

We are at an unfortunate crossroad. Polarization and distrust are on a collision course with an ailing planet. Insecurity and inequalities have a lot to do with it. So does a constellation of disempowering narratives that engender defensive fatalism and catastrophic inertia—all circumscribed and, in some sense fuelled by, dizzying political polarization.

What can we do to help turn things around? Quite a lot.

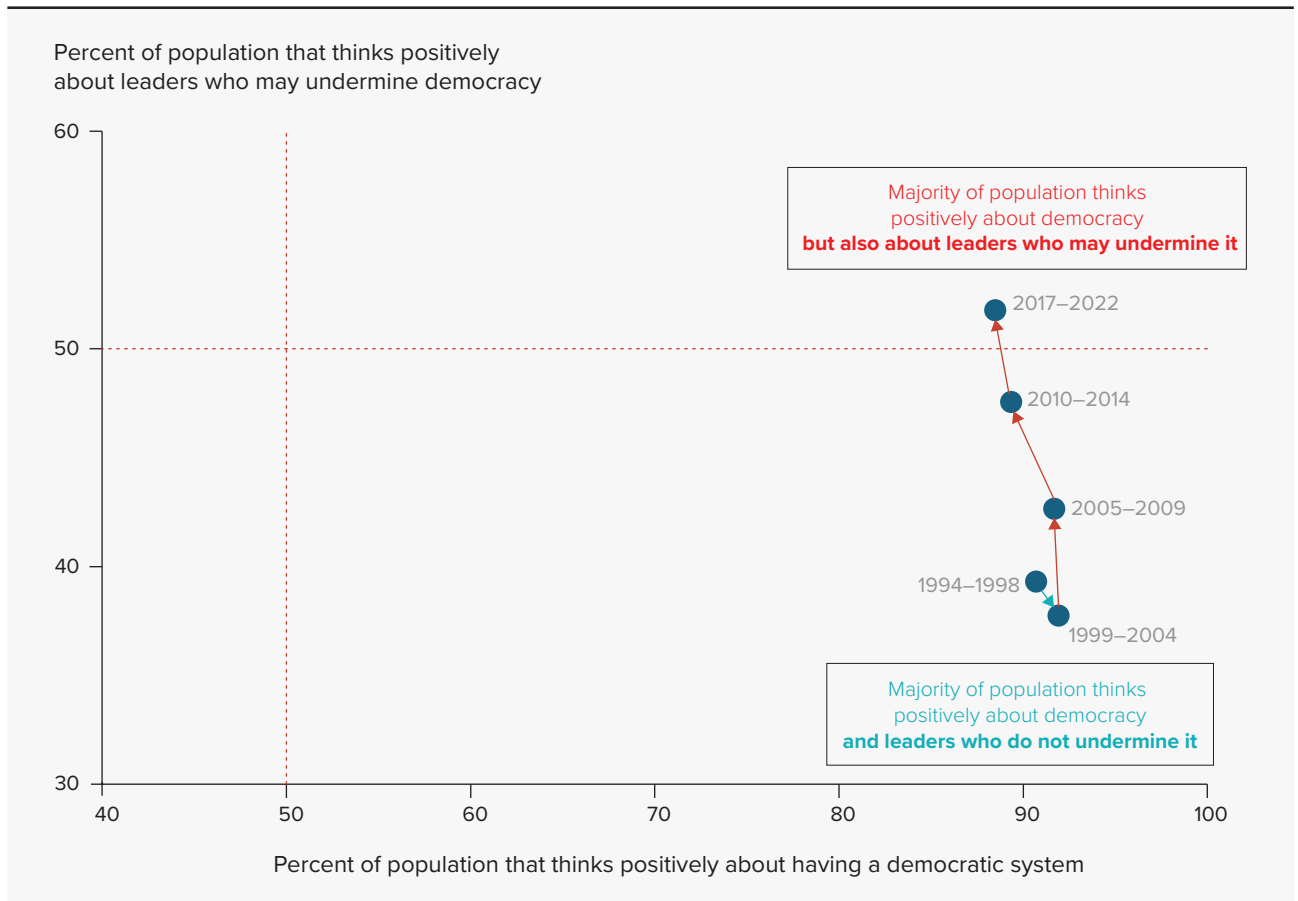
Build a 21st century architecture for global public goods

First, we should build out a 21st century architecture to deliver the global public goods that we all depend on. It would function as a third track to international

cooperation, complementing development assistance focused on poorer countries and humanitarian assistance focused on emergencies. These tracks are not silos. Distinctively, a global public goods architecture would aim for transfers from rich countries to poorer ones that advance goals for every country to benefit. Every country has a chance to have a say, as well as an opportunity to contribute. As such, this third track is intrinsically multilateral.

Global public goods will require additional financing as a complement, rather than substitute for or competitor, to traditional development assistance. The financing can come in many forms. For example, when some portion of an investment in a poorer country generates global benefits, the corresponding financing (or technology transfer) should tend to be concessional, so that alignment is achieved between who benefits (the rest of the world) and who pays (the

Figure S.5 The democracy paradox? Unwavering support for democracy but increasing support for leaders who may undermine it



Note: Data are population-weighted averages for a panel of countries representing 76 percent of the global population. Percent of population on the vertical axis refers to people who responded that having a strong leader who does not have to bother with parliament and elections is “very good” or “fairly good.” Percent of population on the horizontal axis refers to people who responded that having a democratic political system is “very good” or “fairly good.”
Source: Human Development Report Office based on data from multiple waves of the World Values Survey (Inglehart and others 2022).

rest of the world). The flipside is the case of hazards or shocks that are not of a single country’s making. Automatic triggers can be embedded in bonds or loan agreements, especially state-contingent debt instruments, to help poorer countries cope with crises that they had little part in generating, as with climate change. This would create more predictable conditions in navigating an uncertain world that could mobilize and attract private finance to those countries.

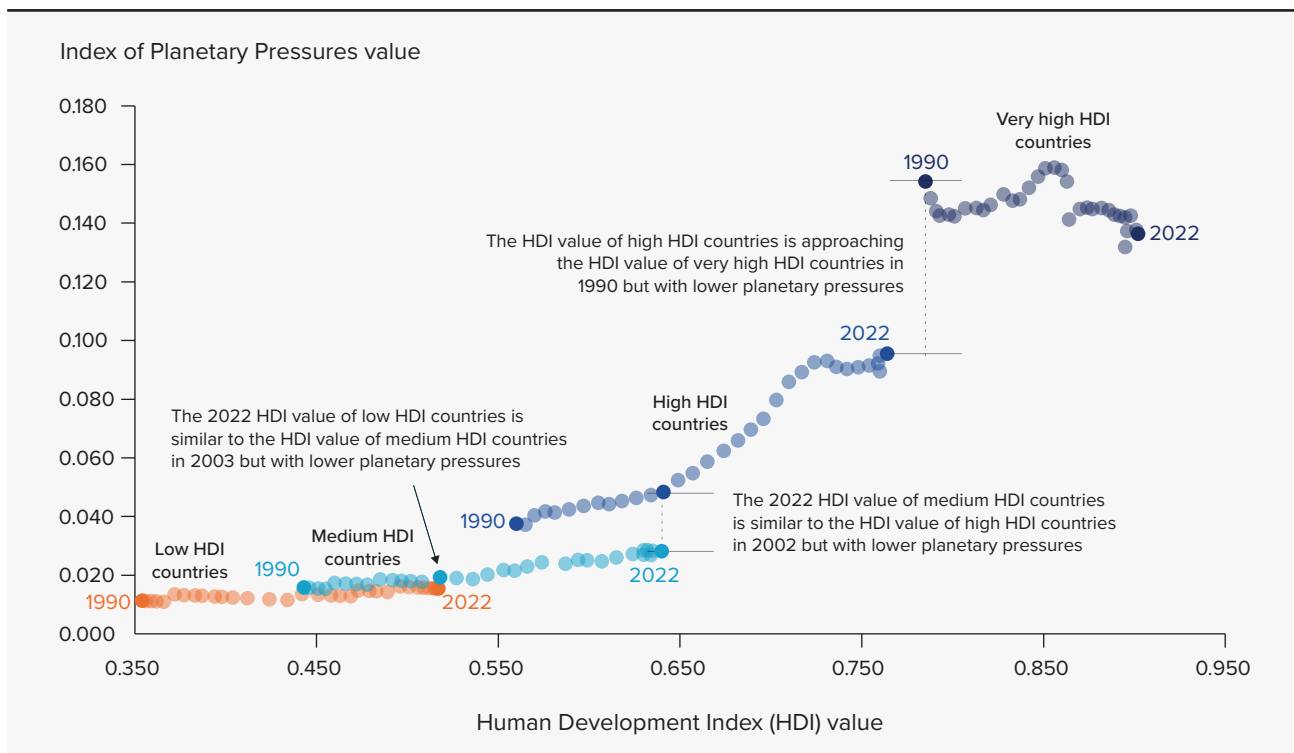
Dial down temperatures and push back polarization

Second, we need to dial down the temperature and push back on polarization, which poisons practically everything it touches and impedes international cooperation. Providing global public goods will help. So

will correcting misperceptions about other people’s preferences and motivations. All too often people make biased assumptions about other people, including people on the other side of political divides. Often, people agree with one another more than they think. For example, while 69 percent of people around the world report being willing to sacrifice some of their income to contribute to climate change mitigation, only 43 percent perceive others believing the same (a 26 percentage point misperception gap).¹² The result is a false social reality of pluralistic ignorance where incorrect beliefs about others hampers cooperation that, if recognized and corrected, could help build collective action on climate.

Not all polarization can be reduced to misperception, however big a role it plays. That makes it important to create spaces of deliberation to bridge divides.

Figure S.6 Reasons for hope: Improvements on the Human Development Index without increasing planetary pressures



Note: The Index of Planetary Pressures is constructed using the per capita levels of carbon dioxide emissions (production) and material footprint in each country (it is 1 minus the adjustment factor for planetary pressures presented in table 7 in the *Statistical Annex*).

Source: Human Development Report Office. See specific sources in tables 2 and 7 in the *Statistical Annex*.

Citizen assemblies can function in this way, but they are not the only means. Practical schemes to facilitate more deliberative processing of information can help counter the growing danger of people becoming trapped in beliefs that have no basis in fact.¹³ In contexts of intergroup conflict, presenting information in a frame that does not provoke anger can be depolarizing.¹⁴ Interventions that rely on qualitative and narrative-based approaches, such as storytelling and vignettes, are particularly effective.¹⁵

The key words are deliberate and deliberative. Polarization is more likely to self-destruct badly than to self-correct helpfully. Steady positive pressure that encourages empathy, builds interpersonal trust and emphasizes overlapping, shared identities is the way to go.

Narrow agency gaps

Third, we need to narrow agency gaps—fuelled in part by the divergence between what people believe is possible or probable and what is objectively possible.¹⁶ Agency gaps are also apparent in half of people

worldwide reporting that they have no or limited control over their lives and more than two-thirds perceiving that they have little influence in the decisions of their government (figure S.7).

To help narrow agency gaps, institutions need to become more people-centred, co-owned and future-oriented.

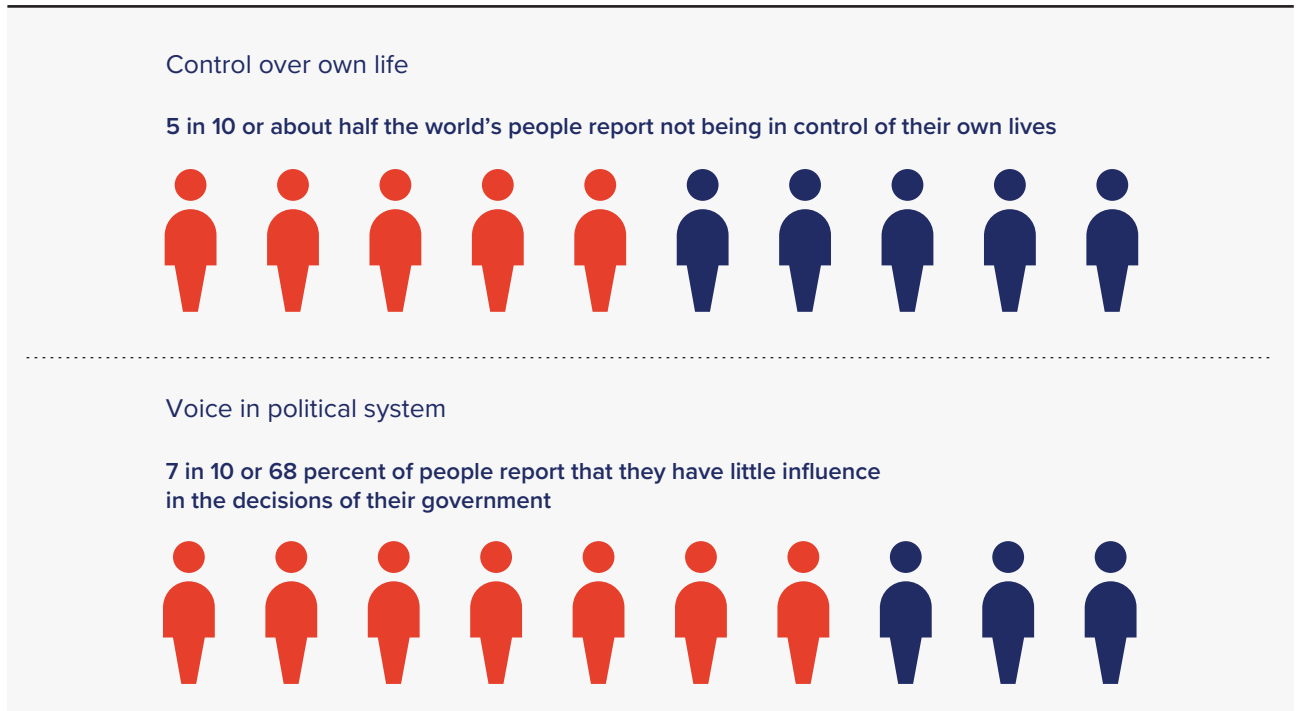
People-centred is about placing ultimate objectives in terms of human development and human security, recognizing the interdependence of people and the planet.

Co-owned is about the fair distribution of the power to set collective goals, the responsibilities to pursue them and the resulting outcomes. It stresses the formation of social norms that cultivate the value of collective achievements and cooperative behaviour.¹⁷

Future-oriented is about focusing on what we can shape and create if we work together, enriching the space for deliberation and agreement.¹⁸ In the face of challenges, a future-oriented perspective opens possibilities for hope and creative resolve.

Tailoring these principles to different contexts will put us on the road to productive dialogue and action,

Figure S.7 Agency gaps in collective action are higher than those in control over one’s own life



Note: Agency is the ability of people to act as agents who can do effective things based on their commitments (Sen 2013). It is proxied by two indicators: the share of the population that reported feeling in control over their lives (measured on a scale of 1–10, where 1–3 indicates an acute agency gap, 4–7 indicates a moderate agency gap and 8–10 indicates no agency gap) and the share of the population that reported feeling that their voice is heard in the political system (those who responded “A great deal” or “A lot”). Data are computed using microdata and equal weights across countries. **Source:** Human Development Report Office based on data from wave 7 (2017–2022) of the World Values Survey (Inglehart and others 2022).

which must be flexible and iterative amid so much uncertainty, for lessons to inform course corrections.

They will help us break through the tyranny of single adversarial narratives and single exclusive identities.

They will help us better manage evolving global interdependence.

They will help us cooperatively and peacefully break through the global gridlock.

OVERVIEW

Managing interdependence in a polarized world

Managing interdependence in a polarized world

Mismanaged global interdependence hurts people

The human toll of mismanaged interdependence is huge—in lives lost or uprooted, in opportunities forgone, in feelings of despair. Aggression, conflict and violence are extreme realities when complex webs of interdependence fester, especially against backdrops of prolonged power imbalances.

From wars in Gaza and Ukraine to Sudan, Yemen and elsewhere, to gang violence and civil insecurity, peace and stability are under strain or breaking down at alarming rates. Large-scale conflicts involving major powers are escalating. War fatalities have jumped (figure O.1). Sadly, we live in a violent new era characterized by the highest level of state-based armed conflicts since 1945 and a growing share of one-sided conflicts where unarmed civil populations are being attacked.¹

Violence and peace can both be contagious. Major political events such as coups, revolutions and democratic transitions have a habit of spilling across borders. Conflicts often change the perception of war, making it more acceptable and increasing the likelihood of violent outbreaks elsewhere.

In 2022 the number of forcibly displaced people in the world reached 108 million, the highest level since World War II (figure O.1) and more than two and a half times the level in 2010.²

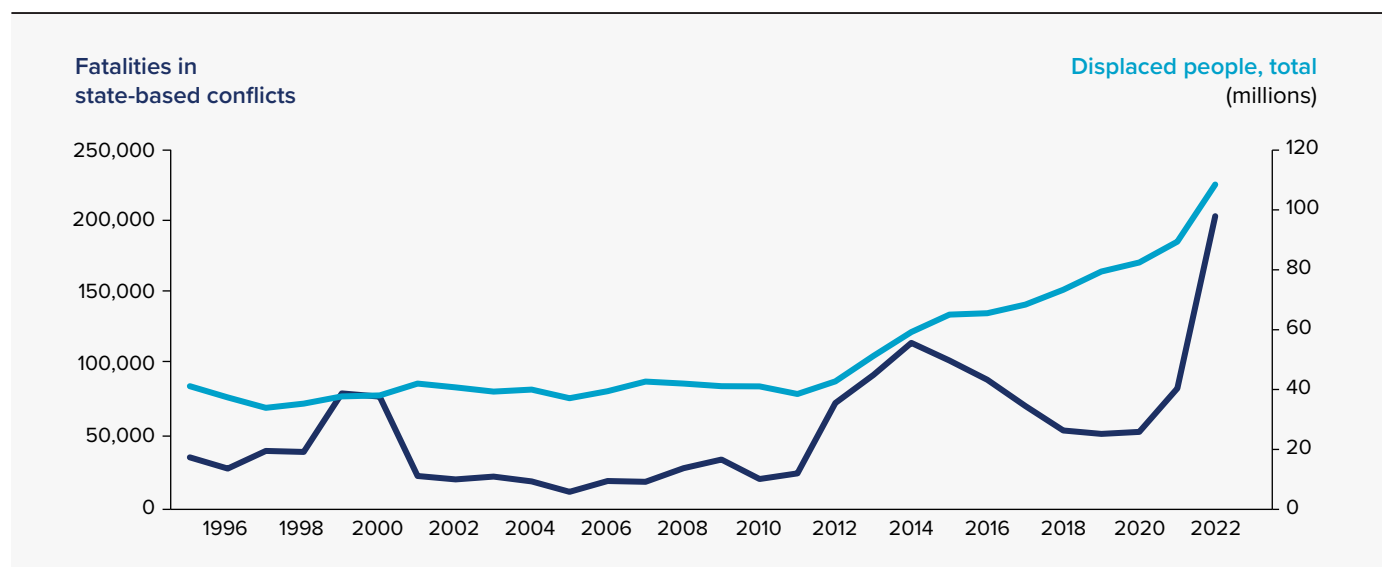
Violent conflicts and their consequences for people are the tip of the iceberg. Gridlock means that systemic risks arising from global interdependence are mismanaged or simply unaddressed, that people are walloped by surprises not capitalizing on them. In extreme cases surprises spiral into full blown crises, ricocheting and amplifying in unexpected ways in an unequal, tightly knit world. The extreme is becoming the norm.

A long series of disease outbreaks preceded the Covid-19 pandemic, which caught the world flatfooted and struggling for a modicum of global coherence over the course of the emergency. Some 15 million people (perhaps more) died worldwide,³ and the global Human Development Index value tanked.

In addition to huge, unjust divides in access to effective vaccines, a missing ingredient was trust—in our governments and in each other.⁴ According to one estimate, if all countries had attained the levels of interpersonal trust seen in the top quarter of countries, global infections might have been reduced by 40 percent, saving millions of lives.⁵ In polarizing societies around the world, vaccine status identification became another factional marker separating one camp from the other.⁶

The Covid-19 vaccine story exemplifies the possibilities of global cooperation, as well as the grave injustices that can result when it breaks down. The development of mRNA vaccines relied heavily on cross-border, cross-regional partnerships for sourcing components,⁷ for clinical development and trials⁸ and

Figure O.1 War deaths and forced displacement are getting much worse



Source: Uppsala Conflict Data Program 2023; UNHCR 2023c.

for manufacturing. But the Covid-19 vaccine story follows pernicious patterns of inequality in access to technologies generally, including lifesaving ones.⁹ The pattern is all too familiar—and must be broken for its own sake. And because technological trajectories, from artificial intelligence to synthetic biology, are so steep, so fast and so powerful, the deep cleavages between haves and have-nots could worsen.

Perhaps the greatest casualty of global gridlock, climate change is already exacerbating those cleavages.

Last year was the hottest in more than 140 years.¹⁰ The average belies considerable regional differences that the United Nations Development Programme’s (UNDP) Human Climate Horizons¹¹ platform projects will worsen under business-as-usual climate scenarios (figure O.2), with climate change resulting in an explosion of inequalities.

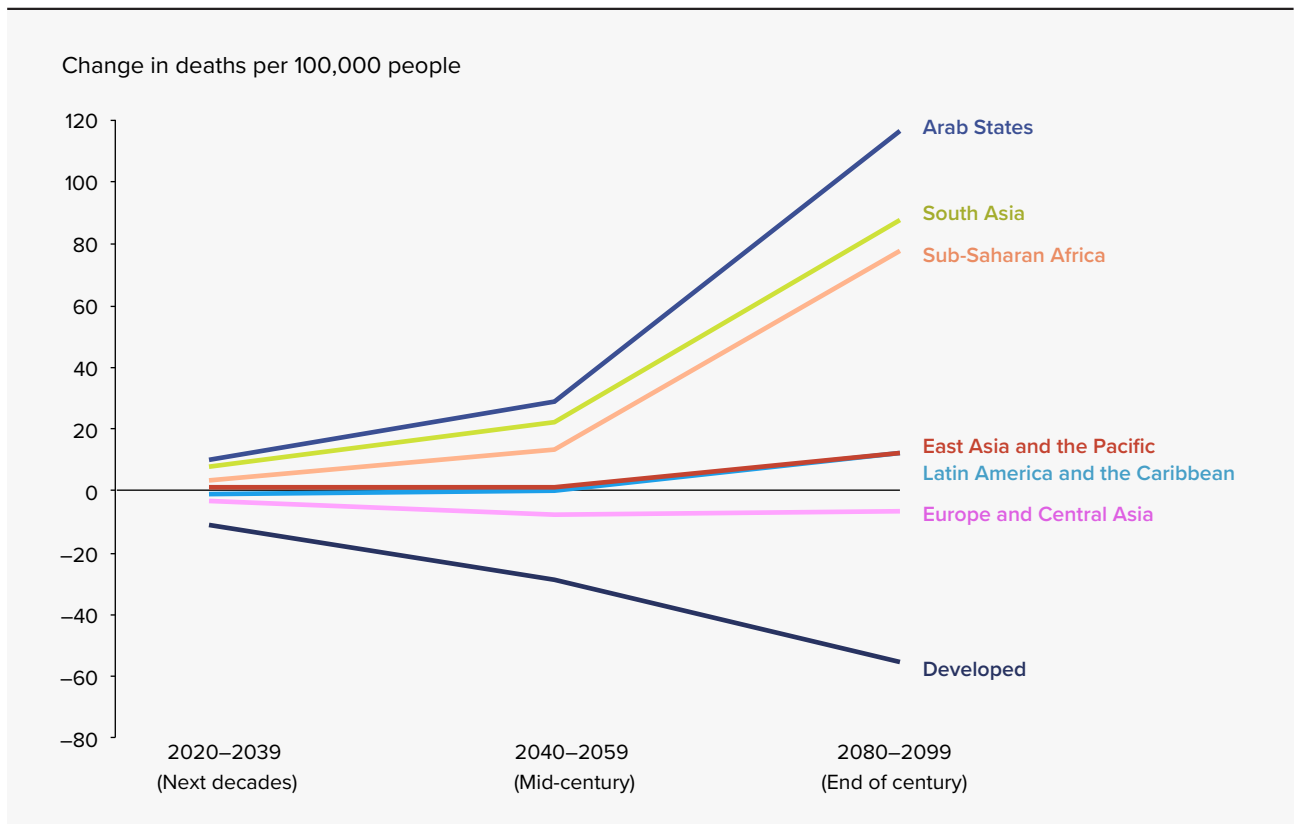
The consequences of climate change are already shaking communities and societies, exacting social, emotional and mental tolls. Among the various stressors of climate change is a crippling eco-anxiety, a “generalized sense that the ecological foundations

of existence are in the process of collapse.”¹² Disappearing biodiversity, landscapes and ways of life can be paralysing, skewing major life decisions such as investing in school or having a child.¹³ Effectively, this is a restriction on human development—in freedoms and possibilities in life—owing to both the reality of human-induced planetary pressures and how that reality is mediated by technical reports, the popular press and political leaders. Narratives of shared futures rooted in denialism, fatalism or fearmongering leave little space for agency and imagination.

Political systems mediate, for good or ill (or both), the impacts of crises on people, and the systems themselves are often shaken by crises, including those from mismanaged global interdependence. The destabilizing effects of shocks, alongside the perceived inability of institutions to protect people from them, can stir populism.¹⁴

Owing to a shock or other cause, populist turns often upset democratic norms and practices and tend to be very costly economically.¹⁵ In parallel, recent literature suggests that the economic losses of certain

Figure O.2 Climate change could result in an explosion of inequalities



Note: Very high emissions scenario.

Source: Human Development Report Office based on Carleton and others (2022) and Human Climate Horizons (<https://horizons.hdr.undp.org/>).

kinds of shocks are never fully recovered, that trajectories on growth or poverty reduction permanently downshift following crises.¹⁶ When crises and other shocks precede populist turns, and in some cases precipitate them, these populist turns can function as crisis refractors and compounders rather than buffers and mitigators, twisting and propagating shockwaves in an interdependent world.

Global interdependence is evolving

The Covid-19 pandemic, climate change, and the global surge in populism and conflicts all point to a hard truth: ignoring or otherwise mismanaging global interdependence hurts people. Rolling them back in any time frame of relevance, whether for the climate or national security or whatever other reason, is equally foolhardy.

Neither business as usual nor fantasies of deglobalization will do. Instead, we must embrace the complexity of global interdependence and better manage its old and new forms in ways that protect and expand people’s possibilities, even as geopolitical

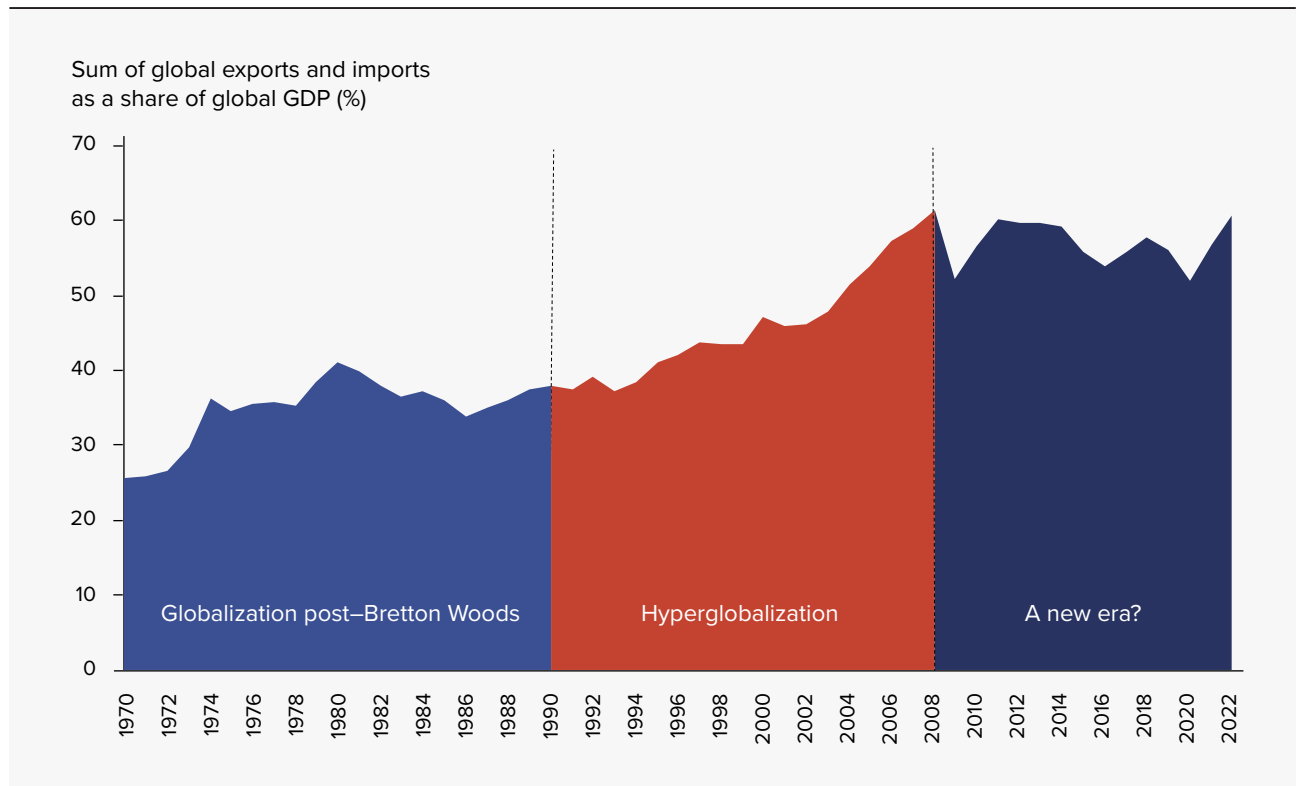
fog—alongside uncertainty, insecurity, inequalities and polarization—complicates hopeful paths forward.

By some measures global interconnectivity is at record levels, even as the pace of economic integration stabilizes (figure 0.3).¹⁷ Trade in intermediate goods now slightly exceeds trade in final goods.¹⁸ Altogether, goods today travel twice as far as they did 60 years ago, and cross more borders, before final consumption.¹⁹ The production of smartphones, for example, looks nothing like last century’s assembly line. Various inputs, from mined cobalt on up to batteries and camera modules, crisscross the globe, sometimes retracing their steps and too often leaving avoidable social and environmental scars along the way.

Global financial interdependence remains high, even if the pace of integration stalled somewhat following the 2007/2008 financial crisis.²⁰ Low- and middle-income countries’ debt servicing costs ballooned over the past two years, following a torrent of interest rate hikes unleashed by central banks to combat inflation.²¹

Cross-border flows of information break records every year. Digital services exports now account for

Figure 0.3 Economic interdependence is stabilizing at very high levels



Source: Human Development Report Office based on the World Bank’s World Development Indicators database; recreated from Aiyar and others (2023).

more than half of global trade in commercial services.²² Almost the entire global population is now within the range of a mobile broadband network, and 5.4 billion people were internet users in 2023, though inequities remain stark.²³

The number of people living outside their country of birth has tripled since 1970, from 84 million to almost 280 million in 2020—or nearly 3.6 percent of the global population.²⁴ International migration is an exercise of people’s agency, expanding their choices and human potential.²⁵ It creates social, cultural and economic ties between host and sending countries²⁶ and drives cross-border financial flows.²⁷

We should expect familiar forms of interdependence to persist well into the future. Regulation that helps manage them better will be crucial, unless the objective is to privatize rewards and socialize risks.²⁸ After all, we sometimes build roads with speed bumps. Yet, interdependence in the 21st century is much more than bean counting based largely on 20th century metrics—that is, how many goods or people or bits are moving across borders. The qualities of the interconnections matter, too. Our interdependence is increasingly planetary and instantaneous.

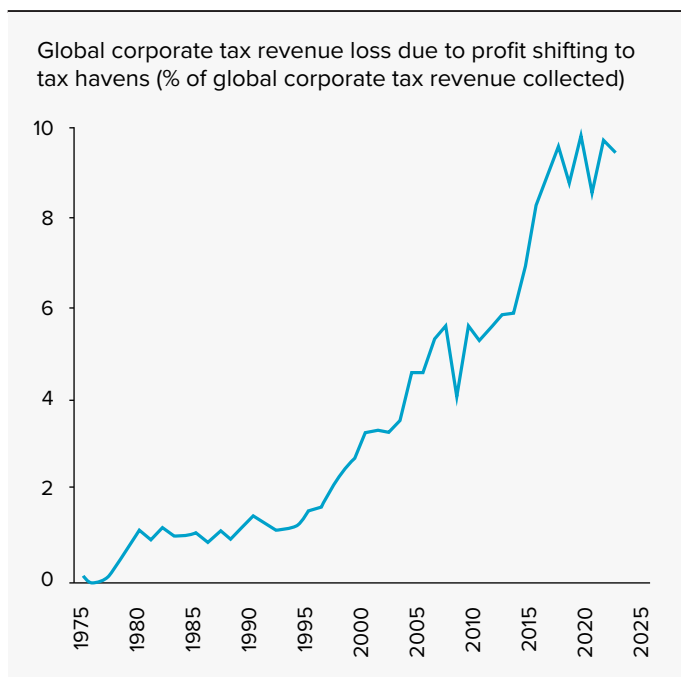
Many interdependences among economies, people and planet are emerging and deepening as the Digital Revolution powers ahead and we go deeper into the Anthropocene—the age of humans. Expanding global trade has helped generate enormous wealth, especially for some, and lift millions out of poverty.²⁹ Regrettably, it has also paralleled the dismantling of social, economic and ecological guardrails that would otherwise protect and promote human development. Markets have become more concentrated, encouraging rent seeking. Almost 40 percent of global trade in goods is concentrated in three or fewer countries—even for goods where more suppliers exist.³⁰

Antiglobalization sentiment has grown louder in overall partisan discourse.³¹ Populists’ anti-elite ire has global dimensions. Fuelling that frustration is a sense that the forces of globalization have benefited some at the top and left everyone else behind. Multinational companies may have shifted as much as \$1 trillion of profits to tax havens in 2022.³² Global losses in corporate tax revenue have skyrocketed since the mid-1990s as a result of profit shifting (figure O.4). Caught up in the antiglobalization maelstrom, international cooperation is being politicized.

Advocates for deglobalization or any of its lexiconic kin—reshoring, nearshoring and friendshoring—may have their reasons, but those have little to do with practicably addressing new evolving and, in some cases, inescapable forms of global and planetary interdependence. Whatever dent might be made in international trade and capital flows would not come close to offsetting plane tickets, smartphones, carbon dioxide and other means of transboundary hyperconnection. For reasons of water and food security, among others, some countries face major constraints on their ability to restrict trade and would suffer if others chose to do so. No country or region is close to self-sufficient, as all rely on imports from other regions for 25 percent or more of essential goods and services.³³ The climate remains largely indifferent to national borders, and its worsening impacts will continue to also ignore them. The same applies to current and future pandemics.

In other words if we deglobalize—even if partially—we cannot deplanetize, not in the Anthropocene. We must view 21st century global public goods, from pandemic preparedness and peace to climate and digital governance, as opportunities to grasp rather than challenges to avoid. The answer to mismanaged interdependence is not shying away from them

Figure O.4 Profit shifting to tax havens has skyrocketed



Source: Alstadsæter and others 2023.

by retreating within porous borders; it is to embrace and manage them better, learning and improving as we go. Rather than be unwound or reversed, globalization can and should be done differently, in ways that do not destroy the planet, that do not over-concentrate supply chains and that do not generate cost-of-living crises that fuel debt crises in low- and middle-income countries. Global interdependence is tenacious, deepening and evolving. A shift in mindsets, policies and institutions is essential to manage them better and to get unstuck.

Providing global public goods will help

A global public goods lens can add much. When fully provided, global public goods go a long way to better manage deeply rooted and evolving global interdependence, to safeguard and promote human development and to encourage virtuous cycles of cooperation and trust building. They help us work with complexity rather than ignore it. They challenge corrosive zero-sum thinking that pits groups against one another. They spark our imagination to frame and reframe shared problems into win-win opportunities. And they invigorate our sense of duty to one another and to our single, shared planet. All without wishing away divergent interests or even disagreements.

What is a global public good?³⁴ In a nutshell, a global public good is anything—an object, an action or inaction, an idea—that, when provided, everyone around the world can enjoy. Climate change mitigation is a global public good. So is the work of 13th century poet Rumi. And so is freedom of the seas. A special subcategory of global public goods is planetary public goods, which correspond to planetary interdependence and respond to spillover impacts between countries that cannot be managed or mitigated at their borders. Another may be that of digital public infrastructure and what have been called digital public goods, associated with the Digital Revolution.

While global public goods can serve as a rallying cry for redress against injustices or inefficiencies, they are not merely things that are desirable. In fact, global public goods are less “goods” or concrete things per se and more a choice about how we humans can enjoy them together. They can be seen also as a mindset—an aspiration—and can mobilize cooperation in many forms. As such they are limited

from the bottom by our imagination and collective will and from the top by the way power is structured and wielded. They are thus social choices, not just in how we imagine them but whether we decide to imagine them at all.

Understanding that vaccine development and, say, blowing up an asteroid hurtling towards Earth can be framed as global public goods—and, what is more, a specific kind of global public good known as best-shot (box O.1)—means we do not need to start from scratch when we respond. Time means lives. It means we can think across sectors and silos and get better prepared. It means we can draw from our Covid-19 pandemic experience, for example, when an asteroid or a deadly new pathogen or a bout of global financial instability does come. They will come. But we do not have to chase yesterday’s crisis.

“A global public goods lens helps us disentangle complex issues, many of which are complex precisely because their different aspects call for different ways of organizing ourselves

A global public goods lens helps us disentangle complex issues, many of which are complex precisely because their different aspects call for different ways of organizing ourselves. Much of our response, and its shortcomings, to the Covid-19 pandemic can be understood through a global public goods lens, with insights on how to structure incentives to foster cooperation and how to design supportive financing.

Recognizing that global public goods can be enjoyed by everyone is one thing; the distribution of their benefits is another. Because countries have different interests and resources, the value of each global public good to each country will be shaped by those factors. Some of the challenges with providing global public goods are driven by this asymmetry in benefits.

A global public goods lens can also offer insights about reframing challenges. For instance, climate change mitigation (a summation global public good) could be advanced by accelerating the technologies and innovations for renewable and clean energy sources (including moonshots such as nuclear fusion)—which reframes the challenge as providing best-shot global public goods. Imagine massive carbon sequestration plants, powered by nuclear fusion, in the Arctic tundra or across the Sahara. Framing

Box O.1 Global public goods 101: What are summation, best-shot and weakest-link global public goods?

Three kinds of global public goods stand out: summation, best-shot, and weakest-link. Climate change mitigation is a typical example of a summation global public good, where the overall level of mitigation depends on the sum of contributions from each individual agent, or country. Institutions must aggregate contributions big and small, work to resolve free riding and navigate game-theoretic problems, such as those posed in the classic prisoner's dilemma (where cooperating produces a better outcome than acting separately in one's self-interest).

Now imagine a cataclysmic, but destructible, asteroid hurtling towards Earth. What would be the best course of action? The probability of destroying the asteroid depends on whichever country or other agent develops the most accurate asteroid-busting technology—in other words, a best-shot global public good. The benefit to everyone on the planet is determined by the agent (in this example, a country or pool of countries) that invests the most resources effectively. Much technology production, such as the race to sequence the human genome, as well as knowledge in the public domain, can generally be considered best-shot global public goods.

Stubborn pockets of endemic polio illustrate the third kind of global public good: weakest-link. While two of the three wild polio viruses have been eradicated (type 2 in 2015 and type 3 in 2019),¹ polio eradication efforts have not succeeded yet—and have missed several target dates—because the third strain of the virus (wild polio type 1) persists in only a few small areas in Afghanistan and Pakistan, and vaccine-derived type 2 also continues to circulate.²

Disease eradication, as with smallpox, is a global public good. Yet, as with polio, the entire world remains at risk if the pathogen circulates anywhere. The global benefit is then tied to the circumstances of the weakest agent. The implications for focusing pooled resources are clear. Disease surveillance is also generally considered a weakest-link global public good.³

Notes

1. <https://www.who.int/news-room/feature-stories/detail/two-out-of-three-wild-poliovirus-strains-eradicated>. **2.** Barrett 2011; Cohen 2023. **3.** Post-Covid-19 pandemic assessments established that countries with more generic public health capacities were better able to control the disease, highlighting the importance of not only an emergency response but also the buildup of capacities for surveillance and public health where they are lacking (Neill and others 2023).

climate change as a technological opportunity to be solved could have a crowding-in effect, generating its own positive momentum, instead of the foot dragging of voluntary carbon emissions reductions.

As important as human choice is for establishing, framing and providing global public goods, it is not the whole story. Technology plays an important role, too. The advent of broadcast radio and television opened access to information carried through the airwaves to anyone with a receiving device. Cable television—and later streaming services—created opportunities to fence off programming, excluding nonpayers and leading to the proliferation of subscription services, which could be classified economically and epithetically as excludable. The demise of public telephones after mobile phones burst onto the scene offers a similar story: the technology created opportunities for exclusion that policy choices permitted, if not outright encouraged.

As with technology itself, global public goods often are not given but created. By us! By our imagination and social choices. Therein lies a good measure of their power. They require and therefore activate our imagination for a different world, a different way of

doing things, exactly what is needed to navigate in uncertain times. Marrying that creativity with the right incentives and institutional architectures, whose general features we can already anticipate, will go a long way to get things moving and build out a 21st century global architecture to provide global public goods.

Wicked forms of polarization are getting in the way

Easier said than done. What is getting in the way?

For starters, us.

Group-based polarization is widespread and increasing around the world.³⁵ It is affecting national and international politics that will shape how shared global challenges will be addressed in the decades to come.³⁶ Because polarization often translates into intolerance and an aversion to compromise and negotiation, it can lead to political gridlock and dysfunction. It does so in part by eroding trust across communities, impeding efforts to address major societal issues, such as health crises, violent conflict and climate change. Since many of these issues engender

opposing beliefs and intense political competition, polarization poses a major societal obstacle to addressing shared problems.³⁷

Polarization is not the same as difference or disagreement, even vigorous disagreement. Diversity in preferences and perspectives enriches collective decisionmaking and action.³⁸ Indeed, political institutions have been designed to harness rivalry to serve the public interest. For instance, the arguments invoked by James Madison in designing the US Constitution did not assume away competing interests but rather designed institutions that leveraged those differences to be both adaptable and to serve the public interest.³⁹

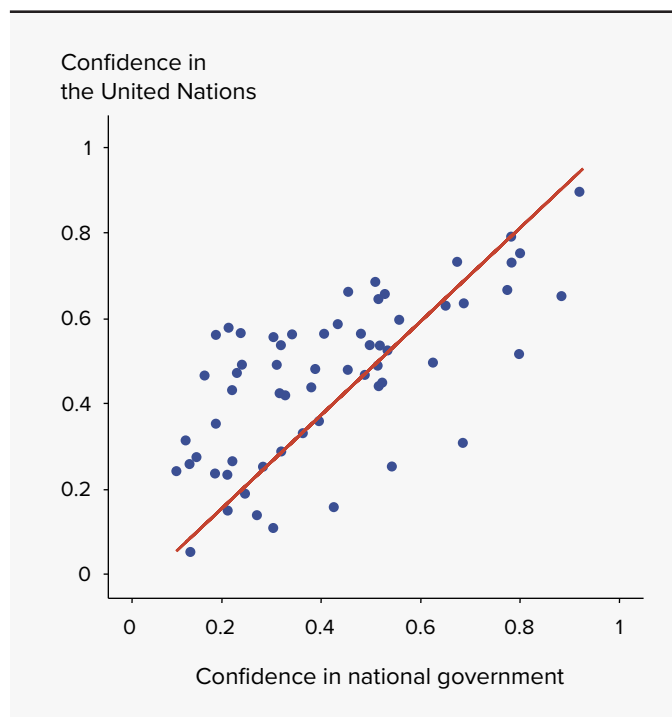
But polarization presents new challenges that are fraying those institutions.⁴⁰ All differences in view are collapsed into questions of a narrow or single identity. The Brexit referendum gave rise to new social identities—Leaver and Remainer—which formed the basis of heightened group-based polarization between those two groups.⁴¹ In the United States and elsewhere, Covid-19 vaccine status identification became a factional marker separating one camp from the other.⁴²

Polarization at the national level has global consequences; it is a drag on international cooperation, including for the provision of global public goods. Between 1970 and 2019 there were 84 referendums concerning international cooperation (such as membership in international organizations), with an increase in more recent decades.⁴³ There have been campaigns for withdrawing from international institutions.⁴⁴ The European Union, the World Trade Organization and international justice institutions have been described as facing legitimacy challenges.⁴⁵

For one, highly polarized societies that seesaw between political extremes make international partners less reliable. There is also a trust problem. Polarization signifies an erosion in trust, and lower trust—or confidence, more broadly—in national institutions tends to correlate with lower confidence in international organizations such as the United Nations (figure O.5). And polarization tends to feed on zero-sum thinking and breed cynicism about compromise and tolerance, all antithetical to global public goods.

Providing global public goods does not require a kumbaya moment among nations (divine intervention for harmony). But nor does it live on the other end of the spectrum, where prevailing assumptions about

Figure O.5 Lower confidence in national government tends to correlate with lower confidence in the United Nations



Note: Confidence in institutions (the national government and the United Nations) implies reporting “a great deal” or “quite a lot” of confidence (other options: “not very much” or “none at all”).

Source: Human Development Report Office based on data from wave 7 (2017–2022) of the World Values Survey (Inglehart and others 2022).

human behaviour (and that of countries) are limited to self-interest and where cooperation is relegated to reciprocity—that is, repeat games of the prisoner’s dilemma. Providing global public goods will languish at either extreme. People and their countries have other, often more dominant motivations that are shaped by social preferences and norms, many of which are culturally contingent. For cooperation crowding-in is just as possible as crowding-out—if not more so—not on everything, but on challenges that are not zero-sum.

Doing so will require additional financing for global public goods as a complement to, rather than a substitute for or competitor to, traditional development assistance. The costs of inaction in not providing global public goods pale in comparison with the benefits.⁴⁶ Mindsets and narratives matter here, too. Many motives for support to global cooperation, including global redistribution, go beyond self-interest and have to do with people’s views on fairness and equity and whether their sense of duty stops at their country’s border or expands around the world. When

provided, global public goods are a win-win, the opposite of zero-sum. If we want to provide them, giving more salience to the nature of these challenges and setting up institutions to facilitate their provision will be crucial.

Mismanaged global interdependence, particularly when culminating in shocks and crises, stokes polarization in many ways. One, by making people feel insecure, and two, when sloganeering transforms insecurity into fear and is exploited for political and personal gain. That is why providing global public goods is so important. By helping us manage global interdependence, they will dampen a major driver of polarization around the world.

“By helping us manage global interdependence, global public goods will dampen a major driver of polarization around the world

Polarization can also be eased directly. One way to do this is by correcting misperceptions about others’ beliefs, misperceptions that are widespread. For instance, the prevalence of pro-climate beliefs in the United States is twice what people think it is.⁴⁷ The result is a false social reality that hampers collective action on climate change.

Another way to cool things down is by creating spaces of deliberation to bridge divides. Citizen assemblies are one way to do this. Avenues for structured, repeat personal interaction like these matter a lot. It is far easier to objectify, dismiss and malign behind the impersonal safety of a flamethrowing social media post or to hurl vitriol through a television camera than it is when sharing a meal with someone, even with political foes. This may be why storytelling and vignettes have been shown as effective ways to ease polarization.⁴⁸ They make “othering” harder.

We need to narrow gaps in agency

Our institutions are struggling to keep up with evolving, deepening forms of global interdependence and provide global public goods. Polarization is a big part of the problem. So are narrow and self-fulfilling assumptions about human behaviour that limit it to self-interest, assumptions that have long held sway over institutions at all levels. Space for social preferences, norms, duties and culture have been squeezed out.

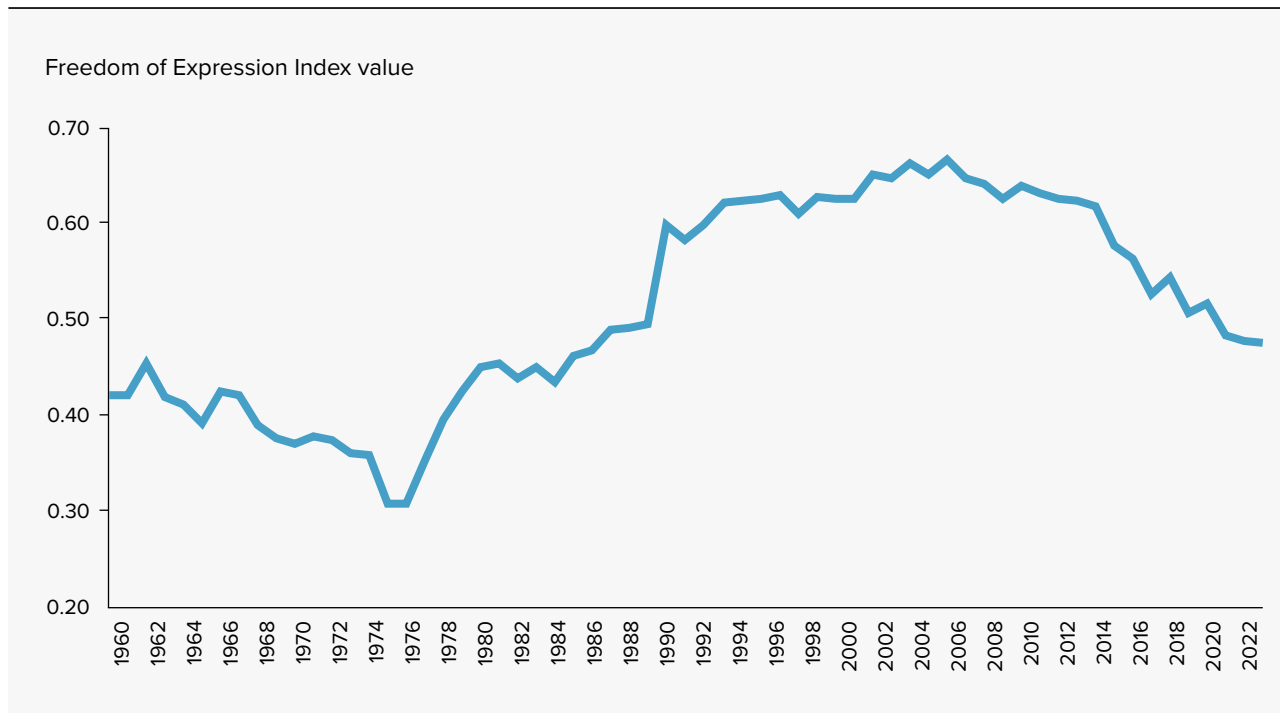
Populism has become an unhelpful pressure valve. The result is that institutions are failing to deliver. No wonder that while the vast majority of people support democracy as an ideal, more than half now support leaders that may undermine it in practice.

Agency is a cornerstone of human development. Albeit difficult to measure directly, agency in pursuit of collective action⁴⁹ may be eroding (figure O.6), at least for a sizeable portion of people around the world.⁵⁰ For many there is a sinking feeling—evident in widespread increases in self-reported measures of stress, worry and despair—that options for exercising choice in their lives, based on what they have reason to value, is shrinking. From among a diminishing set of options, they are less sure—more insecure—that a choice they want to make can be realized.

These are threats to the human psyche—to our sense of self and autonomy, to our sense of securely belonging and commitment to shared intentionality,⁵¹ to our ability to decide what we value and how we can and do act on those values—of no less importance than the threats posed by a super typhoon, a disease outbreak or violence. Conventional metrics such as GDP or even the Human Development Index are missing something important that is being voiced loudly on the streets, at the ballot box and in the increase in support for leaders that may undermine democracy. Agency may be a way of understanding the gaps and, alongside concepts of insecurity, is an area ripe for innovative measurement. Indeed, across all regions human security and agency gaps go hand-in-hand (figure O.7).

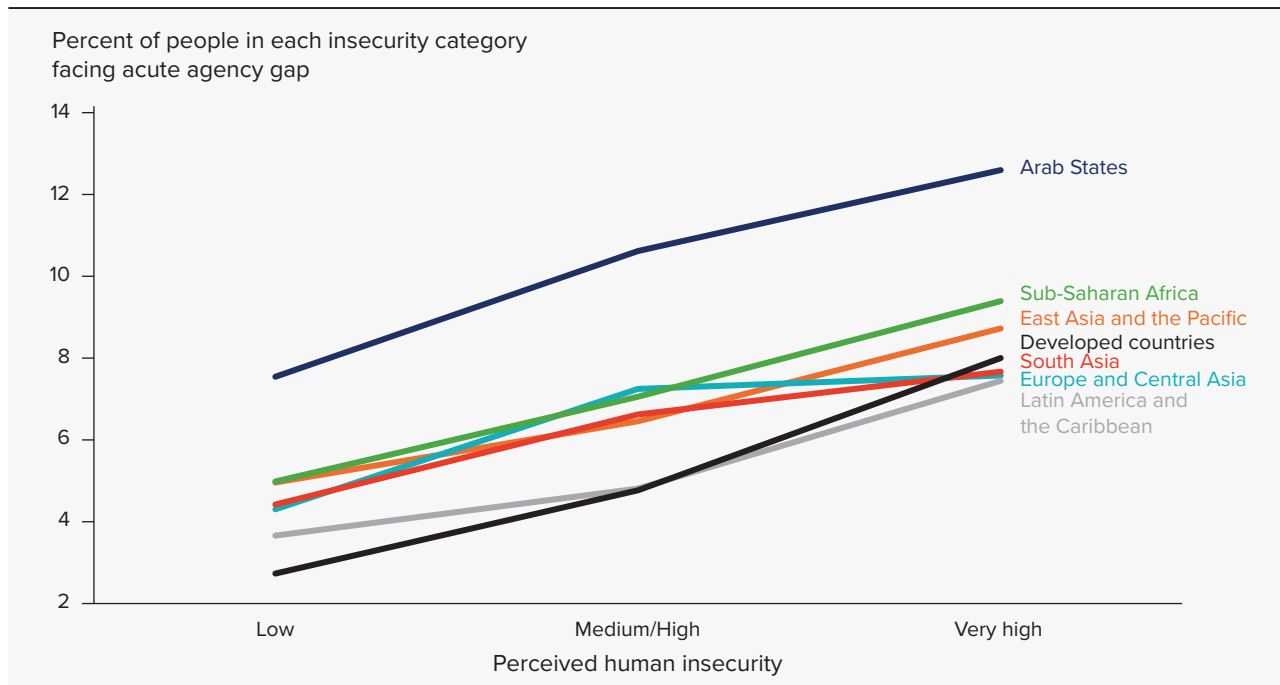
Now add inequality. There is a steep decline in the share of people reporting having very low control over their lives along the income distribution for the bottom 50 percent of the income distribution (figure O.8). That is, agency increases as income grows for the bottom 50 percent of the distribution. At the very bottom lack of agency is particularly heightened (agency gaps are three times greater among people in the lowest income decile than in decile 6 and above). Moreover, the share of people reporting having very high control over their lives is low and relatively equal for the bottom 50 percent of the population but rises with income for deciles 6 and above. Thus, income inequalities, which often intersect and are associated with other inequalities in human development, shape agency.

Figure O.6 Freedom of expression goes hand-in-hand with agency and has been receding in recent years



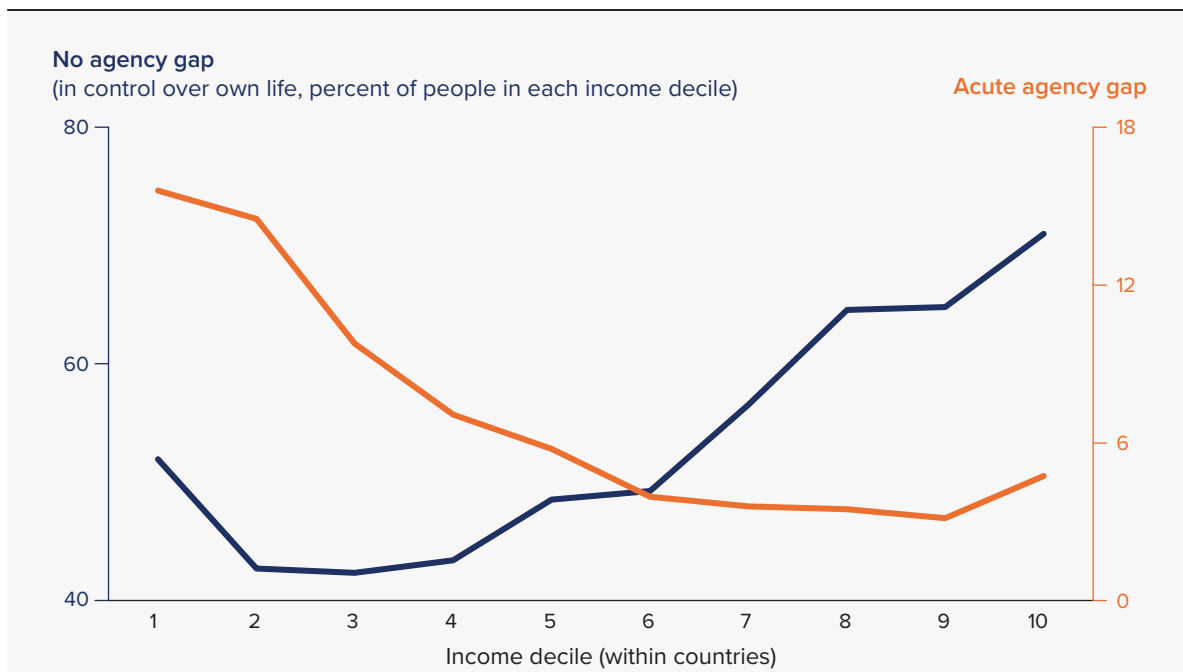
Note: Data are population-weighted global averages.
Source: Human Development Report Office calculations based on data from the Varieties of Democracy project and the World Bank’s World Development Indicators database.

Figure O.7 The higher the perceived human insecurity, the lower the sense of control over one’s own life



Note: Perceived human insecurity is measured as “low,” “medium and high” and “very high,” using microdata and equal weights across countries, and is based on the index described in annex 1.2 of UNDP (2022d). Acute agency gap measures the share of the population reporting feeling no or very little control over their lives (options 1–3 on a 1–10 scale).
Source: Human Development Report Office based on the latest available data from wave 6 (2010–2014) and wave 7 (2017–2022) of the World Values Survey (Inglehart and others 2022).

Figure O.8 The perception of agency (control over one’s own life) is shaped by income



Note: Computed using microdata and equal weights across countries.

Source: Human Development Report Office based on data from wave 7 (2017–2022) of the World Values Survey (Inglehart and others 2022).

Polarization, insecurity, inequality and reductive narratives all exact human tolls that can be understood through agency, which threads these strands together as a common denominator and a lodestar for action.

Agency gaps are not just about formal institutions. Norms, which interact dynamically with institutions, matter a lot too. At the beginning of the 20th century, women in most countries were officially prohibited from participating in various societal roles, ranging from owning property and attending universities to engaging in politics. Women’s agency gaps were stark and widespread. Throughout the 20th century extensive reforms worldwide recognized the equal legal, social, economic and political rights of women and men. Although women in many countries still face legal restrictions affecting their agency, the progress in institutional reforms has been remarkable. Agency gaps encoded in formal laws have tended to disappear. The legal right to vote in elections—a fundamental form of political agency—serves as a visible example of this evolution.

However, the effective agency of women remains restricted in many areas. A notable example is women’s access to top political office—the pinnacle of

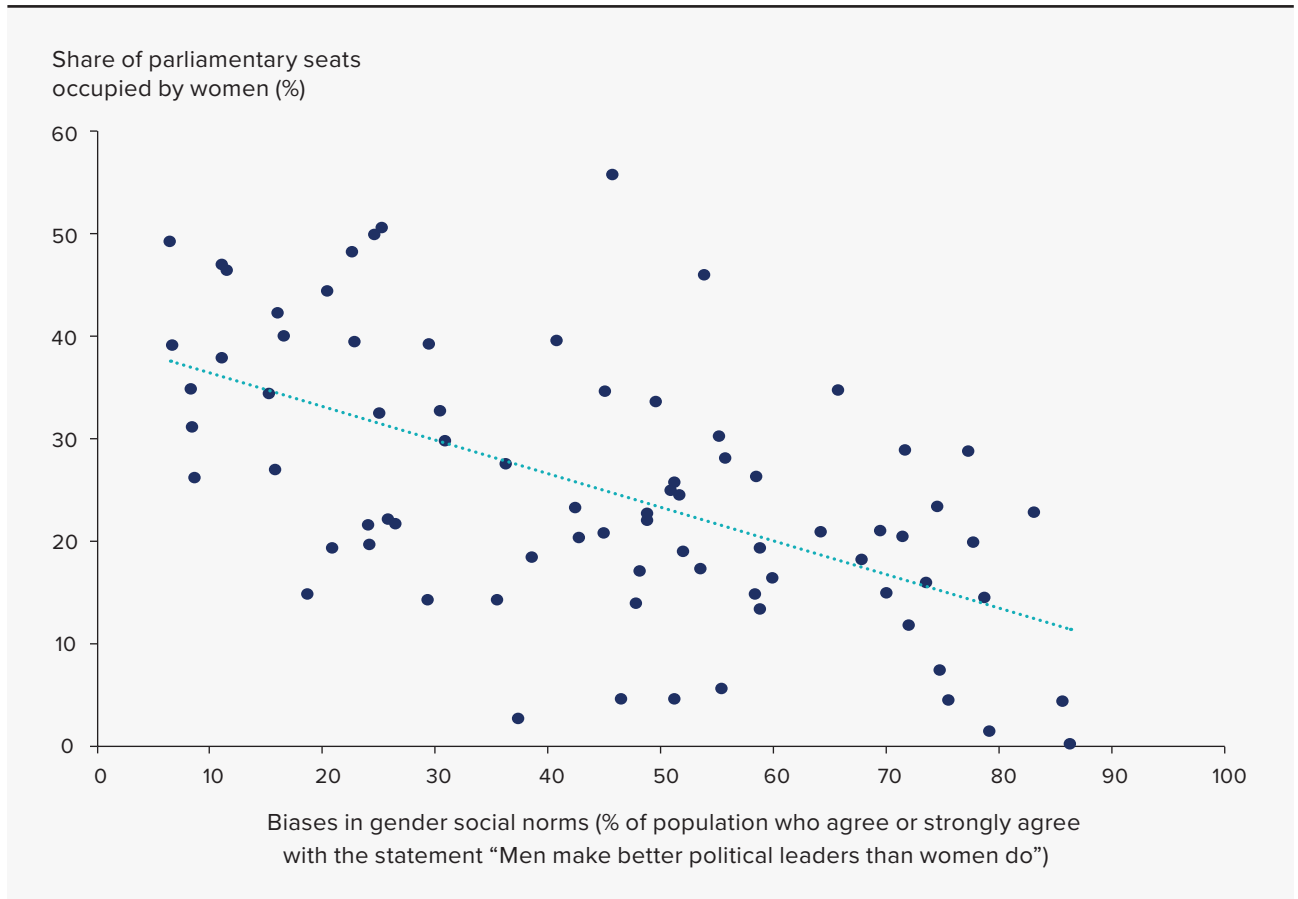
political agency. Women serve as heads of state or heads of government in only about 10 percent of countries, a statistic that has changed little over recent decades.⁵²

The UNDP’s 2023 Gender Social Norms Index, which treats biases as deviations from global shared standards of gender equality, shows that gender equality is being constrained by biased social norms against women (figure O.9).⁵³ Almost half of people believe that men make better political leaders than women.⁵⁴ And biased norms might be so entrenched that we judge the women who occupy high political offices more harshly. These biases permeate voting booths, interview panels, board meetings and more—all limiting women’s agency.

To help narrow agency gaps, institutions need to be people-centred, co-owned and future-oriented. What do these principles mean for existing multilateral institutions?

One proxy for people-centred is human development, which multilateral institutions recognize, at best, in a limited or partial way. Economic performance still dominates the agenda. That’s why Beyond GDP, emphasized by UN Secretary-General António Guterres, is so important.⁵⁵ Gaps in co-ownership are manifested

Figure O.9 Gender equality in politics is being constrained by biased social norms against women



Source: Human Development Report Office based on data from wave 7 (2017–2022) of the World Values Survey (for biases in social norms) and data from the Inter-Parliamentary Union (for the share of parliamentary seats occupied by women in 2021). See also UNDP (2023a).

in the continuation of governance arrangements through written and unwritten rules that reflect a legacy of the distribution of power in the post-World War II world. This extends from the international financial institutions to the United Nations, with several proposals tabled over the years to redress the current lack of representativeness of governance arrangements.⁵⁶

Co-ownership implies a fair distribution of the burden of government action, avoiding inequalities resulting from tax avoidance and evasion. Over the past decade there has been considerable progress in controlling tax evasion, mainly through increased information and transparency around the world.⁵⁷ The UN General Assembly has started the process for a Framework Convention on International Tax Cooperation, to facilitate policy coordination on these issues.⁵⁸ Global minimum tax rates, such as the minimum effective corporate income tax, do not have to be very large to raise substantial amounts if they

are well enforced.⁵⁹ Enforcement is largely a policy choice and hinges on international coordination.

Future-oriented means accounting for the way interdependence is being reshaped in the Anthropocene and as a result of the Digital Revolution and finding ways to more systematically, efficiently and equitably providing global public goods.

Towards an agency-centred vision of development

What is development and how is it best pursued? A central question in the postwar era whose answer has changed over time in response to emerging realities. Today, the dynamic interactions between the planetary pressures of the Anthropocene on the one hand and growing inequalities and insecurity on the other are together a gauntlet thrown to all development narratives.

Even to human development.

The first Human Development Report in 1990 proudly proclaimed that “people are the real wealth of a nation.” People still are; they always will be. What is the point of development if not for people? Yet, how we talk about and measure people has to go beyond wellbeing achievements, as measured by the Human Development Index and other conventional indicators, to include agency—the unique, limitless capacity for people to form and reform goals, commitments and values; to make reasoned choices that may or may not advance their own wellbeing; and, ultimately, to lead lives with purpose, which may be greater than their individual selves.

Agency has largely been left off development agendas in any explicit sense. And it shows. Agency gaps coincide with worrying trends on democratic norms and practices, polarization and declines in generalized trust and confidence in governments and international institutions. International cooperation itself is becoming more politicized. Our institutions are struggling with an agency gap.

In his landmark *Development as Freedom*, Amartya Sen recasts development as the pursuit of “greater freedom [that] enhances the ability of people to help themselves and also to influence the world [...] The concern here relates to what we may call [...] the ‘agency aspect.’”⁶⁰

The 2023/2024 Human Development Report starts to mould what could be called an emancipatory vision for development that shines Sen’s notion of development as freedom on the grand challenge of our time: people and planet in joint crisis. This take on development centres the expansion of agency at the intersection of human development, human rights and sustainability. Its goal is the expansion of freedoms in their many forms, including freedom from the tyrannies of single exclusive identities, of zero-sum beliefs and of oversimplified models of behaviour that reduce people to number-crunching narcissists.

Institutions of the 21st century would narrow agency gaps and enlarge, rather than replace, those of the

20th century welfare state. Freedom blossoms into fuller meanings, going beyond the necessary and important “froms”—freedom from fear, from want, from deprivation—to the aspirational and important “ofs”—freedom of self, thought and action, including helpful collective action.

“States of all political stripes and incomes have the opportunity and obligation to shape agency-centred policies and institutions, anchored in human development and guided by human rights

States of all political stripes and incomes have the opportunity and obligation to shape agency-centred policies and institutions, anchored in human development and guided by human rights, the protection of the planet and institutions that liberate us from dysfunctional stasis, that better respond to and empower people and that free us all from rigid and divisive zero-sum narratives about ourselves and each other. When people feel freer to inhabit multiple, overlapping identities, when reasoned, issue-based dialogue prevails over emotionally charged rhetoric that exploits group-based grievances, when people meet people instead of tweeting at them, then people are more able and likely to pursue their own goals, as well as compromise and cooperate on shared objectives that make their own goals more achievable.

This is the virtuous cycle that an agency-centred vision for development, whose building blocks are outlined in this Report, aspires to. Global gridlock begins to give way to cooperation, including for global public goods, even when diverse preferences persist—and we should expect them to persist. Indeed, differences in what people value is a motivating observation behind human development and, as argued in previous Human Development Reports, diversity in its many forms is essential to navigating novel and interacting layers of uncertainty.

We can do better. We have a lot going for us. Let’s get moving.

PART

I

**Advancing
human
development
in an
interdependent
world**

CHAPTER

1

**Human development
suffers when
interdependence
is mismanaged**

Human development suffers when interdependence is mismanaged

Divergence between the very high and the low human development index groups of countries, after decades of convergence, is going up. The path of improvement in the global average human development index has shifted downwards.

Why? Largely because of mismanaging interdependence—as reflected in the inadequate response to the Covid-19 pandemic, in the tentative progress on mitigation of climate change and in the conflagration of violent conflicts, with implications that straddle borders.

The decline in the global Human Development Index (HDI) value in 2020 and 2021 was unprecedented. It reflects irrecoverable losses, including millions of human lives. Even though the global HDI value increased in 2022 and is projected to further increase in 2023, the recovery is projected to be highly unequal: Organisation for Economic Co-operation and Development (OECD) countries are projected to fully recover or surpass their 2019 values, but 51 percent of the poorest countries with 328 million people are not projected to do so.¹

This chapter considers this unprecedented decline on the HDI and the recovery from the perspective of failures in managing a shared global challenge—a novel virus spilled over borders and along with it the spread of economic hardship and losses in health and education outcomes. The cross-border spillovers mean that, despite humanity’s having the capabilities to deal with them, we failed to manage interdependence across countries. Chapter 3 gives an account of how this mismanagement unfolded, where international cooperation faltered, where it succeeded and the reasons why.² This chapter shines a spotlight on how mismanaged interdependence harms human development.

The interdependence brought into sharp relief during the Covid-19 pandemic is sometimes described as a shock, an adverse event to recover and move on from, building forward better. Yet, as we move deeper into what the 2021/2022 Human Development Report described as a novel uncertainty complex,³ patterns of interdependence are being reshaped (chapter 2), and mismanaging them can escalate hypercostly human development crises. The interdependence has several channels. Some relate to the planetary interdependence of the Anthropocene, the age of humans.⁴ These include climate change, biodiversity loss, cross-border implications of pollution and new and re-emerging zoonotic diseases that might result in future pandemics. Indeed, July 2023 was the hottest month on record across all world regions.⁵ Hot weather and extreme temperatures that endanger human health have already been increasing illnesses and death.⁶ During 2023 record-breaking wildfires were observed in Canada⁷ and the US state of Hawaii.⁸ Torrential rain and floods inundated Libya, Europe and parts of Asia, along with more frequent extreme weather events, such as hurricanes and typhoons.⁹ At every corner on

Earth, the effects of dangerous planetary change driven by human choices are being felt.

Mismanaged geopolitical tensions, and their manifestation in violent conflicts, harm human development—both for the countries involved in conflicts and often for many others too. Recent conflicts and geopolitical tensions have surged.¹⁰ The impacts of conflicts spill beyond not only geographical boundaries but also generational boundaries, with the wars in Gaza, Ukraine and Yemen reversing human development gains made over generations and curtailing prospects for entire cohorts of young people.¹¹

“The context of novel uncertainty and mismanaged interdependence is reflected in higher global poverty and hunger over the past few years, taking the world farther off course from achieving the Sustainable Development Goals

The context of novel uncertainty and mismanaged interdependence is also reflected in higher global poverty and hunger over the past few years, taking the world farther off course from achieving the Sustainable Development Goals (SDGs).¹² The year 2023 marked the midpoint to 2030, the deadline to meet the goals and targets of the 2030 Agenda for Sustainable Development. Progress has stalled or reversed for 30 percent of the SDG targets and is weak or insufficient for another 50 percent.¹³ Beyond setbacks in wellbeing, people are also feeling a sense of loss of agency—the inability to live lives guided by their commitments—a step back from advancing Amartya Sen’s notion of “development as freedom.”¹⁴ People are often caught up in a context of events that they do not fully understand, or where they seem to have little or no role in shaping, with the consequences borne out in their daily lives.¹⁵ Beyond gaps in wellbeing, there is also an agency gap, which results in part from our collective inability to purposefully guide our actions to manage interdependence.

Building forward weaker? An unequal and incomplete recovery in human development from the 2020–2021 dip

The 2023 global Human Development Index value is projected to recover after the unprecedented drop in 2020–2021. We project that the global HDI value

for 2023 was the highest on record, most likely the highest ever, surpassing the 2019 value across all the index components: life expectancy at birth, mean years of schooling, expected years of schooling and gross national income per capita. But this recovery is unequal and incomplete, and the scars from the decline can become permanent if the pre-2019 trend of progress on the HDI remains roughly the same. Already, compared with the pre-2019 trend, there has been a forgone loss on the HDI (figure 1.1).

The turnaround from a declining to an increasing trend on the HDI took place in 2022, but some evidence suggests that we may be building forward weaker for four reasons.

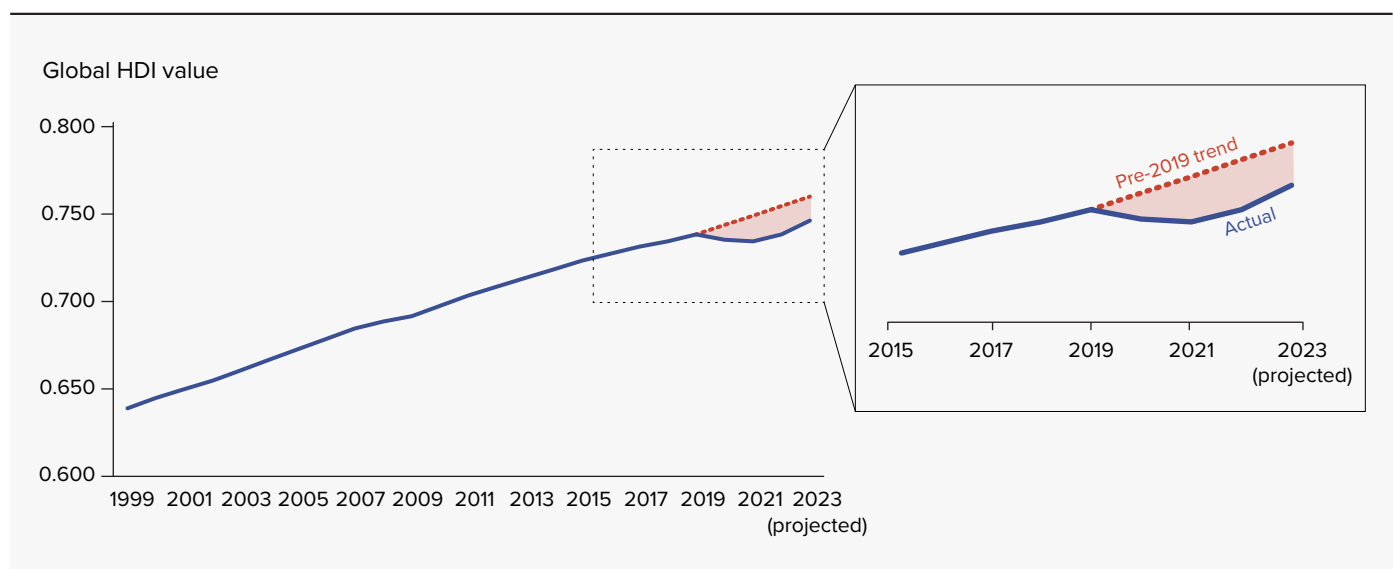
- *First, not every human development loss can be recovered.* The loss of lives—around 15 million¹⁶—is irreparable, as may be some of the learning that did not happen and the economic projects that did not materialize. This forgone human development loss is represented by the shaded area in figure 1.1: the gap between the actual global HDI value (including the projected value for 2023) and the value in a counterfactual where the pre-2019 trend continues. A loss of this magnitude appears for the first time ever.
- *Second, the recovery is incomplete.* After the decline in 2020–2021, when most countries saw their HDI value fall, the recovery to pre-2019 values has

been faltering for a large proportion of countries. For 2023 (with still incomplete data at the country level), we project that more than a quarter of the countries that experienced a setback will have an HDI value below their pre-2019 value. One region, the Arab States, is projected to have not recovered its pre-2019 average HDI value.

Recovering in 2023 to the 2019 HDI value is a low bar, which does not account for forgone losses or potential future losses if the HDI path remains below the pre-2019 HDI trend. Among the countries that suffered HDI declines in 2020, 2021 or both, the share of countries worldwide that are projected to reach or surpass their 2019 HDI value in 2023 is just over 70 percent, and the share in most regions (other than Latin America and the Caribbean and South Asia) is projected to be lower (figure 1.2).

- *Third, the recovery has been highly unequal.* For 2023 all OECD countries are projected to have reached or surpassed their pre-2019 HDI values, in contrast to only 49 percent of the Least Developed Countries (LDCs) (figure 1.3).¹⁷ The disparity in recovery is also evident across HDI groups: 48 percent of low HDI countries, compared with 92 percent of very high HDI countries. This highlights the consequences of mismanaging interdependence in exacerbating inequalities in human development.¹⁸

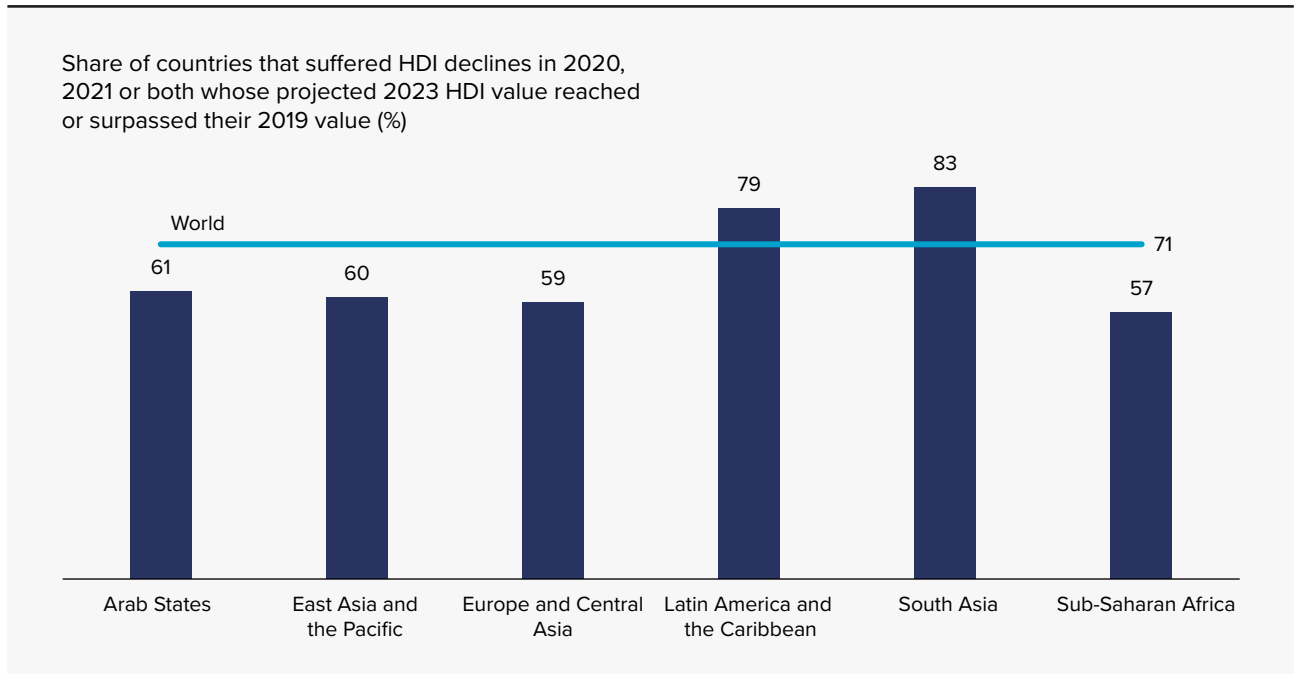
Figure 1.1 The global Human Development Index (HDI) value is below its pre-2019 trend



Note: The global HDI value for 2023 is a projection. The pre-2019 trend is based on the evolution of the global HDI value in the previous 20 years.

Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023d), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

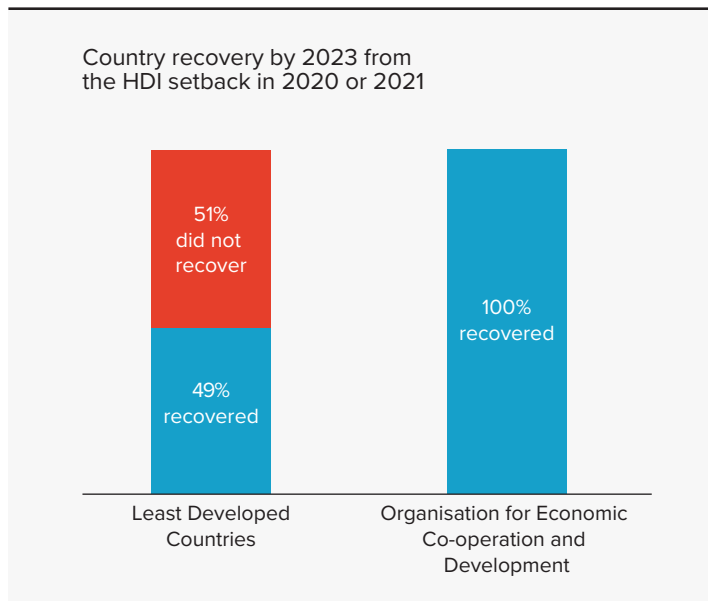
Figure 1.2 The recovery in Human Development Index (HDI) values is incomplete



Note: Recovery means that countries that suffered a decline in HDI value in 2020 or 2021 are projected to reach or surpass their pre-decline HDI value by 2023.

Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023d), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

Figure 1.3 The recovery in Human Development Index (HDI) values is projected to be highly unequal



Note: Least Developed Countries have low levels of income and face vulnerabilities that make them “the poorest and weakest segment” of the international community (<https://www.un.org/ohrrls/content/about-least-developed-countries>). Recovery means that countries that suffered a decline in HDI value in 2020 or 2021 are projected to reach or surpass their pre-decline HDI value by 2023.

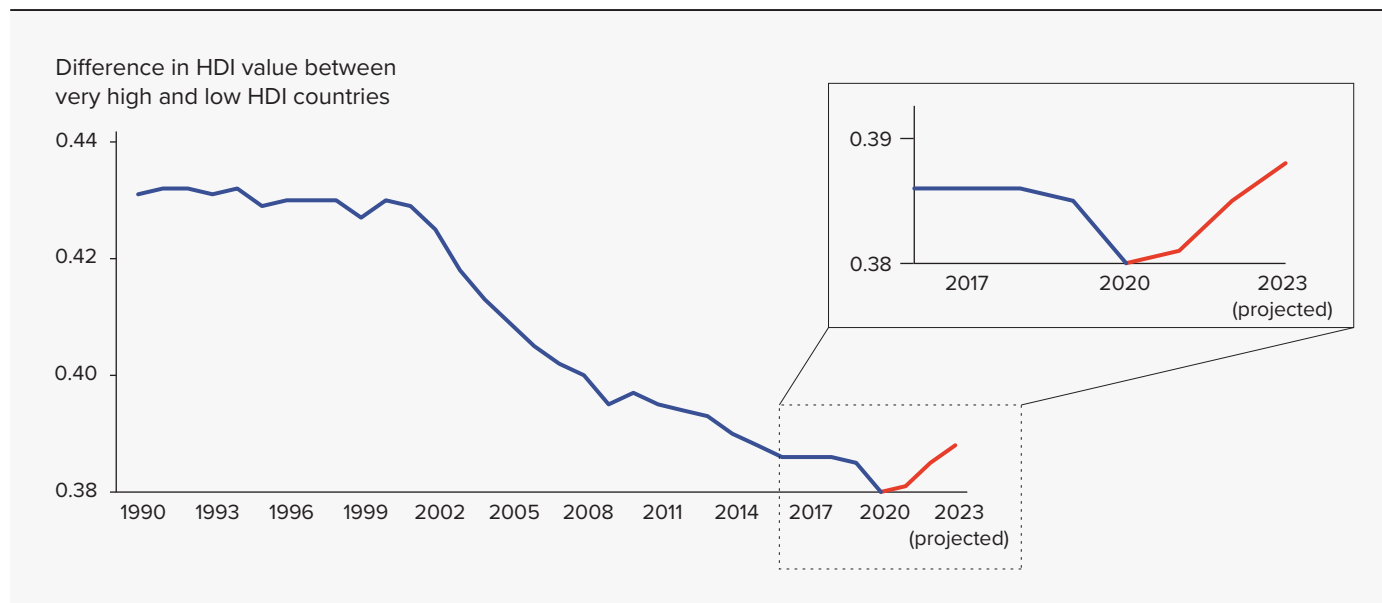
Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023d), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

As a result of these unequal recovery patterns, there has been a rebound in between-country inequality in human development (measured as the distance between the HDI values of the very high HDI group and the low HDI group) since 2019, interrupting two decades of convergence (figure 1.4).

- *Fourth, some of the losses from the HDI dip could become permanent.* The world has likely shifted to a lower HDI path, if the future HDI evolution stays below the pre-2019 trend. Based on the trend during 1999–2019, the global HDI value was on track to cross the threshold defining very high human development (a value of 0.800) by 2030—coinciding with the deadline to meet the SDGs. Now, the world is projected to be off track. Indeed, every region is projected to fall below its pre-2019 path in 2023 (figure 1.5).

The path dependence of GDP trends on its history of shocks (hysteresis) has been widely studied in recent years.¹⁹ Unlike the assumption that there is a rebound that brings things back to (or even better than) what they were before an economic downturn, shocks are often found to leave long-term, potentially permanent scars.²⁰ This in part is because economic recessions affect the supply side of the economy,

Figure 1.4 Low Human Development Index (HDI) countries have been left behind



Note: The difference in HDI values for 2023 is based on projections.

Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023d), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

which is associated with long-term productive capabilities. Shocks, even if transitory, can affect the economic conditions in employment,²¹ investment in research and development,²² human capital,²³ productivity and long-term economic growth.²⁴

Before 2019 there was clear evidence that different shocks—financial, political and environmental—had noticeable and often long-lasting effects on human development, including on the HDI.²⁵ But these effects did not shift the overall global HDI trend,²⁶ which persisted despite declines in some countries in some years.²⁷ For the first time ever the global HDI trend shifted downwards and is now improving in parallel but below the pre-2019 trend (giving a glimpse of what a future of recurrent crises and recoveries in human development would look like²⁸), with the potential for hysteresis as a novel feature requiring further analysis.²⁹

Hysteresis in human development can manifest through various channels, extending beyond the standard components of the HDI. Multiple examples of recent shocks have both transitory manifestations and more permanent consequences for people’s lives, documented in the next section. These include recent assessments of students’ learning outcomes, which are at a historic low according to the Programme for

International Student Assessment (PISA);³⁰ reports of long-lasting mental health problems; and the exceptionally high debt burden of many governments, limiting their ability to invest in their future and run social programmes.

Finally, it is essential to see the trend of unprecedented changes on the HDI in a broader perspective. The shocks of recent years, with their transitory and permanent effects, took place in a world already under stress. In 2019 numerous social protests were recorded globally.³¹ The sense of dissatisfaction, which is multicausal, has been the subject of recent Human Development Reports. The 2019 Human Development Report warned about emerging widespread inequalities in capabilities becoming more relevant in the 21st century. The 2020 Human Development Report underscored how the effects of the Anthropocene are becoming increasingly important in people’s lives. The 2022 Special Report on Human Security documented that, even before the Covid-19 pandemic, 6 in 7 people were feeling insecure, alongside rising trends in conflicts and conflict-affected populations. The 2021/2022 Human Development Report discussed the twin trends of people’s unsettledness and political polarization, already visible in the previous decade. Even without the 2020–2021

Figure 1.5 Each developing region’s projected 2023 Human Development Index value is below its pre-2019 trend



Note: Human Development Index values for 2023 are projections. The pre-2019 trends are based on the evolution of each region’s HDI in the previous 20 years.
Source: Human Development Report Office calculations based on data from Barro and Lee (2018), IMF (2023d), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

dip on the HDI, there was no room for complacency. None of these challenges—all human-made and all expressions of our interdependence—has disappeared. But they are compounded when we fail to manage interdependence.

Mismanaging interdependence imposes costs on human development

The experience with the Covid-19 pandemic tells a story of how, despite many warnings, the world underinvested in pandemic preparedness and mismanaged its response after the outbreak. The pandemic led to around 15 million deaths³²—more than recent epidemics, including the Asian Flu, Hong Kong Flu, Swine Flu, SARS, MERS and Ebola, combined.³³ The Covid-19 pandemic not only reduced life expectancy at birth in most countries but also impaired the other components of the HDI, interrupting access to education and leaving enduring marks on the economy.

Beyond the direct impacts of the Covid-19 pandemic, the indirect impacts on health were profound. As healthcare professionals turned to assist Covid-19 patients, in-person visits declined drastically for non-Covid-19 patients, including those with acute needs, such as patients with cardiovascular disease, kidney disorders, alcohol abuse and mental health conditions.³⁴ Routine and emergency visits fell drastically when the lockdowns started, with potential consequences for long-term health, including increased illness and death.³⁵

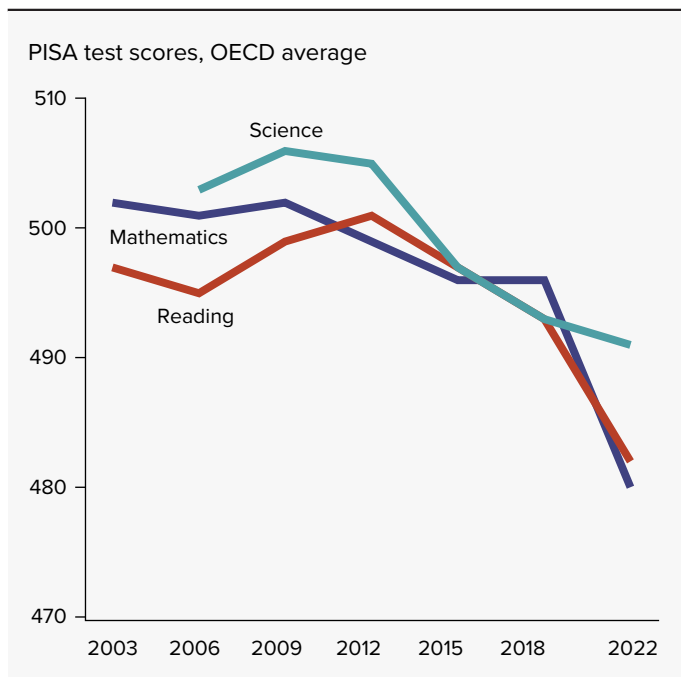
People suffered further from increased mental health burdens due to loneliness and domestic abuse, among others.³⁶ Globally, the Covid-19 pandemic led to a 28 percent increase in major depressive disorder cases and a 26 percent rise in anxiety disorder cases in 2020.³⁷ This escalation in mental health disorders was observed across all demographic groups. However, there was evidence of a more pronounced increase in prevalence among women and younger people.³⁸ Students suffered from higher anxiety, fear and grief due to prolonged social isolation and disrupted routines with school closures.³⁹ Particularly affected were children with pre-existing mental health conditions, such as depression, as well as those with special needs.⁴⁰

There is concern that the surge in mental health disorders might be long-lasting. For example, a series of 11 longitudinal studies in the United Kingdom

indicated that “the substantial deterioration in mental health seen in the UK during the first lockdown did not reverse when lockdown lifted, and a sustained worsening was observed across the pandemic period.”⁴¹ Another longitudinal study in Germany focusing on young people revealed that mental health markers significantly worsened during the Covid-19 pandemic and only partially returned to prepandemic values afterward.⁴²

Similarly, following extended school closures during the Covid-19 pandemic, there is emerging evidence of lasting effects on learning.⁴³ The pandemic eroded the accumulation of human capital at critical moments of the lifecycle and has particularly affected people under age 25, who will compose 90 percent of the prime-age workforce in 2050.⁴⁴ Between 2018 and 2022 PISA scores made the sharpest declines ever, with average scores in OECD countries falling by 15 percentage points in mathematics and 10 percentage points in reading (figure 1.6).⁴⁵ US national grade assessments show that two decades of progress were wiped out by the pandemic.⁴⁶ It may take 28 years for 8th grade students to return to prepandemic attainment in mathematics and 22 years for 4th

Figure 1.6 Unprecedented declines in learning outcomes, as measured by PISA test scores



PISA is Programme for International Student Assessment. OECD is Organisation for Economic Co-operation and Development.
Source: OECD 2023.

grade students to return to prepandemic attainment in reading.⁴⁷ Such learning delays will further cost the global economy about \$1.6 trillion a year by 2040, or 0.9 percent of global GDP.⁴⁸ Impacts on learning varied extensively across the world, with some regions further behind than others, particularly where school closures were longer.⁴⁹

The Covid-19 pandemic led the world into the greatest recession at least since World War II.⁵⁰ Global output fell as much as three times more than it did during the 2007–2008 global financial crisis and happened far more abruptly, as economic activities came to a sudden halt with the onset of the pandemic.⁵¹ Global unemployment rates have not yet returned to prepandemic levels, and more workers have been pushed to the informal sector.⁵² Women, particularly those in service industries and with less education, were more likely than men to exit the labour force during the pandemic in many countries.⁵³ For example, unlike other recessions in the United States, where men’s employment varied more along the business cycle, women, particularly those with children, were more penalized than men in the pandemic recession.⁵⁴ Part of this was driven by social expectations of women’s obligation towards childcare during school closures.⁵⁵ Among those able to stay employed (mostly those with higher education and the ability to telecommute), the real challenge was managing both childcare and work, increasing everyday workload and stress.⁵⁶

After the sharp contraction in 2020, the global economy is expanding again: average income per person is projected to be more than 5 percent higher in 2023 than in 2019.⁵⁷ But the economic costs are lasting. During the Covid-19 pandemic governments implemented sizeable emergency programmes in a context of declining fiscal revenue due to limited economic activity. Advanced economies used a range of fiscal and monetary policies to respond to the health emergency, along with unprecedented support to retain livelihoods, employment, consumption and people’s homes. Many emerging economies struggled to provide adequate social safety net support to combat the pandemic under a tight fiscal space and plunged into debt distress.⁵⁸ In both cases this countercyclical policy resulted in substantial accumulation of public debt, already trending up in previous years.⁵⁹ Now countries are facing tradeoffs between servicing their debt or financing social policies: “3.3 billion people

live in countries that spend more on interest payments than on education or health,”⁶⁰ a dynamic that might result in higher poverty⁶¹ and lower human development. Indeed, in 24 of the 51 most debt-vulnerable economies identified by the United Nations Development Programme (UNDP), HDI values are not projected to recover in 2023 from the 2020–2021 dip.⁶²

Mismanaging interdependence as reflected in intensifying conflicts, nearly everywhere

“Our world is becoming unhinged. Geopolitical tensions are rising. Global challenges are mounting. And we seem incapable of coming together to respond. We confront a host of existential threats—from the climate crisis to disruptive technologies—and we do so at a time of chaotic transition.”

—UN Secretary-General António Guterres⁶³

Recent outbreaks of violent conflicts in different parts of the world, and their escalation towards longer term and potentially larger scale conflicts, signal a resurgence of threats to global peace and stability that are spilling over across countries. Large-scale conflicts involving major powers are escalating for the first time since the end of the Cold War. In 2022, even before the escalation of conflicts in the Middle East and African regions, 1.2 billion people (15 percent of the world’s population) were affected by conflicts in their vicinity.⁶⁴ These dramatic—and dangerous—shifts in global stability and security have major repercussions over time and across borders.

The intensification of conflicts, and the involvement of major powers, is momentous not only for countries involved in direct conflicts but for all. Both violence and peacefulness can be contagious.⁶⁵ Conflicts often change the perception of wars (making them appear more acceptable), increasing the propensity for violent outbreaks elsewhere.⁶⁶ There is overwhelming evidence of cross-national contagion of major politically disruptive events.⁶⁷ Conflicts and their implications often spill over to neighbouring countries, augmenting impacts and risks.⁶⁸ The spread of domestic conflicts to regional conflicts, and the subsequent political and economic implications across the world, points to the critical need to contain

conflicts and mitigate overall effects. Conflicts also increase propensity for militarization.⁶⁹ Global military spending has been on an upward trend and for the first time surpassed \$2 trillion in 2019.⁷⁰

The implications for human development are staggering. The year 2022 saw the highest number of battle-related deaths in generations.⁷¹ It registered the highest number of state-based armed conflicts since World War II⁷² and a growing share of one-sided conflicts where unarmed civil populations were being attacked.⁷³ War fatalities are growing at an alarming rate, including those borne by civilians (figure 1.7).⁷⁴ Armed conflicts are pushing millions of people into forced displacement.

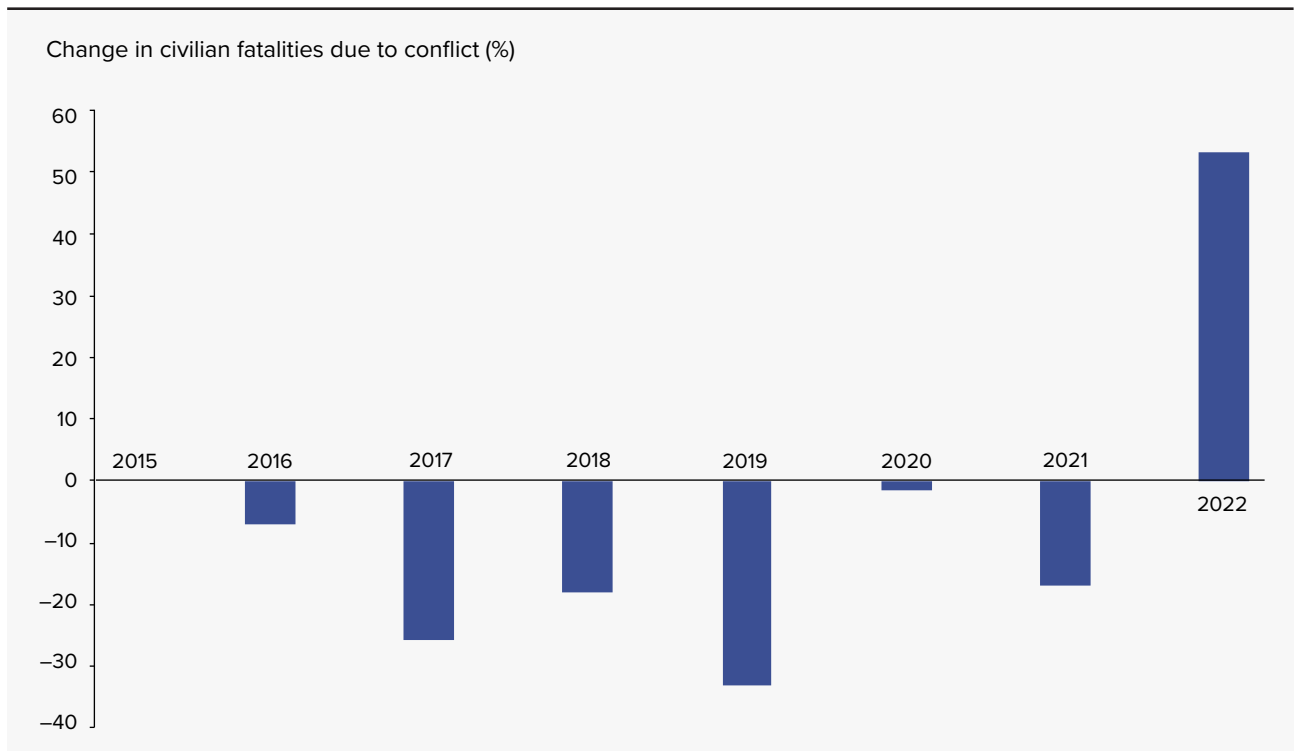
Over the past decade the number of countries involved in conflicts outside their own borders has been rising, demonstrating how geopolitical interdependence plays out. Of the 55 state-based conflicts in 2022, 22 were internationalized,⁷⁵ compared with 4 of 37 civil conflicts in 2000⁷⁶—a more than fivefold increase. While countries depend on each other to break out of conflicts and move towards long-term peace agreements, it is not evident that foreign involvement helps achieve such objectives any faster. Instead, the

proliferation of actors and conflicting motives—along with the risks of added military and funding, as well as perceptions of external support—have made conflicts more difficult to resolve.⁷⁷ External involvement often leads to deadlier outcomes by prolonging the duration of conflicts and increasing the number of casualties.⁷⁸ Conflicts are also intensified by nonstate actors, leading to more violent outcomes.⁷⁹

Interdependence continues to be relevant before, during and after conflicts, and its mismanagement amplifies the overall impacts. Emerging from conflicts, persecution and human rights violations, the number of people forced to flee their homes reached 108 million, the highest level since World War II and two and a half times the number in 2010 (figure 1.8).⁸⁰ And this does not include the latest displacements—Palestinians in Gaza and the Armenia refugee crisis, among others. One in five children globally lives in or is fleeing conflict.⁸¹

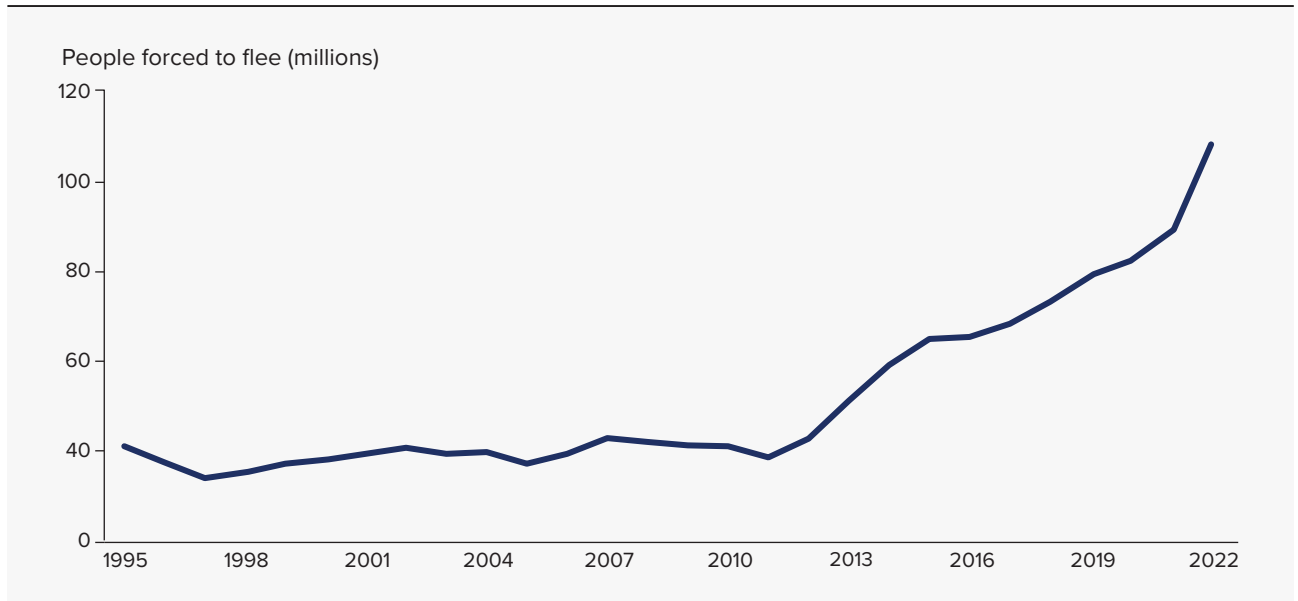
Forcibly displaced people (more than half of whom are internally displaced)—particularly those with acute needs, including pregnant women, the elderly, the very young, people with disabilities and people with chronic diseases—often face acute shortages of food,

Figure 1.7 Civilian fatalities as a result of conflict are surging after years of declining



Source: Uppsala Conflict Data Program 2023.

Figure 1.8 People forced to flee their homes trending upwards towards record levels



Note: People forced to flee include internally displaced people, refugees under the mandate of the United Nations High Commissioner for Refugees (UNHCR), Palestinian refugees under UNHCR's mandate, asylum seekers and other people in need of international protection.
Source: UNHCR 2023c.

clean water, medicine, electricity and basic means for survival.⁸² Millions of people, including children, who have been forced to flee their homes due to no fault of their own could live a life of dignity if countries (involved or not involved in conflicts) could find mutually agreeable solutions for displaced people.⁸³ These issues come at a time of heightened hostility towards refugees, particularly in high-income countries, where the public discourse on refugees has become more polarized.⁸⁴ Some 80 percent of the world's refugees are hosted in mostly low- and middle-income countries.⁸⁵

In 2024 the number of people in need of humanitarian aid is expected to reach 300 million.⁸⁶ Concurrent increases in funding are not commensurate with the sharp increases in humanitarian aid needed. Drought on top of rising conflicts is escalating risks of food insecurity and disease outbreaks in many countries.⁸⁷

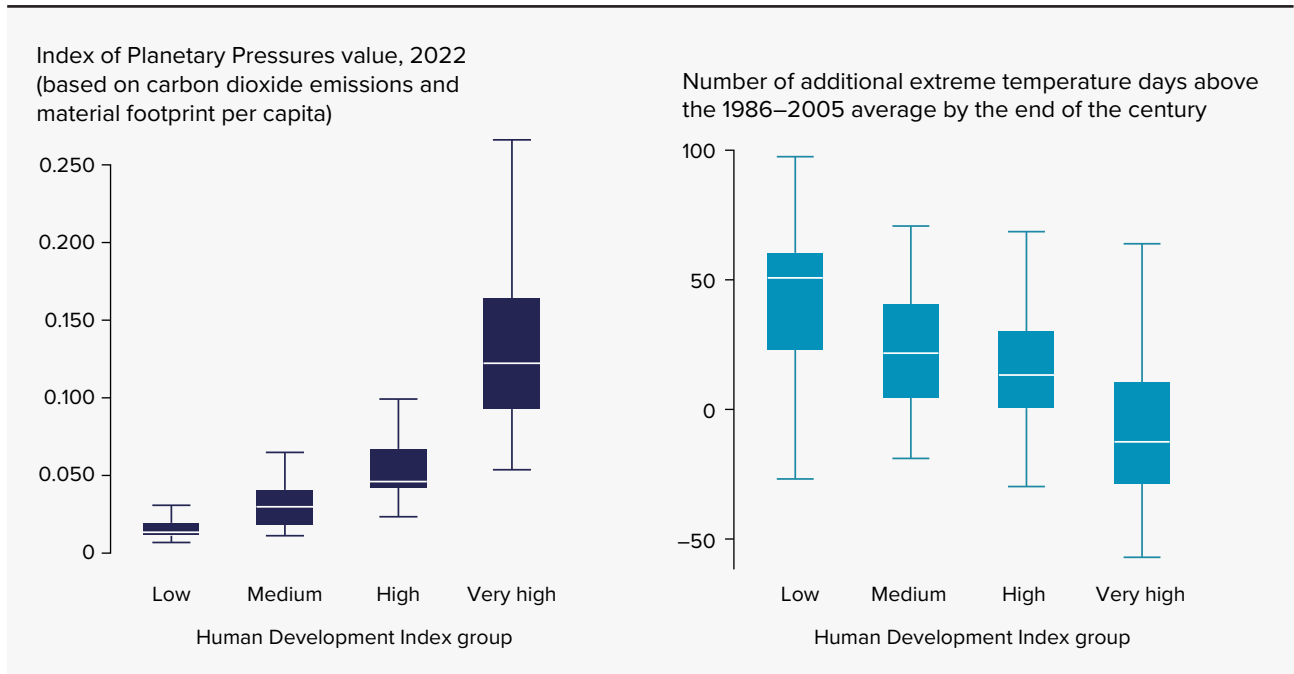
Climate change: Causes and human development costs of mismanaged interdependence

Greenhouse gas emissions, the leading factor behind climate change, result from multiple human activities.⁸⁸ There is a double decoupling between those responsible for emissions and those affected by the consequences of climate change. The first decoupling

is temporal: the activities producing emissions today have their main positive impacts on the current generation, while the costs are borne by future generations. The second decoupling is geographic: the places that historically have benefited from emissions are likely to receive a lower burden of the expected costs. For instance, very high HDI countries have higher average carbon dioxide emissions but are expected to have a smaller proportion of extreme temperature days by the end of the 21st century (figure 1.9).

Recognizing the need to manage interdependence is key as climate change mitigation is pursued. For instance, as national environmental regulations become more stringent in some places, economic activity in those countries may face incentives to shift carbon-intensive production to locations where regulations are not as stringent. Businesses often take advantage of trade to overcome environmental regulations at home. A country committed to reducing emissions will have 8 percent higher sector carbon imports from countries that have not committed to carbon emissions reductions than if it had no commitments, thereby simply changing the sourcing of consumption of their carbon-intensive goods.⁸⁹ Carbon offshoring (relocating carbon-intensive production to regions with low carbon standards) and leakages offset domestic emissions savings and may

Figure 1.9 Planetary pressures are decoupled from their geographic and temporal effects



Note: The Index of Planetary Pressures is constructed using the per capita levels of carbon dioxide emissions and material footprint in each country (it is 1 minus the adjustment factor for planetary pressures presented in table 7 in the *Statistical Annex*). Extreme days by the end of the century are based on the very high emissions scenario. Each box plots the middle 50 percent of the distribution; the central line is the median. Outside the box the extreme lines are the approximate minimum and maximum of the distribution. Outliers are not shown.

Source: Human Development Report Office based on Carleton and others (2022) and UNDP (2020b).

even lead to higher worldwide emissions. Environmental policies that ignore the possible impacts on trade could have unintended consequences.⁹⁰

The human development costs of mismanaging interdependence associated with climate change are expected to be high and growing. Leading up to a decade of increasingly higher temperatures, 2023 has been the hottest ever—at least since 1880, when global temperatures were first recorded.⁹¹ At the time of writing, the threshold of 2°C above preindustrial levels was passed for the first time in a single day.⁹²

Projections from the UNDP Human Climate Horizons platform show that if we continue on the current path of intense planetary pressures, climate change will have devastating—and highly unequal—impacts on human development. Even with moderate mitigation, almost 40 million people are expected to die because of higher temperatures from now to the end of the century. In a scenario of very high emissions, the death toll could surpass 190 million people.⁹³ Moreover, the impacts are highly unequal. Climate change can result in an explosion of inequalities in human development, with the Arab States, South Asia and

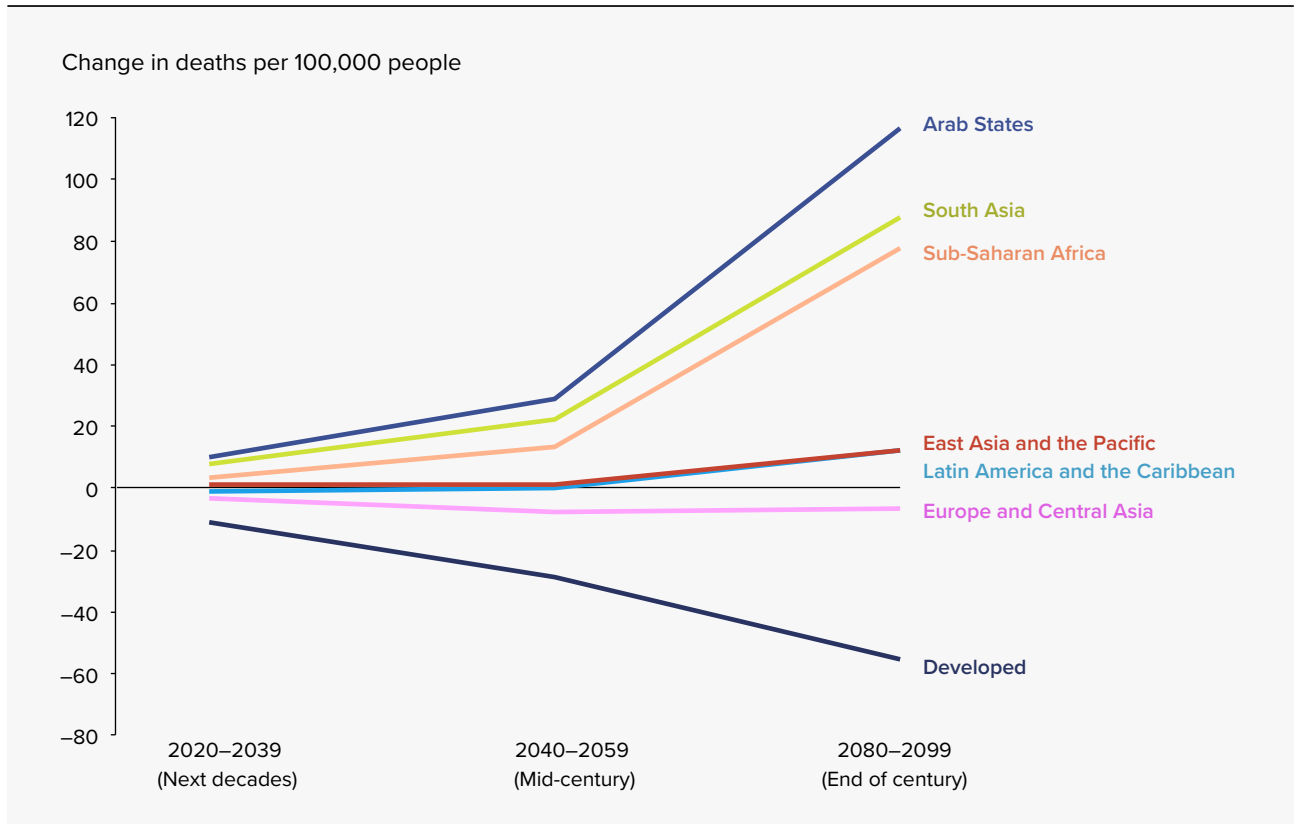
Sub-Saharan Africa regions expected to see sharp increases in death rates (figure 1.10).⁹⁴

The effects of climate change are multidimensional. For example, the global mean sea level has already risen by 23 centimetres since the late 19th century. Even under a moderate emissions scenario, sea levels will continue to rise by 40.7 centimetres by century’s end. Sea level rise implies greater risk for permanent land inundation and extreme flooding. Coastal zones are among the world’s most densely populated areas and will be hit disproportionately.⁹⁵ For some small island developing states, already vulnerable to climate change impacts because of their geographic location and their relative lack of resources to invest in adaptation, the share of the population living in 1-in-20 year floodplains may triple by century’s end.⁹⁶

Prospects for advancing agency and wellbeing will be shaped by the management of interdependence

At the midpoint to 2030, the target date to meet the SDGs, the world is more off track than four years ago⁹⁷

Figure 1.10 Climate change could result in an explosion of inequalities in human development



Note: Very high emissions scenario.

Source: Human Development Report Office based on Carleton and others (2022) and Human Climate Horizons (<https://horizons.hdr.undp.org/>).

and is regressing on key goals on climate action, biodiversity loss, food security, poverty, inequality and gender inequality.⁹⁸ Consider hunger.⁹⁹ The number of people who are hungry stopped falling in the late 2000s and, after a decade of stagnation, has climbed back up (figure 1.11).

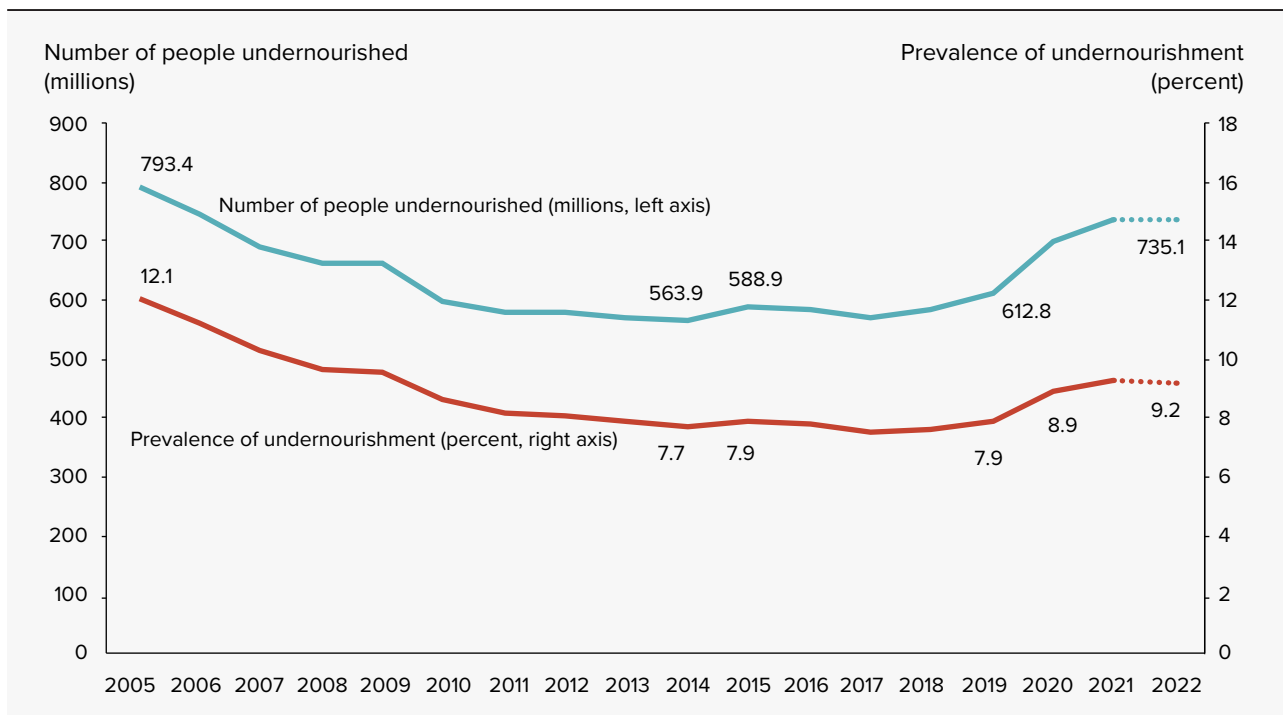
The Covid-19 pandemic delivered the largest setbacks to monetary poverty in decades.¹⁰⁰ For the first time in two decades, poverty trends reversed. This is true for the extreme poverty line (\$2.15 a day) and for the low-income (\$3.65 a day) and middle-income (\$6.85 a day) poverty lines.¹⁰¹ In 2020, 90 million more people were in extreme poverty relative to the pre-Covid-19 projection.¹⁰² Household surveys during the pandemic found that 23 percent of respondents stopped working, and 60 percent lost income.¹⁰³ These setbacks are likely to have permanently shifted the long-term trajectory for poverty reduction, setting the world farther off course from meeting the SDGs (figure 1.12). Only a third of countries are expected to meet SDG 1 by 2030.¹⁰⁴ The poorest also suffered the

severest setbacks in health and education, including premature mortality and lasting losses in learning.¹⁰⁵

Global income inequality¹⁰⁶ has also worsened over the past decade, returning to the same level as in the 1950s.¹⁰⁷ Between-country income inequality had been falling, as low- and middle-income countries caught up to high-income countries, but the Covid-19 pandemic reversed that for many countries.¹⁰⁸ Within-country income inequality has been rising in many countries, exacerbated by the pandemic, as the poorest households generally lost jobs and income at higher rates than richer households.¹⁰⁹ Inequality of income and wealth is not inevitable—it is a political choice.¹¹⁰ Understanding the drivers of within-country inequality, against the backdrop of how we manage interdependence, is at the heart of the policy discourse on inequality today.

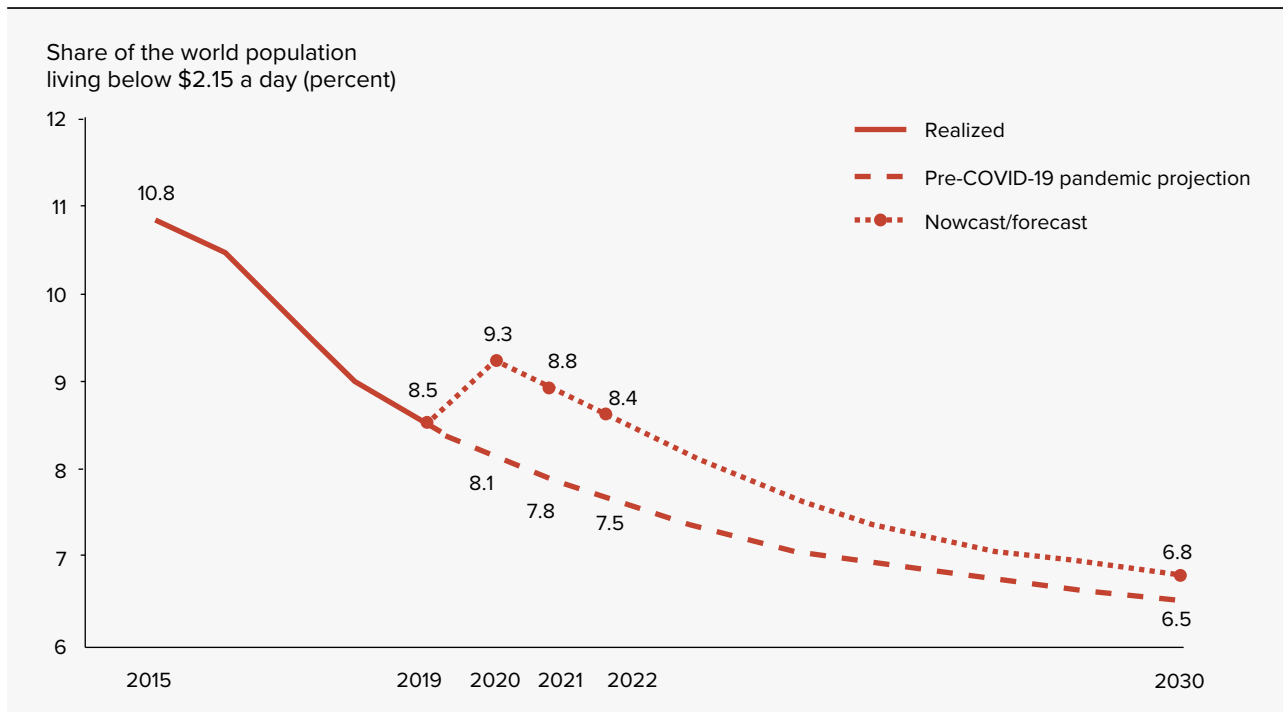
A backlash against gender equality in different parts of the world has stalled its progress in many places.¹¹¹ Women’s civil liberties and political and economic freedoms are being reversed in many contexts;

Figure 1.11 Trends in reducing global hunger have reversed



Note: Data for 2022 are projections.
Source: FAO and others 2023.

Figure 1.12 The Covid-19 pandemic may have permanently shifted the trajectory for poverty reduction



Source: UN 2023c.

on current trends it will take 40 more years for men and women to be represented equally as leaders in national issues.¹¹² The reversal of various social and developmental indicators coincides with the erosion of several democratic norms and practices,¹¹³ spurred in part by dissatisfaction with mismanaged interdependence (chapter 2).¹¹⁴

There is interdependence between countries but also interlinkages across challenges. For example, acute pressures from environmental change, exacerbating water stress and food insecurity, can fuel tensions and conflicts, undermining peace and stability and worsening outcomes for communities. By 2030 up to two-thirds of the world's extreme poor could be living in conflict and fragile settings.¹¹⁵

“While there is evidence that interdependence can expand agency, there is also evidence that its mismanagement can pull in the other direction

The human development approach is highly relevant to understand the implications of mismanaged interdependence for agency (chapter 5). A person who acts and brings about change is an agent, and agency refers to the ability of people to live lives they value and have reason to value. For example, journalists who consider it their duty to bring truthful, unbiased information to the public and who are able to work without fear of retaliation or concern for their personal security will be better off in a social and political context that guards these individual freedoms than in a context that inhibits it. In a world moving towards increased political polarization (chapters 2 and 6),¹¹⁶ and where freedom of speech is on the decline,¹¹⁷ people's agency is being conditioned in new ways.

Amartya Sen's *Development as Freedom* characterizes development as the expansion of people's freedom in a variety of ways (comprising both process and opportunity freedoms), with capabilities (related both to wellbeing and to agency) shaping public policy and with public policy having the potential to enhance those capabilities—in a potential virtuous cycle.¹¹⁸ How we choose to manage interdependence has a bearing on whether such a virtuous cycle takes hold.

While there is evidence that interdependence can expand agency, there is also evidence that its mismanagement can pull in the other direction. Recent

patterns of mismanaging interdependence have had detrimental effects on people's rights, income and wellbeing, affecting their political preferences and choices (chapter 2). For example, democratic norms and practices have eroded to levels last seen in 1986, measured across 202 countries.¹¹⁹

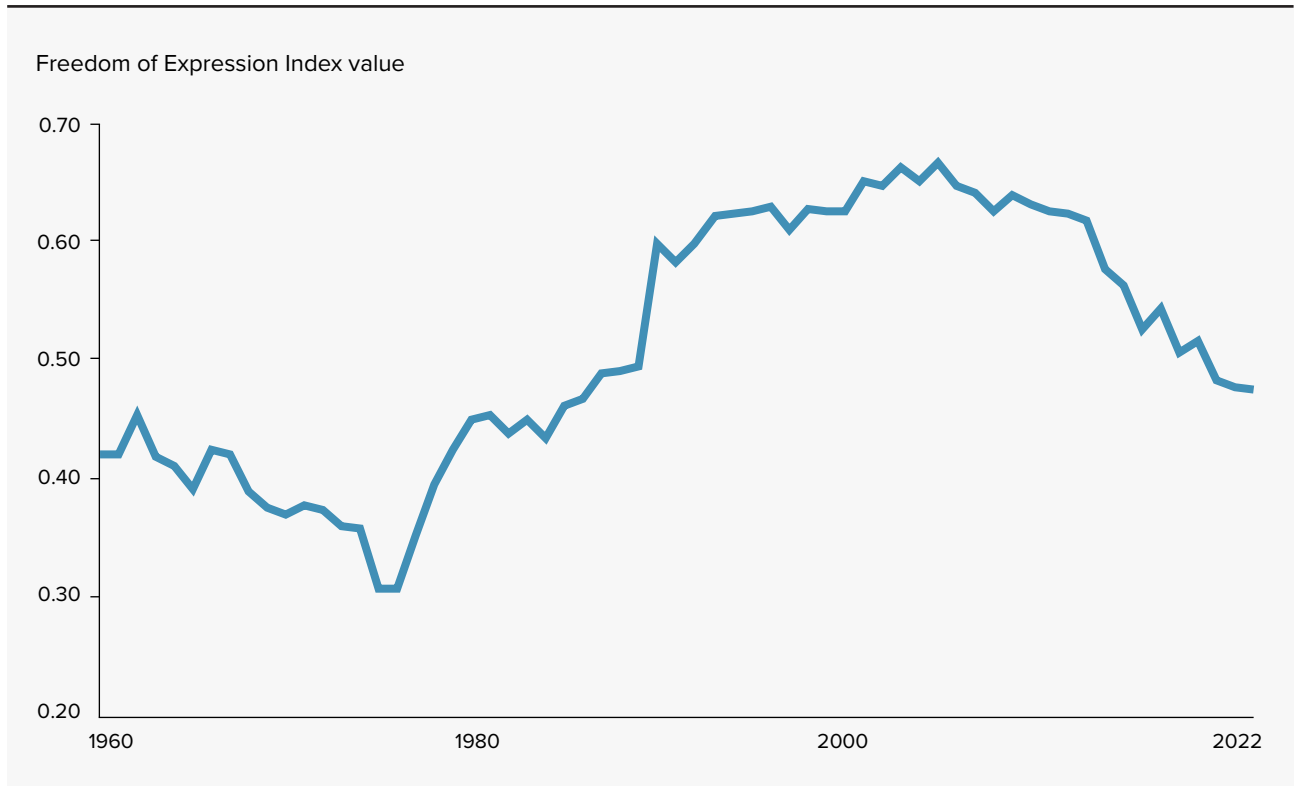
Further, the last 20 years saw a deterioration in freedom of expression (figure 1.13). Oppression against journalists, writers, activists and artists are documented across all world regions and is on the rise. Some 85 percent of the global population experienced a decline in press freedom in their country between 2016 and 2020.¹²⁰ Lack of independent media is amplifying prejudice and divide, depriving public debates of impartial views in a context of heightened polarization.

And further still, people's mental wellbeing has been worsening. In the last 10 years the number of people expressing stress, sadness, anxiety, anger or worry has been on the rise, reaching its highest levels since the Gallup surveys began.¹²¹ Paradoxically, this coincides with a time of high material wellbeing, unprecedented progress in technology and higher human development than ever.

The adverse impacts have been worse for specific communities. For example, Indigenous communities face a confluence of changes through mismanaged interdependence. Indigenous peoples faced many instances of land dispossessions and loss of natural resources for centuries for various industrial and infrastructural developments such as mines and dams.¹²² For example, 90 percent of the languages spoken in the world, a large majority of them spoken by Indigenous peoples, are expected to become extinct in a hundred years.¹²³

Consider people living on islands confronting the existential threat of rising sea levels.¹²⁴ A likely future when their way of life and land will no longer be there creates a sense of helplessness. In Kiribati and Tuvalu, where the mainland may be underwater in 50–100 years, there are opportunities to move to neighbouring countries, but many islanders think of relocation as the last resort.¹²⁵ Leaders argue that relocating people is self-defeating—it defies the point of acknowledging what is happening to the world. Elders do not want to move because of their connection to their homeland and traditions. A body of work is documenting eco-anxiety—a generalized sense of

Figure 1.13 Freedom of expression—receding in recent years



Note: Data are population-weighted global averages.

Source: Human Development Report Office calculations based on data from the Varieties of Democracy project and the World Bank's World Development Indicators database.

loss that the ecological foundations of existence are under collapse.¹²⁶ This new strand of work deals with topics not normally dealt with by the disasters literature.¹²⁷ It delves into understanding generalized feelings about climate change in the abstract (the thought that humanity is doomed).¹²⁸ And it presents environmental loss as disappearing landscapes and biodiversity. These feelings relate to existential threats, loss of identity, ways of life and place, and anticipated and perceived future disasters. They create an overwhelming sense of responsibility to deal with something so huge that it feels paralyzing—a loss of agency. Young people around the world express distress from the inability to respond to events around them or contribute to change, in what they view as collective inaction. That makes it difficult for them to find meaning in other life pursuits, such as investing in their schooling or having a child.¹²⁹

This sense of loss of agency in the face of climate change is being studied by sociologists keen to understand whether the heightened crisis and uncertainties could be an opportunity for change and

transformation.¹³⁰ This is a manifestation of agency gaps that stand in the way of advancing collective action (chapter 5).

Uncertainty, institutional structures and misaligned incentives impair agency. Higher perceived human insecurity is associated with lower agency.¹³¹ And constrained agency is reflected in the growing gap between science-based recommendations for ensuring sustainable wellbeing for all and actual actions on the ground. “Constrained agency perpetuates unsustainability, reduces the richness of values and aspirations and creates an illusionary contradiction between development and sustainability.”¹³² These circumstances further diminish people’s role as agents, making collective action even more difficult.

Despite the challenges, some sociologists argue that agency can actively shape Earth systems¹³³ and that agency can drive large-scale societal change.¹³⁴ Consider the study of conceptualizing new ways for transnational climate governance that is slowly taking shape.¹³⁵ This work tries to understand how to

activate agency beyond national boundaries to move objectives of public interest at the planetary scale.¹³⁶

How to manage interdependence is a choice. Interdependence multiplies the benefits of shared knowledge and cooperation as reflected in advances in medicine, climate adaptation, poverty reduction, energy transitions and more. As explored in chapters 3 and 4, the eradication of smallpox, the Montreal Protocol, interventions for AIDS¹³⁷ and fiscal

responses during the Covid-19 pandemic¹³⁸ exemplify momentous achievements against what otherwise would have been an even more massive downturn in human development. The rest of part I of the Report discusses how interdependence is being reshaped (chapter 2) and what instruments could be used to manage interdependence better (chapter 3). Part II then explores how to reimagine cooperation to advance human development.

CHAPTER

2

**Global
interdependence
persists—but is
being reshaped**

Global interdependence persists— but is being reshaped

People continue to live in globally interdependent societies. Despite a slowdown in economic globalization, interdependence—rather than fraying—is being reconfigured by drivers that will persist well into the future.

The dangerous planetary changes of the Anthropocene—pandemics, climate change, biodiversity loss—transcend borders, all while advances in digital technologies shift economic structures and drive ever higher cross-border information flows.

Going forward, as societies become more linked in multiple ways, collective action to address globally shared challenges will be imperative to safeguard human security and advance human development.

We live in a hyperconnected world. The supply chain disruptions and inflation in the aftermath of the Covid-19 pandemic put in sharp relief global economic interdependence and the attendant vulnerabilities.¹ Concerns about the unequal distribution of the benefits of interdependence across and within countries—and the risks arising from underregulated cross-border financial and trade flows—are not new.² A slowdown of international trade followed the realization of several of those risks during the 2007–2008 global financial crisis,³ and after the Covid-19 pandemic—leading some to proclaim the end of globalization.⁴ Compounded by resurgent conflicts, rising geopolitical tensions and deadlocks in some multilateral institutions,⁵ the ties that bind us appear to be under strain and even in retreat.

Yet this chapter argues that interdependence, rather than fraying, is being reshaped and in some respects is deepening—in part because of drivers that will persist well into the future. Three main arguments emerge.

First, beyond economic ties, cross-border flows of people, information and ideas across countries remain high⁶ and make interdependence a defining feature of our time.⁷ While interdependence can create economic and other opportunities for people and help attenuate the impacts of local and regional shocks,⁸ it also implies that new vulnerabilities may emerge and that shocks can propagate globally.⁹ Vulnerabilities and propagation of shocks are not an inescapable feature of interdependence; rather they reflect excessively unregulated approaches to globalization. These approaches have led to, for example, the concentration of production of some commodities and goods in a few regions or a handful of producers, increasing the risks of global disruptions when one of them experiences problems in production or distribution.¹⁰ They have also resulted in an unequal distribution of the costs and benefits of globalization within countries,¹¹ eroding economic opportunities for many and fuelling perceptions of insecurity that can contribute to political polarization and the support of political positions characterized as populist¹²—potentially reflecting a globalization of discontent.¹³

Second, the scale and speed of global links are profoundly reshaping interdependence. Humans have become geological-scale drivers of planetary changes, ushering in a proposed new geological epoch—the Anthropocene, the age of humans. With it comes an

unprecedented set of planetary challenges, in addition to globalization shaped by policy choices. The cross-border impacts of such events as forest fires, zoonotic disease outbreaks and extreme weather are at least in part the result of planetary changes driven by human production and consumption, and those changes cannot be directly managed by curbing flows of goods, finance and people at the borders. At the same time advances in digital technologies and concerted efforts to decarbonize economies are shifting economic structures and development opportunities. Digital services and platforms shrink the world by enabling real-time collaboration and almost instantaneous global communication. Even though global trade in goods may have plateaued and global value chains are being reconfigured, cross-border information flows are still on the rise, reaching new record highs every year.¹⁴

“Vulnerabilities and propagation of shocks are not an inescapable feature of interdependence; rather they reflect excessively unregulated approaches to globalization

Third, the globalization of discontent points to blind spots in managing global interdependence. Pursuing unregulated globalization or retreating to protectionism are not the only options—and neither is likely to manage the shared global challenges of the Anthropocene. We all share this planet.¹⁵ Even if imposing trade barriers or making international migration increasingly difficult would reduce certain types of interdependences among countries, planetary challenges such as climate change do not stop at national borders. Neither do the benefits of climate change mitigation or pandemic preparedness. As we move deeper into the Anthropocene, our futures are inexorably interlinked. Avoiding the mismanagement of interdependence, and the human development costs that come with mismanagement, is important (chapter 1), but so is harnessing interdependence in ways that advance human development.

The persistence of global ties —a hyperconnected world with multiple global interdependences

More and more people live in communities that are part of globally interdependent societies,¹⁶ their

lives closely intertwined with cultures, economies and ecosystems across the globe. The process of globalization—marked by intensified cross-border flows of information, people, finance, goods and services—has deep roots and a long history of technological and political drivers.¹⁷

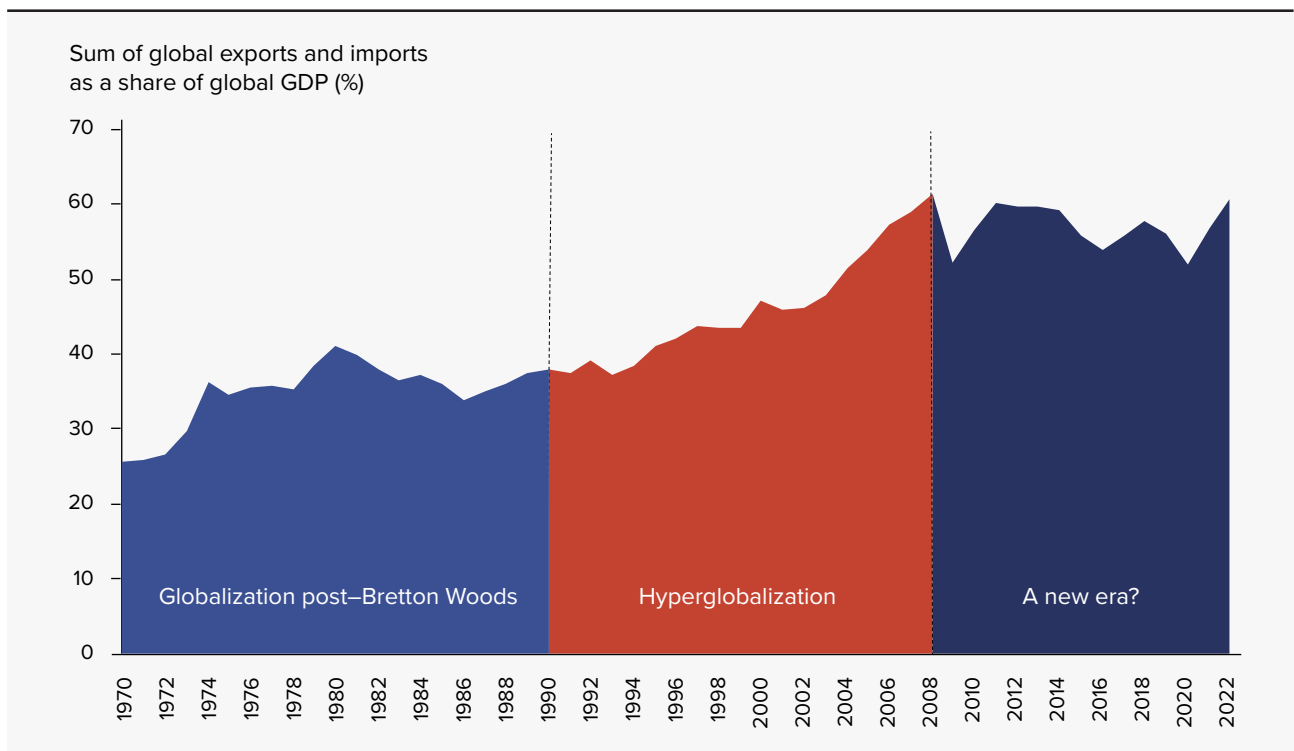
Technological advances have reduced the transportation and communication costs of many cross-border flows,¹⁸ while deliberate policy choices have driven a deepening of interdependence across societies and economies. Financial and trade liberalization, instrumental in driving economic globalization since the 1970s, accelerated global economic integration to the point of being characterized as hyperglobalization.¹⁹ Most countries integrated into global value chains and opened their markets to foreign trade and financial flows, yielding some control over these flows for the promise of economic growth and poverty reduction.²⁰ This period brought massive increases in standards of living for large numbers of people,²¹ but the gains from trade and economic integration were not evenly distributed. It also brought increases in within-country inequality in many high-income countries,²² often manifested

in the emergence of or increase in large subnational inequalities,²³ with declines in job opportunities concentrated in some areas and economic sectors.²⁴ For some low- and middle-income countries hyperglobalization was sometimes characterized by unequal terms of trade and the implementation of policies that may have inhibited productivity growth and development progress.²⁵

In the past dozen or so years, amid growing concerns over supply chain disruptions and resurgent violent conflicts, the emphasis on efficiency in the prelude to hyperglobalization is being rebalanced with concerns over stability and resilience. That rebalancing has occurred, in part, through the imposition of trade barriers at national borders. For instance, trade restrictions surged from fewer than 500 a year in 2010 to nearly 3,000 in 2022.²⁶ Efforts to reshore, nearshore and friendshore production²⁷ also suggest a partial retreat from hyperglobalization.²⁸

Despite the now slower pace of global economic integration, or even its stagnation in some respects, the world remains hyperconnected, with economies highly interdependent—by some accounts at historically unprecedented levels (figure 2.1).²⁹

Figure 2.1. Hyperglobalization is down, but interdependence remains unprecedentedly high



Source: Human Development Report Office based on the World Bank's World Development Indicators database; recreated from Aiyar and others (2023).

International trade has been rising over the long run, in spite of substantial global disruptions.³⁰ Financial integration today is almost four times higher than in the mid-1990s.³¹ No region of the world can claim self-sufficiency, as they all rely on imports from other regions of 25 percent or more of at least one major type of goods and services.³² Global value chains support everything from food to medicines, and even the digital services and the hardware on which they run.³³ Goods today travel twice as far as in 1965 and cross more borders before reaching their final destination.³⁴ This makes for intricate global economic

relationships with multiple interdependences across the production of goods and services (box 2.1).

Every day, millions of people cross national borders in temporary or permanent moves between countries. Since 1970 the estimated number of people living outside their country of birth has tripled from 84 million to almost 280 million, though as a share of the world population the increase has been more modest (from 2.9 percent in 1990 to 3.6 percent in 2020).³⁵ The largest share of international migrants goes to Europe (30.9 percent), closely followed by Asia (30.5 percent).³⁶

Box 2.1 A smartphone's global journey—a tale of cross-border economic, social and environmental impacts

Smartphones have quickly become a ubiquitous feature of everyday life for a large share of the global population. Since the launch of the iPhone and Android phones in 2007, global sales have skyrocketed. There were 6.4 billion smartphone mobile network subscriptions worldwide in 2022,¹ and 1.15 billion new devices were expected to be sold in 2023²—one for every seven people on the planet. Smartphones are more than just devices to connect to the digital world. They are products of a complex and interconnected global system that transcends borders and involves multiple actors and processes. The journey of a smartphone from conception to use reveals how flows of materials, information, value and waste across the world shape our lives.

Before reaching consumers, smartphones cross multiple borders, sometimes the same border more than once. Components of smartphones, including memory chips, processors, batteries and camera modules, are produced by specialized firms in places such as in China, Japan and the Republic of Korea.³ Each component requires inputs from other economies along the global value chain. For example, a battery requires cobalt, often extracted in low-income countries where the mining industry has been associated with serious human rights violations, including child labour, and severe environmental degradation.⁴ Cobalt is exported from countries with mines for processing in countries such as China, before being sent to countries such as Japan or the Republic of Korea to be combined with other materials to create battery cells.⁵ Battery cells may then be sent back to China or shipped to, for example, Malaysia for assembly in battery packs, together with other components such as circuit boards.⁶

The value added by these intermediate activities is low relative to the final retail price of smartphones, leaving low- and middle-income countries with a smaller share of the profits from a globally produced device. Most of the profit is captured by the firms that design, market and sell smartphones, mainly based in high-income countries.⁷ These firms also own most of the intellectual property rights and patents related to smartphones.⁸

Smartphones have transformed the lives of billions of people around the world, enabling them to communicate across borders, acquire information almost instantaneously, access financial services and participate in the digital economy. However, there are still large inequalities in smartphone access globally.⁹ Furthermore, despite its many positive effects, excessive use of smartphones has also been associated with negative mental health impacts, especially among young people.¹⁰

The journey of the smartphone does not stop once it reaches consumers. Smartphones have a short lifespan, with built-in obsolescence and heavy marketing of newer models hastening their replacement. Electronic waste (e-waste), including smartphones, is growing rapidly. Globally, each person produces about 6 kilograms of e-waste each year. Yet the gradients are steep: the average person in parts of Africa produces less than 2 kilograms of e-waste each year, while the average person in Norway produces 28.5 kilograms.¹¹ Only about 17 percent of e-waste is recycled, despite the potential to recover and repurpose critical minerals.¹² A large share of e-waste ends up in landfills in low- and middle-income countries, releasing toxic materials and creating health hazards.¹³

Notes

1. Statista 2023. **2.** Kharpal 2023. **3.** Gentile and others 2021; Sturgeon and Kawakami 2010. **4.** Amnesty International 2023. **5.** Carton, Mongardini and Li 2018; Gulley 2023; Richter 2023. **6.** Farooqui 2023. **7.** WIPO 2017. **8.** Sturgeon and Kawakami 2010. **9.** Rowntree 2019. **10.** Abi-Jaoude, Naylor and Pignatiello 2020. **11.** Parajuly and others 2019. **12.** Forti 2020. **13.** Parajuly and others 2019.

People move across borders for various reasons, including seeking work, advancing their education or pursuing humanitarian protection. Mobility is a key feature of human development, as it enables people to expand their choices, exercise their agency and contribute to their wellbeing and that of their families, as well as that of both their host and origin communities.³⁷ Consider the economic significance of remittances from migrants, which for low- and middle-income countries have long surpassed official development assistance and in 2022 were reaching the same levels as foreign direct investment—but are much less volatile (figure 2.2). In addition to economic ties,³⁸ international migration also creates social and cultural ties between host and origin countries.³⁹

While concerns about the economic and social implications of international migration have increased in many high-income countries, along with anti-immigration narratives, a large body of research shows that international immigration provides net benefits in advanced economies, especially when

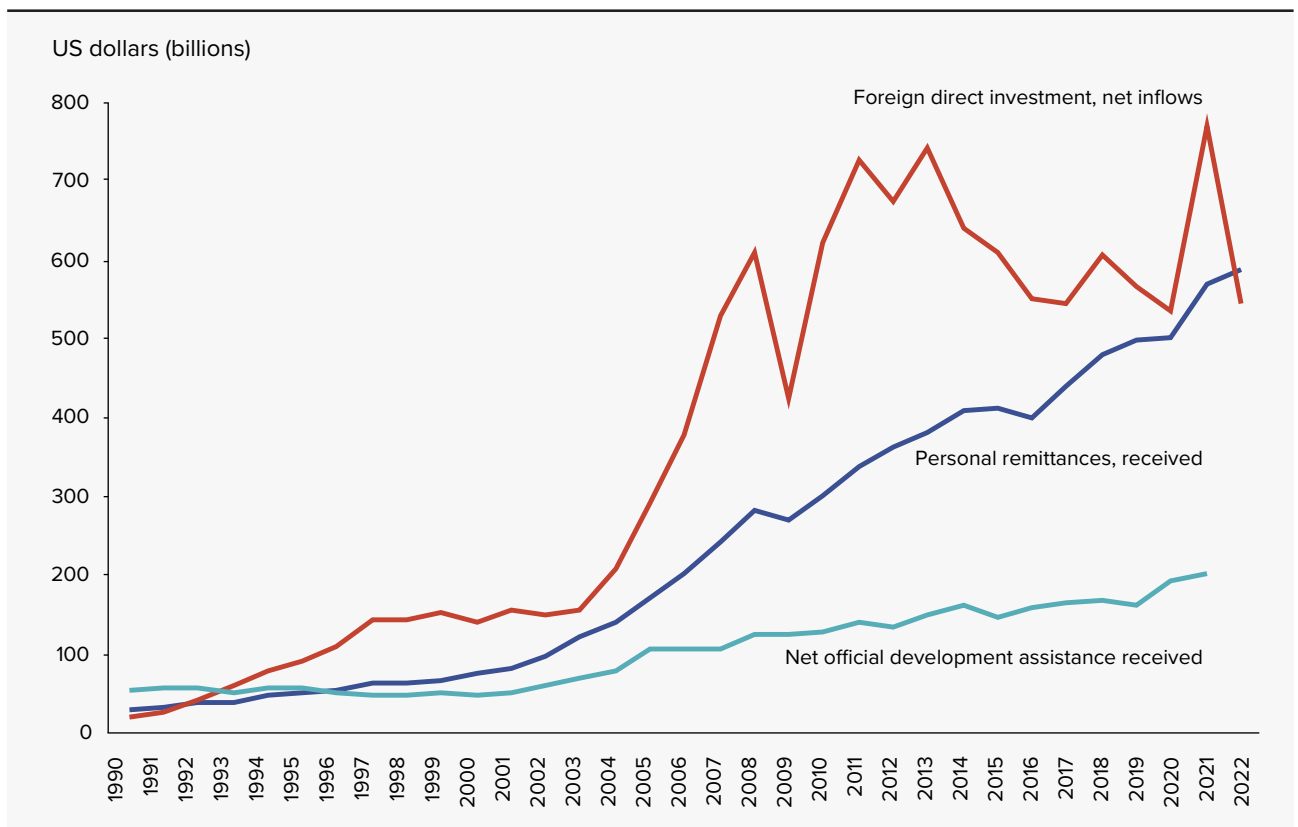
policies are in place to help international migrants establish themselves in the local labour market.⁴⁰

Perhaps the most telling example of hyperconnections (explored in coming sections) is the rapid increase in digital technology capacity and adoption, linking vast geographic distances—almost in real time. Global bandwidth capacity, up dramatically since 1990, has enabled massive growth in cross-border flows of information⁴¹ and boosted international commerce among countries⁴² through global value chains.⁴³ Despite regionally concentrated inequalities, the roll-out of digital connectivity has been broad: 95 percent of the global population is now within the range of a mobile broadband network, and 5.4 billion people were internet users in 2023.⁴⁴

New risks of economic concentration and dislocation

In a hyperconnected world, where tightly coupled interactions allow for cross-border flows of

Figure 2.2 Remittances to low- and middle-income countries are approaching the level of foreign direct investment



Source: Human Development Report Office based on the World Bank’s World Development Indicators database, accessed 10 November 2023. Recreated from IOM (2022).

information, people, finance, and goods and services,⁴⁵ some domestic policies and choices can have spillovers that quickly spread regionally and even globally. Large economies of scale and scope can concentrate production in one or a few countries, leaving other countries vulnerable to decisions made elsewhere. Most global trade occurs within macroregional blocs dominated by the largest economies,⁴⁶ whereas many low- and middle-income countries heavily dependent on international trade find themselves at the tail-end of global trade with far less control over factors that influence terms of trade.⁴⁷ That is why domestic policies in major economies can affect low- and middle-income countries. For example, the US Federal Reserve sets monetary policy under its legal mandate in the United States, but its decisions have substantial effects⁴⁸ in emerging market economies.⁴⁹ Because transmission runs through multiple channels, cross-border spillovers can be hard to contain.⁵⁰

“Market concentration may be a sign of specialization and economies of scale, which yield efficiency gains, but it also increases the risks that disruptions and shocks in one or a few firms will propagate through deeply integrated global value chains across many sectors and countries

In many global value chains power is often concentrated in a few transnational corporations whose business strategies can directly affect multiple economies.⁵¹ Transnational corporations can boost investment, innovation and economic opportunities,⁵² but they can also crowd out domestic firms, especially in low- and middle-income countries.⁵³ Market concentration in global value chains enables markups and rent seeking by top firms, which have been linked to the decline in the global labour share of income⁵⁴ and to higher consumer prices.⁵⁵

Market concentration is particularly high in the global value chains for goods that serve some basic needs, such as food,⁵⁶ as well as in the digital technology space. Today, a handful of technology companies wield significant market power, and their decisions influence societal and political dynamics. In 2021 the market capitalization of each of the three largest tech companies in the world surpassed the GDP of more

than 90 percent of countries—including some of the world’s largest economies.⁵⁷

Concentration may be a sign of specialization and economies of scale (as well as network externalities), which yield efficiency gains,⁵⁸ but it also increases the risks that disruptions and shocks in one or a few firms will propagate through deeply integrated global value chains across many sectors and countries.⁵⁹ Specialization can lead to markets where there are “too few to fail.”⁶⁰ According to recent data, almost 40 percent of global trade in goods is concentrated in three or fewer countries—even for goods with more suppliers.⁶¹ Concentration may be particularly high for some critical products and materials required for digital technologies and the energy transition.⁶² Disruptions in global value chains have become more common and more systemic than in the past,⁶³ driven largely by a mix of climate shocks and geopolitical tensions that may continue into the future.⁶⁴

The other side of concentration is the economic dislocation associated with shifts in production that reduce economic opportunities in sectors or regions previously engaged in domestic production that has been replaced by imports. Despite clear warnings about those risks, the implicit promise that the aggregate gains would be distributed so that the “losers” of globalization would be compensated often failed to materialize.⁶⁵ Indeed, governments were often either unwilling or unable to offset negative side effects of global economic integration for some segments of their population, perhaps in part because economic dislocation was driven not by economic integration alone but also by other factors such as technological change.⁶⁶

Regardless of the process that led to economic dislocation, regions or groups that felt left behind and believed this to be the result of globalization often became hostile to trade openness, contributing to increases in support for political positions that can be described as populist (see below) and political polarization.⁶⁷ Painted with the broadest possible brush, interdependence that is not well managed not only harms human development (chapter 1); it also has broader implications reflected in a discontent with globalization that feeds into processes of political polarization.

Mismanaging interdependence feeds the globalization of discontent

In recent years political movements that advocate the domestic over the international and question the need for global cooperation have gained traction in many countries.⁶⁸ These movements are characterized by narrative frames that contrast what is purported to represent the interests of the general population with what serves an established elite, in what has been described as an anti-elite theory of society.⁶⁹ Rather than ideology based, these views centre on people's "moral" superiority over a corrupt elite. Some variants include identity-based organized views, such as nativist movements based on the superiority of one race or ethnicity, or movements that favour strong leaders without checks and balances.⁷⁰

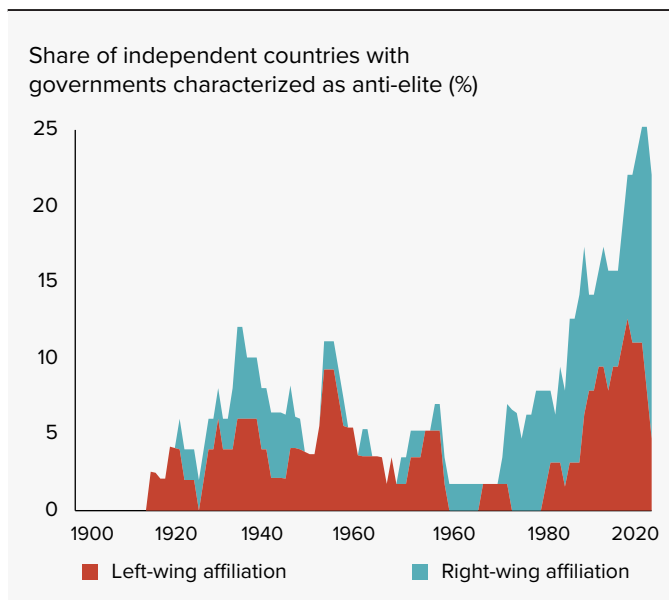
Today, the share of countries with governments that fit with this broader definition characterization of anti-elite movements that question the need for global cooperation (often designated as populist) is unprecedented. What is more, there is a shift in their ideological affiliation. Left-wing affiliation was once dominant (and is still at high levels), but the share of right-wing affiliation has increased dramatically since the 1990s (figure 2.3).

What drives discontent?

Despite the surge in support for these political movements, the animosity towards globalization has not necessarily increased among the general public.⁷¹ One way of accounting for this paradox is through a framework that explains the links between mismanaged interdependence and the rise of political movements that can be characterized as populist on the demand side (people supporting parties and leaders) and on the supply side (emergence of those leaders and parties) of politics.

Both welfare and beliefs-based channels feed into the hostility towards globalization to boost support for populist movements (figure 2.4). Simply put, the welfare channel shows how economic dislocations and human development implications of mismanaged interdependence can lead people to rally behind populist leaders, who may use people's discontent and grievances about distributional effects (actual or perceived) to their advantage.⁷² The beliefs channel

Figure 2.3 Support for anti-elite politics is on the rise



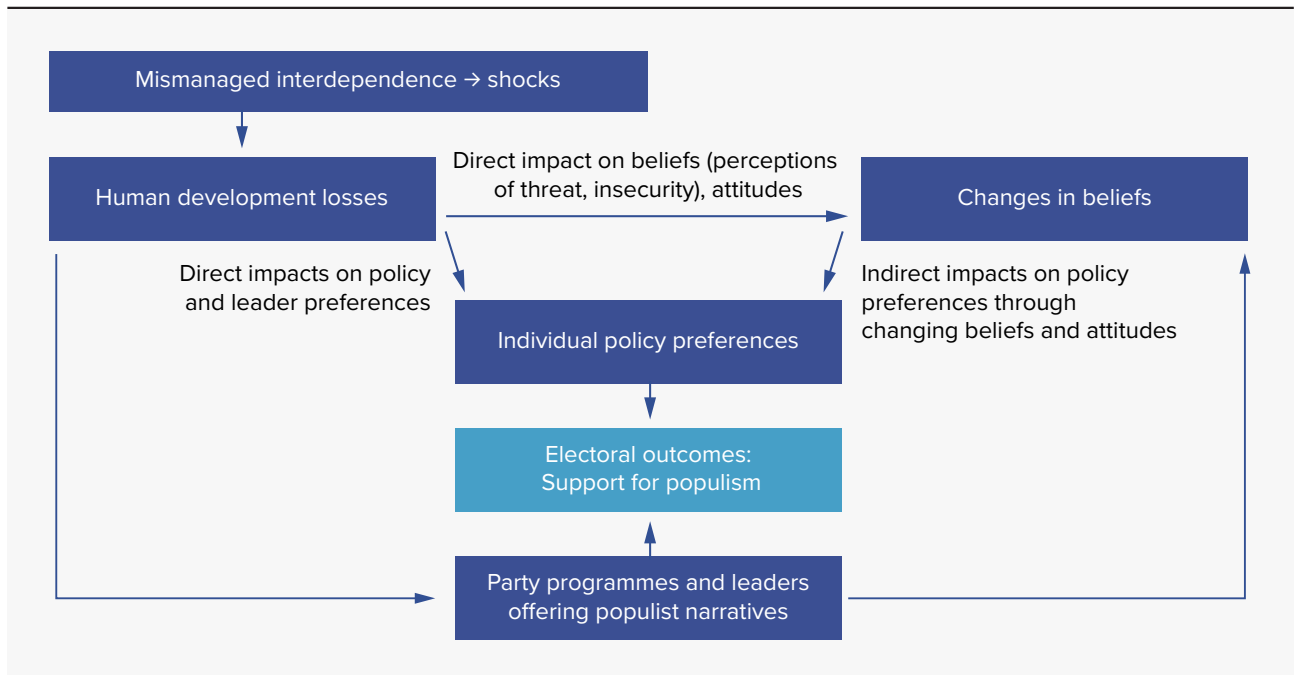
Source: Funke, Schularick and Trebesch 2023.

entails norms and identities that may be perceived as under threat from globalization, and these perceptions of threat contribute to the support for populism.⁷³ And the two channels can reinforce each other,⁷⁴ making it hard to untangle the links.

Both welfare and beliefs channels link mismanaged interdependence and discontent

In globally interdependent socioecological systems, shocks and disruptions have multiple, sometimes unforeseen, global ripple effects. Human development suffers when interdependence is mismanaged (chapter 1). On the demand side human development losses may directly affect people's policy preferences, opening policy space for populist and nativist narratives if established mechanisms are unable to manage and mitigate the impacts of global shocks. For example, natural hazards and financial crises increase support for authoritarian leadership and extreme political movements, particularly on the far right. Household debt crises that frequently follow a financial crisis are also linked to mounting support for far-right populist parties.⁷⁵ Since the 2007–2008 global financial crisis, the number of countries that have implemented austerity policies has risen substantially,⁷⁶ potentially further circumscribing their capacities to protect people from the repercussions of global shocks.⁷⁷

Figure 2.4 Mismanaged interdependence leads to demand for populism through welfare losses and beliefs



Source: Human Development Report Office elaboration based on Rodrik (2021).

Still, the increased risk of globalization-linked (in reality or perception) localized welfare losses cannot fully explain the rising appeal of populist and nativist movements. A recent review of survey experiments finds little support for the hypothesis that economic self-interest alone drives antiglobalization sentiment.⁷⁸ In some cases electoral support for political candidates advocating protectionist measures even increased despite these measures having negative effects on local employment.⁷⁹ The findings echo public opinion data, as well research on the effects of objective globalization risks such as offshoring of jobs.⁸⁰

Thus, the link between human development losses from global shocks and increased support for populism may also work through changing perceptions, beliefs, identities and attitudes towards globalization.⁸¹ Fear and feelings of insecurity, especially those related to losing status, can shift preferences in a populist and nativist direction.⁸² This beliefs-based link can be particularly potent in contexts of long-term deteriorating economic prospects.⁸³ For example, nationalist and anti-immigration narratives take hold more easily in places experiencing adverse economic change (for example, increases in the unemployment rate matter more than the levels of unemployment as such).⁸⁴

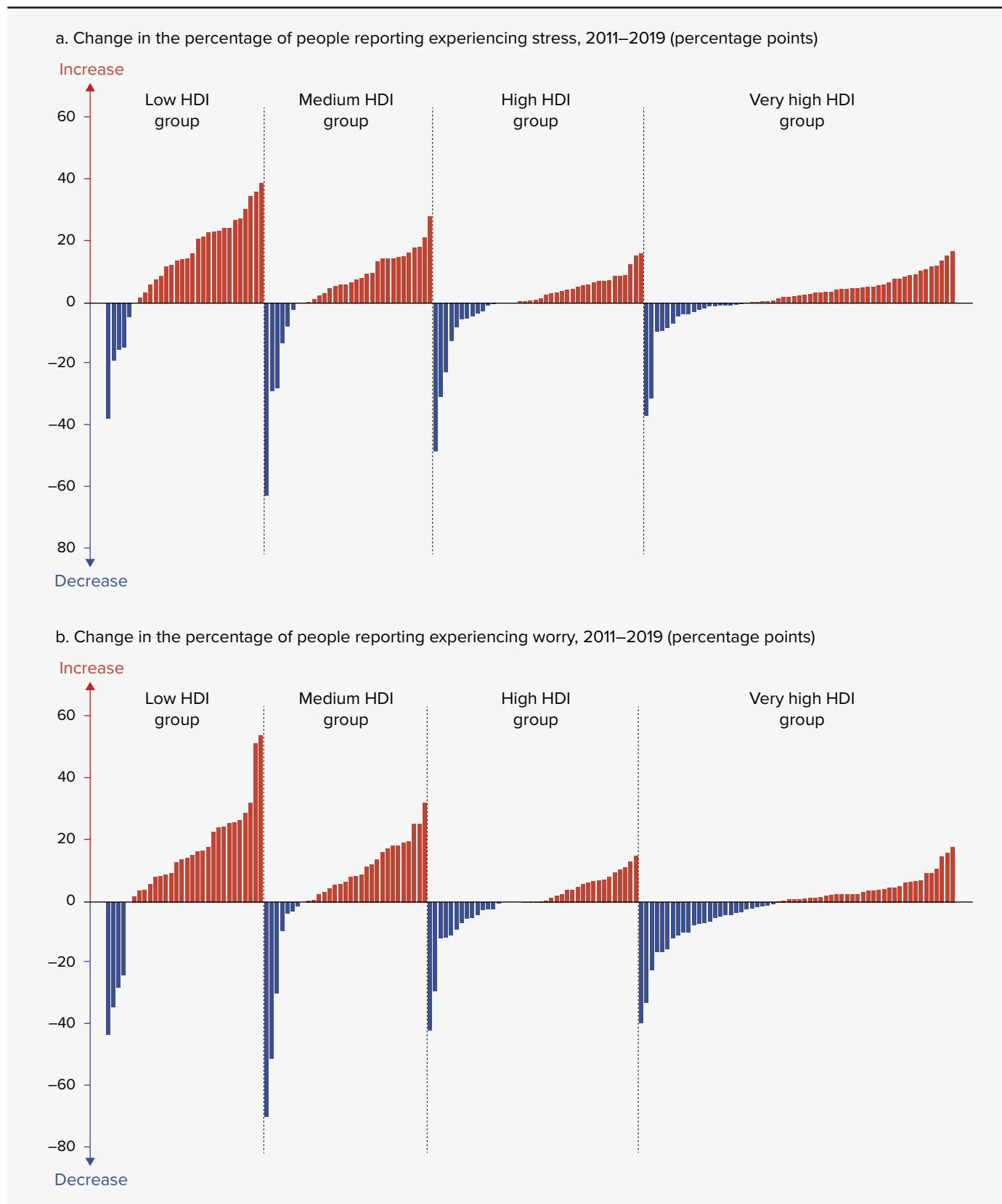
This matters in a globally interdependent world that is also increasingly worried and distressed.⁸⁵ Today,

feelings of distress and insecurity are pervasive and persistent, permeating even the wealthiest countries. Across the world almost 3 billion people report feeling worried, stressed or sad.⁸⁶ While subjective wellbeing has been found to be susceptible to external shocks,⁸⁷ the Covid-19 pandemic seems only to have exacerbated a pre-existing existing trend: both worry and stress were reaching record highs even before the pandemic (figure 2.5). These feelings of distress have been on the rise even as the world has made substantial development progress,⁸⁸ though the trend of progress was interrupted in 2020 and 2021 (chapter 1).

Political leaders and movements can exploit the links between mismanaged interdependence and discontent

On the supply side political leaders and movements can reinforce the links between mismanaged interdependence and rising support for populism, by mobilizing discontent to their advantage.⁸⁹ While such tactics are not unique to populist movements, a common narrative of these movements is to pit negative collective emotions towards revenge against an established elite,⁹⁰ often portraying leaders as champions and competent protectors of “common people”⁹¹ in opposition to a global elite. As such, they may gain

Figure 2.5 Even prior to 2020, worry and stress were rising in most countries



HDI is Human Development Index.

Note: Values refer to the change in the percentage of people who reported experiencing stress or worry “during a lot of the day yesterday.”

Source: Human Development Report Office, based on Gallup (2023).

traction by tapping into frustrations among those who feel left behind by globalization or see globalization as a threat to their identities.

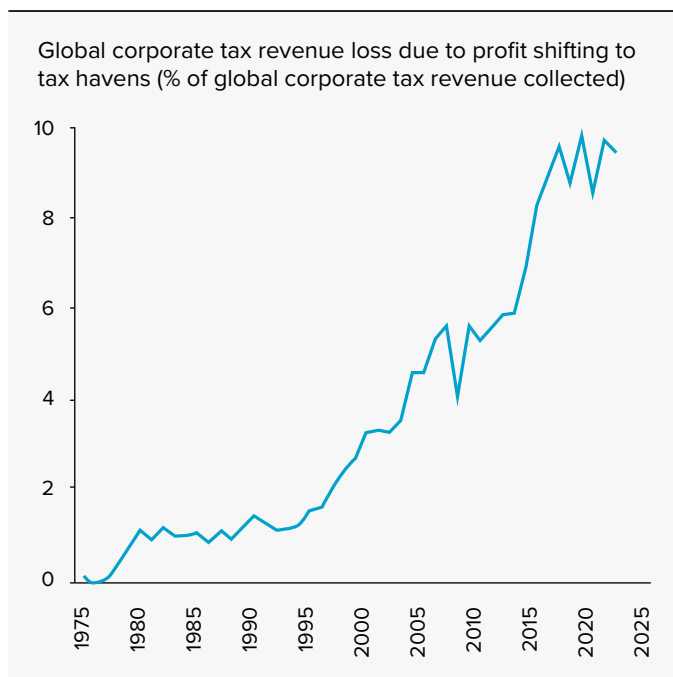
This anti-elite, antiglobalization sentiment may be rooted in part in the way that global elites have been able to cash in on the benefits of globalization to race further ahead. In addition to the economic dislocations, with increased inequalities within countries and pervasive job losses in certain places, hyperglobalization has enabled offshore tax evasion and avoidance by wealthy individuals and companies. Multinationals may have shifted as much as \$1 trillion of profits to tax havens in 2022,⁹² resulting in billions of dollars in lost tax revenue. Global losses of corporate tax revenue have skyrocketed since the mid-1990s as a result of profit shifting (figure 2.6). These patterns are clearly associated with asymmetries between how elites and the general population benefit from hyperglobalization, fuelling discontent that feeds into populist narratives.

Populist leaders and movements can also work through the beliefs channel by using discourse and narratives to foment polarization and politicize issues such as international cooperation.⁹³ Indeed,

antiglobalization sentiment has become increasingly salient in partisan discourse.⁹⁴ As these issues become more visible through political campaigns and narratives, they can lead to shifts in people's beliefs and to sorting along narrow identity lines rather than along income groups—and subsequently to shifts in policy preferences.⁹⁵ These shifts can lead to voting patterns that, in some cases, might go against one's economic self-interest,⁹⁶ and they may even influence behaviours beyond voting.⁹⁷ For example, populist campaigning against scientific advice during the Covid-19 pandemic reduced adherence to social distancing in places where populist leaders enjoyed high support.⁹⁸

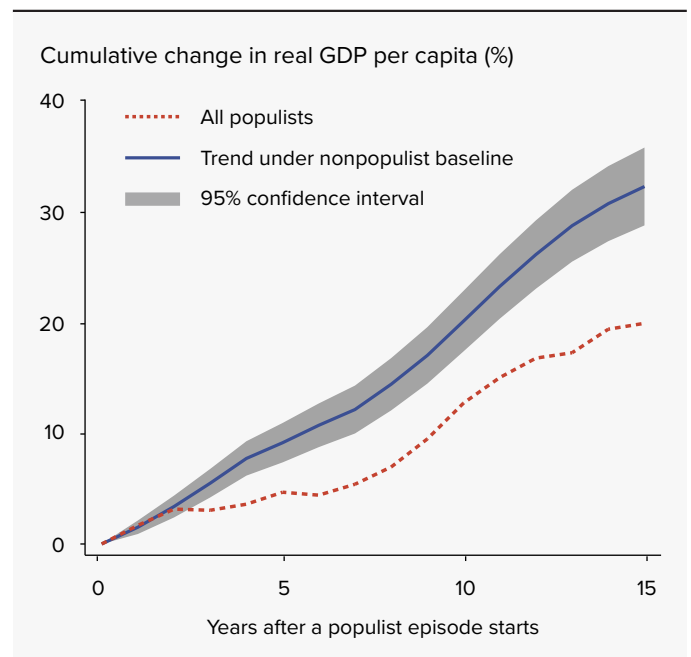
Populism is politically disruptive and economically very costly.⁹⁹ In countries with episodes of governments characterized as populist, whether on the right or on the left, GDP per capita is 10 percent lower 15 years after the episode started than where such episodes did not take place (figure 2.7). Negative effects on the economy tend to materialize only three to five years after the populist episode starts, and they

Figure 2.6 Elites have been able to cash in on hyperglobalization, as profit shifting to tax havens has skyrocketed



Source: Alstadsæter and others 2023.

Figure 2.7 Discontent is costly: Lower GDP trajectories in countries with populist episodes



Note: All regressions include country fixed effects and five lags of real GDP per capita growth, global growth, inflation, banking and sovereign debt crisis controls and an institutional/democracy quality index given by the first principal component of the Varieties of Democracy indices on judicial independence, election fairness and media freedoms (Coppedge and others 2022), as well as the Polity IV democracy score (Marshall and Gurr 2020). Data cover 60 countries since 1945 for the core sample of populist episodes.

Source: Funke, Schularick and Trebesch 2023.

continue to worsen over time¹⁰⁰—representing a potential permanent loss.

Discontent polarizes societies, with potentially dangerous consequences

The populist rhetoric of retrenchment and nativism polarizes societies by pitting groups against each other—us, the people, against them, the elite. The inward-looking, nativist direction of many of these movements erodes abilities to collectively manage reshaped global interdependence and tackle issues that transcend borders. Historically, the populist and radical regimes that came into power after the global financial crises of the 1920s and 1930s in a context of deep political polarization drove countries to a world war rather than delivering solutions to the shared challenges facing them (spotlight 2.1).

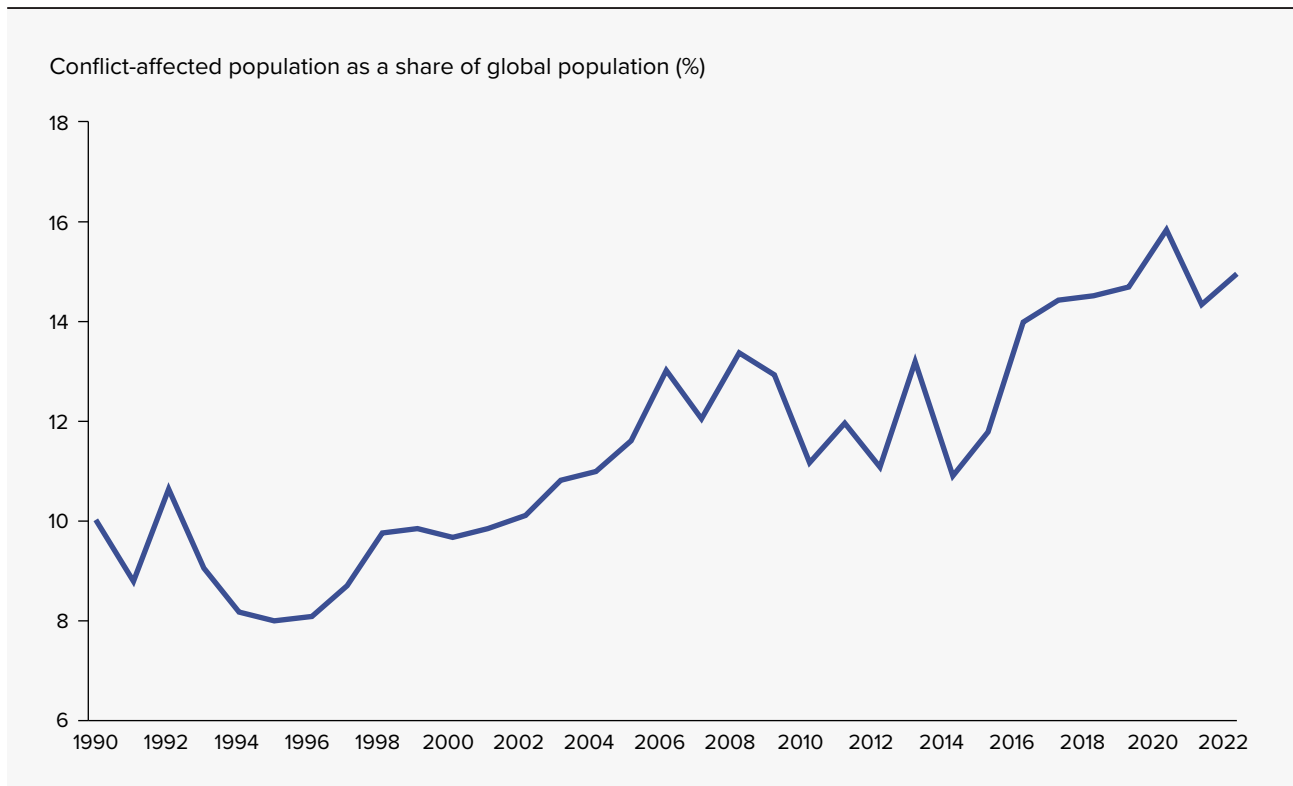
Today, the international community grapples with a renewed surge in violent conflicts, with devastating impacts on human development and human security. In 2022 alone, before the rise in violence and conflict in the African and Middle East regions in 2023,

almost 1.2 billion people—15 percent of the global population—lived in areas affected by violent conflict (figure 2.8).¹⁰¹ These staggering numbers are part of a horrific trend of rising violent conflicts that is becoming increasingly internationalized and entrenched,¹⁰² affecting more people in more places, including in higher Human Development Index countries.¹⁰³ In addition to devastating local impacts, violent conflicts often have impacts that spill across borders. The multiple ripple effects range from arms proliferation¹⁰⁴ to forced cross-border displacement, regional food insecurity¹⁰⁵ and rising inflation.¹⁰⁶

Global interdependence is being reshaped and likely to persist well into the future

Even aside from the policy choices shaping global interdependence—import tariffs that discourage trade, visa restrictions that slow migration—interdependence is an inescapable feature of living on a shared planet that is undergoing dangerous changes, unprecedented in that they are planetary and a result of human choices. They are also reinforced by

Figure 2.8 Violent conflicts affected 15 percent of the global population in 2022



Source: Human Development Report Office based on Aas Rustad and Østby (2023) and Arasmith, Østby and Aas Rustad (2022).

the fact that humans are relational beings (spotlight 2.2). Going forward, two drivers—dangerous planetary change and the deep transformations of economies, supercharged by digital technologies—are profoundly reshaping global links, demanding more—not less—management of interdependence, given that the opportunities to manage that type of interdependence by making decisions about at-the-border restrictions are limited to nonexistent.

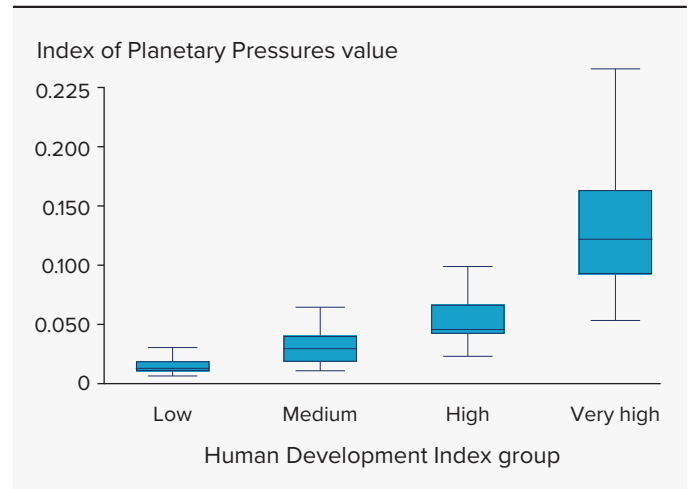
The Anthropocene adds a planetary dimension to global interdependence

The Anthropocene is a proposed new epoch in the geological timescale, characterized by the unprecedented impact of modern human activity on Earth systems (chapter 3). It provides a useful framing for understanding the interdependence among humans, human societies and our shared planet. It helps further “establish the connections between our economic, social, and cultural spheres and the Earth System itself”¹⁰⁷ and unveils the entanglements of global inequalities and endangering the critical functions of Earth systems.

Social and ecological systems have always been deeply connected but rarely at the planetary scale.¹⁰⁸ Today, human impacts on the planet are so stark that they are altering planetary processes. Humans have altered the natural cycles of carbon,¹⁰⁹ nitrogen,¹¹⁰ phosphorus,¹¹¹ water¹¹² and other elements, changing the temperature, precipitation, sea level and atmospheric composition of the planet.¹¹³

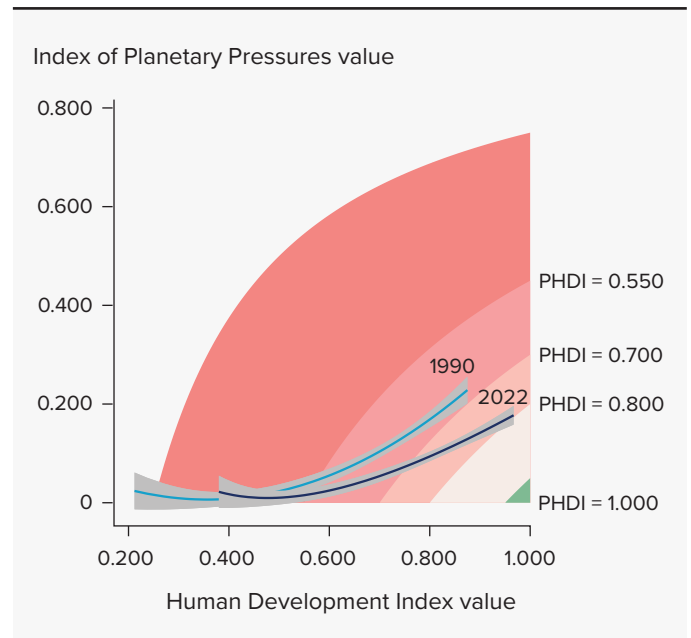
Countries with higher levels of human development, as measured by the Human Development Index (HDI), exert higher pressures on our planet (figure 2.9). Countries on the lower end of the HDI, which put fewer pressures on the planet, are likely to be disproportionately affected by the impacts of planetary pressures.¹¹⁴ These inequalities create destabilizing dynamics that, along with intensified polarization, may delay action to mitigate or reduce planetary pressures. Over time, though, human development progress is associated with lower planetary pressures—in 2022 the average planetary pressures required to sustain any given HDI level were lower than in 1990 (figure 2.10). In fact, in recent years both very high and high HDI countries

Figure 2.9 Inequalities and the Anthropocene—higher Human Development Index countries put higher pressures on the planet



Note: The Index of Planetary Pressures is constructed using the per capita levels of carbon dioxide emissions and material footprint in each country (it is 1 minus the adjustment factor for planetary pressures presented in table 7 in the *Statistical Annex*). Each box plots the middle 50 percent of the distribution; the central line is the median. Outside each box the extreme lines are the approximate minimum and maximum of the distribution. Outliers are not shown. **Source:** Human Development Report Office. See specific sources in table 7 in the *Statistical Annex*.

Figure 2.10 Pushing possibility frontiers—higher Human Development Index values at lower planetary pressures



PHDI is Planetary pressures—adjusted Human Development Index. **Note:** The Index of Planetary Pressures is constructed using the per capita levels of carbon dioxide emissions and material footprint in each country (it is 1 minus the adjustment factor for planetary pressures presented in table 7 in the *Statistical Annex*). Cross-sectional pressure patterns for 1990 and 2022 were calculated using polynomial regression models. Shaded areas are confidence intervals. **Source:** Human Development Report Office. See specific sources in table 7 in the *Statistical Annex*.

have continued to improve their HDI values without increasing planetary pressures, even though HDI progress in high HDI countries led to a sharp increase in planetary pressures in the first decade of the 21st century (figure 2.11). Still, all countries, but particularly those with very high and high HDI values, need to do much more, at greater scales and speed, to ease planetary pressures than what has been the current trend. In fact, the trend going forward needs to start sloping downward, so that improvements in HDI values happen along with declining planetary pressures.

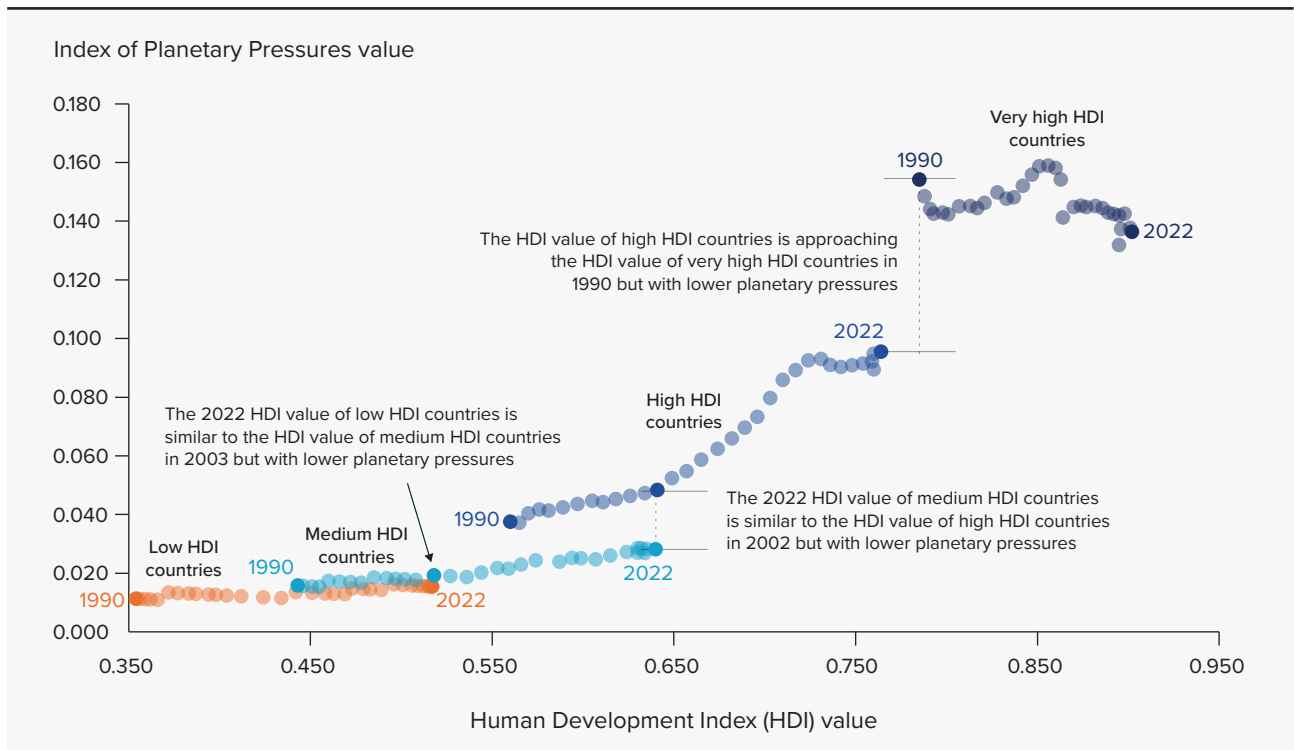
Technological development, especially renewable and low-carbon energy systems, pushes possibility frontiers and may enable gains on the HDI without increases in planetary pressures. However, transition periods, where fossil fuels and low-carbon system coexist, may be particularly volatile, with heightened cross-border risks.¹¹⁵ Transitions away from fossil fuels are very likely to shift the comparative advantages of countries and could drive shifts in trade patterns and economic power with geopolitical implications.¹¹⁶ Changes to domestic climate policies may reverberate internationally through both trade and

financial channels,¹¹⁷ with especially strong effects for low- and middle-income countries—effects that may go beyond balance of payments fluctuations to affect long-term debt dynamics.¹¹⁸ Therefore, the types of climate policies that countries pursue will not only affect prospects for mitigating climate change but will also have profound implications for global links and development prospects. If interdependence is harnessed in a positive way—starting with not mismanaging it—the outlooks for both people and planet are more positive.¹¹⁹

Planetary pressures lead to planetary spillovers

When social and environmental change interacts at a global scale, spillovers from a local socioecological system can turn planetary. To see how, consider telecoupling, which describes distant interactions and complex feedback loops between human and ecological systems over vast distances and attempts to account for socioeconomic and environmental spillovers across scale, space and time.¹²⁰ For

Figure 2.11 Decoupling of planetary pressures and the Human Development Index (HDI)



Note: The Index of Planetary Pressures is constructed using the per capita levels of carbon dioxide emissions (production) and material footprint in each country (it is 1 minus the adjustment factor for planetary pressures presented in table 7 in the *Statistical Annex*).

Source: Human Development Report Office. See specific sources in tables 2 and 7 in the *Statistical Annex*.

example, the land-use decisions of firms and farmers in tropical forests affect regional environmental degradation, biodiversity loss and global climate change not only through increased greenhouse gas emissions associated with deforestation but also through changes in precipitation patterns in regions far from tropical forests (chapter 3). The same land-use decisions are influenced by global market dynamics, such as consumer preferences and terms of trade. For example, higher global demand for soybeans can lead local farmers to switch to them from cattle ranching,¹²¹ potentially reducing both deforestation and carbon dioxide emissions in comparison to a scenario with continued cattle ranching.¹²²

Another example is fishing around coral reefs, which can reduce the biomass of fish species that provide important ecosystem services¹²³—such as the large herbivorous fish that reduce algae growth. Without those species, algae growth may increase, bleaching the reefs.¹²⁴ The erosion of coral reefs reduces global carbon cycling (thus adding to climate change). It also harms the livelihoods of many people and the natural protection of coastlines from storms.¹²⁵ By contrast, sustainable local fishing practices can improve the biomass of herbivorous fish and benefit coral cover.¹²⁶

With an Anthropocene lens, the notion of global interdependence needs to include an understanding of the Earth System as a whole. Highly complex globally interlinked societies shape, and are shaped by, highly complex and globally interlinked ecological systems. Yet “spatial assumptions about the world are frequently divorced from discussions of economy and, in turn, from issues of environment and nature.”¹²⁷

In a globally interdependent world even countries less exposed to climate change-related risks can still be affected by second- and third-order effects.¹²⁸ For example, if a natural hazard disrupts economic activities in one country, there may be spillover impacts on the country’s main trade partners; if critical infrastructure is hit in one country, it may reconfigure supply chains and reduce the GDP of both downstream and upstream trading partners¹²⁹ and can lead to volatility in aggregate stock market indices among trading partners.¹³⁰

Food production and consumption provide another telling example. Only an estimated 11–28 percent of the global population can access key food crops

within 100 kilometres of their homes, leaving a large majority of the world population highly dependent on food imports and global food value chains.¹³¹ The production of critical inputs and intermediary products for agricultural production, such as seeds and fertilizers, is geographically concentrated and controlled by a handful of companies.¹³² For example, four companies control about two-thirds of global agrochemical sales, including pesticides and synthetic fertilizers that enable industrial-scale agriculture. Three of the same companies are also among the four companies that control more than half the world’s commercial seed sales.¹³³

While trade in food has boosted food supplies globally and has been a resilience strategy in the face of local climate shocks,¹³⁴ the domination of multinational food companies in food systems is now associated with reduced diversity in local food production and lost local food culture traditions,¹³⁵ as well as rent seeking by top firms.¹³⁶ The concentration patterns in food production have built vulnerabilities in global food systems, which are likely to further increase if human planetary pressures remain unchecked. For example, biodiversity loss and climate change heighten the risk of simultaneous crop failures,¹³⁷ with potentially global consequences for food security. Global hunger numbers are already on the rise; 691–783 million people faced hunger in 2022, a situation exacerbated by the war in Ukraine and high inflation.¹³⁸

“The concentration patterns in food production have built vulnerabilities in global food systems, which are likely to further increase if human planetary pressures remain unchecked

When arable land becomes scarce or degraded due to climate change, farmers may experience reduced crop yields and diminished livelihood security, potentially driving displacement and migration.¹³⁹ But the paths and trajectories of human mobility in response to climate, food and livelihood stressors are difficult to predict, particularly as local temperature, rainfall and extreme weather events increasingly deviate from historical patterns. Migration is embedded in social, economic, political, demographic and environmental processes that can affect both the ability to move, as well as the risk of immobility.¹⁴⁰

As climate change continues and its impacts intensify, especially in the absence of widespread reductions in greenhouse gas emissions, migration could become one of the few viable adaptation and resilience strategies available to afflicted communities. Some projections suggest that under current emissions policy trajectories a third of the world population may be left outside the so-called human climate niche—that is, the temperature range most conducive to human life. If countries fully implement all climate change mitigation policy targets, global warming may be limited to about 1.8°C—which would still leave almost 10 percent of the world population outside the so-called human climate niche—that is, the temperature range most conducive to human life.¹⁴¹

The health, livelihood and labour market impacts of extreme heat are likely to be substantial, as shown by the UNDP Human Climate Horizons platform (box 2.2).¹⁴² Some research predicts that by midcentury, more than 200 million people are likely to migrate internally (within-country) in the face of climate stress.¹⁴³

Digital technologies make cross-border communication almost instantaneous—and are changing economic structures

Alongside the planetary challenges of the Anthropocene, economies are undergoing profound shifts,

Box 2.2 Human mobility in the face of climate change: The case of Viet Nam

Hannah Pool

The UNDP Human Climate Horizons platform calculates and visualizes how climate change will affect human well-being under different greenhouse gas emissions scenarios. The platform estimates the projected impacts of climate change at a highly granular level, illustrating how it might affect places and communities in more than 200 countries and territories.

Take Viet Nam, which is already grappling with the effects of climate change as droughts, floods and typhoons become more frequent. The average annual temperature is projected to increase from 25.9°C in 1986–2005 to 26.7°C in 2020–2039 to 27.6°C in 2080. In the high emissions scenario it could reach 29.2°C. The rising temperatures will particularly affect the working hours of people in both low-risk and high-risk occupations. In the moderate emissions scenario annual working hours per worker could be reduced by 2.3 hours in 2020–39 and by 10.5 hours in 2080–99, whereas in the high emissions scenario annual working hours per worker in high-risk jobs in agriculture and construction could fall by 36.7 hours.

With 3,000 kilometres of coastline, Viet Nam is particularly vulnerable to rising sea levels.¹ Under the high emissions scenario sea-level rise will affect an additional 1.3 percent of the population between 2020 and 2039 and 7.4 percent by the end of the century, compared with a scenario without climate change.²

Migration decisions are complex and multifaceted, and climate change and the environment can be contributing factors. By 2050, 1.5–3.1 million people in Viet Nam could become climate migrants.³ In Viet Nam's Thừa Thiên-Huế Province people expressed their intention to relocate permanently because of a heightened risk of flooding caused by sea-level rise.⁴

When people are forced to move as a result of climate change, they tend to move first within national borders before moving to neighbouring countries,⁵ and they tend to move from rural areas to cities. In Viet Nam this will put additional pressure on urban infrastructure.⁶ People might also move to neighbouring Cambodia or Thailand, which, as the Human Climate Horizons data project, will also be affected by climate change.

Scenarios like these are important to assessing how climate change will affect human mobility and to driving people to do everything possible today to avoid the high emissions scenario. But human mobility cannot be deterministically predicted, even less in the distant future, since a continuum of human agency exists at various levels, which gives humans the capacity to “find creative, locally appropriate solutions” in a world of diverse social, economic, cultural and place-based physical systems.⁷

Notes

1. IPCC 2022. 2. UNDP and Climate Impact Lab 2022. Data from Human Climate Horizons, accessed 30 November 2023. 3. Clement and others 2021. 4. Duijndam and others 2023. 5. IPCC 2022. 6. Spilker and others 2020. 7. Horton and others 2021, p. 1279.

powered by rapid technological innovation, especially in digital technologies. These shifts are already changing the nature of global interdependence and will likely continue to do so well into the future.

Digital technologies link distant places almost instantaneously, affecting international trade, labour markets, and the production and consumption of information. In 2023 anyone with a computer or smartphone¹⁴⁴ could in theory reach more than half the global population, and the number of internet users is expected to continue to increase.¹⁴⁵ The digitally powered spread of (mis)information can speed up contagion dynamics and influence behaviours, with cross-border implications for, for example financial instability¹⁴⁶ or conflict.¹⁴⁷

While governments can put controls on internet use, blocking access to—or even just monitoring—online information is extremely difficult as the technology constantly evolves and expands.¹⁴⁸

Even during the physical lockdowns and border closures of the Covid-19 pandemic, when goods and people flows across borders plummeted, cross-border information flows soared.¹⁴⁹ Digital platforms and global flows of data enable larger trade volumes between countries,¹⁵⁰ as well as increased opportunities for small and medium enterprises to participate in global value chains.¹⁵¹ The rise of digital technologies in the global economy is part of deeper changes in the structure of economies, in which the value of knowledge and services increases relative to that

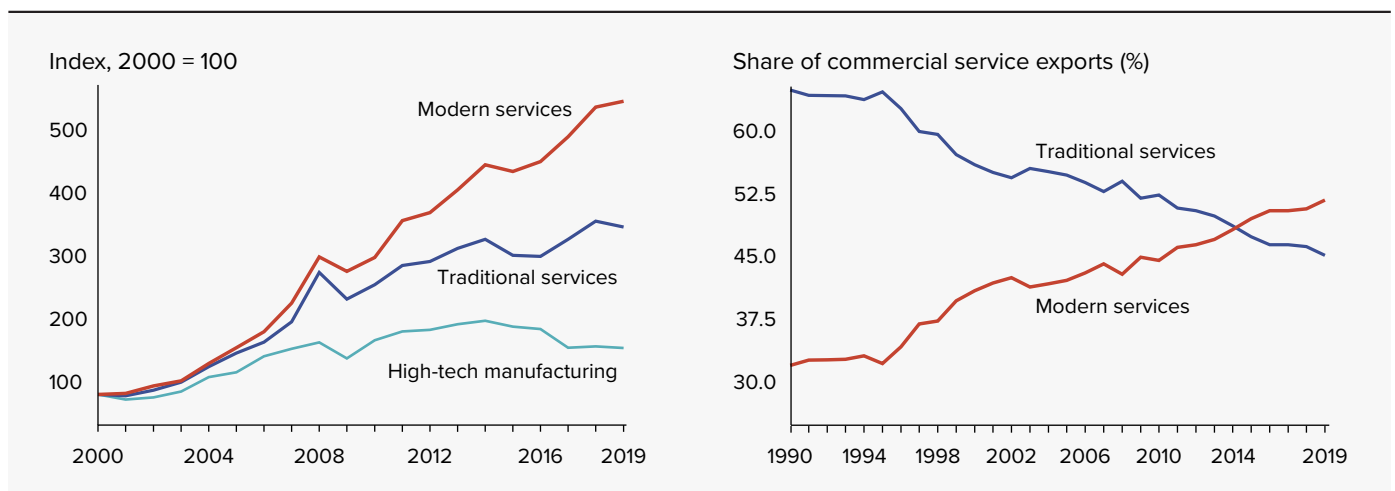
of physical goods,¹⁵² powered by increasingly low-carbon energy systems.¹⁵³ In 2022 digital service exports reached \$3.8 trillion in value and accounted for more than half of global trade in commercial services.¹⁵⁴ Modern service exports, which include computer and information services, have increased fivefold since 2000 and are quickly overtaking both exports in traditional services such as tourism, as well as high-tech manufacturing exports (figure 2.12).

Digital technologies are shaping how to navigate the Anthropocene

Navigating the Anthropocene will be shaped by choices associated with the Digital Revolution.¹⁵⁵ The increasing use of digital technologies has direct impacts on our planet, including the environmental footprints of novel technologies such as artificial intelligence and blockchain. These require vast amount of computing power and are associated with intensified greenhouse gas emissions.¹⁵⁶

The expansion of data availability and the increased ability to process huge amounts of data have been key factors in recognizing the Anthropocene, by enabling more precise measurement, monitoring and modelling of the Earth System, or how digital technologies have enabled communication and dissemination of scientific knowledge about the Anthropocene to the public at large.¹⁵⁷ But the interaction between already polarized societies and digital communication

Figure 2.12 Digital technologies are driving shifts in global economic interdependence, with dramatic increases in modern service exports since 2000



Source: Cornelli, Frost and Mishra 2023.

in social networks, characterized by algorithms that propel division and misinformation, can erode public deliberation, propel mistrust in science and put up barriers to collective action for a low-carbon transition.¹⁵⁸

While digitalization has expanded opportunities for many people, there are large and regionally concentrated inequalities in digital access. In Africa only 37 percent of the population were internet users in 2023, compared with a global average of 67 percent.¹⁵⁹ Only about a third of the digital gap in Africa can be explained by lack of infrastructure;¹⁶⁰ issues such as prohibitive costs and other barriers

may account for the rest. Investment in frontier technologies, such as artificial intelligence, is also associated with higher income inequality.¹⁶¹ If these asymmetries remain, many people risk losing out on the expanding economic opportunities that come with new technologies. Inequalities may also drive consumption patterns that add to planetary pressures, through spending cascades on so called positional goods, such as ever larger cars.¹⁶² These types of consumption patterns are channelled via aspirations and norms, which may be influenced by both traditional and social media.¹⁶³

The human toll of mismanaging interdependence: Insights from national and international history

Patricia Clavin, *Oxford University*

World War I was a catastrophic period in history with far-reaching effects. On average, 5,600 men died for every day that the war continued, and injured soldiers and civilians had some of the worst injuries ever seen. In the war zones factories, farms and homes were destroyed to the tune of around \$30 billion, roughly half of US GDP at the time.¹ As part of the political fallout of the war, the Austro-Hungarian, German, Ottoman and Russian Empires tumbled, and more than 14 million people were displaced.² In the peace negotiations that followed, it became clear that while millions of people everywhere aspired to greater self-rule, the British and French Empires expanded the number of territories under their governance as a result of the conflict. Other countries, notably Japan and the United States, grew in global prominence.

The Paris Peace Conference of 1919 and its subsequent peace treaties suggested that sovereign states existed on a plane of equality in the international system. But the war and its outcomes made it clear that the world's empires, nation states and colonized people who aspired to statehood had different natural endowments and access to resources that shape human development. In the international system states also had different interests and concerns. After 1918 governments, businesses, banks, farmers and people everywhere struggled to comprehend how much had changed as a result of the war. They were hit by a series of economic and social crises and responded by taking defensive measures that strongly prioritized national and imperial interests. Many governments mismanaged the interdependence of markets and people. Instead, numerous countries found themselves on a path to a second world war within a generation of the first.

World War II was even more destructive than its predecessor. Some 60 million people died around the world. Much more property and infrastructure lay in ruins. And the conflict inflicted unprecedented pollution on the planet, including radiation from a

new type of weapon, the atomic bomb. Yet this time, the types of social and economic crises that had battered many governments, people and world markets after 1918 were largely averted. In the following decades the prospects for human development improved markedly and remained on an upward trajectory for the rest of the 20th century. This spotlight reveals how the management of human interdependence in these postwar eras produced such different outcomes.

The search for national sanctuary in an interdependent world

After 1918 the first crisis that gripped the world was financial. No one had thought about how they were going to fund an unprecedented global war. As a result, the belligerent governments borrowed or printed money to pay for it. As the conflict ended, governments were desperate to get back to “normalcy” and removed all the controls on their national economies in an uncoordinated way. The result was rapid inflation. The worst cases were in the new republics of Austria, Germany, Hungary and Poland, which endured hyperinflation. In Germany prices quadrupled every month for 16 months.

But even some of the world's strongest economies had annual inflation of 20–30 percent. They dealt with this by returning their currencies to the international gold standard—a fixed exchange mechanism—which brought stability to prices and interest rates. States did this largely in an uncoordinated way, thinking about what suited their national interests and leaving the job to central banks and financial markets.³ It meant, for example, that the US dollar and the French franc were significantly undervalued, which helped their exports. Britain, a major importer of food and exporter of capital and financial services, preferred a strong pound and opted to overvalue the

pound sterling. This made life tough for its domestic producers and encouraged many of them to demand protection from overseas traders, a worldwide trend. It meant that while exchange rates were stable, the market interdependence that the gold standard system was supposed to safeguard had unstable foundations.

The next global financial crisis hit within a decade of the first, after October 1929. The consequences of the uncoordinated processes of financial reconstruction after 1919 became clear following the stock market crash on Wall Street in the United States. Having been heavily involved in stabilizing the currencies and economies of Central Europe in the 1920s, US political and financial leaders decided it had been too easy for investors—at home and abroad—to borrow money, so the Federal Reserve opted to increase interest rates. This decision pushed a downturn in the stock market into a full-blown depression as investment abroad was stopped in its tracks. The crisis was transmitted around the world through the gold standard system. Other central banks defended their currencies by increasing interest rates and demanded that their governments stop spending. Workers were laid off in droves, and poverty and hunger rates rose dramatically in the worst deflationary crisis the world had yet known.

By 1933 leading economists and international advisors had identified the right solution: they proposed internationally coordinated measures to reflate the world economy and stop the rising trade protectionism. But countries had acted to defend their economies in an uncoordinated way after 1929, and despite four years of suffering, the ability to cooperate was absent. There were now gaping domestic and transnational ideological divides between states, conflicting geopolitical interests and national politics moving in radically divergent directions. The failure of the world's major economies—Britain, France and the United States—to work together was especially damaging. And they now faced the emerging threat from National Socialist Germany, Fascist Italy and Imperial Japan, which was already waging war in Manchuria.

The see-sawing fortunes of the world's major economies from high inflation to a biting deflationary crunch, connected to ongoing—or triggered new—social and political crises. These were especially pronounced in countries that were defeated or

established as new nation states due to World War I. First came the Spanish Flu pandemic, so named because the first case was identified in Spain in 1918. It killed 50–100 million people, though it remains unclear where the pandemic began. This and other health challenges were exacerbated because so many people were on the move as a result of the war and its after-effects.⁴ The end of the war did not bring an end to health crises or to violence. The former territories of the Russian Empire were engulfed by civil war. By the time it ended, the population had fallen from 143 million to 134 million. Contemporaries were deeply worried by the risks posed by typhus and tuberculosis. In 1916 the first major study of the history of epidemic disease in wartime showed how soldiers were more likely to die from contagious disease than through enemy action and that epidemic disease among soldiers sparked worse epidemics among the civilian population.⁵

In 1920, in the former imperial capital city of Vienna, one in four deaths was caused by tuberculosis. Nutrition and living conditions were so bad that local officials calculated death rates rivalling those of the bubonic plague (called the Black Death) centuries earlier, generally recognized as the deadliest pandemic in human history. At the time new scientific understanding, including the discovery of vitamins and the role of minerals, made it clear that food quality was as important as quantity to human health. But many people around the world struggled to get enough to eat, despite the fact that the world suffered from agricultural overproduction that caused commodity prices to slump after 1918. Some 60 million peasants in Eastern Europe, for example, did not produce enough bread locally to get them through the year and thus faced a persistent cycle of rural undercapitalization, underemployment, malnourishment and misery. The sense of crisis among small-scale farmers and landless peasants in Asia and Europe was amplified by apparent threats posed by the emergence of industrial-scale food production on the American and Australian continents and the collectivization of agriculture in the Soviet Union after 1927.

The crisis in rural communities was matched by the crisis of joblessness in urban ones. Until the late 19th century impoverished rural workers could move to cities that were developing fast as a result

of industrialization and urbanization or migrate between countries. But new migration controls introduced before World War I and strengthened during it locked labour markets behind national and imperial frontiers, and cities, too, struggled to absorb rural poor people.⁶ The danger of unemployment—evident already in the 1920s as the world economy adjusted from the dislocation of the war and the move from heavy industry that characterized the first wave of industrialization to a new focus on consumer industries—expanded into a full-blown crisis in the Great Depression. No country was left untouched, but the spectacle of large-scale destitution in the United States—the world’s biggest economy, which had roared in the 1920s—shocked informed publics worldwide.

By the end of 1930s, observers were in no doubt that the onslaught of these crises, which came in quick succession, radicalized world politics. The 1920s and 1930s were rich in revolutions initiated by the left and military putsches or states of emergency on the right. But the record of these radical regimes demonstrated that these administrations, too, had no effective answer to the challenges facing human development in a world where interdependence faced new and rising barriers: currency controls, trade protectionism and strict limits on migration.

The inequality already endemic among different people and social groups was given a dangerous and immoral twist in fascist, nationalist and authoritarian regimes. They wanted to improve the standard of living for people who they claimed as their own but saw the resources from which improvement would come as finite. Adolf Hitler, the German dictator, saw himself as a *Raumpolitiker*, a spatial politician, who demanded that the world be reshaped to match the quest for *Lebensraum*, or living space. His Axis alliance with Italy and Japan was gripped by the battle—it became World War II—for the “right sort” of material, human and physical.⁷

Crisis served as an opportunity for radical leaders of the Axis powers to introduce policies intended to raise living standards for their selected people and reduce them markedly for ethnolnational and socioeconomic categories they identified as the enemy, both within and beyond their national frontiers. Axis leaders were determined to break their dependence on other states and on international norms and to

control their own destiny. At the same time, beggary-neighbour policies, as contemporaries called them, were not confined to dictatorships. They were adopted by states everywhere in autarkic and isolationist measures that left the world economy depressed and set back human development.

Mutual help and institutionalized cooperation addresses interdependence

Historians have long debated the degree to which modern warfare plays a central role in the emergence and consolidation of the modern state. Paradoxically, major wars also make political leaders—regardless of whether their countries are at war—acutely conscious of the international context. As when Japan went to war against China in 1937 and Germany attacked Poland in 1939, the nationalism that characterized politics after 1918 gave way to the internationalism of war. It also set up new pathways to international cooperation in managing global interdependence.

In World War II leaders of the Allied powers were determined to see crisis as opportunity. The dominant impulse was to learn from but break with the past. This time, policymakers anticipated that there would be substantial postwar challenges and probably crises. The League of Nations, the forerunner to the United Nations, helped determine the basis for cooperative discussions among Britain, China, France, the Soviet Union and the United States, among other powers. Its view was that the problems of interdependence in a world of geopolitical rivalries “did not lend themselves to settlement by formal conferences.”⁸ Instead, it suggested, “the primary object of international cooperation should be mutual help ... above all, the exchange of knowledge and the fruits of experience.”⁹

In contrast to World War I, the planning for peace came early—as soon as the United States entered the war in December 1941. In contrast to World War I, too, when geopolitical questions around borders and disarmament took priority, the focus after 1941 was on economic and social issues. The move recognized the importance of economic and social questions to the prospects for human development and that the needs of national economies had to be understood and managed with those of the world economy. The

first organization of the new United Nations was announced in 1943 at a meeting in Hot Springs, Virginia. The new UN Food and Agriculture Organization was part of a new international will to jointly tackle problems under the general heading of freedom from want.¹⁰

This was underlined in new and discrete institutions—the International Bank for Reconstruction and Development (the World Bank), the International Monetary Fund, the United Nations Relief and Rehabilitation Administration (intended to oversee postwar reconstruction). A new organization was also planned to address trade protectionism—it became the General Agreement on Tariffs and Trade.

Although these institutions were new, they built on pathways to cooperation established by the League of Nations in 1919. At the start its focus was disarmament and peace. But the interwar crises encouraged new capacities in the organization, notably in relation to economic, social and health questions—for example, the World Health Organization, set up in 1945, was an extension of the League of Nations Health Committee. We often think of the League of Nations as a failure because it was unable to prevent conflict among member states. But the organization established key ideas and practices to effect multilateral cooperation that lived on in new global and regional institutions.¹¹ It also offered small and middling-size powers an enhanced international platform. They could be heard on terms of nominal equality with bigger powers that conventionally called all the shots.

After 1945 new stress on the need to manage and support the economy for social good was matched by the attitudes of governments that had new policy tools and information at their disposal, demonstrating a new confidence in the world’s major states that

they could handle crises nationally and internationally and a recognition of the interdependence of global, national and local stability. In 1945 the United States was wealthier and stronger than it had ever been in absolute and relative terms. In contrast to 1919, when both the United States and the Soviet Union were absent from the League of Nations, this time, both countries committed to supporting new international institutions to promote cooperation. There was strong agreement about the need to coordinate efforts on an international and regional basis to avert economic and social crises that, without cooperation, would lead to disaster as they had after 1914 and 1937.

Power politics could still get in the way of cooperation. Experts and policymakers were frequently divided over the details of specific measures, and bitter political disputes among China, the Soviet Union and the United States in the 1950s and early 1960s limited cooperation on some questions. It also generated rival attempts to address common dilemmas, with capitalism and communist powers competing to support the modernization aspirations of parts of Africa and Asia, for example. The history of mutual independence in the face of crises during these two postwar eras reveals that cooperation on specific initiatives was rarely the product of collective will. Rather, as in the 1940s, individual people and groups with big ideas promoted cooperation in ways that gave people hope in the world’s darkest hours. The international organizations and practices they developed recognized that societies and markets were mutually interdependent. The institutionalized world order created after 1945 was not the product of consensus or the end of argument. Instead, it reflected agreed rules and understandings of the terms under which conflict took place.¹²

NOTES

1. Bogart 1920.

2. Zhvanko and Gatrell 2017.

3. Eichengreen 1992.

4. Barry 2004.

5. Prinzing 1916.

6. Lake and Reynolds 2008; Zieger 1969.

7. Overy 2021.

8. League of Nations 1939.

9. League of Nations 1939.

10. Staples 2006.

11. Clavin 2013.

12. Hurrell 2008.

Managing global interdependence to advance human development

Humans are relational beings.¹ Social, economic and environmental relations shape values, opportunities and choices, implying that human development is a function not only of what people have or can do but also of how they relate to others, to the society they live in and to nature. Throughout the lifecycle people are embedded in social networks where they are at times dependent on and at times interdependent with others who influence opportunities, constraints and wellbeing² (box S2.2.1). Social contexts and relations also shape preferences and can lead to behaviours and practices that perpetuate social norms, including harmful ones.³ For example, strong gender norms and biases against gender equality can influence women's aspirations and discourage them from pursuing certain types of careers or occupations.⁴ Social norms can also greatly influence attitudes and behaviours in relation to nature and the planet (chapter 4).⁵

The spillovers between social contexts and human development outcomes can create vicious or virtuous cycles.⁶ For example, positive family relations and supportive parents are key for early childhood development,⁷ which can later contribute to stronger education achievements that translate into higher earnings in adulthood.⁸ Positive family and work relations also contribute to better mental health and wellbeing and “provide the conditions for the same positive relations to be perpetuated in an individual's own parenting and other future relationships.”⁹ By contrast, human development inequalities and deprivations can compound over one's lifecycle and into future generations.¹⁰ Scrutinizing these social externalities in a systematic way may help unveil new mechanisms for harnessing interdependence that goes beyond correcting for market failures¹¹ (chapter 4). For example, leveraging parental altruistic instincts can extend solidarity and prosocial behaviour beyond one's immediate family.¹² Even the existence and influence of social norms on behaviour suggest

that these can be harnessed in ways that enhance human development and the stewardship of nature.¹³

Relational wellbeing extends to the group, society and even planetary levels—the focus of this chapter. Leveraging humans' hypersociability¹⁴ and ability to form bonds with each other has played a pivotal role in facilitating cooperation and exchange even between strangers, enabling the formation of large-scale societies and complex economic systems. Insights from evolutionary theory and cultural and social psychology shed light on this trajectory (chapter 4).¹⁵

This does not imply that cooperation is inevitable, as countless examples of conflict and power struggles demonstrate. Different societies, facing different constraints and contexts, have developed a variety of mechanisms for cooperation,¹⁶ through social norms or codified in formal laws and regulations (chapter 4). The insights do, however, reveal that drawing on humans' relational capacities to cooperate and leveraging a “collective brain”¹⁷ have been important in fostering progress. Indeed, throughout human history larger and more interconnected societies have been able to “sustain more complex technologies, languages, institutions and behavioural repertoires.”¹⁸

Knowledge and innovation have been powerful, perhaps fundamental, drivers of human development. Ideas build on each other and are combined in processes that require people to work together.¹⁹ Engaging with other people can facilitate the direct sharing of ideas and enable indirect spillovers of knowledge, particularly when it is concentrated geographically, explaining why cities provide fertile ground for new ventures and technological advances.²⁰ At the same time global trade and long-distance connections enable local economies to overcome production constraints and natural endowment limitations, to support the flow of ideas²¹ and to tap into powerful forces of economies of scale and specialization. These connections

Box S2.2.1 Relational and interdependent wellbeing

By taking relationships as morally significant, relational approaches shape our way of understanding wellbeing and recognize the need for richer wellbeing tools and methods.¹ They do this by taking wellbeing as contingent on the quality of our relationships with other people and with nature. More than this, relational wellbeing acknowledges the way relationships feature within and across connected communities, including globally connected and intergenerational relationships. In so doing, relational approaches provide a starting point for confronting global, ecological and intergenerational challenges while also providing community perspectives to generate new solutions.

Relational frameworks extend the capabilities approach by highlighting how an individual's wellbeing is constituted through the interplay of personal, social and environmental processes.² Relationships become critical for living well—as means to or constraints on flourishing. Taking individuals as parts of a diverse network of social, cultural, ecological and intergenerational connections, relationships are understood as not just means to living well but vital for our identities too.

The wellbeing of humans, as relational subjects,³ is not merely bound up with others, but informed by our vulnerabilities, social needs and environmental dependency. By recognizing that our wellbeing is intimately bound up with the health of the natural environment, we can come to understand how climate change affects not only our physical health but also our mental health, social cohesion and cultural identity.⁴

Such approaches can be found in Indigenous communities worldwide. Relationships often provide a vastly inclusive and multidimensional way of grounding and structuring the conceptual framework and territory for Indigenous philosophies to take shape and evolve. Indigenous communities enact relationality under stewardship notions, such as *kaitiakitanga* in New Zealand,⁵ *sumac kawsay* and *allin kawsay* in South America,⁶ *Aloha* and *Mālama 'Āina* in Hawai'i⁷ and *Mabu liyan* (and other notions that incorporate caring for country for Aboriginal and Torres Strait Islanders) in Australia.⁸ For many Indigenous communities these relationships are so profound that their loss may present existential threats to their way of life (chapter 1). In Jonathan Lear's *Radical Hope*, Crow Tribe Chief Plenty Coups describes a sense of loss, identity and purpose felt across Indigenous groups in the face of disappearing landscapes and biodiversity: "When the buffalo went away, the hearts of my people fell to the ground, and they could not lift them up again. After this nothing happened."⁹

Relationality is found in various feminist approaches across and between communities and disciplines,¹⁰ in health and ecological system thinking¹¹ and in local communities themselves too. By emphasizing the interconnectedness and interdependence of human beings across borders and boundaries, these approaches provide different perspectives and innovations. They also foster a sense of global solidarity and help us cope with the uncertainty and complexity of a changing world by fostering adaptability through learning, social support and relationship building.

Notes

1. This box greatly benefited from the contributions of Krushil Watene. 2. White and Jha 2023. 3. White and Jha 2023. 4. Allen and others 2023; Grix and Watene 2022. 5. Grix and Watene 2022. 6. Watene and Merino 2018. 7. Ingersoll 2016. 8. Yap and Yu 2019. 9. Lear 2006, p. 3 10. Murdoch 2018; Teaiwa 2021; Underhill-Sem 2011; Yap and Watene 2024; Whyte 2016. 11. Jones 2019; Matheson 2022; Matheson and others 2020.

also foster learning, innovation and knowledge transfers that can enable companies and places to up-skill and increase productivity and income.²²

Harnessing global cross-border connections and leaning into cooperative capacities have brought a lot of prosperity. Global cross-border flows expanded economic opportunities and productivity growth, with unprecedented increases in living standards for millions of people.²³ International migration has contributed to cross-cultural connections,²⁴ enriching the world's art, musical and cultural landscape.²⁵ Knowledge exchanges and international scientific collaborations have driven critical breakthroughs and advances in human health. For example, the discovery

of the human immunodeficiency virus (HIV) and its treatments,²⁶ the recent development of Covid-19 vaccines²⁷ and the mapping of the human genome—all relied heavily on cross-border collaboration.²⁸

To continue harnessing the benefits of interdependence, we need to manage interdependence better and to find ways of doing it without reverting exclusively to barriers at national borders. Even though they may be justified in some cases to manage the risks of hyperglobalization, they will not suffice to deal with the ways in which global interdependence is being reshaped by humans' planetary pressures and the digital transformations under way. Furthermore, the inward-looking and protectionist actions advocated by many supporting or

leading populist positions are also costly²⁹—and potentially dangerous (spotlight 2.1). Trade fragmentation can increase price volatility and heighten uncertainty in global markets.³⁰ Low-income economies, highly dependent on international commodity trade, may incur the largest welfare losses with the fragmentation of global markets.³¹ But even large high-income economies and regions are susceptible to welfare losses under different geoeconomic fragmentation scenarios.³² In contrast, place-based policies that complement, rather than replace, international cooperation can spur economic development and support firms and regions in harnessing the benefits of global interdependence.³³ This might entail shifting local and regional economic development policy approaches from a logic of up-scaling of primary goods to manufacturing to service exports, to investing in skills that allow for moving from low- to high-value added activities within global value chains.³⁴

Going forward, the Anthropocene reality of a changing planet, in combination with large-scale economic transformations and technological innovation, will reshape and propel new patterns of interdependence. In this sense our choice is not between global interdependence and complete national self-reliance. It is between continuing business as usual or taking seriously the challenge of building systems and institutions that are resilient and adaptable to an evolving context.

The globalization of discontent calls for shifting the approach to managing global interdependence. Reduced global exchange and cooperation in favour of isolated nationalism are unlikely to help us face the challenges that arise from the current drivers of interdependence. But neither is unregulated globalization or hoping for a pure technological solution to challenges that span borders.³⁵ In a globally interdependent world we need to identify and pursue our shared problems and how to address them (chapter 3).

NOTES

1. Diverse knowledge traditions and philosophical schools of thought emphasize the relational aspect of humans. For example, the South African concept of Ubuntu—"I am because we are"—highlights the importance of community in defining the individual (Chowdhury and others 2021). Confucian ethics stresses the importance of fulfilling one's roles and responsibilities in relation to others (Shun and Wong 2004). In western philosophy Aristotle, for example, argued that that humans are political animals whose ability to cooperate through speech and reason is a defining feature (Arnhart 1994) Much later, feminist scholars have stressed the importance of relational and reproductive work to maintain the conditions of human life, such as caring for infants (see, among others, the work of Nancy Folbre, including Folbre 2008, 2012; Folbre and Bittman 2004; and the work of Julie A. Nelson, including Ferber and Nelson 2009).
2. Settersten 2018.
3. Hoff and Stiglitz 2016.
4. Tabassum and Nayak 2021.
5. UNDP 2020b.
6. Fleurbaey, Kanbur and Viney 2021.
7. Jeong and others 2021.
8. In Gertler and others (2021) a home-based intervention that improved both nutrition and the quality of mother-child interactions (to foster cognitive, language and psycho-social skills) led to approximately 40 percent higher earnings at age 31 among the children who had received the interventions, compared with a control group.
9. Fleurbaey, Kanbur and Viney 2021, p. 18.
10. UNDP 2019.
11. Fleurbaey, Kanbur and Viney 2021.
12. Fleurbaey, Kanbur and Viney 2021.
13. UNDP 2020b.
14. Henrich and Muthukrishna 2021.
15. Henrich 2023; Henrich and Muthukrishna 2021; Henrich and others 2016; Tomasello and others 2012.
16. Henrich and Muthukrishna 2021.
17. Henrich 2023; Henrich and Muthukrishna 2021.
18. Henrich 2023, p. 407.
19. Romer 1994.
20. Bettencourt and others 2007; Fujita, Krugman and Venables 2001.
21. The Ricardo and Heckscher–Ohlin models provide the foundations of the international effects on income; see, for example, Leamer (1995).
22. Crescenzi and Harman 2023. See also Stiglitz (2007) and Stiglitz and Greenwald (2014), as well as Grossman and Helpman (1991), Hoekman, Maskus and Saggi (2005) and Sturgeon (2008).
23. Bartley Johns and others 2015; Dollar and Kraay 2004; Winters, McCulloch and McKay 2004.
24. Leblang and Peters 2022.
25. Martiniello 2022.
26. National Academy of Medicine 2022; Schwetz and Fauci 2019.
27. Lee and Haupt 2021; UNESCO 2023.
28. International Human Genome Sequencing Consortium 2004; Maxson Jones, Ankeny and Cook-Deegan 2018.
29. Funke, Schularick and Trebesch 2023.
30. Alvarez and others 2023.
31. Bolhuis, Chen and Kett 2023.
32. Baba and others 2023.
33. Goldberg 2023.
34. Crescenzi and Harman 2023.
35. As seen in chapters 3, 5, and 6, in many cases technologies such as low-carbon energy sources already exist and could be scaled, but polarization and distrust can put up barriers to action.

CHAPTER

3

**Providing global
public goods
to manage
interdependence**

Providing global public goods to manage interdependence

Mismanaged interdependence imposes costs, or even setbacks, to human development. But managing it can be enhanced by framing it as providing global public goods, such as global peace and climate change mitigation, as explicit goals.

Applying a global public goods lens to the Covid-19 pandemic yields three key insights about enabling better responses in the future. First, is for a range of different types of global public goods, mechanisms can be designed to address the bottlenecks for each type. Second, what constitutes global public goods is often a matter of choice, and providing them can bring countries together. Third, institutions can be created to enhance the provision of global public goods.

A global public goods lens helps in better managing global interdependence. It shifts us out of zero-sum tribalism that the Report recognizes as a problem and into a frame of mind that rightly matches shared action to shared problems, without assuming that all disputes will dissipate or that diverging interests will not persist. It shifts our thinking from a defensive fatalism or endless problematizing to recognizing human agency, thus enriching clear-eyed, practical conversations about and action on shared futures. In mobilizing shared action, we not only stand a better chance of doing better overall; we also stand a better chance of not leaving people behind. The shift in frame also opens our imaginations to lots of other potential ways forward, and we can sift through those options better and more systematically using what we know about global public goods and what we have learned about them—in research and in practice—over many years. We save time, energy and resources to get to better, more equal outcomes. And then—success can breed success.¹

A global public goods lens helps in understanding features and patterns that may be shared across a wide range of global challenges, and it can better prepare the world to anticipate new challenges. It does so by enabling a more systematic approach to identifying and addressing emerging challenges characterized by interdependence, even ones we cannot anticipate today.

“Managing interdependence can be enhanced by framing it as reflecting the need to provide global public goods, such as global peace and climate change mitigation, as an explicit goal

The horrifying human toll of violent conflict, the ravages of climate change, the reconfiguring of global trade, a new cycle of debt distress, the lives lost to Covid-19—all make it clear that we live in a highly interdependent world where physical and digital things, from viruses to misinformation, quickly spill across national borders. As we move further into the Anthropocene, where humans drive planetary change in unprecedented ways, we will have to respond to economic, social and environmental challenges that are planetary in scale. As the previous two chapters demonstrate, global interdependence is being reconfigured, and mismanaging it imposes costs, or even

setbacks, to human development. Managing interdependence can be enhanced by framing it as reflecting the need to provide global public goods, such as global peace and climate change mitigation, as an explicit goal. This is already being taken up through proposals to reform multilateral governance² and multilateral development banks in order to broaden their mandates to support national contributions to global public goods.³

What are global public goods?

We begin with a concrete example that schoolchildren around the world learn about every year: knowledge of triangles. Determining the length of the sides of triangles has long been of concern to mathematicians and philosophers, not to mention engineers and builders. For instance, if we know the lengths of two sides of a triangle, what can we know about the length of the third side? It turns out that for specific kinds of triangles, quite a lot. The Pythagorean theorem⁴—a classic of geometry—gives us a rule to calculate the length of the third side for right triangles. This rule helps us understand other basic shapes, such as circles, and underpins much of what we can build in our minds and in the real world.

The Pythagorean theorem, like much knowledge, exhibits the distinguishing features of global public goods. When someone applies the theorem, it does not detract from anyone else in the world doing the same. The theorem is used, and has been used, by many people at the same time in construction, navigation, mapmaking and numerous other activities.⁵ And it is very hard, if not impossible, to prevent anyone from using the theorem⁶ because it is not held exclusively by a firm that controls the conditions for its use. Nor is it circumscribed by the borders of a country with the sovereign power to decide how people living in other countries can use it.⁷

These two characteristics—that use by one person does not prevent someone else from using it at the same time and that it is hard to exclude anyone from using it—make the Pythagorean theorem a global public good.⁸ So are all mathematical theorems in the public domain, and so are other insights about the natural world and about how economies and societies function and change. In short, ideas and knowledge in the public domain are global public goods.⁹

Other global public goods include identifying and containing diseases with global reach, mitigating climate change, preventing and containing the spread of international financial crises, maintaining international peace and fostering cybersecurity.¹⁰ Some global public goods cannot be envisioned now because we simply lack the knowledge to identify them—in the same way that science and detection technologies only recently made it possible to document the depletion of the ozone layer or establish the human cause of climate change.

“A global public goods lens is useful in managing challenges or opportunities that spill across borders. It is also useful in confronting and redressing dangerous planetary change

Global public goods can also be created; they are not always simply given. For example, through the Montreal Protocol, the world is providing the global public good of avoiding depleting the stratosphere’s ozone layer, which shields all life from the sun’s harmful ultraviolet radiation. Both technology and social choice shape the conditions of production or consumption that can determine whether someone can be excluded.¹¹ For example, broadcast television channels have the potential to reach anyone with a receiving device, whereas cable television (an alternative technology) channels are available only to those who subscribe to a cable television service (access was made excludable as a result of a new technology and social choices on how to deploy it).

There is often some discretion, given the state of technology and the inherent characteristics of the good in question, to determine through social choices what is, or is not, a global public good. And some technologies—such as those that sustain our digitally connected world, allowing for the instantaneous sharing of information by practically all 8 billion people living on Earth today—create conditions of interdependence that can call for new global public goods.¹² In the context of the Digital Revolution, this includes what have been described as digital public goods (box 3.1). Thus, providing global public goods, often rightly framed as a problem to be solved, can also be purposefully deployed to mobilize action towards addressing shared challenges.¹³

A global public goods lens is useful in managing challenges or opportunities that spill across borders. It is also useful in confronting and redressing dangerous planetary change.¹⁴

Cross-border challenges and opportunities as global public goods

The outbreak of a communicable disease that moves across borders has negative spillovers that can be managed through the global public good of communicable disease control. Global public goods always involve international spillovers that reflect uncompensated interdependence among countries (meaning that one country makes decisions without regard to the impacts that those decisions might have on other countries).¹⁵

In recent decades spillovers with global reach have been driven by policy choices (how much countries allow for the flow of people, goods, services, finance and information), by technologies (which determine the cost, speed and ease of cross-border flows) and by the way the two interact (see chapter 2). Even though policies can constrain cross-border flows, technology may make that hard (many people can easily catch an airplane flight and share information globally over digital networks). But there are some global public goods for which stopping flows at the border—and managing them in that way—is not feasible: this includes what can be considered planetary public goods.

Planetary public goods: An emerging and enduring class of global public goods

The reality that humans share a single planet with one another and other forms of life, today and well into the future, implies that processes of dangerous planetary change can be framed through a global public goods lens.¹⁶ Consider managing the global commons, such as open-seas fisheries (spotlight 3.1). The global commons are widely accessible resources but are not global public goods¹⁷ because their use by someone implies that the resources extracted from them are not available at the same time to someone else, as with fishing on the open seas.¹⁸ But restricting

Box 3.1 Digital public infrastructure and digital public goods

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As this chapter has noted, technologies are among the sources of promise and peril for the world in the years and decades ahead. On the one hand digital public goods—open-source software, artificial intelligence (AI), standards and content—offer opportunities for economics and social development, particularly for low-income countries.¹ On the other hand the rapid development of generative AI in particular has led to concerns ranging from the proliferation of deep fakes and misinformation to a potential destabilizing geopolitical arms race to advance and deploy AI. With the technology continuing to develop rapidly, this is the moment when the future path for the world will be decisively shaped by actions taken now.

One of the areas in which the positive potential has begun to emerge clearly is in identity and payments systems, a technology stack that has come to be known as digital public infrastructure. This consists of a system of identification (which can be biometric), payments structures and data; a digital public infrastructure can be used not only for mobile payments but also for delivering welfare benefits and other public and private services. The best-known examples are the India Stack, founded on the identification platform Aadhar,² and Estonia's X-road.³ Several other countries have begun to adopt these platforms or to digitize identity and public services using other solutions, and under India's leadership the Group of 20 (G20) recently affirmed a commitment to using digital public infrastructure for development.⁴

The initiatives are not without problems, including concerns about access for marginalized groups and errors or procurement delays.⁵ Digital public infrastructure should not be seen as a panacea; it is important to avoid techno-hype and to learn from early failures. Nevertheless, digital technologies do offer new opportunities for development, just as the mobile and broadband revolutions from the mid-2000s created economic possibilities for people and businesses in low- and high-income countries alike. While the United Nations Development Programme has emphasized the importance of digital public goods for moving towards the Sustainable Development Goals, the time has come to consider what aspects of digital technology should become development goals in themselves and to engage in granular debate about appropriate policy environments.⁶

At the same time there is a need to ensure that future developments in AI, and in the supporting infrastructure of data centres, undersea cables, chips and data, do not lead to a zero-sum arms race. In the current global environment generative AI and advanced chip manufacture are too often seen only through a national security lens, an essential perspective but only part of the global picture. There have been many international codes of AI principles in recent years—for example, by the G20 and the Organisation for Economic Co-operation and Development (OECD)—but too little substantive, detailed debate about effective global governance given the characteristics and affordances of the technology and the existing structures of market and political power.⁷

Notes

1. For definitions and examples of applications to advance development, see <https://www.un.org/techenvoy/content/digital-public-goods> (accessed 17 February 2024). **2.** <https://indiastack.org/> (accessed 17 February 2024). **3.** <https://e-estonia.com/solutions/interoperability-services/x-road/> (accessed 17 February 2024). **4.** G20 2023b. **5.** Howson and Partridge 2022. **6.** UNDP 2023c. **7.** On the G20, see https://www.mofa.go.jp/policy/economy/g20_summit/osaka19/pdf/documents/en/annex_08.pdf; on the OECD, see: <https://www.oecd.org/science/forty-two-countries-adopt-new-oecd-principles-on-artificial-intelligence.htm> (both accessed 17 February 2024).

the depletion of the global commons—for example, avoiding depleting the ozone layer—can be framed as a global public good.¹⁹ Some negative environmental externalities such as cross-border air pollution cannot be stopped at borders. Migratory birds fly across countries and sometimes continents, interweaving nature from different territorial demarcations.²⁰ These examples of interdependence justify the long-standing international management of environmental challenges, as reflected in the growing number of multilateral environmental agreements, which have accelerated since the 1980s.²¹

Knowledge and awareness of some of these global environmental externalities are increasing—enabled

in part by technologies for monitoring biophysical flows and in part by scientific advances in understanding their interactions. For example, recent advances in hydrology have determined that water cycles depend on what happens not only with surface water (including rivers and lakes, with well-known transboundary challenges) or groundwater (including aquifers) but also with terrestrial moisture recycling (moisture that enters the atmosphere via evaporation or plant transpiration and travels with the wind across countries and even continents, eventually falling as rain).²² Terrestrial moisture recycling accounts for 40 percent of annual precipitation on land—and as much as 75 percent in some places.²³ So these are

very important global processes in determining local rainfall patterns, which can be crucial for supporting agriculture or predicting floods and droughts. As an example of the global interdependence associated with moisture recycling, consider how tropical forests contribute substantially to land evaporation globally.²⁴ Deforestation in one region can reduce rainfall in regions far away, with particularly serious implications for rainfed agriculture.²⁵

“A planetary public goods lens, as part of a broader global public goods lens, provides an analytical framework that brings structure to a wide range of challenges and opportunities associated with global interdependence and can be leveraged to mobilize action at multiple levels

Patterns of disruption of planetary biophysical processes, including on global terrestrial moisture recycling, are reaching an unprecedented speed and scale.²⁶ This suggests that we are living in an entirely new geological epoch: the Anthropocene.²⁷ There are, of course, better known manifestations of these disruptions—including, most prominently, the depletion of the ozone layer, climate change and threats to the integrity of ecosystems and biodiversity, all of which have been analysed through a global public goods lens.²⁸ At-the-border policies can do little or nothing to manage or restrict the spillovers associated with these disruptions, given that they emanate from the reality of all humans living on a shared planet. Planetary public goods are thus a special category of global public goods, and the reality of the Anthropocene will persist well into the future.²⁹ So providing planetary public goods is not only of crucial importance today but also a challenge that will persist for future generations.³⁰ That includes considering the biosphere (the thin layer of life that surrounds the planet and in which we and our development are embedded) a planetary public good. The provision of this specific planetary public good could be assessed by the extent to which the biosphere’s global integrity is preserved. The biosphere and its global integrity mediate large-scale responses in the Earth system that could affect its suitability for complex human societies.³¹

A planetary public goods lens, as part of a broader global public goods lens, provides an analytical framework that brings structure to a wide range of

challenges and opportunities associated with global interdependence and can be leveraged to mobilize action at multiple levels.³² Doing so requires adding more structure to what is required to provide global public goods beyond simply defining them.

What does it take to provide global public goods? They are not created equal

Recall the Pythagorean theorem. How did this global public good come about? Although attributed to Pythagoras, it was known hundreds, even thousands, of years before Pythagoras to people living in Babylon, Egypt and the Indian subcontinent.³³ Once it became known, as with ideas more generally,³⁴ it took the form of a global public good. This simple example shows that global public goods are ubiquitous and plentiful, shaping how economic activity as well as political and social life is organized.³⁵ It also shows that, despite being available for everyone, global public goods do not benefit everyone equally.³⁶ For ideas,³⁷ such as the Pythagorean theorem, emanating once in one country would be enough for the global public good to be provided.³⁸ Many global public goods are of this type, but there are other types of global public goods for which the level of provision is determined by the aggregation of country contributions in other ways.³⁹

How country contributions aggregate to determine the level of provision of global public goods

Global public goods can be classified as different types, including by how the aggregation of individual country contributions affects the level of provision. There are many different methods of aggregation.⁴⁰ Three key types of global public goods are considered here, distinguished by their aggregation method: best-shot, summation and weakest-link (table 3.1). Different global challenges fit within each of these three types, so by bringing a framework that finds commonalities across issues that seem widely disparate, a global public goods lens can tailor management of these issues without reinventing the wheel every time. Learning from successful efforts in managing global challenges in one area can inspire responses in other areas that share similar features,

Table 3.1 Recommendations for how to improve the provision of different types of global public goods

Aggregation	Provision prognosis	Recommendations
Best-shot (for example, scientific breakthrough)	Likely to be provided if incentives are strong enough for the best shooter to contribute	Rich or dominant country fosters provision, but multilateral institutions can pool actions or coordinate among multiple potential best shooters
Summation (for example, climate change mitigation)	Tendency for underprovision due to free or easy riding because contributions are perfectly substitutable	Grants and loans are needed to foster fairness, and multilateral institutions are needed to monitor and track contributions
Weakest link (for example, disease control)	More likely to be provided if interests and capacities are similar; if there is a need to shore up poor countries, free riding concerns may emerge if support is to be pooled across high countries; risk of a “spoiler” blocking provision	Capacity building is essential to enhance the contributions of those least able to contribute; income redistribution makes provision more likely

Source: Human Development Report Office based on Buchholz and Sandler (2021).

in terms of how the aggregation of country contributions determines the level of provision of global public goods.

Best-shot global public goods. When the contribution of the country that contributes the most determines the level of provision, we are in presence of a best-shot global public good. Potentially only one country is enough to fully provide a best-shot global public good. Consider an Earth-destroying asteroid. It needs to be diverted or destroyed only once to protect everyone on the planet.⁴¹ Though a seemingly far-fetched scenario, one country, the United States, is investing in the global public good of protecting the planet from this threat—and successfully diverted the orbit of an asteroid, in a test of the capabilities that might be required.⁴² The test was done unilaterally, and if the world were to ever confront an incoming asteroid, presumably the country would act alone in providing the global public good of diverting it.⁴³ In a scenario where multiple countries have the interest and ability to contribute, the country that contributes the most single-handedly determines the level of provision of a best-shot global public good.⁴⁴

Summation global public goods. Even if one country were to unilaterally stop emitting greenhouse gases, the atmospheric concentration of those gases would still be determined by what all the others emit.⁴⁵ Thus, stabilizing the concentration of greenhouse gases (critical for climate stability) is a summation global public good. Each ton of greenhouse gas emissions is perfectly substitutable by the emissions from any other country—that is, from the atmosphere’s perspective it does not matter where emissions reductions come from.⁴⁶ Unlike best-shot global public goods, the sum of the contributions from countries—often, as in stabilizing the concentration of greenhouse gases, from most if not all countries—determines the level of provision of summation global public goods.

Weakest-link global public goods. Many more types of global public goods associated with different ways of aggregating country contributions could be explored, but a third one merits special attention: when the level of provision is determined by the country least able to contribute. This is the case for communicable disease control: even if all countries but one are able to control the spread of the disease, the world as a whole is left vulnerable to the threat, because a disease outbreak can occur in the country with the least ability to control the disease.⁴⁷ This type of aggregation corresponds to a weakest-link global public good, since the country that contributes the least determines the level of provision of the global public good for the world as a whole. Other examples include the surveillance of a financial crisis that could spread across countries.⁴⁸

When the country that contributes the most determines the level of provision: Best-shot global public goods

For best-shot global public goods, if at least one country sees that provision is in its interest and can contribute what is required (making it the best shooter), it will likely (but not inevitably) provide the global public good when it has the resources to do so.⁴⁹ Before the creation of multilateral financial institutions after World War II, the provision of international liquidity of last resort was a best-shot global public good: it took only one country to be able and willing.⁵⁰

If several countries are pursuing the provision of the same best-shot global public good, coordinating efforts to enable the best shooter or pooling efforts to seek complementarities (through multilateral organizations, for instance) enhances efficiency and often the prospect of success.⁵¹

Best-shot global public goods are a double-edged sword. They are likely to be provided when resources are aligned with the interests of the best shooter, but they leave the world vulnerable to a situation where the best shooter is able but unwilling to contribute. Thus, countries may be motivated to pool resources⁵² for multilateral approaches that make the world less vulnerable to a misalignment between the ability and the willingness to contribute to a best-shot global public good. Even then, higher income countries with more resources and capacities are essential in providing best-shot global public goods, given the need for concentrated action.

“Best-shot global public goods are a double-edged sword. They are likely to be provided when resources are aligned with the interests of the best shooter, but they leave the world vulnerable to a situation where the best shooter is able but unwilling to contribute

It is possible to think of other ways of solving the misalignment of ability and willingness to provide best-shot global public goods. For example, a country with enough resources to provide a best-shot global public good might be compelled to contribute as a demonstration of leadership or by being responsive to an appeal to conform with international norms. And agents other than states—for instance, civil society organizations and philanthropic foundations—can play a key role in shaping those norms, both across and within countries, so that countries with resources do provide best-shot global public goods.⁵³

When every country's contribution adds cumulatively: Providing summation global public goods

Countries pursuing exclusively their self-interest typically face incentives to contribute little, or not at all, to summation global public goods, because of the possibility that some countries may free ride (not contribute) or easy ride (contribute few resources).⁵⁴

Thus, countries will tend not to contribute enough to reach what would be collectively desirable for the world.⁵⁵ Since countries vary in both interests and resources, these differences further exacerbate the challenge of providing summation global public goods.

Diverse interests must be reconciled, and agreement reached on how much countries will voluntarily contribute. Fairness becomes paramount in shaping agreement.⁵⁶ Addressing fairness may require international transfers or resources from countries that have larger endowments or that have contributed most to the problems, as with greenhouse gases in the atmosphere, determined by current and past emissions.⁵⁷ Many negative impacts of climate change will happen faster and with greater intensity in the regions that have contributed the least to climate change.⁵⁸ And international transfers may be motivated not by altruism but by a desire to redress injustices, which may be required to enhance the prospects of widespread contributions to a summation global public good.⁵⁹ Global public goods often require new and additional resources, and it is crucial that these are not siphoned off from flows provided with a different motivation, such as official development assistance.⁶⁰

When it all boils down to the country that contributes the least: Providing weakest-link global public goods

In contrast to summation global public goods, the incentives look very different for weakest-link global public goods. If all countries share similar interests and resources, there is no incentive for any country not to contribute.⁶¹ Of course, countries' endowments and interests differ, so when interests are shared, prospects for providing weakest-link global public goods improve as resource inequality declines across countries,⁶² providing a strong rationale for international transfers of resources or capacities⁶³ from those that have them to those that do not.⁶⁴ But which better-endowed countries make the transfers (box 3.2)? Richer countries may find themselves facing free-riding concerns—and thus incentives to not contribute to these transfers. And perhaps counterintuitively, the higher the number of rich countries, the larger these free-riding concerns may be.⁶⁵

As with best-shot global public goods, weakest-link global public goods are also somewhat of a

Box 3.2 What drives countries to contribute to global public goods?

Assumptions about human behaviour and their implications for how countries act in the international context shape perspectives on prospects for the provision of global public goods, as well as proposed measures that could be put in place to enhance their provision when those prospects are dim.¹ For example, some have argued that a hegemonic country was needed to provide the global public good of an international lender of last resort during global economic crises prior to the establishment of the Bretton Woods institutions.²

Given that countries generally act independently to preserve their autonomy (particularly with respect to security concerns),³ it is reasonable to assume that prospects for providing global public goods will have to be explored in a context where the global community remains a system of politically autonomous states with diverse interests, preferences, resources and power, and thus heterogeneous willingness and ability to contribute to global public goods. It is also reasonable to assume that countries try to anticipate and strategically react to other countries' actions.⁴

To take a first pass at considering prospects for providing global public goods and ways to improve them when needed, one can start from the assumption that countries will consider contributing to global public goods based on the extent to which that contribution advances either their interests or preferences, constrained by the resources available to them.⁵ This narrow premise is relaxed later in the Report.

Notes

1. As argued for the behaviour of states more broadly in Kirshner (2022). **2.** This is the argument put forward by Kindleberger (1986, p. 11), who was sceptical of relying on rules during those periods: "Let me conclude by emphasizing once again my concern that politicians, economists, and political scientists may come to believe that the system should be run at all times by rules, including regimes, not people. Rules are desirable on trend. In crisis the need is for decision." For arguments in the same vein, see Keohane (1984) and Axelrod and Keohane (1985). **3.** Kirshner 2022. **4.** This is what is assumed in most of the literature (Buchholz and Sandler 2021), including in Barrett (2003a), which is a rare case where economic analysis and international relations theory are marshalled to explore the provision of global public goods. **5.** This is what Ruggie (1998) described (critically) as a neo-utilitarian premise.

double-edged sword. Imagine a country that decides not, or is unable, to contribute to a weakest-link global public good (not curbing the spread of invasive species, not eliminating transnational terrorism or criminal networks or not stopping nuclear arms from proliferating). Then, the whole world is at risk. A country that decides not to contribute to a weakest-link global public good can act as a spoiler, impeding provision for everyone.⁶⁶

Applying a global public goods lens to the response to Covid-19

Control of the transmission of the virus that causes Covid-19 (SARS-CoV-2) can be viewed through the prism of a weakest-link global public good: control cannot be achieved until it occurs in every country.⁶⁷ So the country with the least ability to control the virus's transmission determines the level of provision of this global public good for everyone else. The prognosis for providing weakest-link global public goods is favourable when countries have similar interests and resources, but the situation becomes more muddled in a world beset by disparities in both. Applying a global public goods lens early in the pandemic

highlighted those challenges and potential remedies, including the crucial importance of transferring resources and capacity to countries less able to control virus transmission.⁶⁸

Multiple global public goods are at play in addressing a pandemic. Several are not weakest-link global public goods, leading to some of the challenges in provision that can be expected with other types of global public goods.⁶⁹ Since Covid-19 was caused by a novel virus, these challenges were exacerbated by scientific uncertainty, as well as policy ambiguity and inconsistency.⁷⁰ The pandemic response involved providing weakest-link global public goods (controlling virus transmission), summation global public goods (pooling resources to shore up weak links) and best-shot global public goods (the science behind developing the vaccines, sequencing the genome of the virus). Multiple challenges at multiple scales with different agents made for a longer pandemic, with highly unequal access to the vaccines and the lasting human development effects documented in chapter 1 that burdened low- and middle-income countries in particular.⁷¹ Explaining the challenges of providing different types of global public goods may enable better responses in the future.

Thus, the underprovision of global public goods, very costly globally, can also drive inequalities (spotlight 3.2). The impact of the Covid-19 pandemic should not have come as a surprise, given that the failure to control the transmission of some global communicable diseases results in the loss of lives, the inability of people to lead healthy lives and huge global economic costs.⁷² In contrast, the returns to communicable disease control are very high, particularly for the weakest-link global public good of disease eradication. For the eradication of smallpox (certified in 1979),⁷³ the benefit-cost ratio was estimated to be more than 100 to 1,⁷⁴ and the benefits accrue in perpetuity to future generations.⁷⁵ Not all communicable diseases are eradicable,⁷⁶ but those that are (such as polio) continue to inspire efforts by the international community, precisely because the net benefits are so high.⁷⁷ Still, the weakest-link nature of disease eradication can be cruel. Although two of the three wild polio viruses have been eradicated (type 2 in 2015 and type 3 in 2019),⁷⁸ polio eradication efforts have not yet succeeded—and have missed several target dates—because the third strain (wild polio type 1) persists in only a few small areas in Afghanistan and Pakistan and vaccine-derived type 2 continues to circulate.⁷⁹

“The underprovision of global public goods, very costly globally, can also drive inequalities

Three key insights emerge from the ensuing analysis. First is the need to consider a range of different types of global public goods with different aggregations and to design mechanisms that increase the chances of addressing the bottlenecks for each type of global public goods.⁸⁰ Second is that what constitutes a global public good is often a matter of choice, and the need for the provision of global public goods can be harnessed to bring countries together. Third is that institutions can be designed and created to enhance the provision of global public goods.

Too little disease surveillance

A key global public good for communicable disease control is disease surveillance, which itself can be considered a weakest-link global public good.⁸¹ Underprovision may result from countries lacking the

capacity to undertake surveillance. As of late March 2020, the World Health Organization (WHO) reported that 30 percent of countries lacked a Covid-19 national preparedness and response plan, and only half had national infection prevention and control programmes, as well as water, sanitation and hygiene standards for health care providers.⁸²

But countries may face incentives that work against full disclosure of disease outbreaks to the international community, which can be exacerbated for a novel pathogen for which pharmaceutical solutions are not yet adequate.⁸³ Such incentives include fear of punitive actions by others in the form of trade and travel restrictions.⁸⁴ These unilateral measures were taken during the Covid-19 pandemic. For instance, South Africa reported to the world the new Omicron variant in November 2021, only to have several high-income countries ban flights from South Africa.⁸⁵ So, inequality in both resources and capacities—and in preferences to disclose outbreaks—worked against providing the global public good of Covid-19 surveillance. And measures that might have enhanced provision—contributing resources and capacities to countries in need and coordinating responses to the disclosure of new variants in a predictable way—were often lacking.

Lack of equitable access to vaccines

To deliver equitable access to future pandemic vaccines in 100 days⁸⁶ requires efficiently providing best-shot global public goods associated with science and technology and shoring up potential weak links in surveillance and vaccine production capacity.⁸⁷ That potentially includes creating vaccine manufacturing hubs, such as the Partnership for African Vaccine Manufacturing under the auspices of the African Union’s African Centres for Disease Control and Prevention,⁸⁸ and establishing a global treaty on pandemic prevention, preparedness and response under the World Health Assembly.⁸⁹

A global public goods account about how the inequity in access to Covid-19 vaccines unfolded can help prepare better in the future (spotlight 6.3). For example, the complex prognosis for providing weakest-link global public goods helps in understanding what happened. To shore up countries with little surveillance capacity and access to vaccines, the goal of achieving

global disease control⁹⁰ was invoked (“No one is safe, until everyone is safe” is the headline on the homepage of the COVID-19 Vaccines Global Access, or COVAX, initiative⁹¹). This argument could have provided incentives for high-income countries to financially support potential weakest links, but then these countries confronted the free-riding challenge about who should contribute and how much.⁹² Thus, although each country had an incentive to contribute to advance its self-interest, the need to pool resources turned the challenge into one with the characteristics of a summation global public good—because each country could free ride on the contribution of others.⁹³

There was a manifest lack of coordination in implementing predictable responses to reports of disease outbreaks or new variants—not for lack of effort by the WHO on several fronts, from guidance on travel to support for disease surveillance. Much of this guidance was ignored.⁹⁴ Ethical and moral arguments, some proposed with exceptional precision, failed to influence country behaviour.⁹⁵ The implications of these actions by high-income countries still run deep in the perception that many middle- and low-income countries felt left behind and treated unfairly.⁹⁶

The science enabling the Covid-19 response: Best-shot global public goods were provided

Development of the Covid-19 vaccines was possible only because key best-shot global public goods could be provided. The most direct best-shot global public good was provided by the scientists who sequenced and published the genomic makeup of the SARS-CoV-2 virus that causes Covid-19.⁹⁷ The other best-shot global public goods were the scientific findings published in journals over at least two decades that, among other things, demonstrated how the spike protein in coronaviruses was a prime target for at least some types of vaccines—including the first to be licensed for Covid-19.⁹⁸ Public funding for science underpinned these best-shot global public goods, with the US National Institutes of Health alone allocating \$17.2 billion to vaccine technologies between 2000 and 2019.⁹⁹ But both *ex ante* and *ex post* coordination challenges impeded the provision of Covid-19 vaccines as a global public good,¹⁰⁰ despite advocacy to do so.¹⁰¹ Some countries even actively attempted to

attract efforts in other countries to develop a vaccine for their own camp.¹⁰²

“Development of the Covid-19 vaccines was possible only because key best-shot global public goods could be provided

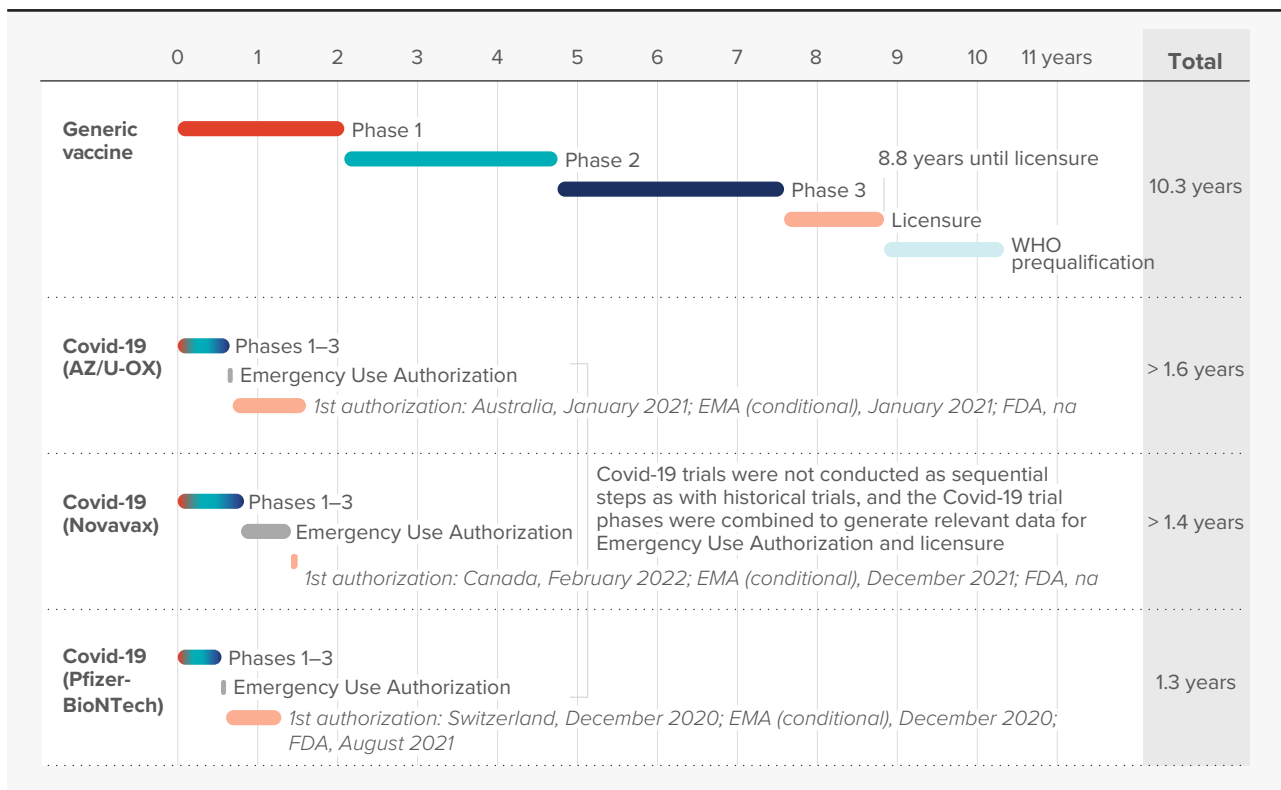
The development of Covid-19 vaccines was a remarkable achievement—as the prognosis for providing best-shot global public goods should have led one to expect. The capacities were concentrated in high-income countries, home to almost two-thirds of the Covid-19 developers as of April 2020, one month after the declaration of the pandemic on 11 March 2020,¹⁰³ most based in North America and Europe.¹⁰⁴ The capacities were aligned with interests, as well as a large mobilization of public financing and widespread agreement on the need to prioritize vaccine efforts.¹⁰⁵ Clinical development and approval of vaccines typically takes 5–10 years, with only 10 percent of vaccine candidates receiving approval.¹⁰⁶ But as a result of the massive public resources mobilized,¹⁰⁷ the first emergency use authorization for a Covid-19 vaccine by a stringent regulatory authority (the US Food and Drug Administration, FDA) was issued on 11 December 2020, less than a year after the pandemic was declared (figure 3.1).¹⁰⁸

Much of the public finance took the form of advanced purchase agreements by high-income countries that far exceeded those countries’ needs.¹⁰⁹ For instance, the United States provided \$29.2 billion in public funds to purchase vaccines (from the start of the pandemic up to March 2022), \$2.2 billion to support clinical trials and \$108 million to support manufacturing and basic and translational science.¹¹⁰ This “advanced market commitment” has long been advocated as a potentially powerful incentive for vaccine and drug discovery and for technological innovation more broadly.¹¹¹ This appears to have been the key driver for private sector engagement in Covid-19 vaccine development, given the substantial de-risking produced by the advanced purchase agreements.¹¹²

Institutions to facilitate global public goods

The response to Covid-19 involved pursuing best-shot global public goods (understanding the science

Figure 3.1 Authorization for Covid-19 vaccines was unprecedentedly fast



EMA is European Medicines Agency. FDA is US Food and Drug Administration. na is not applicable. WHO is World Health Organization. Source: Wellcome Trust 2022.

behind vaccines, sequencing the genome of the SARS-CoV-2 virus), summation global public goods (pooling resources to shore up weak links) and weakest-link global public goods (controlling the spread of the virus). Multiple challenges at multiple scales with different agents made for a longer pandemic with highly unequal access to vaccines and with lasting economic effects that burdened low- and middle-income countries in particular. Understanding the challenges of providing different types of global public goods with different aggregations might enable better responses in the future.

In fact, a global public goods lens opens the possibility of enhancing the provision of global public goods through institutions that reshape incentives, provide information and transfer resources.¹¹³ Many different types of institutions—and even agents such as civil society organizations and processes such as social movements—can play these roles, at multiple scales,¹¹⁴ but four types of international institutions have a bearing on the provision of global public goods:¹¹⁵

- *Multilateral organizations.*¹¹⁶ By pooling resources from countries, creating economies of scope and reducing transaction costs, these organizations efficiently support the provision of multiple global public goods. They include the United Nations and its specialized agencies, funds and programmes (including the International Labor Organization, the United Nations Environment Programme and the WHO), as well as international financial institutions such as the IMF and the World Bank (which are formally UN specialized agencies with autonomous governance). Multilateral organizations can directly fund global public goods (the IMF providing liquidity during a balance of payment crisis) or coordinate actions among countries (the WHO during health emergencies, the International Criminal Police Organization—better known as INTERPOL—in the case of transnational crime).
- *International treaties.*¹¹⁷ Often negotiated under the auspices of multilateral organizations, international treaties bring multiple services that support global public good provision: disseminating

scientific information (to reduce uncertainty during negotiations), convening negotiating parties, and monitoring and fostering compliance after treaties are ratified. Such treaties frequently support global public goods associated with managing environmental spillovers.¹¹⁸ Examples include the United Nations Framework Convention on Climate Change, the Montreal Protocol on Substances that Deplete the Ozone Layer and the Convention on International Trade in Endangered Species. Effective treaties often must jointly provide more than one global public good. For instance, an effective climate treaty might need to provide at least two global public goods: climate change mitigation as well as new ideas and technologies that lower mitigation costs.¹¹⁹ A treaty on pandemic prevention, preparedness and response might also need to provide several global public goods, as is currently being considered.¹²⁰

- *Clubs.* Countries can form clubs when it is possible to exclude nonparticipants from the benefits of global public goods.¹²¹ The incentive structures of clubs—given the enhanced prognosis for provision associated with them: excludability implies that free riding is not a concern—make them relevant for enhancing global public good provision.¹²²
- *International regimes.* Global transport and communication regimes provide global public goods

that enable maritime trade and electronic telecommunications, often under the jurisdiction of multilateral institutions, such as the International Maritime Organization or the International Telecommunication Union.

These institutions are being mobilized to draw lessons from the Covid-19 pandemic and enhance the response to future pandemics. The lessons from the pandemic point to the need for very high ambition: the global resources needed for pandemic preparedness and response over 5–10 years are estimated to be in the hundreds of billions of dollars.¹²³ But the benefits would also be extremely high,¹²⁴ as the loss of lives and livelihoods and the economic toll of the pandemic made clear (chapter 1). The benefits from pandemic vaccines go well beyond health alone.¹²⁵

The analysis in this chapter emphasizes how institutions that reshape incentives, information and resources can enhance the provision of global public goods when countries are assumed to be advancing their interests. As we move into part II of the Report, chapter 4 explores further insights continuing with this premise but also presents a wider vista on potential determinants of collective action. That enlarges the scope for potential interventions to enhance collective action. It also reveals the crucial importance of looking within countries to the emerging patterns of political polarization.

The global commons of ocean fisheries

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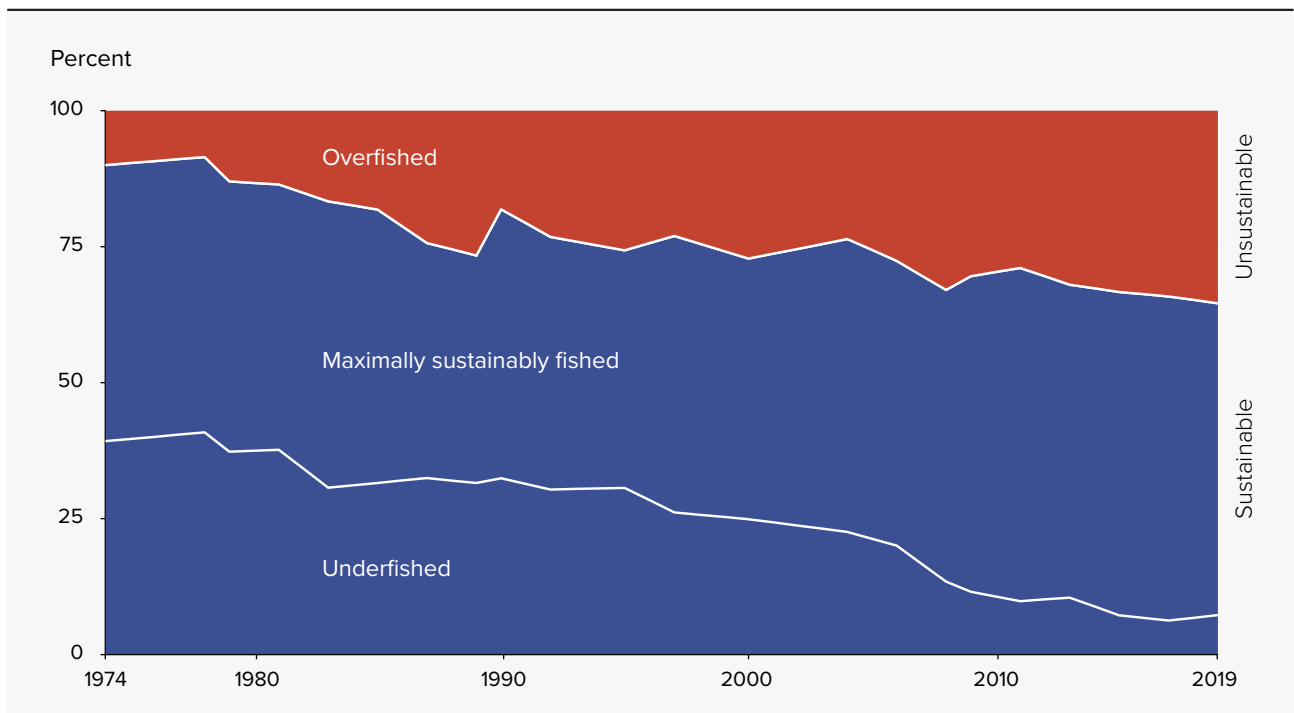
About one-third of the world's ocean fisheries are overfished (figure S3.1.1). A major reason for this is the underlying property rights regime: under international law all countries may exploit these resources on the high seas.¹ As Garrett Hardin says in his classic article, "The Tragedy of the Commons," if a resource is held in common, all potential users have an incentive to exploit it without regard to the effects on the others. "Freedom in a commons," he says, "brings ruin to all."²

A clear example of ruin is collapse of the formerly superabundant cod fishery in the northwest Atlantic Ocean. However, overexploitation short of collapse also results in big losses. If exploitation were reduced in the short run, stocks would rebuild. Annual net benefits in the long run could increase from \$3 billion to \$86 billion.³

What to do? If overexploitation is caused by the resource being held in common, the obvious remedy is to change the access rules. In the 1970s the world took a major step in this direction by establishing an entirely new property right, Exclusive Economic Zones (EEZs). EEZs extended every coastal state's exclusive right to manage fishery resources from 3 miles from shore (the old territorial sea) to 200 miles (at the same time EEZs were established, the territorial sea was extended from 3 miles to 12 miles). Because most fisheries are found in this zone, the creation of EEZs eased overfishing at a stroke.

Unfortunately, EEZs, by themselves, cannot eliminate overfishing. Some fisheries overlap different EEZs. Some straddle EEZs and the high seas. Some are highly migratory. Finally, some fisheries are exploited only in the high seas. Another problem is that

Figure S3.1.1 About one-third of the world's fishery stocks are overfished



Source: FAO 2022.

some coastal states lack the capacity to regulate access to fisheries within their EEZs.

Two radical proposals

What more can be done? The Global Oceans Commission (GOC 2014), inspired by research by White and Costello (2014), has proposed closing the high seas to fishing. Fisheries economist Rögnvaldur Hannesson has proposed extending today's EEZs to their maximum extent, eliminating the high seas entirely.⁴ These are radical proposals. Will they help?

The first thing to note is that neither proposal is ideal. Neither would have any effect on fisheries found only within existing EEZs, where 96 percent of the commercial catch is taken.⁵ Also, neither is suited to addressing exploitation of the only species caught exclusively in the high seas, the Antarctic toothfish (also known as the Chilean sea bass). Territorial claims to Antarctica are disputed, making extension of such claims contentious. Moreover, and rather obviously, closing these waters to fishing would mean zero profits, not higher profits.

Though neither proposal could sustain an ideal outcome, either or both might improve the status quo. Both would likely reduce harvests of highly migratory and straddling fisheries by blocking exploitation by distant water states (except through access agreements with coastal states). However, neither proposal would eliminate the common property problem that exists among coastal states. In addition, both proposals would restrict coastal states' access to at least parts of the existing high seas, raising fishing costs. It is possible, and perhaps even likely, that both proposals would be worse than the status quo.⁶

Regional seas

Versions of the two proposals have already been implemented on a regional scale.

All six coastal states on the Black Sea claim an EEZ, fully enclosing this small regional sea.⁷ Similarly, all nine states on the Baltic Sea claim an EEZ, fully enclosing it. Until recently, the Mediterranean Sea was mainly open. For example, though France claimed an EEZ in the Atlantic Ocean in 1972, it did not

claim one in the Mediterranean until 2012. Similarly, Spain claimed an EEZ in the Atlantic in 1978 and in the Mediterranean in 2013. Italy claimed an EEZ in 2021. Many claims in the eastern Mediterranean are motivated by an interest in developing natural gas resources. Several areas are disputed. Not long ago, states on the Mediterranean refrained from claiming an EEZ out of concern that it would only stimulate others to do so, restricting where the fleets of all states on this regional sea could fish. The equilibrium has now been broken. As the breadth of the Mediterranean is less than 400 miles in every direction, this regional sea is now fully enclosed. The effect of this change in property rights on fisheries conservation and rents has yet to be determined.

In 2010 in the Western and Central Pacific Ocean the eight Parties to the Nauru Agreement blocked access by purse seiners to high seas areas surrounded by their EEZs by making access to their EEZs contingent on states not fishing in the high seas pockets.⁸ Because the surrounding EEZs are much larger than the high seas pockets and fishing exclusively in the high seas pockets is uneconomic, this move proved an effective deterrent. However, closing high seas areas only increased fishing in the adjacent EEZs and did not demonstrably help fisheries conservation.⁹

Closing these high seas pockets was made possible by an accident of geography: the leverage enjoyed by mainly small island states having adjacent EEZs. By contrast, the two radical proposals noted above would require a change in international law. A question not addressed by Hannesson or the Global Oceans Commission is how their proposals would come to be accepted in law.

Property rights established in customary law

We are used to grand ideas such as enclosure of the seas and closure of the high seas being achieved by international negotiations leading to adoption of a new treaty. But even though EEZs emerged as the United Nations Convention on the Law of the Sea was being negotiated and are codified in that agreement, this new property right was recognized as applying in customary law long before the Law of the Sea entered into force. The two radical ideas for changing existing property rights arrangements would also need to

be established in customary law. The reason is simple: treaties apply only to the countries that consent to be bound by them. A country can thus easily avoid being bound by a new rule established in a treaty by choosing not to participate in the treaty. By contrast, customary law applies universally. Though the United States has not ratified the Law of the Sea, it accepts that EEZs apply in customary law.

However, compared with treaties, customary law is an inscrutable institution. Custom is not negotiated explicitly. Nor does it require the explicit consent of individual countries. A customary law exists if states behave in accordance with the law—and do so in the belief that they are legally obligated to.¹⁰

Because custom is founded on beliefs, some scholars of international law have questioned whether it exists, let alone whether it has had any effect.¹¹ Does custom really shape behaviour, or is custom just a name given to behaviours that reflect national self-interests?

One way to know whether custom exists and has real effects is to identify situations in which a country would be better off deviating from a customary rule yet refrains from doing so (again, because it believes doing so would violate international law). The Grand Banks, a famously rich fishing ground off Canada's eastern shore, protrudes beyond the country's 200-mile EEZ in two places, the "Nose" and the "Tail" (a nearby third area, the Flemish Cap, lies entirely outside the EEZ). If custom merely codified actions that reflected national self-interest, Canada would have claimed an extended EEZ in these areas. We know this because, Canada and the European Union, especially Spain, previously clashed over fishing in them. In 2002, after years of overfishing by foreign fleets, a Canadian parliamentary committee investigated whether Canada should assert unilateral control over these areas. Despite its obvious self-interest motive for doing so, the committee recommended against the change, reckoning that other countries would oppose it.¹² Canada's adherence to the 200-mile limit is thus strong evidence of customary law's sway over state behaviour.

More broadly, globally, unauthorized fishing is 80 percent lower just inside EEZs than just outside them.¹³ This strongly implies both that coastal states are enforcing their existing EEZs (presumably, because the EEZs are valuable to them) and that they

could profit by extending their EEZs even further. But under customary law, a state can legally extend its EEZ only if others agree with the change, which is likely to cause others to extend their EEZs. Though a state would clearly gain by extending its EEZ unilaterally, it might ultimately lose when others extended their EEZs as well. Custom has a restraining influence on behaviour.¹⁴

So far, countries have shown little interest in asserting either of the radical proposals at the global level. But they have deviated from the rule of freedom on the high seas in one special case.

Under the Law of the Sea, "states of origin" of anadromous species—salmon, which spawn in inland waters—are recognized as having a "primary interest in and responsibility for such stocks." States may fish for salmon but "only in waters landward of the outer limits of the exclusive economic zones." Because this provision is accepted by consensus and reinforced by state practice, "the customary international law of freedom of fishing no longer affords any right to harvest [anadromous species] without the agreement of the state of origin," effectively banning directed fishing for salmon in the high seas.¹⁵

Salmon are found in both the North Pacific and North Atlantic Oceans but are harvested in the high seas only in the North Pacific.¹⁶ Because salmon move through the EEZs of different states of origin in the North Pacific, the ban transforms what would have been an open access resource into a resource owned in common by states of origin only. By limiting the number of countries with access to the fishery, the ban likely lessens overexploitation. It also likely aids efficiency because efficient management requires targeting "specific species, specific age groups, and individual runs," which is possible only "at the time the fish approach the state of origin and segregate themselves for the return to their rivers of origin."¹⁷ Also, the fish at this point are of maximum size and congregate in large numbers. Finally, to ensure sustainability, inland waters must be protected for spawning. By giving states of origin special rights to fish for these species, the high seas ban also gives these states an incentive to safeguard access by salmon to their spawning grounds. For salmon, a prohibition on high seas fishing clearly enhances efficiency.

Why was this exception allowed? When the Law of the Sea was being negotiated, the only states to make

proposals for anadromous species were Canada, Ireland, Japan, the Soviet Union and the United States—all states of origin. Moreover, no states protested states of origin having a special claim to anadromous stocks,¹⁸ even the states with the most to gain from high seas fishing (Japan in the Pacific Ocean and Denmark, custodian for Greenland and the Faroe Islands, in the Atlantic Ocean). This situation did not apply to fisheries in general.

Nothing stops countries from enclosing the high seas or from closing them to fishing under customary law. Indeed, theory suggests that states will do so when it enhances efficiency.¹⁹ States might not have embraced either radical proposal because they remain unconvinced that it would solve the overfishing problem.

Cooperative agreements established in treaty law

How to overcome overfishing? To Garret Hardin, there is only one solution: “mutual coercion, mutually agreed upon by the majority of the people affected.”²⁰ This solution, however, presupposes that a democratic institution exists with the power to impose and enforce an outcome. Such institutions exist at the national level—but not at the global level. Moreover, it is hard to see how such an institution could emerge. After all, the territorial sea is an extension of a coastal state’s land-based territory, and an EEZ is an extension of that state’s territorial sea. A more limited proposal would give the exclusive right to fish on the high seas to a single party, a global high seas fisheries organization. However, most high seas fisheries overlap with EEZs, and there are good reasons for managing fisheries as coherent units—the logic of regional fisheries management organizations.

Elinor Ostrom agrees with Hardin’s diagnosis of the reasons for the tragedy of the commons but disagrees strongly with his conclusion of the need for a centralized solution.²¹ To Ostrom, if users of a common property resource lose from overexploitation, they have an incentive to cooperate to avoid overexploitation. Indeed, Ostrom provides numerous examples where cooperation has succeeded, but they are all at the local level. In a later paper, Ostrom and co-authors recognize that cooperation at the international level is harder.²² They give several

reasons for this, but one stands out: the rule of “voluntary assent to negotiated treaties.”²³ As noted previously, under international law countries are free to enter into cooperative agreements or not as they please. Treaties, including treaties that establish regional fisheries management organizations, must be self-enforcing.²⁴

The most critical issue for successful treaty design is participation: how to get all countries wishing to exploit a fishery to join the agreement. The Law of the Sea tries to do this by requiring that states establish regional fisheries organizations for the purpose of managing a fishery. The UN Fish Stocks Agreement goes further. Article 7 says that “coastal States and States fishing on the high seas have a duty to cooperate,” and Article 8 says that these states shall satisfy “their duty to cooperate by becoming members of [a regional fisheries management organization (RFMO)].” Critically, Article 8 also says, “Only those states which are members of such an organization.... Shall have access to the fishery resources to which those measures apply.” In other words, if a country wishes to exploit a fishery, it must become a member of the cooperative enterprise established to manage the fishery. The problem here is that this requirement applies only to countries that choose to participate in the Fish Stocks Agreement. The Global Oceans Commission called for universal ratification of this agreement, but urging participation does not create an incentive for participation.²⁵ Selective trade measures can help in some instances, but the freedom to exploit a fishery should ideally be coupled in customary law with the obligation to participate in the organization that manages the fishery.

However, if too little participation is a problem, so is too much participation. If all the countries exploiting a resource participate in an agreement that sustains their full cooperation, their success will encourage entry, weakening their incentive to cooperate in the first place. The Fish Stocks Agreement says that states having a “real interest” in a fishery may become members of an RFMO, but who gets to decide which states have such an interest? The Law of the Sea answered this question for salmon but not for fisheries in general. A second need for customary law is thus to limit access. RFMOs could address equity concerns by charging a fee for access to high

seas areas within their territories (such as the Nose and Tail of the Grand Banks, and the Flemish Cap, all three of which are situated within the territory of the Northwest Atlantic Fisheries Organization) and distributing the revenue to all countries, including nonparticipating countries, according to an agreed formula. The high seas were determined to be free at a time when fisheries were believed to be available in limitless supply.

Conclusion

Overfishing is a persistent and growing problem for which there is no simple remedy. Property rights solutions, established in customary law, and regional fishery management organizations, established in treaty law, both help. But each on its own falls short of sustaining an efficient outcome. Further progress will likely come from advancing both approaches in combination.

NOTES

1. FAO 2022.
2. Hardin 1968, p. 1244.
3. World Bank 2017.
4. Hannesson 2011.
5. Schiller and others 2018; <http://www.seaaroundus.org>.
6. Barrett forthcoming.
7. A portion of this is now disputed due to Russia's invasion of Ukraine.
8. The members of the Parties to the Nauru Agreement are the Federated States of Micronesia, Kiribati, the Marshall Islands, Nauru, Palau, Papua New Guinea, the Solomon Islands, Tokelau and Tuvalu.
9. Sibert and others 2012.
10. Bodansky 1995.
11. Goldsmith and Posner 1999.
12. Standing Committee on Fisheries and Oceans 2002.
13. Englander 2019.
14. Barrett forthcoming.
15. Burke 1991, p. 118.
16. Burke 1991.
17. Burke 1991, p. 103.
18. Copes 1977.
19. Barrett forthcoming.
20. Hardin 1968, p. 1247.
21. Ostrom 1990.
22. Ostrom and others 1999.
23. Ostrom and others 1999, p. 282.
24. Barrett 2003a.
25. The Global Ocean Commission (GOC 2014) lists 30 states that are members of RFMOs and have not ratified the UN Fish Stocks Agreement. Since 2014, when the commission's report was published, six countries on the list have ratified the Fish Stocks Agreement, raising the total to 93 participating countries.

Assessing the net benefits from global public goods and their distribution

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A six-step framework can be used to assess the net benefits from providing global public goods, as well as the distribution of those benefits.¹ Identifying the social, economic and other benefits (or costs) of adequate global public good provision can improve understanding of whether and to what extent different countries might support stronger international cooperation around certain global public goods.

Methodology

Step 1: Characterize current provision

Setting a clear benchmark for adequate provision is the first step in assessing a global public good. For example, in eradicating a communicable disease, the global public good can be deemed adequately provided when the disease is completely eliminated from nature. Given measures of disease exposure in a population (ranging from 0 percent to 100 percent, for example), one can then assess the extent to which this global public good has been provided. Other global public goods may require an alternative approach. For example, for trade facilitation in the context of a multilateral trade regime, bringing all countries that are below a certain benchmark (say, the median) up to that benchmark might be a practical target for adequate provision.

Step 2: Establish the global costs (or benefits) of current provision

Assessing the full range of costs associated with underprovided global public goods may not always be possible, particularly if data on certain aspects of these costs have not yet been developed. Nevertheless, it is usually possible to estimate at least some of the largest costs to provide a basis for policy action.

For example, disease eradication could reduce social and economic costs too myriad to map in their entirety, but existing health data could be used to estimate the years of healthy and productive life lost due to disability and early death stemming from a disease. Reducing a disease burden by some amount could then be associated with an estimate of the benefits gained.

Step 3: Assess the global costs of corrective actions

Different global public goods have varying provision technologies. Adequately providing some global public goods may depend on the success of the least capable contributor (often called the weakest link). Countering international terrorism is an example, as it depends on the efforts of the country facing the most challenges in controlling its borders. But some global public goods such as vaccine development and discovery depend on the country or stakeholder with access to the right technology and the strongest scientific capabilities (called the best-shot). The cost of corrective action can then be estimated based on the required inputs and the nature of the provision technology for a global public good, as well as the benchmark for adequate provision.²

Step 4: Evaluate the global benefits from corrective actions

As noted earlier, estimating the costs of underproviding some global public goods offers an intuitive estimate of the potential benefits (from costs avoided) from adequate provision. But other global public goods offer completely new benefits that can be enjoyed across borders. For example, the multilateral trade regime could be expanded to allow for new value creation and facilitate new sources of global economic growth. Such institutional developments

might also have social and economic costs due to their disruptive side effects (hence the next steps in assessing the net benefits as well as their distribution across countries and stakeholders).

Step 5: Indicate the likely global net benefits from enhanced provision

Based on the previous steps, it should be possible to juxtapose the benefits from adequate provision of a global public good against the costs. In some cases adequate provision of a global public good averts costly outcomes, whereas in others the result is enhanced human welfare and new sources of economic growth. Both count on the benefits side of adequate provision of global public goods as described earlier, and in many cases indirect benefits are not yet factored in. For many global public goods these figures of new benefits or benefits expressed as averted costs easily outweigh the costs of adequate provision, hence motivating—at least on the whole—the rationale to cooperate across countries.

Step 6: Describe the cross-country distribution of net benefits from enhanced provision

A final step in the methodology clarifies the interests of each country involved in providing the global public good. When the net benefits to a country are high, it will likely support the adequate provision of the global public good, but it could decide to free ride from other countries attempting to provide the global public good. This is possible if inputs across countries are interchangeable (such as reductions in carbon emissions). For some global public goods with noninterchangeable inputs, each country's inputs are needed for adequate provision, so expected net benefits should be positive. And when the net benefits are low or even negative for countries whose cooperation is needed for adequate provision, this step helps clarify how international cooperation mechanisms could arrive at fair and stable outcomes—such as by introducing compensation and capacity-building mechanisms to finance and support participation. These burdens could be shouldered by the countries that stand to gain the most and that can pay for adequate global public good provision. Such a financing mechanism is not necessarily the same as foreign aid—rather it

facilitates compensation to enhance international cooperation.³

Applications

Applying the methodology to five global public goods—eradicating smallpox, eradicating polio, adequately providing the multilateral trade regime, promoting climate stability and promoting faster recovery from pandemics—highlights not only the global nature of net benefits to be derived from their provision but also the underlying distribution of net benefits, which might motivate international cooperation to provide these or other global public goods.

Eradicating smallpox

Smallpox has been completely eradicated, with no reported infections worldwide. The World Health Assembly officially declared the eradication of smallpox in 1980. Retrospective measurements suggest that the global cost associated with eradicating smallpox was \$300 million (in 1967 US dollars). Developing countries contributed \$200 million, industrial countries, \$100 million.⁴ Since 1980 the annual global benefits have been estimated at \$1.42 billion, with \$1.07 billion allocated to developing countries and \$350 million to industrial countries.⁵ Smallpox eradication has resulted in a substantial global net present value benefit of approximately \$80 billion (\$1.42 billion a year from 1966 to 2022). Developing countries have received about 75 percent of these net benefits, industrial countries, about 25 percent. The overall benefit-to-expenditure ratio for global smallpox eradication stands at 159:1.⁶

Eradicating polio

As of 2023, polio eradication efforts remain insufficient, with around 99.9 percent progress since the programme's inception in 1988.⁷ In 2022 the primary poliovirus strain (WPV1) was identified in only three countries, Afghanistan, Mozambique and Pakistan, resulting in 30 cases that year.⁸ According to the latest estimate from 2021, the direct global cost of eradicating polio from 1988 to 2018 is projected to exceed \$34 billion (in 2019 US dollars).⁹ Assuming successful

eradication by 2023, the global net present value benefit is an estimated \$61 billion, and the anticipated global net benefit from 1988 to 2029 is an estimated \$28 billion. This figure is notably lower than previous estimates due to the delays encountered in eradication efforts. Low-income countries are expected to receive around \$8 billion in benefits and lower middle-income countries around \$21 billion, while other countries are projected to lose \$1–\$2 billion in costs.¹⁰ Low- and lower middle-income countries would be the main beneficiaries of polio eradication, while most of the cost burden (approximately 60 percent) would fall on lower middle-income countries.¹¹

Adequately providing the multilateral trade regime

Technology creation and diffusion have become central in international trade discussions, particularly given recent trade frictions on the technology front.¹² Góes and Bekkers (2022) explore the potential effects of increased and persistent large-scale geopolitical conflicts between different trade blocs on economic growth and technological innovation. Another way to view this type of study is to consider decoupling and economic dis-integration scenarios as de facto deliberate underprovision of the multilateral trade regime. So, the corrective action would be to (at least) avoid the decoupling and preserve the status quo welfare levels established in the baseline (no decoupling) scenario.

Using a multisector multiregion general equilibrium model with dynamic sector-specific diffusion, their modelling shows that decoupling the global trading system into two blocs would reduce global welfare in 2040 by about 5 percent (compared with the baseline scenario). The largest losses would be offset by positive technology spillovers from trade benefitting low-income regions. In scenarios with full decoupling and retaliatory tariff hikes across two main trade blocs (Eastern and Western), the welfare effects are asymmetric. Western bloc countries would experience losses of 1–8 percent compared with the baseline scenario, while Eastern bloc countries would experience losses of 8–12 percent. So, the distribution of net losses from decoupling—tantamount to a deliberate underprovision of the multilateral trade regime and a regression towards trading blocs—is skewed against low-income countries with lower

productivity, which would likely belong to the Eastern bloc.

Promoting climate stability

Climate stability, which aims to stabilize greenhouse gas concentrations in the atmosphere to prevent dangerous human interference with the climate system, remains inadequately addressed. This global public good requires international cooperation to avert and mitigate the risks of climate change. In one example of how benefits significantly outweigh the costs of climate change mitigation, Yang, Meng and Suh (2023) examined stranded fossil fuel costs and the associated financial losses incurred by fossil fuel industries and related sectors due to the abandonment or devaluation of their assets. They estimated the cost of abandoning fossil fuels at \$19 trillion, which presents a considerable economic challenge, primarily for fossil fuel-dependent countries. However, this cost is outweighed by the substantial benefits from climate change mitigation efforts, totalling \$63 trillion globally by 2050.

The net benefit, calculated at \$45 trillion globally, emphasizes the economic and environmental advantages of collective global efforts to lessen global dependence on fossil fuels and switch to cleaner energy sources. The distribution of the net benefit falls disproportionately to developing countries, even as many low-income countries are likely to need assistance managing the transition (see table S3.2.1 for a further breakdown).

Preparing for pandemics

SARS (first identified in November 2002), MERS (first identified in June 2012) and COVID-19 (first identified in December 2019) suggest that countries should indeed prepare in advance for pandemics that are likely to manifest. Recent calculations by Glennerster, Snyder and Tan (2022) reveal that global losses from pandemics could reach \$700 billion a year, with losses based on mortality, output contractions and human capital losses. They also estimate that investing about \$60 billion upfront to expand production capacity for vaccines and other supply chain inputs for pandemic response, with an additional \$5 billion a year thereafter, could help ensure

Table S3.2.1 Summary of global public good assessments: Five cases

Global public good	Status	Estimated costs of corrective action	
		Overall	Disaggregated
Smallpox eradication (figures are in 1967 US dollars; see Barrett 2004)	Fully eradicated since 1980	→ \$300 million (one-time cost)	→ Industrial countries: \$100 million (one-time cost) → Developing countries: \$200 million (one-time cost)
Polio eradication (figures are cumulative from 1988 to 2029 in 2019 US dollars; see Thompson and Kalkowska 2021)	99.9 percent eradicated as of 2023	→ \$53.5 billion	→ Upper middle-income countries: \$10.6 billion → Low- and lower middle-income countries: \$42.9 billion
Multilateral trade regime (figures are based on a model analysing dynamic effects from trade, with a focus on technology, and the potential effects of increased and persistent large-scale geopolitical conflicts between different trade blocs on economic growth and technological innovation; see Góes and Bekkers 2022).	At risk of underprovision due to protectionist strategies and trade wars in recent years	na	na
Climate stability (figures refer to the results of addressing stranded fossil fuel costs; Yang, Meng and Suh 2023)	na	→ \$19 trillion in stranded asset costs	→ High- and upper middle-income countries: \$17.7 trillion → Low- and lower middle-income countries: \$2 trillion
Pandemic recovery (figures refer to the results of investment in vaccine production capabilities and other preparedness measures; Glennerster, Snyder and Tan 2022)	na	→ \$60 billion upfront to expand production capacity for vaccines, with an additional \$5 billion a year thereafter	na

na is not applicable.

Source: Barrett 2004; Góes and Bekkers 2022; Glennerster, Snyder and Tan 2022; Hertel 2004; Thompson and Kalkowska 2021; Yang, Meng and Suh 2023.

the capability to vaccinate 70 percent of the population against any new disease within six months. This could be considered an estimate of the cost of adequately providing the global public good of disease control and pandemic response. The resulting global benefit could reach \$800 billion (in terms of losses avoided), making the net present value of global public good provision about \$400 billion. While Glennerster, Snyder and Tan (2022) do not elaborate fully on the distribution of these global net benefits,

they outline how the expected net benefits for some “pivotal countries” could be high enough that they find reason to undertake unilateral investments in pandemic response preparedness. An investment programme in the United States could generate a net present value benefit of \$61 billion (implying a gain of \$47 billion over the counterfactual programme with lower preparedness investment). Similarly, advanced investment by Brazil could generate \$19 billion (implying a gain of \$15 billion).¹³

Estimated benefits (or costs) from global public good provision (or underprovision)		Estimated net benefits (or costs) from global public good provision (or underprovision)	
Overall	Disaggregated	Overall	Disaggregated
→ \$1.42 billion in benefits (annual)	→ Industrial countries: \$350 million (annual) → Developing countries: \$1.07 billion (annual)	→ About \$80 billion in benefits (cumulative from 1967 to 2022)	→ Industrial countries: \$20 billion → Developing countries: \$60 billion
→ \$81.6 billion in benefits	→ Upper middle-income countries: \$8.8 billion → Low- and lower middle-income countries: \$72.8 billion	→ \$28.1 billion in benefits	→ Upper middle-income countries: –\$1.7 billion (cost) → Low- and lower middle-income countries: \$29.8 billion
→ Decoupling the global trading system into two blocs would lead to a 5 percent loss in global welfare in 2040 relative to the baseline scenario	→ Western bloc countries: 1–8 percent loss in welfare relative to the baseline scenario → Eastern bloc countries: 8–12 percent loss in welfare relative to the baseline scenario	→ 5 percent loss in global welfare in 2040 relative to the baseline scenario	→ Western bloc countries: 1–8 percent loss in welfare relative to the baseline scenario → Eastern bloc countries: 8–12 percent loss in welfare relative to the baseline scenario
→ \$63 trillion in benefits from climate change mitigation	→ High- and upper middle-income countries: \$19.6 trillion → Low- and lower middle-income countries: \$45.5 trillion	→ \$45 trillion	→ High- and upper middle-income countries: \$1.9 trillion → Low- and lower middle-income countries: \$43.5 trillion
→ \$800 billion in losses a year due to underprovision (based on mortality, output contractions and human capital losses)	na	→ \$400 billion in net present value benefits to the world	→ US investment programme could generate a net present value benefit of \$61 billion (implying a gain of \$47 billion over the counterfactual programme) → Advanced investment by Brazil could generate a net present value benefit of \$16 billion (implying a gain of \$12 billion over the counterfactual programme)

NOTES

1. As proposed in Conceição and Mendoza (2006).
2. For further elaboration on these production technologies for global public goods, see Kaul and others (2003) and Sandler (1998).
3. See Kaul, Grunberg and Stern (1999) and Kaul and others (2003).
4. Barrett 2004.
5. Barrett 2004.
6. Barrett 2013b.

7. Lee and others 2023.
8. Lee and others 2023.
9. Thompson and Kalkowska 2021.
10. Thompson and Kalkowska 2021.
11. Thompson and Kalkowska 2021.
12. This section draws from Mendoza (2023).
13. Glennerster, Snyder and Tan 2022; Mendoza 2023.

How inequity in access to Covid-19 vaccines unfolded: An account using a global public goods lens

Controlling the transmission of the virus that causes Covid-19 (or achieving herd immunity through vaccines, which at times during the pandemic seemed feasible)¹ is a weakest-link global public good. Until pharmaceutical interventions (vaccines and treatment) were available, control of the virus's spread had to rely on nonpharmaceutical interventions (such as social distancing), which imply fully understanding the mechanisms of transmission, which took time to establish. Thus, measures emphasized reducing social interaction (in schools, economic activities that implied face-to-face contact, travel), which some countries were better able to shoulder than others.²

Nonpharmaceutical interventions can be effective in controlling disease spread (and have even been used as a basis to pursue disease eradication),³ but they require that countries with fewer capabilities and resources be supported, which happened to only a limited extent with Covid-19. For instance, the International Monetary Fund (IMF) adopted a general allocation of \$650 billion in special drawing rights (SDRs) only at the end of August 2021 and distributed it in proportion to existing country quotas in the IMF, implying that only \$21 billion was allocated to low-income countries.⁴ Even though the SDR allocation represented a larger share of gross domestic product (GDP) for low-income economies than for advanced economies,⁵ 35 percent of IMF members in emerging markets and 50 percent in low-income countries considered the allocation insufficient.⁶ Moreover, because interest rates have increased since the allocation, IMF members with negative SDR positions have had to shoulder higher financing costs. So, while the concessional (grant element) of the SDR allocation was 82 percent in August 2021, it had declined to 34 percent (just below the 35 percent concessional threshold) in 2023.⁷

Once vaccines became available, the WHO and its partners, including philanthropic organizations,

established an institutional framework to provide equitable access to vaccines (COVAX), which was initially and for some time underfinanced.⁸ The availability of vaccines brought about two benefits. First, as with any vaccine, it provided a pharmaceutical intervention to control the virus's spread, contributing to controlling the disease within countries while reducing transmission risk to other countries. Second, where available and deployed at scale, vaccines enabled the relaxation of the strict social distancing measures that had curtailed social and economic life, but these benefits were concentrated within borders. Inequities in access to vaccines across countries hampered the provision of the weakest-link global public good of global disease control, ultimately extending the duration of the pandemic for all.⁹ The economic toll of social distancing measures (not only in schooling but also in access to health and other services) deepened the asymmetries between countries able to restart their economies and reopen their schools and those less able to do so because they were deprived of the ability to deploy vaccines.¹⁰

The inequity in access to Covid-19 vaccines is a moral stain on the international community, contributing to a longer and deadlier pandemic than might have happened with more equitable access to vaccines.¹¹ More than 2 billion people were vaccinated within 8 months in 141 countries, averting 2.4 million excess deaths. But a counterfactual with equitable distribution of vaccines, with vaccination in each country proportional to its population, would have saved roughly 670,000 more lives.¹²

Starting more aggressively with public support for vaccine development in high-income countries might have put other countries at a disadvantage: as much as three-quarters of the delay in vaccine deliveries to low- and middle-income countries has been attributed to the signing of advanced purchase agreements in these countries later than in high-income countries.¹³ In contrast to Covid-19, during the Ebola outbreak in

West Africa, most of the incidence and burden of the disease were in low-income countries, though there were concerns in high-income countries: there was little alignment between resources and country interests and preferences, and more than 70 months passed between the outbreak in December 2013 and the FDA approval of a vaccine in October 2019.¹⁴

In addition to differences in the timing of advanced purchase agreements, inequities in access to

Covid-19 vaccines were also due to the fact that some key innovations remained under patent protection.¹⁵ The vast majority of vaccine developers (72 percent) were private firms,¹⁶ most of which entered purchase agreements on a commercial basis.¹⁷ While firms played crucial roles in the development and deployment of vaccines, their commercial motivations might also have hindered faster deployment at scale in several low- and middle-income countries.

NOTES

1. The WHO advocated for vaccine use to move towards herd immunity (WHO 2020). Estimates on the threshold that would deliver herd immunity were hotly debated in the press (McNeil Jr. 2020), but more recent analysis suggests that herd immunity may not be feasible (Malinzi and others 2023; Morens, Folkers and Fauci 2022). Defining with precision what herd immunity means is also crucial, given that the concept is often interpreted differently (Bullen, Heriot and Jamrozik 2023).
2. UNDP 2020a.
3. This is the case for efforts to eradicate dracunculiasis (Guinea-worm disease), for which no treatment or vaccine exists. The disease spreads by drinking contaminated water, so efforts to provide safe drinking, along with early detection and surveillance, are key to controlling the disease (Biswas and others 2013). These measures have been very effective, sharply reducing cases (from around 3.5 million a year to only 13 in 2022) and nearly eliminating the disease in most of the world (with 199 countries, territories and areas certified by the WHO as free of dracunculiasis transmission; WHO 2023). Humans were thought to be the only reservoirs of the disease, which provided prospects for eradication using nonpharmaceutical interventions, but the recent detection of the disease in animal hosts, including domestic dogs, makes that prospect uncertain (WHO 2023).
4. IMF 2021a. The IMF encouraged countries with strong external positions to voluntarily channel resources to the countries most in need (IMF 2021b). And the G20 followed with pledges that slightly surpassed the target of channelling \$100 billion by June 2023 (IMF 2023b).
5. About 2.39 percent of 2021 GDP, compared with 1.25 percent for advanced economies.
6. IMF 2023b.
7. IMF 2023b; Shenai and others 2023.
8. Still, by January 2022 COVAX had distributed about a billion vaccines to around 140 countries (Budish and others 2022). And despite an increase in international development assistance to health in 2020 and 2021 (Micaiah and others 2023).
9. Bollyky and Bown 2020.
10. There were also other intersecting precarities that shaped the ability of some countries and communities to respond, such as in many parts of Africa, as analysed in detail in MacGregor and others (2022).
11. As widely forewarned (see, for instance, Bollyky and Bown 2020). Until the first vaccines were authorized by a stringent regulatory authority, there had been 70 million Covid-19 cases and 1.6 million deaths worldwide (Saville and others 2022). As of the end of September 2023, there had been 762 million cases and 6.8 million deaths (see <https://covid19.who.int/>), so in the “vaccine era,” cases were multiplied by 10 and deaths by 4.
12. Agrawal, Sood and Whaley 2023.
13. Agarwal and Reed 2022.
14. Excler and others 2021.
15. Pilkington, Keestra and Hill 2022; Wouters and others 2021.
16. Le and others.
17. Sachs and others 2022.

PART



**Reimagining
cooperation
by expanding
agency
and easing
polarization**

CHAPTER

4

**Examining
how to enhance
collective action**

Examining how to enhance collective action

Examining how to enhance collective action to manage interdependence can be explored through different assumptions about human behaviour's interactions with institutions. Different explanations for behaviour can inform ways of advancing collective action to provide global public goods.

Insights from recognizing how behaviour and institutions are contingent on the changing social context over time can help address shared challenges. A broader perspective on choice informed by these insights also shows how risks associated with domestic patterns of political polarization may harm collective action across countries.

“...the making of a treaty is the treaty. It doesn’t matter what the terms are, just that there are terms. It’s the goodwill that matters. When that runs out, the treaty is broken, whatever the terms say.”

—Hilary Mantel¹

Examining how to enhance collective action to manage interdependence can be explored through different assumptions about human behaviour and its interactions with institutions.² This chapter considers how different explanations for behaviour can inform ways of advancing collective action³ for the provision of global public goods.⁴ It explores three perspectives on behaviour and the interventions to enhance collective action that emanate from these perspectives.⁵

- *Selfish choice.* Under a standard selfish choice model of behaviour, enhancing collective action depends on interventions that reshape incentives by providing information or resources to align narrow self-interest with improved collective outcomes. International treaties mobilize interventions that reshape incentives. For climate change, incentives can be altered by pricing carbon; applying information from scientific syntheses, such as those produced by the Intergovernmental Panel on Climate Change; and using resources from funds that support countries in mitigating climate change, such as the Green Climate Fund.
- *Behavioural choice.* Human behaviour often deviates from the assumptions of the standard selfish choice model, deviations that are sometimes described as behavioural biases. For instance, providing new information alone does not always lead people to update their beliefs.⁶ And providing financial rewards to change incentives can undermine cooperation that is motivated by a social norm.⁷ Even though large swathes of debate in the social sciences and humanities take issue with the emphasis of behavioural science, providing explanations for behaviour and institutions that explore culture, context and power,⁸ insights from behavioural science yield a richer description of behaviour than the selfish choice model and thus suggest other ways of intervening that supplement incentives by also changing what people focus on and how they feel and think.⁹ For example,

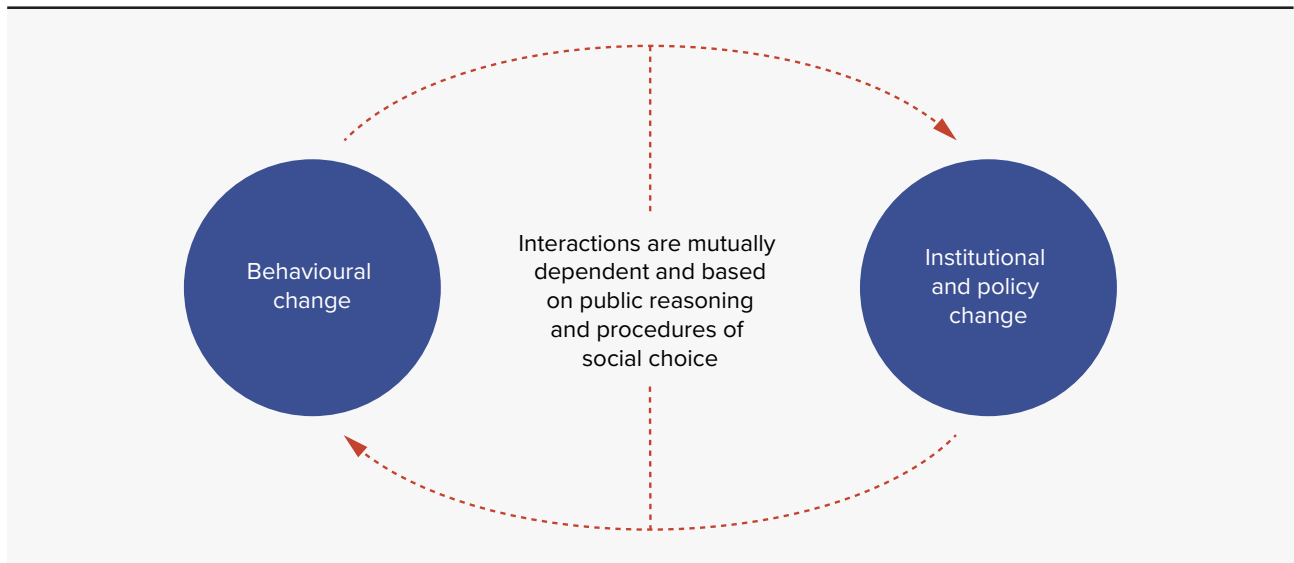
changing social norms can enhance collective action by activating a social tipping point, as when reaching a threshold of enough solar panels flips the community norm to making solar panels the social standard.

- *Encultured choice.* Explicitly bringing in culture can explain how people’s beliefs result from experience and exposure to different social contexts, shaping their perceptions, self-image, aspirations and meanings.¹⁰ This perspective accounts for why some behavioural biases, thought to be universal and hard wired under the behavioural choice perspective, are culturally contingent.¹¹ It also explains how behaviour is sometimes constrained by people’s inability to imagine more prosperous and fulfilling lives, curtailing their aspirations and their agency.¹² This perspective has implications for cooperation, too, as when people’s affiliation with a group is tied to a salient aspect of their identity—such as opposing vaccination as a marker of belonging to a group that is sceptical of government intervention, resulting in the less cooperative behaviour of not being vaccinated.¹³ Understanding how these dynamics take hold and change points to recognizing the social context, including patterns of political polarization and mistrust within countries that may stand in the way of enabling collective action at higher scales.

“Changes in behaviour and in institutions can foster collective action that enhances the provision of global public goods

Fostering collective action for the provision of national public goods is one of the primary roles of governments, in part through centralized enforcement.¹⁴ But since countries are sovereign,¹⁵ they have to voluntarily agree to collective action without centralized enforcement.¹⁶ So, the lens has to move towards an exploration of the processes of social choice that can enhance the provision of global public goods.¹⁷ That implies changes in behaviour (countries shifting from not contributing to contributing to a global public good) and in institutions (establishing a treaty or a creating a multilateral organization that enhances the provision of a global public good), along with the interaction between the two (figure 4.1).¹⁸ Behaviour and institutions are interdependent, as argued

Figure 4.1 Behavioural change and institutional reform influence each other—jointly shaping and being shaped by social choice procedures



Source: UNDP 2022a.

conceptually¹⁹ (and demonstrated through models²⁰) and experimentally.²¹

Where to start? The three sets of assumptions about behaviour discussed in this chapter point to three different answers.²² The simplified set of assumptions of the standard selfish choice model begins by thinking about the design of institutions to enhance collective action. By contrast, a behavioural model of choice opens the possibility of directly changing behaviour to enhance individual and collective outcomes. While insights from both perspectives are useful, the recognition of how behaviour and institutions interact in different social and cultural settings supplements the first two sets of assumptions by emphasizing the contingent nature of both behaviour and institutions.

Start with a standard selfish choice model of behaviour

In a standard selfish choice model of behaviour, a decisionmaker seeks to do as well as possible to fulfil a fixed and stable set of preferences and assumes that everyone behaves the same way (box 4.1).²³ This behavioural model is the foundation for much economic and political science analysis associated with collective action. And it is implicit in the discussion in chapter 3 of the prospects for providing global public goods under different aggregations.²⁴ So, when can

collective action without enforcement from above happen under these assumptions?

It is crucial to distinguish two different situations. One in which everyone desires the same thing, but some common standard needs to be set (such as deciding which side of the road to drive on or which language to communicate in).²⁵ The other in which there are different interests on what is desired and where the pursuit of those individual interests does not yield what is most desirable collectively, posing social dilemmas.

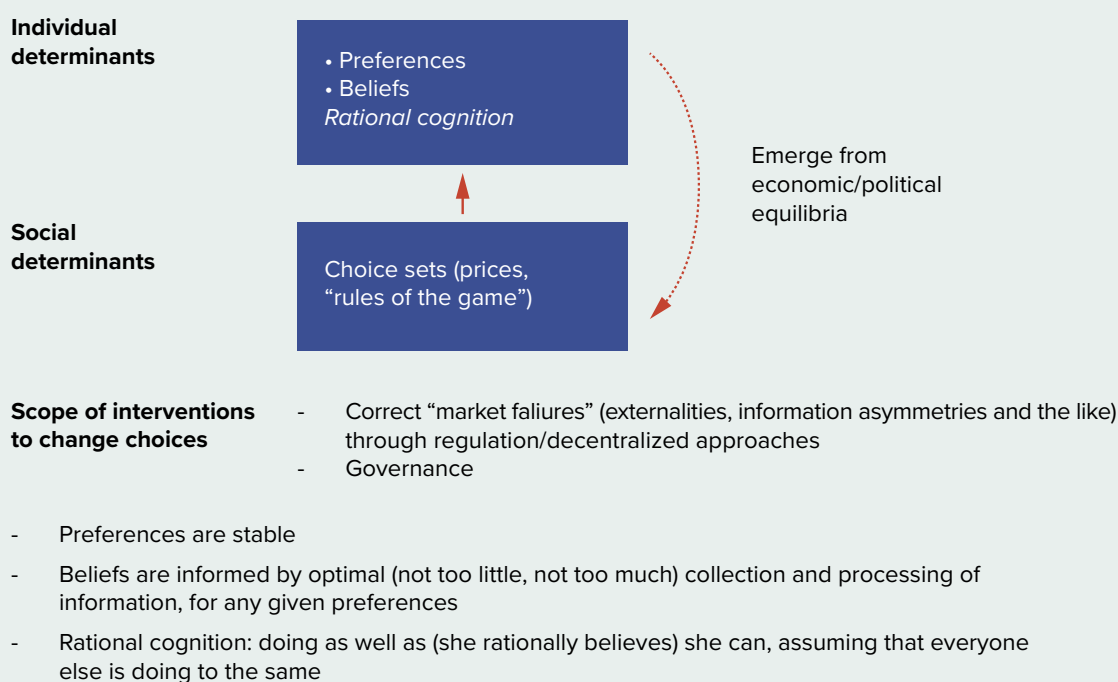
What matters in the first situation is that everyone adopts the same standard. While multiple standards may exist (driving on the left or on the right), all that matters is that everyone chooses the same side of the road.²⁶ Once a standard emerges, there is a strong incentive to comply with it—for instance, to comply with the standard of driving on the right rather than defecting and driving on the left. The difficult bit is setting the standard to begin with, a challenge of getting everyone in sync. Collective action in this situation needs to overcome a coordination problem.

The key obstacle to overcoming the coordination problem is not diverging interests—interests are aligned. Even though everyone wants the same thing, uncertainty about how others will act can lead to coordination failures that impede collective action.²⁷ Measures to enhance collective action associated

Box 4.1 A standard selfish choice model of behaviour

Preferences are exogenous and drive each decisionmaker (or agent) to pursue individual self-interest (box figure 1). The agent's beliefs, separate and independent from preferences, are based on information collected to help the agent make a specific decision. For instance, given a preference not to get drenched, an agent needs to form a belief about whether it is going to rain before choosing whether to take an umbrella when going out. The belief is based on the collection of information, such as by consulting a weather forecast in the evening. And the preference to not get drenched has no bearing on how the belief is formed (so things such as wishful thinking, where the preference to not get drenched shapes the belief that it is not going to rain, are not allowed in this model of behaviour). Beliefs are updated if the information changes—if the weather forecast consulted in the morning is different from the one consulted the previous evening. Rational cognition is defined by a set of axioms implying, among other things, that preferences can always be ordered in a consistent way.

Box figure 1 In a standard selfish choice model, behaviour is determined by the exclusive pursuit of self-interest



Source: Human Development Report Office elaboration based on Elster (2015a, 2020) and Hoff and Stiglitz (2016).

with coordination challenges include those directed towards ameliorating this uncertainty, through interventions that seek to get everyone on the same page (or side of the road).²⁸

Transforming cooperation challenges into coordination problems can enhance global collective action

Coordination challenges related to transportation and communication have been successfully overcome at the global level, resulting in collective action for the adoption of regulatory practices and regimes

that enable air travel, maritime shipping and digital communication.²⁹ The resulting standards yield very high benefits and very few constraints (a country is constrained in not opting out of the standard but would derive no benefits from doing so). And though these standards are sometimes derided as instances of shallow international cooperation,³⁰ their existence may suggest that global collective action that results from addressing coordination problems is something that sovereign countries can readily do.³¹

But a very different scenario emerges in the second situation, when the pursuit of varied selfish interests is not aligned with what would be more

desirable collectively. When what most advances each decisionmaker's self-interest is not the best possible collective outcome, this situation creates a social dilemma between self-interest and collective action. Chapter 3 showed that this situation plagues many global public goods. Collective action in this case requires cooperation, so that decisionmakers choose an action that is suboptimal for their selfish interests but superior for the collective. Recognizing that countries find it relatively easy to coordinate their actions—even while struggling to voluntarily cooperate and sometimes enforcing agreements to do so³²—opens the possibility of designing institutions (such as multilateral organizations or international treaties) that shape incentives so that a cooperation challenge becomes a coordination problem.³³

“Summation global public goods typically require cooperation, but institutions can be designed in a way that reshapes incentives to turn a social dilemma into a coordination problem, as with the Montreal Protocol

How can challenges of international cooperation be reshaped as problems of international coordination? It is possible to learn from multiple successful examples of such reshaping (spotlight 4.1). For weakest-link global public goods, such as eradicating a global (and eradicable) communicable disease, we are already close to a coordination problem. This gives insights into the kind of reshaping that could be pursued. In disease eradication all countries share the same objective, this objective can be defined with certainty and precision and each country has an incentive to contribute if it can be sure that other countries will do their part.³⁴ The key challenge is for countries to coordinate their actions in a way that sustains incentives to shore up the weakest links until the disease is eliminated.

Summation global public goods typically require cooperation, but institutions (for instance, international treaties) can be designed in a way that reshapes incentives to turn a social dilemma into a coordination problem, as with the Montreal Protocol.³⁵ Asking countries to contribute to the summation global public good of avoiding depletion of the ozone layer by limiting emissions of ozone-thinning chlorofluorocarbons (CFCs) is a call for international cooperation.

But the treaty did not simply do that. It also banned trade in CFCs and products containing CFCs between countries that were parties to the treaty and countries that were not, effectively providing incentives for high-income countries to sign the treaty. This is because trade interactions between countries are bilateral and reciprocal, with compliance easier to monitor and enforce (spotlight 4.1).³⁶

Stipulating a minimum number of ratifying countries for the Montreal Protocol to enter into force meant that a tipping point was eventually reached, aligning incentives to make (high-income) nonsignatory parties better off by signing the treaty—thus resolving a coordination problem.³⁷ To provide incentives for low- and middle-income countries to sign the treaty, a later amendment established a financial mechanism (the Montreal Fund) to compensate countries for the incremental cost of participation. These side payments induced virtually universal participation. Finally, technological alternatives to CFCs were widely shared and advertised, including by firms that stood to gain from adopting these alternatives.³⁸

Uncertainty can harm international collective action

Setting thresholds can motivate collective action, as seen in disease eradication (where the threshold for full provision is eliminating the disease in the weakest-link country)³⁹ or in the Montreal Protocol (with the establishment of a minimum number of countries for the treaty to come into effect, plus the trade provisions). The underprovision of some global public goods, such as climate change mitigation or biodiversity preservation, is often framed as the need to stay within boundaries or limits⁴⁰ to avoid reaching tipping points in planetary systems that could result in catastrophic outcomes.⁴¹ Presenting thresholds that, once crossed, can result in catastrophic societal collapse could galvanize collective action.⁴² But there are two critical conditions.⁴³ First, the thresholds must be known with little uncertainty. Second, each country must share the burden of not passing the threshold.⁴⁴

When there is uncertainty about where the thresholds lie, collective action becomes more difficult. For disease eradication, to achieve zero cases globally,

each country has to achieve zero cases nationally. But when there is no unambiguous way of determining how much each country should contribute to ensure that the world stays under a threshold for catastrophe, that calls for some agreement about how to allocate effort across countries.⁴⁵ These two factors imply a very different set of incentives for countries.⁴⁶

“The standard selfish choice model can provide insights about how to enhance the provision of global public goods. Its behavioural assumptions emphasize the use of incentives, resources and information to make provision more likely

While much effort centres on estimates of damages from crossing climate thresholds or whether damages are overstated or understated,⁴⁷ uncertainty about these damages does not seem to matter as much for cooperation as uncertainty over the thresholds.⁴⁸ Because even though the decision on whether to cooperate has no influence on the scale of the damages (which depends only on whether the threshold is crossed), whether countries cooperate does bear on whether the threshold is surpassed.⁴⁹

In the case of existential risks, these insights could inform ways to structure incentives through institutions to enable cooperation associated with providing global public goods that reduce those risks.⁵⁰ These insights also suggest that it is far more important to reduce threshold uncertainty than damages uncertainty, a challenging task given the underlying ambiguity in many of the thresholds of interest.⁵¹

The standard selfish choice model can thus provide insights about how to enhance the provision of global public goods. Its behavioural assumptions emphasize the use of incentives (trade provisions in the Montreal Protocol), resources (the Montreal Fund) and information (about the damage caused by CFCs and the availability of alternatives) to make provision more likely. But these assumptions also have limits, not only in not accounting for actual behaviour but also in lacking power to account for some of the obstacles to collective action that call for a broader understanding of the drivers of human behaviour.⁵² Behavioural science provides an initial steppingstone towards a broader explanation of behaviour.

Apply insights from behavioural science, but handle with care

Insights from behavioural science reveal how decisions depart from the behaviour predicted by the standard selfish model of choice (box 4.2).⁵³ These departures give added insights in understanding when and why collective action takes place and provide opportunities to design interventions that make the provision of global public goods more likely.⁵⁴ At the same time, as the discussion will make clear, despite the enormous interest in designing interventions based on behavioural science, there are severe limitations as well, that range from the lack of replicability of some findings, questions about their validity beyond specific experiments and the assumption that the policymaker “knows better” than individuals—among others. That is why it is important to consider insights from behavioural science but to also handle them with care.

Beyond selfishness—recognizing social preferences

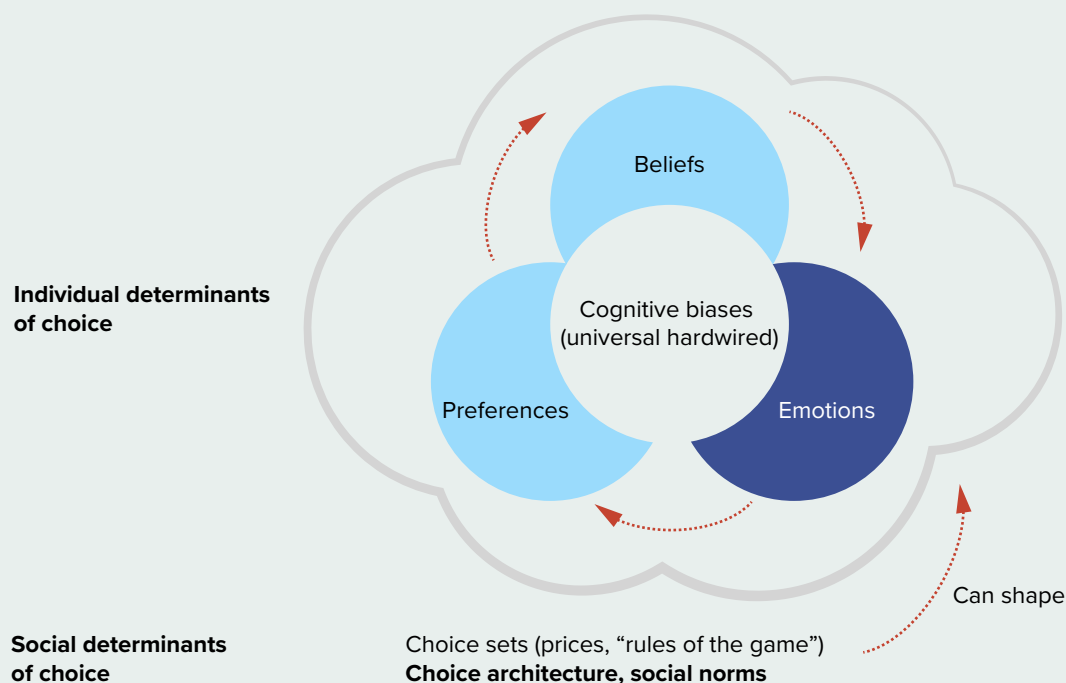
With social preferences decisionmakers consider the welfare of others, not just their self-interest, and are prosocial when that evaluation is positive.⁵⁵ Pure self-interest can motivate cooperation through reciprocity in repeated interactions (giving something today while expecting to get something in return tomorrow).⁵⁶ But people often reciprocate more generously when others behave in a friendly way and punish more harshly those who do not (even if at great cost), indicating that social preferences are likely at play.⁵⁷

People vary in the extent to which they have either selfish or prosocial preferences and in how they express social preferences.⁵⁸ A recent comprehensive review of social preferences provides some key insights.⁵⁹ When, at the turn of the 20th century, researchers concluded based on systematic evidence from experiments that some people had social preferences, respondents who expressed these preferences were described as being “crazy.”⁶⁰ Yet evidence from nationally representative samples suggests that in many countries people holding purely selfish preferences are in the minority (representing 5–20 percent of the population in countries with data).⁶¹

Box 4.2 A behavioural choice model of decisionmaking

Preferences, beliefs and cognition interact to shape how people make decisions (box figure 1). Preferences can be social, meaning that the individual takes account of other people’s welfare. Preferences can be fickle and influenced by (sometimes transitory) emotions. Fear triggered by the belief that there is a threat tends to make people more risk averse, while anger tends to make them more risk seeking. Beliefs are driven not only by the processing of information but also by one’s identity (perceptions of belonging to a particular group that holds a particular view) or preferences (for instance, motivated reasoning, as in wishful thinking, which makes people believe that a goal they are pursuing is more likely to be achieved). When beliefs are deeply held or linked to a salient aspect of a person’s identity, they can trigger strong emotional responses (as when challenging deeply held religious or political beliefs triggers anger, disgust or hate). There are multiple deviations from rational cognition—for example, how a decision is framed affects choices, and how people discount the future is not consistent along different time horizons.

Box figure 1 Social context shapes what people think and do at the moment of choice



- | | |
|--|---|
| Scope of interventions to shape choices | <ul style="list-style-type: none"> - Incentives, regulation, governance - Behavioural science (priming, nudging) |
|--|---|

- Preferences can be fickle (emotions “interfere”)
- Beliefs can be motivated (by preferences)
- Cognitive biases and limitations (loss aversion, hyperbolic discounting, representative heuristics, ...) are hardwired and universal

Note: The text in bold to the right of “Social determinants of choice” and “Scope of interventions to shape choices” denotes the new elements that are added to the selfish choice model of behaviour (which remains relevant).

Source: Human Development Report Office elaboration based on Elster (2015a, 2020) and Hoff and Stiglitz (2016).

Some evidence suggests that holding prosocial preferences is a direct determinant of wellbeing, with a positive effect similar in size to the effects of parenthood, income and education.⁶² In addition, there

are very strong positive links between prosocial preferences and cooperation.⁶³ When social preferences take the form of aversion to inequality, more heterogeneous collectives (in either resources or benefits

derived from public goods) are less likely to achieve and sustain cooperation, which provides a rationale for reducing inequalities to foster cooperation.⁶⁴

Do these relationships between individual social preferences and cooperation scale from the individual to more aggregated levels? Particularly relevant for the provision of global public goods is whether the relationships scale up to countries. Some evidence suggests that they can (box 4.3). With the assumption of prosocial preferences, the prognosis for summation global public goods can change. For instance, in the standard selfish choice model a country's unilateral increase to a summation global public good (say, abatement of greenhouse gases to mitigate climate change) will not only not incentivize other countries to contribute but will also likely provoke a reduction in their efforts. But that expected outcome changes if the other countries behave as if having prosocial preferences: in that case contributions to summation

global public goods are no longer pure substitutes but become complements.⁶⁵

Harnessing social norms

Social norms set shared expectations of behavior, providing structure to people's beliefs and bearing on the decision to cooperate (box 4.4).⁶⁶ In many circumstances, they can be stronger determinants of behaviour than the individual pursuit of material wellbeing.⁶⁷ For instance, social norms can establish what may be required to earn a reputation as a cooperator.⁶⁸ Concerns with social image can also drive prosocial behaviour: because most people care about what they believe others will think of them, they tend to make more prosocial choices in public.⁶⁹ The effectiveness of social norms in shaping behaviour depends in part on norm enforceability (or beliefs about

Box 4.3 Social preferences can scale up

A complicating factor in addressing whether social preferences scale up is the great variation across people in every country. The outcome of cooperation at the group level depends on the number and intensity of individuals with prosocial preferences.¹ Another challenge is that while cooperation may be strong within groups in society (as for people sharing the same political beliefs), it may be difficult to get cooperation between groups. In fact, strong negative reciprocity (punishing, or threatening to punish, another group harshly) may trigger retaliatory action (or even preemptive aggression)² by those who are punished or threatened with punishment.³ And that can result in intergroup conflict.⁴ Chapter 6 explores in more detail the implications of this type of intergroup dynamics, which are particularly challenging in polarized societies.

Still, recent advances in measuring differences in preferences at the global level are starting to provide some answers about what scales up to countries. In an experimentally validated survey⁵ on the social preferences of 80,000 people in 76 countries, cross-country variation in charitable giving is correlated with prosocial preferences, after factors that could also explain charitable giving are controlled for.⁶ In addition, after the same factors are controlled for, countries with a higher degree of negative reciprocity have suffered more violent conflicts.⁷ A study of 40 countries found that people everywhere were more likely to return a wallet with money than what a standard selfish choice model would predict,⁸ with prosocial preferences (in this case, measured by the extent to which concerns for welfare extend beyond one's ingroup) playing a role.⁹ And in another study of 31 countries, prosocial preferences were associated with better environmental performance—a proxy for cooperation to manage environmental externalities—and material interests mattered less than appeals to everyday cooperative behaviour.¹⁰

Notes

1. In an experiment Fehr and Fischbacher (2003) show that a minority of altruists can force a majority of selfish individuals to cooperate but that a few egoists can induce a large number of altruists to defect—and that the context matters in both cases. Hauser and others (2014) show that mechanisms can be designed to ensure that those with prosocial preferences can restrain defectors in an intergenerational public goods game. And Gächter, Kölle and Quercia (2017) show that it matters whether the challenge is to provide or maintain a public good. **2.** Böhm, Rusch and Gülerk 2016. **3.** Nikiforakis 2008. **4.** For a broader review of the psychological foundations of intergroup conflict, see Böhm, Rusch and Baron (2020) and De Dreu and others (2022). There is growing evidence of differences between dispositions to defend or to attack. For instance, consistent with loss aversion, experiments suggest that people invest more resources to protect against losses than to achieve victory (Chowdhury and Topolyan 2016; De Dreu and Gross 2019). **5.** See Falk and others (2023) for details. **6.** Falk and others 2018. **7.** This variation in preferences appears to be deeply rooted in history and to be path dependent (Becker, Enke and Falk 2020). **8.** Whether the interaction was in person or mediated through computers made a difference. Interaction through computers increased cheating threefold compared with in-person interactions (Cohn, Gesche and Maréchal 2022). **9.** Cohn and others 2019. **10.** Van Doesum and others 2021. The findings were contested (Komatsu, Rappleye and Silova 2022) but appear to hold after scrutiny (Van Doesum and others 2022).

Box 4.4 “It’s not a lie if you believe it”—Beliefs, social norms and collective action

The formation of beliefs and their interaction with preferences and emotions has implications for collective action.¹ For beliefs about how others will behave during social interactions, the standard selfish choice approach assumes that everyone behaves the same way.² The behavioural approach allows for more nuance and variability in how we expect others to behave, which can be influenced by factors ranging from the ability of agents to communicate³ to perceptions of trust among agents⁴ and assumptions about the preferences of others (whether they are conditional cooperators).⁵

Mechanisms of controlling and selecting those with whom to cooperate are key to sustaining cooperation,⁶ with reputation a key driver of beliefs about whether counterparties are likely to cooperate (or reciprocate in the future).⁷ These mechanisms can also support cooperation across groups (including countries) in what has been termed “universal cooperation.”⁸

People differ in how much they are influenced by the decisions and behaviours of others.⁹ There is substantial evidence that social comparison is a powerful driver of changes in individual behaviour, including changes aimed at addressing climate change.¹⁰ Shifts in social norms can also drive changes towards more cooperative behaviour¹¹ in the face of threats.¹² In addition, social contagion appears to be a strong mechanism leading to proactive cooperative behaviour not only when responding to threats but also as evidenced when behaviour by neighbours is replicated, as in the adoption of solar panels.¹³ People are more driven to change their behaviour when they observe others acting than when they simply receive information on the benefits of the cooperative action.¹⁴ Policy interventions have the potential to tip social norms towards more desirable outcomes (including more cooperation).¹⁵ And this potential has been studied across a wide range of challenges, from handling misinformation to advancing public health and fostering collective action for sustainability.¹⁶

Notes

1. Isler and others 2021. The quote in the title of the box is a line by the character George Costanza in the television series “Seinfeld,” as used in Bicchieri, Dimant and Sonderegger (2019). **2.** This also includes subjective beliefs, for instance, about whether countries are optimistic or pessimistic, as explored in Im, Iriş and Ko (2022). Fehr and Charness (forthcoming) discuss belief-dependent social preferences (where beliefs about the intentions of other players matter) using models of reciprocity and guilt aversion (related to theories that include emotions as part of social preferences). **3.** Barbieri 2023; Crawford 2019; Ellingsen, Östling and Wengström 2018. **4.** Bose and Camerer 2021; Schilke, Reimann and Cook 2021. Emotions affect how trust beliefs are formulated, with angry people typically being seen as less trustworthy (Kausel and Connolly 2014). Some evidence suggests that people who have a preference both for being honest and for being seen as honest are more likely to be truthful (Abeler, Nosenzo and Raymond 2019). **5.** Engelmann and others (2019) show the neural signals when beliefs about conditional cooperation are violated. **6.** Reviewing the experimental literature on infinitely repeated games, Dal Bó and Fréchet (2018) find that while cooperation can be supported in equilibria, it does not imply that most subjects will cooperate to begin with—cooperation will emerge only when the structure of the game is robust to strategic uncertainty. **7.** Balliet and Van Lange 2013; Gross and De Dreu 2019; Jordan and Kteily 2023; Rand and Nowak 2013; Roberts and others 2021. **8.** Gross and others 2023. **9.** Kendal and others 2018; Mesoudi and others 2016. In part because that much social information is “wasted,” in that it is not used in individual decisionmaking (Morin and others 2021), leading to heterogeneity across the population. **10.** In a second-order meta-analysis of 10 meta-analyses of 430 primary studies, Bergquist and others (2023) found that social comparison was one of the most important mechanisms in driving changes in behaviour, such as towards sustainable transportation or circular consumption to mitigate climate change. **11.** For a review of evidence, mechanisms and potential to inspire interventions to harness social norms, see Frank (2021). See also UNDP (2020b). For the social dimensions of fertility choices and consumption patterns, see Barrett and others (2020). **12.** Szekely and others 2021. **13.** Allcott 2011; Barnes, Krishen and Chan 2022; Bollinger and Gillingham 2012. **14.** Kraft-Todd and others 2018. **15.** Andreoni, Nikiforakis and Siegenthaler 2021. **16.** Nyborg and others 2016. See the review in Efferson, Vogt and von Flüe (forthcoming).

its enforceability),⁷⁰ on how strict the norms are⁷¹ and on the balance between rewards for compliance with norms and punishments for deviations from them.⁷²

Emotions play a central role in compliance with social norms, with people complying to avoid shame or guilt and people motivated to enforce norms out of anger or disgust for norm violators.⁷³ A social norm of conditional cooperation—full cooperation as long as others also fully cooperate and reduced cooperation as others’ contributions go down—can account for a large set of regularly documented cooperation-related

behaviours.⁷⁴ In repeated interactions the observed behaviour of others can inform the decision on whether to cooperate and by how much. But in one-shot interactions or when the behaviour of others is not observed, beliefs about how others will behave are determinant. This insight is crucial to the discussion in chapter 6 on the potential of misperceptions about what others believe to hinder collective action.⁷⁵

Social norms can be harnessed to change collective action at scale⁷⁶ (see box 4.4) and have distinctive characteristics that aggregate to countries, which

accounts for differences in cooperative behaviour.⁷⁷ One such characteristic is the tightness of social norms (as measured by the harshness of punishment of behaviour that deviates from the norm), which appears to vary systematically across countries⁷⁸ and change over time.⁷⁹ When facing a collective threat,⁸⁰ countries with tighter norms may cooperate better internally because of the cohesive glue of strong social norms.⁸¹ But extreme tightness can make cooperation across groups or countries more challenging (or can even trigger conflict).⁸² Tighter social norms can also make adaptations to a changing context more difficult, potentially resulting in a mismatch between internal and international cooperative arrangements in the face of new threats and challenges, with implications for the provision of new global public goods.⁸³

“Leadership can propel and sustain social norms that are supportive of international cooperation: that can shift norms and trigger reciprocal actions from other countries that further entrench the norm of contributing to the global public good

Moreover, global norms often influence countries’ decisions.⁸⁴ For instance, norms against gender inequality spread globally.⁸⁵ But as with any social norm, progress cannot be taken for granted. And it can be subject to contestation, particularly when polarization fuels backlash against more inclusive norms, as discussed in chapter 6.⁸⁶ But leadership can propel and sustain social norms that are supportive of international cooperation, for instance, when a country takes the lead on providing a summation global public good such as mitigating climate change: that can shift norms and trigger reciprocal actions from other countries that further entrench the norm of contributing to the global public good.⁸⁷

Drawing on cognitive biases

Almost 200 cognitive biases have been identified to explain several puzzles in the social sciences,⁸⁸ opening windows for new policy interventions and motivating a wide range of organizations⁸⁹ and initiatives around the world that seek to enrich public policy with these insights (figure 4.2 and spotlight 4.2).⁹⁰ For instance, loss aversion (people caring more about

a loss than an equivalent gain) has been empirically documented in a wide range of studies.⁹¹ This insight has explained behaviours where the framing as a loss or gain influences decisions ranging from how much to work⁹² to political choices⁹³ to why people tend to hold on to their beliefs⁹⁴ and to the design of strategies to foster learning.⁹⁵ More generally, behavioural insights have informed policy⁹⁶ through new policy tools (such as nudges), enabling better predictions about the impact of policies and generating new implications for how to enhance welfare⁹⁷ and its distribution.⁹⁸

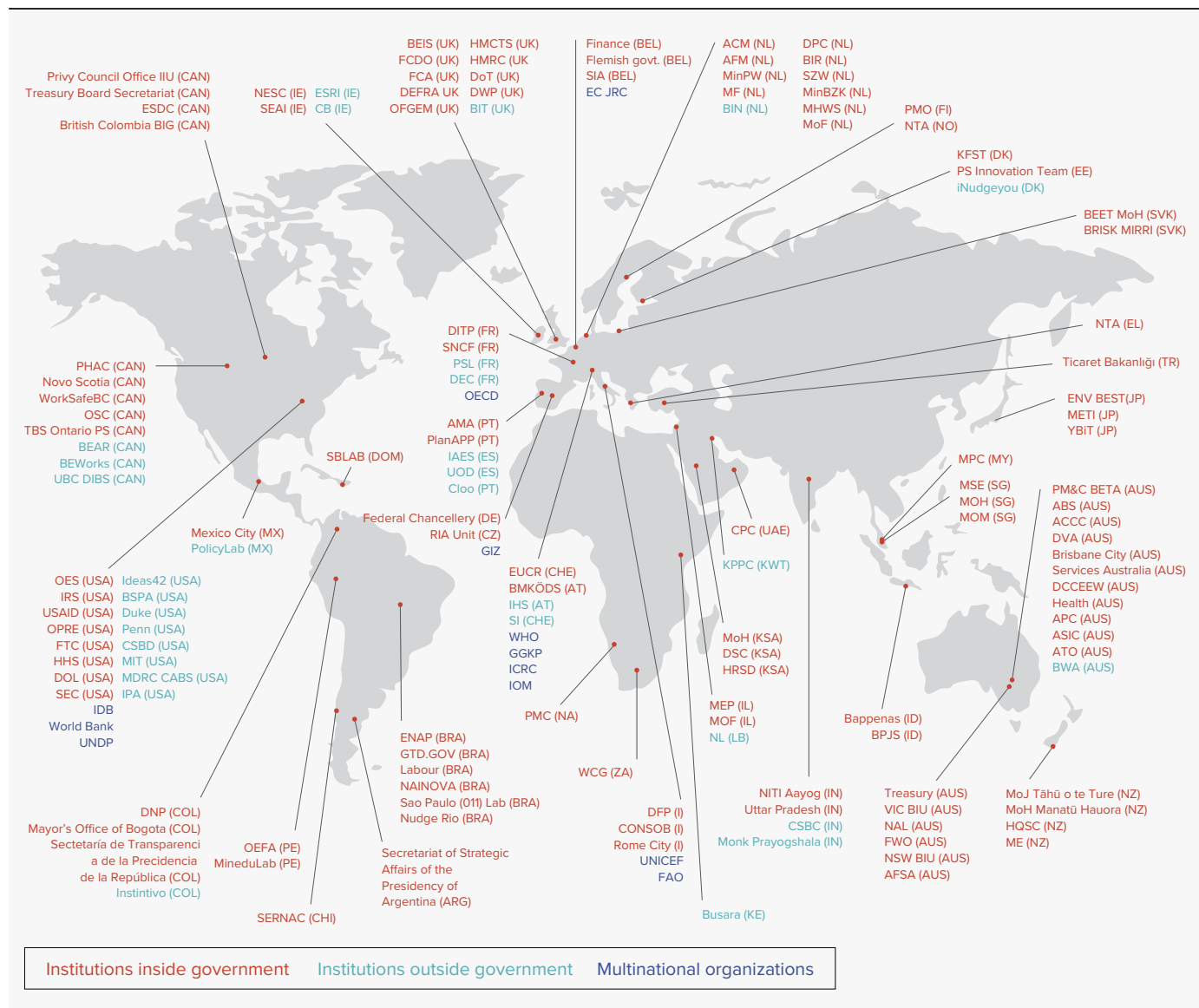
Some interventions informed by recognizing cognitive biases seek to directly change individual behaviour, many of them through nudges, which have had encouraging results in some domains.⁹⁹ Despite advocacy, including to support the response to the Covid-19 pandemic,¹⁰⁰ the uptake of insights derived from identifying cognitive biases has been mixed (box 4.5).

In fact, insights from behavioural science not only have to confront challenges associated with the replicability of several studies, but they also face a problem in the lack of an overarching theory that can account for the multiplicity of biases that are being documented (spotlight 4.2).¹⁰¹ The relevance of behavioural science findings may lie less in providing descriptions of behaviour that is empirically more realistic, or a catalogue of ills to be addressed by nudges, and more as a guide to help decisionmakers achieve desired collective outcomes.¹⁰² But that requires a framework to interpret how these biases interact with institutions and broader determinants of human behaviour (discussed thus far as if they were universal and hardwired, an assumption that will be relaxed in the next section).¹⁰³

Recognize how culture shapes behaviour and institutions

Behaviour during the Covid-19 pandemic illustrates the importance of having a broader understanding of behaviour that goes beyond selfish choice and behavioural insights and extends to an explicit consideration of the role of culture and its change over time (box 4.6).¹⁰⁴ There are many approaches to doing this, from sociologists interested in structuration to anthropologists interested in cultural economy and

Figure 4.2 Widespread efforts draw on behavioural insights to inform public policy



Source: Organisation for Economic Co-operation and Development, Observatory of Public Sector Innovation (<https://oecd-opsi.org/blog/mapping-behavioural-insights/>).

politics to approaches drawing attention to structural political economy.¹⁰⁵ Cultural evolution (spotlight 4.3) is one such approach among many that consider historical, social and relational perspectives that have been pursued across many disciplines. It is one way of accounting for how behaviour and culture interact in different societies and create packages adapted to address cooperative challenges at scale, with distinct cultural and behavioural traits.¹⁰⁶

Insights from recognizing how behaviour and institutions are contingent on the social context and its change over time can be mobilized to address shared challenges, including the provision of such global

public goods as climate change mitigation. These insights suggest that people can be expected to react differently to different interventions, as opposed to assuming that all people behave according to the standard selfish choice model or that they are all constrained by universal and hard-wired cognitive and other biases.¹⁰⁷ Another insight is that it is important to understand the interplay between social norm psychology and social identity to understand drivers of cooperation.¹⁰⁸ To see why and how, consider first the perils of interventions that start from either end of the behaviour-institution interaction (see figure 4.1).

Box 4.5 The promise and peril of nudges in changing behaviour

Nudges attempt to change the choice context to increase the likelihood of people making decisions that contribute to meeting a policy goal without precluding any other choices or relying on economic incentives (for instance, changing default options on organ donations or retirement savings or framing incentives as losses instead of gains, given loss aversion).¹ Nudges not only seek to improve individual welfare but also tackle collective challenges, including green nudges to change behaviour towards climate and environmentally friendly choices.² They have the potential to increase the effectiveness of price-based interventions to mitigate climate change, such as carbon taxes, including by enhancing the public acceptance of taxes.³ Thus, insights from behavioural science linked to cognitive biases are now regularly considered in the design and implementation of environmental policy⁴ and in the provision of global public goods such as climate stability⁵ and biodiversity conservation.⁶ The potential to derive insights from behavioural sciences has been explored for enhancing the provision of global public goods within international law⁷ and international relations.⁸

Once again, the question is the extent to which individual behaviour aggregates into biased aggregate outcomes. For instance, people may self-select or be sorted into groups with similar degrees of cognitive bias. If this is the case, some groups might deviate less, in the aggregate, from the selfish choice behaviour than others. Even with this type of sorting, whether biases matter depends on the decision being considered for accomplishing a certain task. For some tasks a group that gathers individuals who behave more according to the selfish choice model does not produce biased aggregate outcomes. But for other tasks biases can be amplified in the aggregate even when selfish choice and biased people are sorted into different groups.⁹

Understanding how and why this sorting matters for some tasks and not others is an important area for research. It is particularly relevant in the international context, where decisions on behalf of countries negotiating treaties are made by individuals empowered to represent those countries. In negotiations for climate change, negotiating peers perceive the credibility of country commitments to mitigate climate change to be determined by the quality of institutions in that country—with economic factors such as economic benefits and costs of those commitments bearing less on credibility.¹⁰

Whether decisionmakers are subject to biases is thus particularly important. It has been argued that decisionmakers among the elite may be less prone to biases and act more in line with the selfish choice model.¹¹ But this does not mean that they are not influenced at all by biases,¹² particularly when their decisions touch on issues salient in people's lives (such as climate change or management of a pandemic). Public opinion¹³—or, at a minimum, elites' perceptions of public opinion¹⁴—matters and is often conditioned by cognitive biases.¹⁵

There is an ongoing debate on the extent to which nudges and other behavioural interventions are effective.¹⁶ In a study of 73 randomized controlled trials in 67 US cities implemented in collaboration with a national nudge unit, fewer than a third of the nudges were adopted in policy.¹⁷ There are several barriers in translating insights from behavioural science into policy,¹⁸ but recent debates on the size of the effects of interventions reported in the literature have further moderated policymakers' enthusiasm.¹⁹ Information gathered from more than 200 studies reporting 440 effect sizes remains inconclusive.²⁰ There is also a difference between effects reported in small samples and effects realized when interventions are taken to scale. In 126 randomized controlled trials covering 23 million people, the average impact of interventions (that is, at scale given the number of people covered) was 1.4 percentage points, compared with 8.7 percentage points in literature that typically relies on small samples.²¹

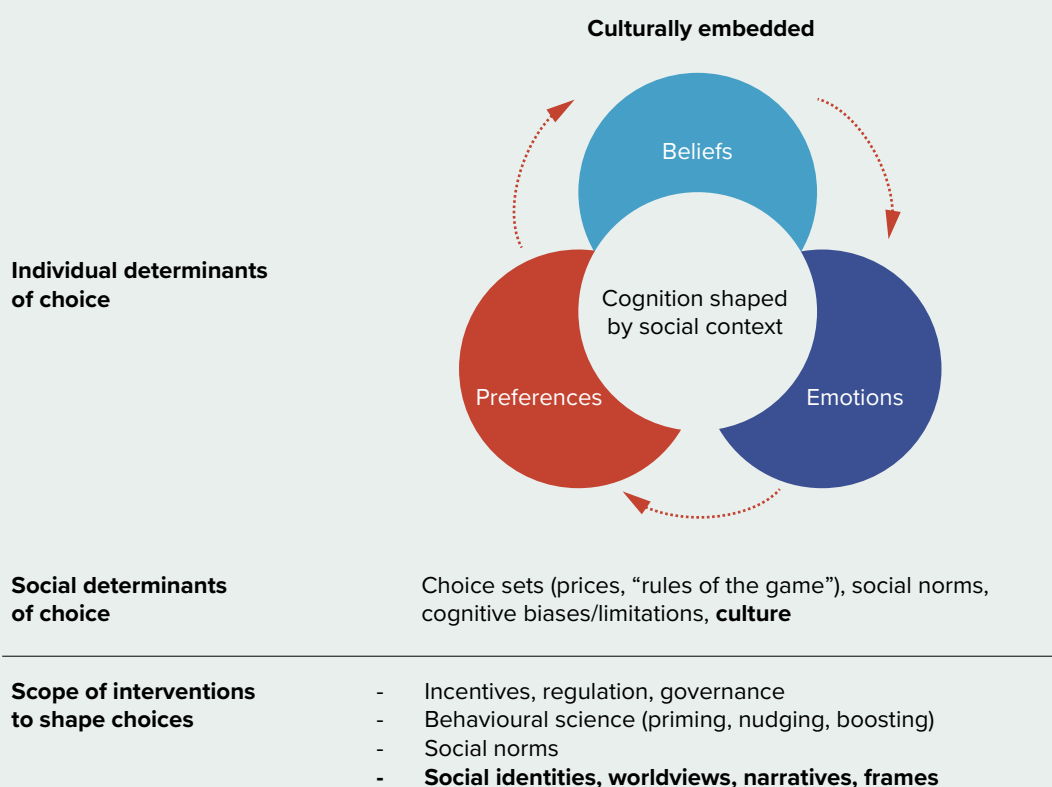
Notes

1. Thaler 2018; Thaler and Sunstein 2003. **2.** Carlsson and others 2021. Some green nudges are reportedly very effective. For instance, in China green nudges increased individuals' share of food orders with no cutlery (thus reducing plastic waste) more than sixfold (He and others 2023). **3.** Gravert and Shreedhar 2022. **4.** For a general review, see Carlsson and Johansson-Stenman (2012). **5.** See Brekke and Johansson-Stenman (2008) for a framework and early review. **6.** Travers and others 2021. **7.** van Aaken 2018. Although attention has also been drawn to some potential limitations. See the introduction to a symposium on this theme in van der Zee, Fikfak and Peat (2021) as well as Yildiz and Yüksel (2022). **8.** Davis 2023; Davis and McDermott 2021. **9.** Enke, Graeber and Oprea 2023. **10.** Victor, Lumkowsky and Dannenberg 2022. **11.** Hafner-Burton, Hughes and Victor 2013. There is also evidence that some elites appear to have weaker social preferences (Fisman and others 2015). **12.** As found in Mildemberger and Tingley (2019). **13.** Anderson, Böhmelt and Ward 2017; Oehl, Schaffer and Bernauer 2017. **14.** Hertel-Fernandez, Mildemberger and Stokes 2019. **15.** Webster and Albertson 2022. **16.** See, for instance, Dimant, van Kleef and Shalvi (2020), Guttman-Kenney and others (2023) and Bicchieri and Dimant (2022). **17.** DellaVigna, Kim and Linos 2022. **18.** As reviewed in Linos (2023). For a set of proposals on how to address some of the challenges, see Mažar and Soman (2022). **19.** And behavioural interventions have been unable to address some major challenges, such as how to reduce economic inequality (Ruggeri and others 2022). **20.** The original study by Mertens and others (2022a) reports a Cohen's *d* (a standardized measure of the difference between the mean of the untreated group and the treated group) of 0.43, but after reanalysing the data and correcting for publication bias (that only statistically significant results are published; more surprising results are more likely to be published) and heterogeneity (whether the findings extend beyond the sample used for the study), Szaszi and others (2022) find an effect of 0 (in a response, Mertens and others (2022b) agree with the importance of addressing issues associated with publication bias and heterogeneity). **21.** With respect to two nudge units in the United States: DellaVigna and Linos (2022) and Webster and Albertson (2022).

Box 4.6 Social context shapes what people do and how they see themselves

Taking account of the interplay between behaviour and culture suggests that human choices need to be understood within the social context that shapes not only individual preferences and the architecture of choice but also how people see themselves and how they see others (box figure 1).¹ That is, who they are.² The entanglement of behaviour and culture opens the possibility of understanding the processes of social choice and the potential scope for interventions—in ways that recognize when and how they can be mutually reinforcing, as opposed to pinning all hopes on either institutions or behaviour to enhance collective action. This approach also implies recognizing that some processes of social choice change endogenously, so the interventions may have unintended consequences. Even if these are not possible to predict with precision, being aware of this possibility and understanding the mechanisms for them to emerge can enhance policy design and implementation.³ This implies that criteria for the design of interventions (either behavioural or institutional) should consider efficiency and equity as well as efficiently evolving institutions to account for both a changing world and the endogenous dynamics of change between behaviours and institutions.⁴

Box figure 1 Social context shapes who people are



Note: The text in bold to the right of “Social determinants of choice” and “Scope of interventions to shape choices” denotes the new elements that are added to the selfish choice model and to the behavioural choice model (which remains relevant).

Source: Human Development Report Office elaboration based on Hoff and Stiglitz (2016).

Notes

1. Lamont 2023. **2.** This is where the discussion arrived, but it is the point of departure for sociology (Lamont 2019). This makes insights from sociology also relevant, particularly recent developments on understanding culture as a toolkit from which people draw cultural resources to navigate their life (Swidler 1986). These have been inspired in part by insights from the cognitive and behavioural sciences (DiMaggio 1997; DiMaggio and Markus 2010; Lamont and others 2017). These insights have already been incorporated into models and accounts of institutional change by economists (Acemoglu and Robinson 2022, 2023). **3.** Hébert-Dufresne and others (2022) present a model of this endogenous process of social choice. **4.** Schimmelpenninck and Muthukrishna 2023.

Ignoring the interaction between behaviour and institutions is perilous

The perils of starting with institutions is perhaps more widely understood. Transplanting institutions¹⁰⁹ from the context in which they emerged to settings with different behavioural, social and economic contexts has been widely documented. Institutions, including legal institutions and mechanisms to enforce formal law, typically work in shaping behaviour if there is already an equilibrium resulting from an underlying set of beliefs that sustains cooperation.¹¹⁰ This may very well be the case in an international context, except perhaps outside interactions where direct reciprocity fosters cooperation; some evidence suggests that the effectiveness of international agreements sometimes does not depend on whether there is an enforcement mechanism.¹¹¹

Formal institutions set very important structural features of contemporary societies, so understanding flaws in those structural features (which can exacerbate inequalities in human development, perpetuate exclusion or impede collective action) and how to change them is crucial.¹¹² The contribution of the discussion in this section towards this goal is not to assume politics away or to minimize the importance of formal institutions but rather to probe how assumptions about behaviour also shape how those flaws are identified and what to do to correct them (box 4.7).¹¹³

But there also are perils in attempting to start from the other end, towards changing behaviour to foster collective outcomes, without taking into account the institutional and broad cultural context in which the changes are pursued. As noted, changes in behaviour can be pursued directly (creating nudges, for instance) or indirectly (making people change choices voluntarily based on their observation of others, particularly when social norms reach tipping points that make individual and social beneficial behaviours ubiquitous).¹¹⁴ These processes can be mobilized to support the provision of global public goods.¹¹⁵ Imitative adoption played a crucial role in the spread of solar panels in Germany around the 2000s, advancing from an initial slow adoption to a rapid spread that led the country to generate more solar power per capita than any other country by 2009.¹¹⁶

Enhancing collective action requires understanding differences in preferences and beliefs shaped by social contexts

Interventions can trigger rapid shifts in social norms,¹¹⁷ but identifying when and how tipping occurs requires understanding how preferences and beliefs are distributed across the population. Both preferences and beliefs can be shaped by cultural and social contexts, and ignoring differences can result in ineffective or, worse, misguided interventions (box 4.8).¹¹⁸ Often, experimental studies draw on university students or segments of the population that may be more prosperous than average. There is also variation in the strength of behavioural effects across the population according to education and income (figure 4.3).

Variation also occurs across countries when effects based on one intervention were not observed when the intervention was implemented in an alternative way¹¹⁹ or when interventions were explored across countries. These different outcomes point to the importance of recognizing how behaviours and institutions interact with culture.¹²⁰ It has long been recognized that signature findings of behavioural insights from experiments in high-income countries in Europe and North America are not generalizable, as shown by a failure to replicate the results in different contexts.¹²¹ Moreover, over the course of human history and even today, most people have not lived in such settings,¹²² implying the need for caution in generalizing claims from results based on samples from these settings.¹²³

“Both preferences and beliefs can be shaped by cultural and social contexts, and ignoring differences can result in ineffective or, worse, misguided interventions

Recent work uncovered substantial cultural differences in preferences and beliefs associated with economic inequality, supporting the notion that cultural processes are at play in shaping this diversity across and within countries.¹²⁴ For preferences on how much inequality people accept or are averse to, much depends on the kinds of inequality that people consider to be unfair.¹²⁵ Representative surveys in 60 countries documented variation across countries in the extent to which people subscribe to one of three views

Box 4.7 Where are the politics?

One simplified way of identifying where the politics lie is to assume that there are two types of interactions relevant for collective action within countries.¹ One pertains to setting up the rules of the game—the conditions under which society is governed. This can be considered the realm of politics, which determines who holds power to do what and how.² These rules are codified in documents, from constitutions to civil and penal codes to jurisprudence (in short, the law). The creation, execution and enforcement of the law are ensured by formal institutions. Interactions of the other type then unfold within the law—the social and economic decisions undertaken by people and other formal institutions (those with legal status, such as firms or civil society organizations). Each of these realms is the subject of entire disciplines, including political science for the first, and much of economics for the second.

The two sets of interactions are mutually constitutive. For instance, rules can enable the accumulation of wealth and resources by certain agents that, in turn, can mobilize those resources to further advance their economic advantage in the domain of political interactions, through direct capture of political office, lobbying or the use of the media.

Still, as important as the law and rules are, there is a growing appreciation that contracts are notoriously incomplete (and externalities are pervasive), with the irreducible incompleteness of the law and formal institutions particularly relevant in contexts of uncertainty.³ So, economic and social behaviour is also regulated in part by social norms in which the formation of beliefs and preferences and how they change over time and across people and countries have crucial importance.⁴

But behavioural assumptions, and the role of beliefs, matter even without assuming the irreducible incompleteness of the law. Why do people comply with the law, and how can social order be maintained in diverse societies? The selfish choice model suggests that people are motivated to seek individual gains and avoid losses, so these assumptions would suggest the use of strategies that deter law violators.⁵ While these strategies matter, so do beliefs about the legitimacy of formal institutions: “Legitimacy is a concept meant to capture the beliefs that bolster willing obedience.”⁶

Under this perspective people obey the law due in part to a common commitment to obey formal institutions, sustained by the belief that there is an obligation to obey (value-based legitimacy) that is then reflected in actual compliance (behavioural legitimacy). Within this framework antecedents to value-based legitimacy include components of how the formal institutions are perceived (motivations of leaders, administrative competence and the performance of formal institutions in delivering on their public purposes, including the provision of public goods) and views about procedural justice (whether the exercise of authority is perceived as fair). Within views about procedural justice, the perception that government procedures are unfair often motivates disobedience, evasion and resistance to legal demands, with deterrence motives overwhelmed and ineffective in these cases.⁷

The role of beliefs also comes to the fore when formal institutions undergo change. Fundamental institutional change often takes place during critical junctures when there is uncertainty about the shape that future institutions will take. A recent strand of literature shows that the dispersion of beliefs about future institutions can help identify these critical junctures. How these beliefs diffuse and get consolidated around particular views shapes in part the rules of the game that societies end up with.⁸ Some of the evidence comes from contexts where people can choose to rely on formal state institutions or on nonstate entities (for instance, in dispute resolution) or where there are competing claims to the formal governance institutions, which shows that beliefs (about which arrangement is more effective or more enduring) not the formal institutions themselves causally determine behaviour.⁹

In sum, there is growing recognition of the importance of beliefs in shaping the two set of interactions and a recognition that they are shaped by the dynamic interaction between behaviour and institutions. Political scientist Margaret Levi titled a recent account of her intellectual journey “The Power of Beliefs.”¹⁰ And economist Kaushik Basu titled a deep reflection on the relationship between law and economics “The Republic of Beliefs” because “The might of the law, even though it may be backed by handcuffs, jails, and guns, is, in its elemental form, rooted in beliefs carried in the heads of people in society [...], creating enormous edifices of force and power, at times so strong that they seem to transcend all individuals, and create the illusion of some mysterious diktat enforced from above. In truth, the most important ingredients of a republic, including its power and might, reside in nothing more than the beliefs and expectations of ordinary people.”¹¹

Notes

1. Inspired by Hurwicz (1996), as described in Powers, van Schaik and Lehmann (2016), who distinguish the political game from the economic game. Above the political game Ostrom (2009b) posited a constitutional game. To simplify the discussion, the constitutional game is subsumed under the political game. **2.** See Powers, Perret and Currie (2023) for a discussion of how playing the political game in societies of increasing size leads to the emergence of political inequality. **3.** We are grateful to Charles Efferson for emphasizing these points. **4.** For discussions of how differences within countries on cooperative versus conformist preferences relate to differences in political ideology and how these differences may have emerged, see Claessens and others (2020) and Claessens and others (2023). For an account of the diversity across 99 countries in the (lack of) correlation between cultural and economic conservatism, see Lelkes, Malka and Soto (2019). **5.** The framing and discussion in this paragraph draw from Tyler (2023). Deterrence is typically understood to mean punishing violators as a means to enhance compliance, but rewarding a commitment to cooperate could also be effective (Han 2022). **6.** Levi, Sacks and Tyler 2009, p. 354. **7.** Levi, Sacks and Tyler 2009, p. 360), with numerous examples, including several related to tax avoidance and evasion. For further elaborations related to the need to raise fiscal revenue to provide for public goods, see Levi (1988, 1999). For a debate on the relevance of procedural justice, see, for instance, Hagan and Hans (2017). **8.** Reviewed in Callen, Weigel and Yuchtman (2023). **9.** Acemoglu and others 2020. **10.** Levi 2022. **11.** Basu 2018, p. 40.

Box 4.8 It seemed such a good idea at the time: The dangers of ignoring heterogeneity when pursuing social tipping

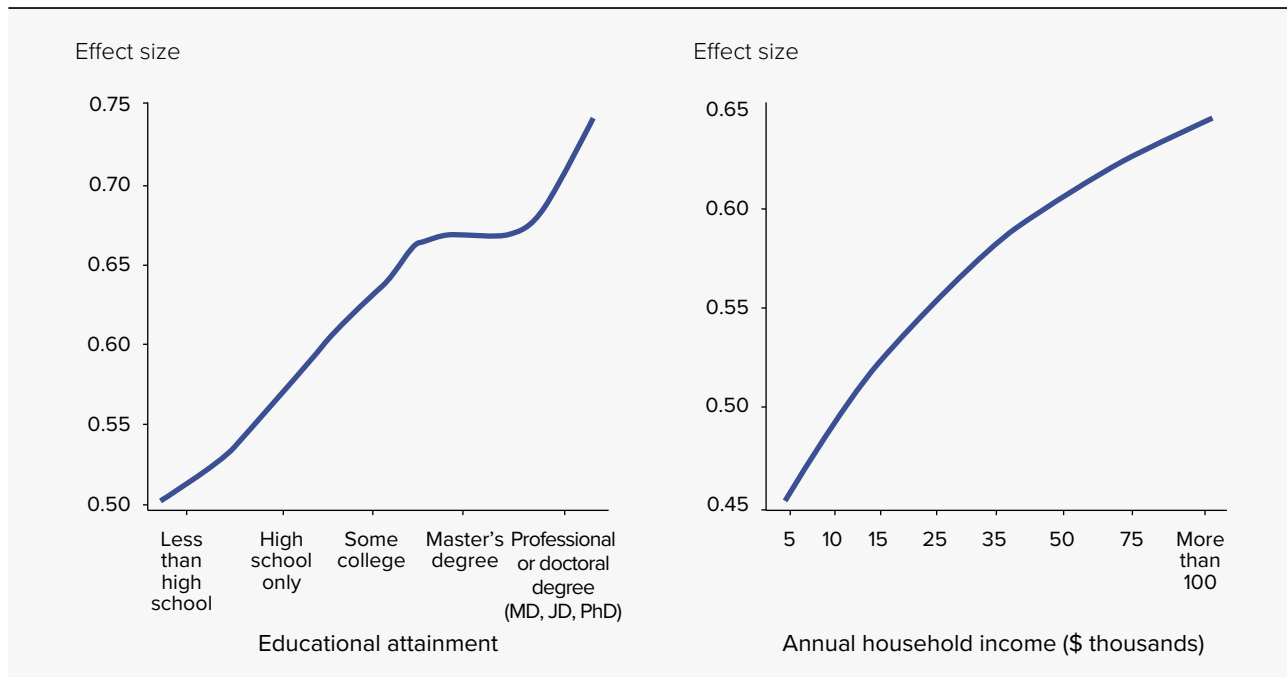
An intervention heralded as very successful in harnessing the potential of social norms to change behaviour was the firm Opower’s provision of information about how each customer’s energy use compares with that of its neighbour, along with messaging that signalled that conserving energy was a desirable goal.¹ An initial evaluation of 600,000 households that compared the behaviour of households that received the information with that of households that did not found that this nonprice intervention had a substantial effect in encouraging energy conservation.² However, when the intervention was scaled to more than 8 million people, the average effect—and its practical importance—turned out to be much lower than in the initial evaluation.³

This was not a replication failure, since both evaluations were rigorous and stood up to independent analysis.⁴ But the initial evaluation was based on the communities that were the first to adopt the measure. They were already inclined to value energy conservation, had large homes and were relatively prosperous, thus they had many opportunities to conserve energy. The effect of the intervention declined substantially when it was expanded to include people with a broader set of beliefs and much wider range of incomes. Even when studies are carefully conducted, the choice of convenience samples seems to be particularly problematic in behavioural interventions.⁵

Notes

1. Featured, for instance, in Chetty (2015). Thus, the intervention relied on both descriptive and injunctive social norms. See Constantino and others (2022) for a discussion and Bhanot (2021) for the role of injunctive social norms in promoting conservation. **2.** Allcott 2011. An initial smaller expansion beyond the 600,000 also suggested that the effects persisted (Allcott and Rogers 2014). **3.** Allcott 2015. **4.** As reported in Bryan, Tipton and Yeager (2021), which inspires the analysis in this paragraph. **5.** Sometimes simply because there is not enough contextual information, as Vivalt (2020) showed in an analysis of 635 studies of impact evaluations of development interventions, posing challenges to the generalizability of results.

Figure 4.3 Effects of several behavioural phenomena are stronger in more educated and wealthier segments of the population



Note: The figures show the effects from seven classical studies in behavioural science (conformity with a descriptive social norm, impact of argument quality on persuasion, base rate underutilization, conjunction fallacy, underappreciation of the law of large numbers, false consensus and ease of retrieval) according to educational attainment and annual household income in a representative sample of the US population. The vertical axis reports Cohen’s *d* effect sizes (the standardized difference between the means of the treatment and control groups; Cohen 1988).

Source: Yeager and others 2019.

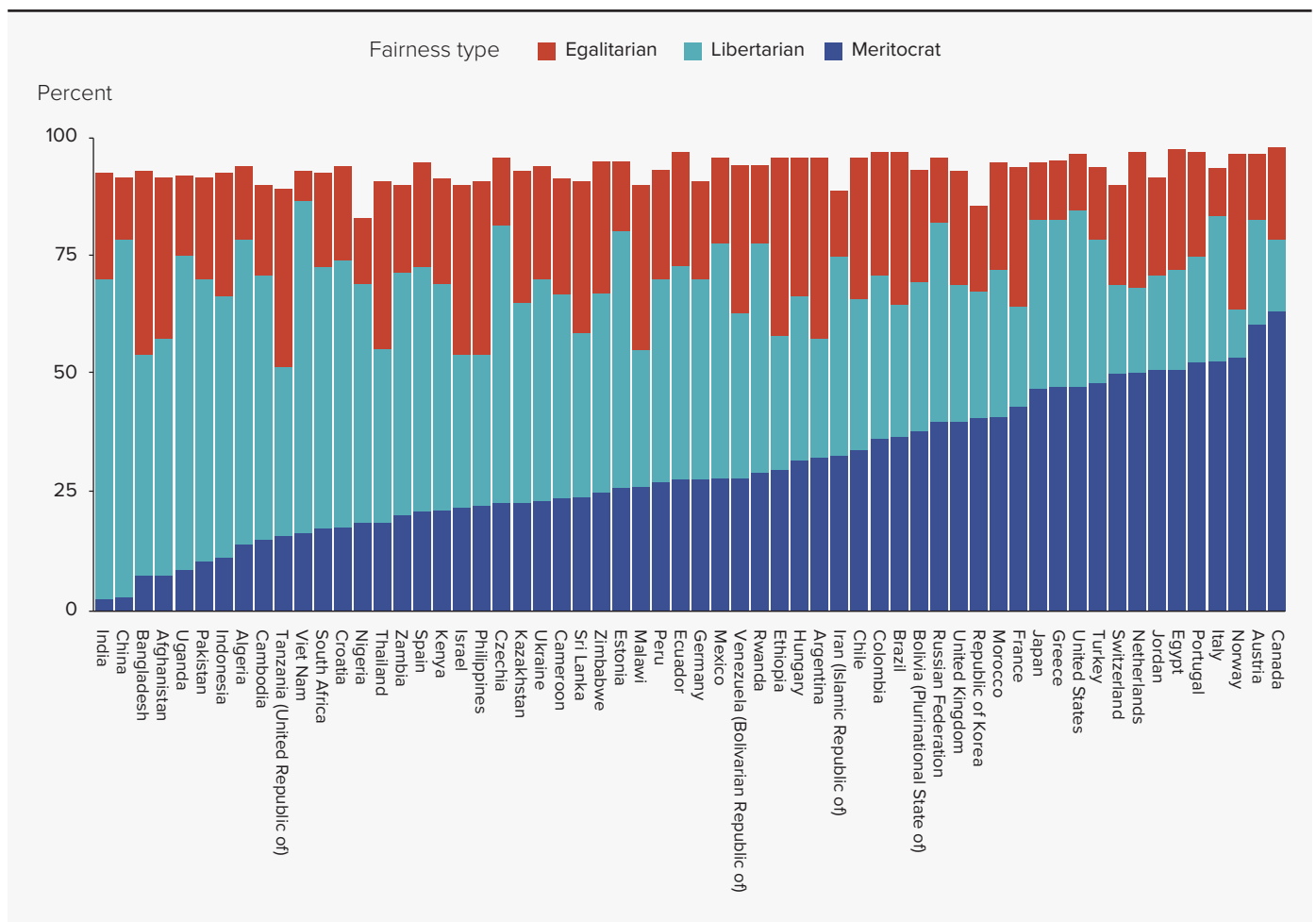
on fairness: egalitarians (find all inequalities unfair), meritocratic individuals (accept inequalities due to differences in performance as fair but those due to luck unfair) and libertarians (accept all inequalities as fair). A large share of the population in several high-income countries adhere to the meritocratic view—which is also the foundation for some normative theories of distribution—holding that people should not be considered responsible for outcomes beyond their control (figure 4.4).¹²⁶

But this view is not well represented in many other countries. And even among countries with similar shares of people holding a meritocratic view, there are large differences in the other two categories. For instance, although Norway and the United States have similar shares of meritocratic individuals, the United States has a much larger share of libertarians,

and Norway has a much larger share of egalitarians.¹²⁷ Moreover, there are differences within societies. In Norway the share of egalitarians is much higher among 15-year-olds from low socioeconomic households than among those from high socioeconomic households,¹²⁸ and while most grade 5 children are egalitarians, the meritocratic share increases in higher grades and is largest by grade 13.¹²⁹

So, experience and social context shape people’s views of fairness, again pointing to cultural processes in shaping preferences over the lifecycle. Separately from preferences, what people believe about the sources of inequality also matters. A meritocratic individual who believes that inequality is driven by luck, not effort, would find inequality unfair. As with preferences, there is a wide disparity across and within countries on beliefs about the drivers of inequality.¹³⁰

Figure 4.4 There are widespread differences in fairness preferences around the world



Note: Egalitarians find all inequalities unfair, meritocratic individuals accept inequalities due to differences in performance as fair but those due to luck as unfair and libertarians accept all inequalities as fair.
Source: Almas and others 2022.

Beliefs about the extent to which inequality is unfair matter more for attitudes towards redistribution than the actual level of income inequality, so beliefs have a direct bearing on support for different types of redistribution policy.¹³¹

Thus, recognizing that populations can be heterogeneous in preferences and beliefs and how these differences emerge from cultural processes is crucial to the design of institutions and policies, including, for instance, on tax compliance (spotlight 6.4).¹³² In particular, it is essential in assessing what kind of interventions are more likely to trigger social tipping.¹³³

Understanding how enhancing agency and redressing polarization within countries can improve collective action across countries

A broader perspective on choice informed by these insights opens new vistas on how to advance cooperation and the provision of global public goods. And it helps show how risks associated with domestic patterns of political polarization may harm collective action across countries.

Interventions to enhance the provision of global public goods that are informed by the recognition that people are products of culture include the consideration of perceptions and aspirations when implementing policies or designing institutions. Different perceptions about how to interpret a noncooperative choice can result in cultural impediments to cooperation: when the choice is perceived as a mistake, it can lead to collective action in future interactions, but when it is perceived as an insult, it can result in the collapse of collective action.¹³⁴ Perceptions also matter when people infer the motives of others to make moral judgements,¹³⁵ and on perceptions about how (and in what ways) they are interdependent with others.¹³⁶ Breakdowns of cooperation in conflict are also shaped by this type of perception. There is evidence that the mental representation of payoffs that potential conflicting parties face rather than the actual payoffs determine not only how people think but also how they behave.¹³⁷ These perceptions are malleable to some extent and can be changed in ways that increase the propensity of players to pursue cooperation.¹³⁸

Aspirations also matter because people act on what they believe is possible and desirable, and these beliefs

are in part the result of social processes, shaped by narratives widely shared across society or within groups.¹³⁹ Aspirations, and the institutions and social norms associated with them, may have emerged as a result of cultural processes that made them suitable for some time in some contexts, but they may no longer be suitable for new contexts.¹⁴⁰ This mismatch acquires a novel dimension as we face the unprecedented challenges of the Anthropocene, in which it is unclear how processes of cultural variation and selection across societies that shaped in part how adaptive institutions and norms emerged would work when confronting planetary-scale challenges: they have to be addressed collectively and at a global scale because the relevant group is all of humanity.¹⁴¹

Such a mismatch can be characterized somewhat as reflecting what Karla Hoff and Allison Demeritt called an agency gap, which can be fuelled in part from a divergence between what societies believe is possible or probable and what is objectively possible.¹⁴² To the extent that an agency gap is the result of widely shared beliefs, closing the gap will require more than providing information; it will also require mobilizing insights about the cultural determinants of the formation of shared beliefs.¹⁴³

“Interventions to enhance the provision of global public goods that are informed by the recognition that people are products of culture include the consideration of perceptions and aspirations when implementing policies or designing institutions

Narrowing the agency gap is constrained by what is objectively possible but is malleable with respect to what people aspire to, which is sometimes articulated through narratives that have “political and psychological agency and can reinforce or challenge existing power relations and trajectories.”¹⁴⁴ This can take the form of what has been called the pursuit of emancipatory transformations,¹⁴⁵ which affirms the importance of enhancing not only people’s welfare but also their empowerment as agents of change.¹⁴⁶

But it is one thing to recognize that perceptions and aspirations matter, and that broad recommendations such as reframing narratives can help close the agency gap, and quite another to see how to mobilize these insights. Here is where the concreteness of providing

global public goods can help, because global public goods correspond to a very specific way of addressing shared challenges when countries face interdependence. Global public goods, by their nature, correspond to non-zero-sum interactions and can thus be mobilized to overcome the psychology of zero-sum beliefs (one party's gain comes at the expense of the other party's losses). To be sure, many interactions across countries are zero sum, but pursuit of the provision of global public goods has the potential to open spaces for countries to interact that are not zero-sum.¹⁴⁷ Emphasizing the provision of global public goods can overcome three of the channels shown to elicit zero-sum beliefs (even in situations where the actual payoffs are not zero-sum): perceptions of threat, real or imagined resource scarcity and inhibited deliberation.¹⁴⁸ Zero-sum beliefs exacerbate conflict,¹⁴⁹ discourage cooperation¹⁵⁰ and suppress effort and economic development.¹⁵¹

“While diversity of beliefs and preferences can be harnessed for creativity and innovation, patterns of political polarization represent a major challenge for collective action

The provision of global public goods can mobilize the human ability of shared intentionality: “an understanding that individuals are solving a problem together and are committed to supporting each other.”¹⁵² In fact, understanding and sharing intentions have been argued to have evolved to account not only for joint actions and shared beliefs but also for the emergence of coordination on the need for giving reasons to justify those actions and beliefs.¹⁵³ Some evidence suggests that the pursuit of self-reliance (seeking to reduce interdependence) in confronting shared problems crowds out cooperation and exacerbates inequalities.¹⁵⁴ People are also able “to see the world from another individual's perspective and, specifically, to understand and formally represent another individual's knowledge states, beliefs and goals”¹⁵⁵ and even their emotional states, which is involved in empathy.¹⁵⁶ This can engender a proclivity for the pursuit of justice that, along with shared intentionality, can be a powerful driver for cooperation to enhance the provision of global public goods.¹⁵⁷

The flip side is that these powerful potential drivers of cooperation often act within groups.¹⁵⁸ One

manifestation of this “groupy” behaviour is the virtually universal higher levels of parochial (meaning within countries) cooperation than of universal cooperation.¹⁵⁹ While diversity of beliefs and preferences is not just a fact but something that can be harnessed for creativity and innovation,¹⁶⁰ patterns of political polarization (where no common factual foundation exists to undertake reasoned discussions and where groups alienate and even dehumanize each other) represent a major challenge for collective action (chapter 6).¹⁶¹ How political polarization plays out domestically can be a central determinant of providing global public goods such as climate change mitigation and pandemic response.¹⁶²

Zero-sum beliefs have been associated with political polarization in some countries.¹⁶³ For instance, along with international inequity in vaccine access, domestic attitudes towards vaccines determined the path of the Covid-19 pandemic, including in high-income countries.¹⁶⁴ Even when vaccines were free and plentiful, patterns of trust and political polarization shaped the course of the pandemic in many countries.¹⁶⁵ In some countries people's vaccine status identification is as polarizing as their other group identifications. More polarized attitudes towards vaccine status have been linked to greater resistance to vaccine uptake.¹⁶⁶

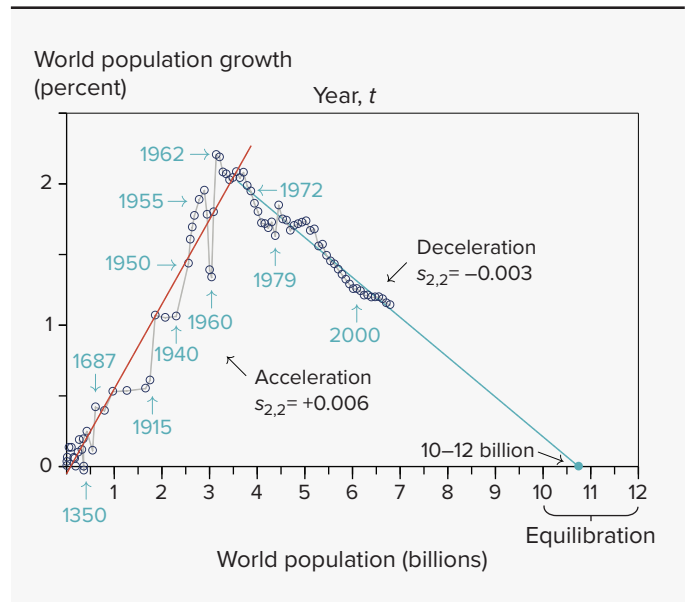
Political polarization matters also because the heterogeneity of preferences and beliefs and their cultural underpinning may prevent the mobilization of social norms towards more cooperative outcomes.¹⁶⁷ As the discussion above illustrates, and as demonstrated theoretically,¹⁶⁸ the distribution of social preferences (towards caring for the environment or aversion to inequality) can activate tipping, have no effect or even produce a backlash, depending on the effects that interventions have in different population groups and the reasons people within those groups adhere to social norms.

When behaviour conforming with a norm interacts with other motives, such as group identities, social tipping may not occur at all.¹⁶⁹ When belonging to a group is linked with salient identities, that can exaggerate the “othering” of other groups and blind members to the realization that everyone has multiple identities with different expressions and relevance at different times—people can lose sight of our shared humanity.¹⁷⁰ This is how in these situations behavioural markers that people rely on to signal group

affiliations may prevent social norms from tipping.¹⁷¹ For example, if not being vaccinated against Covid-19 is a marker of belonging to a group, not only will behaviour not change when some members of the group are vaccinated, their being vaccinated can turn behaviours against vaccination to signal commitment and loyalty to the group.¹⁷² A crucial aspect to consider, particularly in politically polarized contexts, is not only people's private beliefs but also their beliefs about what others think about certain issues, the perceptions they have about threats and how they believe that others think about them and how they will behave.¹⁷³

The next two chapters consider these two challenges (narrowing the agency gap and redressing polarization) in more detail. It may seem that the current context of turbulence around the world is not conducive to meeting either challenge. Yet, as we move deeper into the Anthropocene, we may already be experiencing a major ecological discontinuity¹⁷⁴ characterized by a shift from uncontrolled population growth to controlled fertility (figure 4.5).¹⁷⁵ The transition to low fertility is complex and multifaceted and has recently been analysed from the perspective of cultural evolution (to consider factors that demographers designate as ideation).¹⁷⁶ Determinants of this transition include innovations in medicine and sanitation, empowerment of women, advances in education, shifts in social norms about the size of successful families, increasing attention to population growth, consciousness of planetary challenges and many other potential factors, all of them expressions at least in part of cultural factors.¹⁷⁷ Recognizing that we are in the new planetary context of

Figure 4.5 The world is undergoing a major transition from accelerating to decelerating population growth



Note: The graph plots per capita growth of the population as a percentage against the population level. The gray line connects data points in different years. The red line fits an ecological model of mutualistic interactions between humans and plants and animals in which the ecological parameter ($s_{2,2}$) is positive, signifying very rapid population growth. The blue line fits a model where the parameter has turned negative, signifying a deceleration in population growth, with a projected equilibrium in population at around 10–12 billion people some time in the next century.

Source: Lehman and others 2021.

the Anthropocene and in a novel ecological phase suggests a possibilist agenda: not optimism or pessimism but the possibility of consciously managing the self-inflicted problems that we are confronting on a global scale.¹⁷⁸ The provision of global public goods, which depends only on us, would be a way of acting on that possibilist agenda.

A technology-centred approach to climate change negotiations

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The world has been trying to limit climate change for more than 30 years. The first agreement, the United Nations Framework Convention on Climate Change (UNFCCC), was adopted in 1992. Under this framework, parties agree to cooperate to limit concentrations of greenhouse gases in the atmosphere to a level that would avoid “dangerous” climate change. Every country is a party to this agreement. All countries agree that they need to cooperate.

Since then, two other treaties have been adopted. The Kyoto Protocol of 1998 set binding emissions limits for Annex I countries¹ for 2008–2012, but these could not be enforced. The United States declined to participate. Canada participated initially but took no steps to meet its emissions limits and later withdrew in order to avoid a legal obligation to comply. In 2009 countries met in Copenhagen to broaden and deepen the Kyoto Protocol. More countries were expected to be bound by emissions limits, and previously negotiated emissions limits were to be tightened. However, countries were unable to agree on how to do this. Instead, they pivoted. First, they put a number on the UNFCCC’s goal of avoiding dangerous climate change, specifying a 2°C target for mean global temperature rise. Second, they asked parties to pledge contributions towards meeting this common goal. Ultimately, this approach was codified in the Paris Agreement of 2015. That treaty strengthened the previous goal: countries are now to hold “the increase in the global average temperature to well below 2°C above preindustrial levels and [to pursue] efforts to limit the temperature increase to 1.5°C.” The Paris Agreement also situated pledges in the context of naming and shaming, to encourage greater ambition. Unlike the Kyoto Protocol, all countries participate in the Paris Agreement. However, also unlike the Kyoto Protocol, pledge-making and achievement of pledges are explicitly voluntary.

Where has this approach gotten us? Concentrations of carbon dioxide have risen every year since

negotiations began. More carbon dioxide has been emitted since the UNFCCC was adopted than in the previous 250 years. Carbon dioxide emissions reached an all-time high in 2022. The world is not on course to meet the goal countries have said they must meet.

Why? No phenomenon of this complexity has a single explanation, but one stands out, and it is surprisingly simple: countries are caught in a prisoner’s dilemma. All countries recognize that they would all be better off if they all reduced their emissions, eventually to net zero. But each country fears that doing this would put its economy at risk. Each might be willing to reduce its emissions substantially if assured that others will reduce their emissions substantially and thus avoid dangerous climate change. However, when contributions cannot be enforced or are voluntary, this assurance eludes every country. The problem is not that every country does nothing; it is that every country does too little.²

How to do better? It is instructive to consider some things that have gone well.

Successes

One success is the 99 percent drop in the price of solar photovoltaic cells since 1976. Public and private research and development account for 59 percent of the drop, economies of scale for 22 percent and learning by doing for 7 percent.³ Research and development were particularly important early in the process; economies of scale became important later. The history of solar research and development can be traced from the first solar cell developed at Bell Labs in the United States in 1954 to further developments spurred by the Space Race; the US response (beginning with President Richard Nixon’s Project Independence, a programme to make the United States energy independent by 1980) and Japan’s response

(especially its Sunshine Program) to the energy crises of the 1970s; research in Australia in the 1980s; and the solar boom in Germany in the 2000s, helped by generous feed-in tariffs.⁴ It took the combined efforts of multiple countries to get to today's situation, where costs are so low that, according to the International Energy Agency, solar photovoltaics are "becoming the lowest-cost option for electricity generation in most of the world."⁵

Another success is the decline in the price of lithium-ion batteries. Since commercialization began in 1991, the cost of this form of energy storage has fallen 97 percent. Public and private research and development account for 54 percent of the drop, economies of scale for 30 percent and learning by doing for 2 percent.⁶ Most of these activities have been undertaken by the electronics industry (mobile phones, notebook computers, power tools and so on).⁷ Advances in this technology, combined with policies to promote demand, have propelled a rapid increase in electric vehicle sales, particularly in China, the European Union and the United States. Globally, lithium-ion battery demand for electric vehicles increased 65 percent between 2021 and 2022.⁸ Thanks to this technology, an increasing number of countries and vehicle manufacturers plan to phase out sales of internal combustion engines by 2035.

These developments (and others, such as the falling costs of wind turbines and light-emitting diode bulbs) took place outside the UNFCCC process and arguably had little to do with the climate negotiations. Negotiators have asked countries to reduce their emissions, an approach that falls into the trap of the prisoner's dilemma. Had countries focused more on changing the economics of new technologies, the outcome might have been different. Rather than ask countries to reduce their use of fossil fuels, why not focus on making alternative fuel sources cheaper than fossil fuels? Doing this practically guarantees the global spread of new technologies, reducing emissions everywhere.

Tipping

Solar photovoltaics and battery-powered electric vehicles have spread (so far) without the help of a treaty. They are examples of cascade effects.⁹ Once enough

research and development have been undertaken to encourage uptake of a technology by one country, that country's production lowers costs for all, mainly through economies of scale, encouraging uptake by other countries. Their uptake in turn lowers costs further, encouraging even more countries to adopt the technology, and so on. Cascades generate positive feedback.

In some cases a single country may be unable to kick-start a cascade, but a critical mass of countries may be able to exert the "big push" required for tipping. Network externalities often drive universal adoption. An example is ocean shipping of oil. Historically, most oil pollution in the seas resulted from the way oil was transported. After completing an oil delivery, a tanker would take on ballast water for the return journey. Before picking up its next load, the tanker would release its ballast water, mixed with oil residue, into the sea. This process, repeated over and over, was a major source of ocean pollution. To limit this pollution, the 1954 International Convention for the Prevention of Pollution of the Seas by Oil (OILPOL) required tankers to limit their release of ballast water to an area at least 50 miles from shore. Being a prisoner's dilemma, however, OILPOL like the Kyoto Protocol, was difficult to enforce.

In the 1970s a different approach was tried. The International Convention for the Prevention of Pollution from Ships (MARPOL) required that oil tankers separate the tanks that hold oil from the tanks that hold ballast water, necessitating tanker redesign. MARPOL's approach was more costly than OILPOL but easier to enforce.¹⁰ Once enough ports denied entry to tankers of the old design, more tanker operators met the new standard, and as more tankers met the new standard, more ports allowed entry only to tankers that met the new standard to protect their coastlines. In this situation there was a tipping point for participation that guaranteed universal adherence.¹¹ Intuitively, the tipping point would need to be at least 50 percent of all shipping, and in practice, this turned out to be the threshold adopted for entry into force of the agreement mandating the new technology standard. According to the International Maritime Organization, "MARPOL has greatly contributed to a significant decrease in pollution from international shipping and applies to 99% of the world's merchant tonnage."¹²

The Kyoto Protocol wisely exempted emissions from international aviation and shipping, believing that these sources ought to be controlled through the International Civil Aviation Organization and the International Maritime Organization. These are essentially standards organizations, the appropriate bodies to negotiate emission reductions in their spheres of influence. By focusing on standards rather than emissions limits (which are, in any event, difficult to assign to individual countries), these organizations can stimulate positive feedback, causing a new standard to tip.

Suppose that the best alternative to bunker fuel turned out to be green ammonia, a fuel produced by combining nitrogen extracted from the air with hydrogen extracted from water, both processes powered by renewable energy. How to proceed? Ammonia would likely cost several times as much as heavy fuel oil. A switch to ammonia would also present technical challenges. It would require new engines, new on-board storage tanks (necessitating new ship designs) and new port facilities: in short, a new technology-fuel standard. A switch to ammonia clearly would not happen one country at a time. Vessel owners would not want to run their ships on ammonia unless a network of refuelling infrastructure were available, just as no country would want to build an ammonia fuel network unless assured that lots of ships would run on ammonia. Lock-in would be a barrier to switching if only one or a small number of countries switched. But as more ports switched to ammonia, more ship owners would want their vessels to run on ammonia, and as more ships ran on ammonia, more ports would want to switch. Tipping of a standard for green ammonia would resemble the experience with MARPOL.

Mission Innovation, a coalition of 22 countries working outside the UNFCCC process, has a plan to reduce emissions in shipping that obeys the logic sketched out above. A first goal is to undertake research and development to identify the best alternative to heavy fuel oil. A second goal is to facilitate the spread of this new technology-fuel standard. Again, suppose that the research and development undertaken in the first stage revealed ammonia to be the “winner.” How to achieve the second goal of ensuring global spread of the new standard? Mission Innovation would aim to establish a fleet of at least 200

ships able to run on the new fuel; to build a “global port infrastructure to support vessels operating on zero-emission fuels so that by 2030, 10 large trade ports covering at least three continents supply zero-emission fuels”;¹³ and, finally, to scale up production of the new fuel so that it supplied at least 5 percent of the total market. It is unlikely that 200 ships, 10 large ports and a 5 percent share of the fuel market would suffice to tip the global market, but at least this initiative sees the logic of needing to change the system. Changing the system is the essence of a strategy that seeks to transform the prisoner’s dilemma into a tipping game.¹⁴ Once critical mass gets past the tipping point, such an approach generates positive feedback, leading to a global switch, as we saw with MARPOL.

Trade

The approach pursued by the UNFCCC, focusing on emissions reductions, generates negative feedback. If one country (or group of countries) reduces its emissions unilaterally, comparative advantage in greenhouse gas-intensive sectors shifts to other countries, causing their emissions to increase—a phenomenon known as trade leakage. Also, if the emissions reductions are achieved by lowering fossil fuel use, global prices for these fuels will fall, causing other countries to increase their consumption and, thus, emissions. This negative feedback intensifies the incentive to free ride, which is inherent in the prisoner’s dilemma.

Because of these trade-related concerns, domestic climate policies often exclude greenhouse gas-intensive industries from having to reduce their emissions—undermining unilateral efforts to reduce emissions. The European Union is planning to extend its emissions trading arrangements to previously protected industries in order to reduce emissions further. However, due to concerns about leakage, it is planning to replace the exclusions with industry-specific carbon border adjustment mechanisms—a move that may stimulate conflict. As happened previously when the European Union tried to extend its emissions trading system to international aviation, other powerful states may retaliate. Also, developing countries may protest that, by treating domestic production and imports alike in terms of emissions, border tax adjustments violate the principle of common

but differentiated responsibilities enshrined in the UNFCCC. Finally, correcting for leakage will not correct for free riding.

However, linking climate agreements to trade cooperation can help prevent free riding—and, in the process, prevent leakage. Trade agreements are easier to enforce than climate agreements. This is because trade is bilateral, whereas emissions reductions are a global public good. If a country violates a trade agreement, the countries harmed by the reduction in trade have a strong—almost built-in—incentive to retaliate. The fear of retaliation motivates countries to abide by their trade agreements. By contrast, if a country emits more than allowed by a climate treaty, other parties to the agreement harm only themselves by reciprocating—and so will not retaliate. Because trade agreements are easier to enforce, linking trade cooperation to cooperation in supplying a global public good may overcome free riding incentives.¹⁵

The prime example is the Montreal Protocol, which protects the stratospheric ozone layer. The treaty bans trade between parties and nonparties in chlorofluorocarbons (CFCs) and products containing CFCs and works as follows. If no other countries participated in the agreement, no country would want to participate because doing so would mean losing all gains from trade in CFCs in addition to losing out from free riding. However, if all other countries participated, any country would want to participate so long as the gains from trading with the rest of the world exceeded the gains from free riding. Intuitively, every country would have an incentive to participate provided enough others participated. Trade measures thus imply the same kind of tipping point as with MARPOL—a result that makes sense when considering that denying a vessel access to a port is equivalent to a trade ban. Thanks partly to the trade measure, the Montreal Protocol has been remarkably effective, preventing both leakage and free riding.¹⁶

In Kigali in 2016, the Montreal Protocol was amended to control hydrofluorocarbons (HFCs), a cousin of CFCs. Since HFCs are a powerful greenhouse gas and do not deplete the ozone layer, the Kigali Amendment is a climate treaty negotiated outside the UNFCCC process. Further, because Kigali incorporates the same trade measure as the Montreal Protocol, it represents the first climate treaty to incorporate a trade measure. The Kyoto Protocol was unable to control HFCs, but the Kigali Amendment will very likely do so, especially after its trade measure enters into force in 2029. Also, unlike unilateral policies to control for trade leakage, the Kigali Amendment incorporates a side payment mechanism to cover the incremental costs of developing countries' compliance with the treaty's control measures. The Kigali Amendment promotes cooperation in the same spirit as the UNFCCC, only by a different means.

Way forward

For all its efforts the UNFCCC approach to limiting climate change has so far fallen short of achieving its goals. Fortunately, the Paris Agreement can be complemented by other agreements aimed at reducing emissions in particular sectors. Indeed, this has already happened. The Kigali Amendment was adopted less than a year after the Paris Agreement. Other developments, including the falling prices of solar photovoltaics and lithium-ion batteries and the aspirations of Mission Innovation, hint that more progress is possible. The key feature shared by all these efforts is their focus on interventions (technical standards, research and development, and trade measures) that can transform systems by achieving critical mass.¹⁷ Surely, many more such possibilities remain to be discovered.

NOTES

1. Annex I countries include the industrialized countries that were members of the Organisation for Economic Co-operation and Development in 1992, plus countries with economies in transition, including the Russian Federation, the Baltic states and several Central and Eastern European states.
2. See Barrett and Dannenberg (2016) for a laboratory experiment of the Paris Agreement showing that the process of “pledge and review” changes what players say (meaning their collective target and individual pledges)

but not what they do (meaning their actual contributions to achieving their pledges and target).

3. Kavlak, McNerney and Trancik 2018.
4. Nemet 2019.
5. <https://www.iea.org/reports/solar-pv>.

-
6. Ziegler, Song and Trancik 2021.

 7. Dugoua and Dumas 2023.

 8. IEA 2023b.

 9. Dixit 2003; Heal and Kunreuther 2010.

 10. Mitchell 1994.

 11. Barrett 2003a.

 12. <https://www.imo.org/en/ourwork/environment/pages/pollution-prevention.aspx>.

 13. <https://explore.mission-innovation.net/mission/zero-emissions-shipping/>.

 14. Of the world's 10 biggest ports by volume, 7 are in China. China's participation in a strategy to change shipping is essential.

 15. Barrett and Dannenberg 2022.

 16. Barrett 2003a.

 17. Barrett 2016.

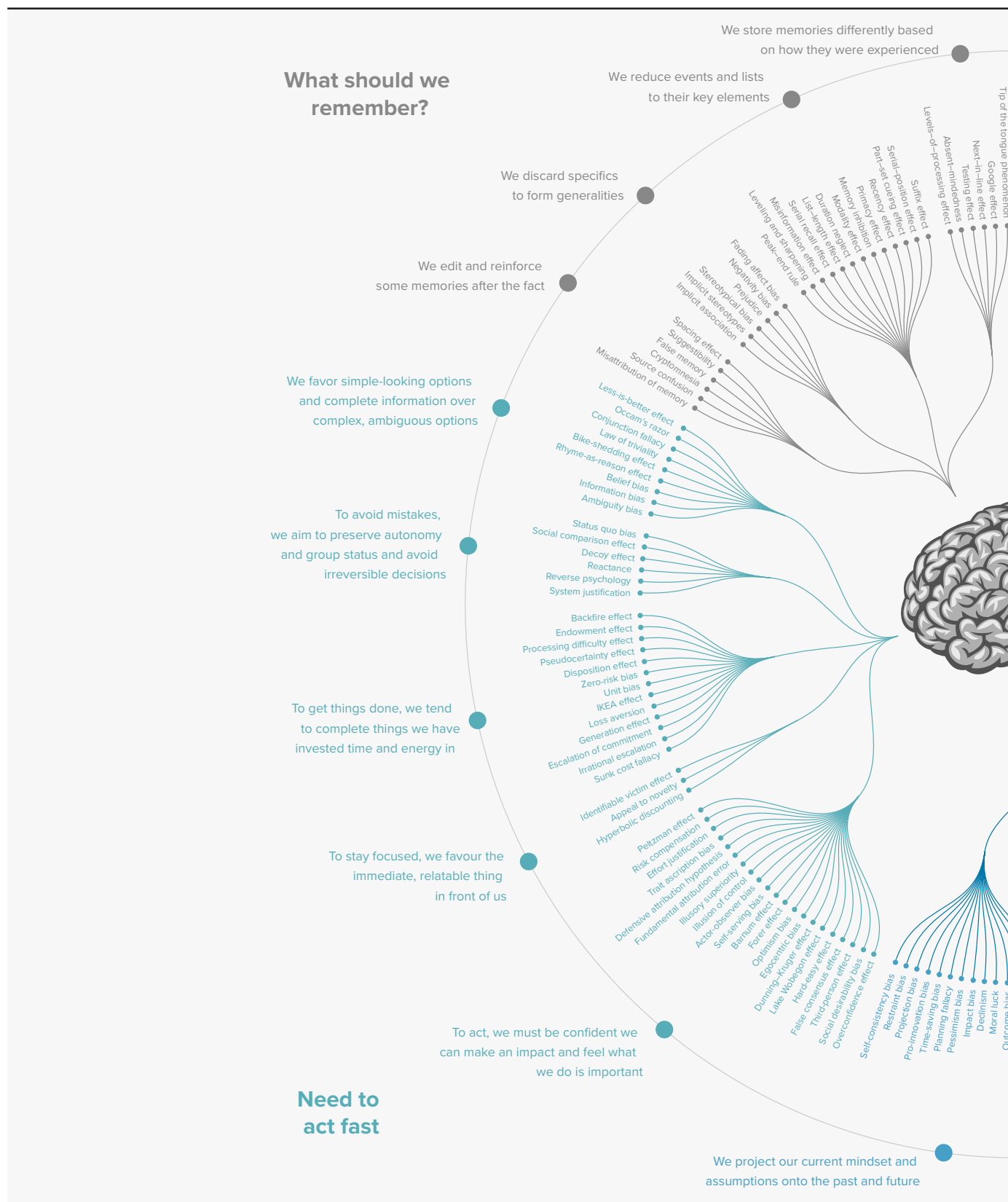
Using insights from behavioural science: Watch out!

Caution in the use of behavioural insights is associated with challenges in replicating some findings.¹ Such concerns follow on the crisis of replicability that affected some psychology research in the 2010s, when several high-profile findings that garnered media and policy attention failed to be replicated in subsequent attempts.² In particular, studies over the past 20 years based on experiments failed to replicate at higher rates than nonexperimental studies.³ A recent review found that only two-thirds of social science experiments reported in two top journals were replicated, and the average effect size was about half of that reported in the original studies.⁴ One of the signature nudge interventions—making organ donations the default—failed to replicate and could even be counterproductive.⁵ Several efforts have documented not only failures to replicate but also potential scientific misconduct.⁶ Learning from these challenges, there is awareness that behavioural science will likely evolve to deliver more robust findings, be more cautious on claims based on statistical

inference and address issues of more direct policy relevance.⁷

But insights from behavioural science confront another challenge. Given the proliferation of cognitive biases identified in the literature, even if findings are robust, it is challenging for interventions to address them all or to ensure that addressing one bias does not exacerbate some other bias. The cognitive bias codex (figure S4.2.1) may appear as little more than “a trove of plausible ad hoc modifications to rational choice models.”⁸ This challenge has motivated efforts to find a set of restricted causal mechanisms that could account for a large set of cognitive biases.⁹ A better understanding of cognitive processes (and the limits of human cognition)¹⁰ has inspired hypotheses about mechanisms that could account for several cognitive biases.¹¹ These include cognitive uncertainty¹² or an understanding of how people estimate probabilities through the selective recall of memories.¹³ But even theories that held together different biases that have received strong empirical support¹⁴ sometimes fail to be replicated.¹⁵

Figure S4.2.1 The identification of 180 cognitive biases makes it hard to derive insights about how to change behaviour to enhance collective action



Source: "The Cognitive Bias Codex - 180+ biases," designed by John Manoogian III based on categories and descriptions by Buster Benson, licensed with CC-by-SA-4.0 (https://commons.wikimedia.org/wiki/File:Cognitive_bias_codex_en.svg).

NOTES

1. Ijzerman and others 2020.
2. An early expression of concern was Simmons, Nelson and Simonsohn (2011). For reviews, see Nelson, Simmons and Simonsohn (2018) and Nosek and others (2022).
3. Youyou, Yang and Uzzi 2023.
4. Camerer and others 2016; Camerer and others 2018; Yarkoni 2022. A recent review of multiple studies recommending interventions to increase happiness reveals very little support for several widely recommended policies (Folk and Dunn 2023).
5. Etheredge 2021.
6. Websites include <http://datacolada.org/> and <http://bps.stanford.edu/>. The challenge has been widely reported in the media (see, for instance, Schelber 2023).
7. Hallsworth (2023) proposes a manifesto on how behavioural science needs to evolve to strengthen its empirical foundations and policy relevance. Duckworth and Milkman (2022) propose improvements in the conduct of meta-studies to enhance the validity of findings. Clark, Connor and Isch (2023) show that studies that fail to replicate are associated with declines in citations, thus the proposal by Zwaan and others (2018) that replication should become mainstream could enhance the validity and robustness of results. Box-Steffensmeier and others (2022) argue for the importance of cross-disciplinary learning. van Roekel and others (2023) propose improvements in the design of nudges so that they preserve autonomy, given that a strand of criticism of nudges is that they are paternalistic and curb people's ability to reason when making choices (these criticisms were reviewed in UNDP 2022a). Korbmacher and others (2023) document a series of positive structural, procedural and community changes in which the replicability crisis is turning to a credibility revolution.
8. Davis 2023, p. 476.
9. For instance, Stango and Zinman (2022) reduce 20 biases to 4 behavioural common factors. Goeree and Louis (2021) developed a model to integrate several findings from behavioural game theory.
10. Lieder and Griffiths 2020.
11. As explored, for instance, in behavioural game theory (Camerer, Ho and Chong 2015). Dube, MacArthur and Shah (2023) show how cognitive demands on policing can undermine officer decisionmaking. Enke (2020b) shows how people confronting complex decisions focus on what they see. Bordalo, Gennaioli and Shleifer (2022) draw the implication of the outsized influence of salient information on decisionmaking.
12. Enke and Graeber 2023.
13. Bordalo and others 2022.
14. Dean and Ortoleva 2019.
15. Chapman and others 2023.

Cultural evolution and development policy

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All approaches to policy design and economic development require assumptions about human nature, though these are often implicit, typically smuggled in without notice.¹ By attending closely to human evolutionary biology, the new interdisciplinary field of Cultural Evolution (CE) offers fresh insights into human behaviour, cultural differences, psychological changes, institutional effectiveness, technological innovation and economic outcomes.² Because of its historical and comparative approach, CE has explored a broad range of social phenomena, including religions,³ witchcraft beliefs,⁴ kinship systems,⁵ collective rituals⁶ and gender inequalities,⁷ and considered their links to various economic, political, demographic, social and health outcomes.

Drawing on CE research, I shine a spotlight on the nature of human cooperation, the coevolution of institutions and cultural psychologies and the impact of shocks on people's psychology. Like economics, CE is built on a large body of formal mathematical models that act as mental prostheses for thinking about the learning and decisionmaking processes that underpin behaviour and how these give rise to sociological phenomena such as social norms, institutions, large-scale cooperation and ethnic groups.⁸ However, unlike economics, CE is founded on evolutionarily plausible and empirically grounded assumptions about how humans actually learn and adapt rather than on notions of rational choice rooted in free-floating philosophical assertions.

New evolutionary foundations

Taking an evolutionary perspective, CE theorists begin by asking a set of deep questions about our species. What kind of animal are we? What is the secret of our species' success? How are we different from other animals?

Decades of research point to a set of answers, but they are not the ones many people assume. Much of our nature is nurture, but nurture from selected members of our communities and peers as well as our families. We are a cultural species that has evolved genetically to rapidly, efficiently and often unconsciously acquire beliefs, ideas, heuristics, perceptions, motivations and much more from those around us.⁹ Our life histories—gestation, infancy, childhood and so on—have evolved to permit us to adaptively calibrate aspects of our psychology, including our attention, preferences and perceptions, to the worlds we confront. Indeed, a growing body of research shows how, beginning in our first year of life, humans seem exquisitely well attuned to selectively attending to and learning from the people most likely to possess useful or adaptive information, often relying on cues of competence, skill, success and prestige to target our learning efforts.¹⁰ We also assiduously attend to certain domains, such as those related to food, sex, reputation, animals, plants and social groups, and process these different domains in distinct ways.¹¹

Over generations these selective learning processes and content filters generate, often without anyone realizing it, increasingly adaptive cultural packages of tools, know-how, beliefs, motivations and more. We have depended on the useful products of such cultural processes for so long that we have genetically evolved to rely on what we acquire from other people—culture—over our own experience or instincts. Many cultural products and practices, including our institutions, may appear “rational” but instead actually emerged through cultural evolution, often without anyone evaluating the costs and benefits of alternative options or even understanding how and why particular practices, institutions or heuristics emerged. Of course, our evolved learning abilities—like our instinctual tastes for fat, salt and sugar—can produce extravagant maladaptations, which include

deeply held commitments and beliefs that deviate wildly from reality. But that is the cost of being a cultural species.

In applying this approach to understanding human cooperation, researchers have focused on how cultural learning, operating within groups and over time, gives rise to social norms. Social norms are widely shared behavioural patterns typically sustained by reputational effects, punishment, signalling or other mechanisms that can incentivize individually costly behaviours or practices. Norms emerge spontaneously once people can learn both focal behaviours (such as sharing food) and the standards for judging others (for example, nonsharers are “bad”). Around the world both ethnography and experiments suggest that the social norms spread by cultural evolution may explain many widespread patterns of cooperative behaviour, from food sharing among hunter-gatherers to voluntary blood donations in modern urban centres.¹² Because humans have had to navigate social landscapes shaped by social norms for eons, we have genetically evolved a norm psychology that primes us to readily learn social rules, internalize these rules as behavioural heuristics or motivational preferences and react negatively to norm violators. Norm internalization may be a key aspect of what makes us behave fairly and altruistically in normative contexts.¹³

Behavioural economists stumbled upon these internalized normative motivations when they began conducting economic experiments such as the prisoner’s dilemma or ultimatum game. And, of course, anthropologists established decades ago that game-related behaviours, driven by particular preferences or heuristics, are culturally transmitted¹⁴ and vary predictably across human societies in ways patterned by cultural evolution.¹⁵

Rather than assuming institutions as if they descended from on high or were hammered out by rational actors in some Lockean social contract,¹⁶ CE offers a natural way to theorize and understand the origins of institutions from the ground up. It proposes that informal institutions represent interlocking sets of social norms. Marriage institutions, for example, are formed by norms that specify such things as who pays whom to form the union (such as brideprice or dowry), where the couple lives after marriage (for example, with the groom’s family) and how many

spouses one can have at the same time (polygyny versus monogamy).¹⁷ Formal institutions emerge when some of the norms or rules in a more comprehensive package are written down. This is part of the reason that formal institutions cannot be readily replicated by simply agreeing to follow the written elements of the institutions—many of the key constituents of any real institution are not written down.

The oldest institution

Crucially, there is much more to human nature than simply our cultural learning abilities and our norm psychology. To see this, consider the oldest and most fundamental of human institutions—the family, or what anthropologists call kinship systems. These packages of social norms variously harness, extend or suppress aspects of our innate kin psychology.¹⁸ Like other species, our kin psychology includes instincts for helping close relatives, avoiding inbreeding (such as sex with siblings) and sustaining pair-bonds. Cultural evolution exploits these aspects of our evolved psychology to build various social organizations or networks, including clans, kindreds, extended families and lineages, using norms that specify acceptable marriage partners (incest taboos), inheritance rules (of resources, leadership positions and identity), communal ownership, postmarital residence and shared culpability for crimes (termed corporate responsibility). By variously strengthening, weakening or modifying various kin bonds, cultural evolution can forge either corporate collectives capable of high levels of cooperation or sprawling social networks that offer people refuge when disasters strike.¹⁹

Historically, after the origins of food production more than 10,000 years ago, competition among groups with varying social norms drove changes in kin-based institutions that fostered intensive, tightly knit cooperative networks and larger scale cooperation. The shifts to polygynous clans and lineages during this period, particularly those based on patrilineal lines of descent, were so profound that they can be seen in the genome in the massive reduction in Y chromosome diversity after the emergence of agriculture but before the rise of states.²⁰

To illustrate the power of kinship, consider a specific custom, the social norms specifying that adults can

have only one spouse at a time—normative monogamy. Most societies throughout human history—85 percent by some estimates—have permitted high-status men to take multiple wives.²¹ Even in otherwise highly egalitarian hunter-gatherer societies, the most prestigious hunters, warriors, storytellers and shamans often took three to five wives. To explore why monogamous marriage emerged and spread in societies where massive wealth differences among men persist, cultural evolutionists have pointed out that polygynous marriage generates societal-level costs: it tends to create a large pool of low-status men who have little opportunity or access to the marriage and mating market. Faced with ending up as evolutionary zeroes, unless they can catapult themselves up a steep status hierarchy, men become more likely to take risks that result in crime, raiding, violence and rape.

Monogamous marriage, by contrast, creates a more equitable distribution of wives and children across the male status hierarchy, effectively draining the pool of low-status bachelors and, instead, enlisting them in an army of husbands and fathers, giving them a stake in the future. Interestingly, while in monogamous societies both marriage and fatherhood are associated with declines in men's testosterone levels, the same is not true of men in polygynous societies. Indeed, several lines of evidence suggest that, at least under some conditions, reducing polygynous marriage influences crime, domestic violence and gender inequality. The adoption of monogamous marriage is a fascinating case because it runs directly contrary to the interests of elite and powerful men, who usually have a disproportionate influence on laws and policy.²²

Across traditional kinship practices, including norms related to polygyny, cousin marriage, inheritance and residence, ample evidence demonstrates the impact of kin-based institutions on important outcomes, including economic prosperity, trust, civic participation, innovation, corruption, child health, gender inequality, education investments and the effectiveness of democratic institutions. Duman Bahrami-Rad and colleagues, for example, show that measures of traditional kinship intensity predict global measures of economic prosperity based on nighttime satellite luminosity.²³ Indeed, focusing only within countries, their analyses show that

crossing from an ethnic group with high kinship intensity (polygynous clans) into an ethnic group with low kinship intensity (monogamous nuclear families) corresponds to a substantial rise in luminosity/prosperity.

Of course, while kin-based institutions are notoriously resilient, policies can and have altered key social norms and changed how these institutions operate.²⁴ For example, using historical data for the United States, Ghosh, Hwang and Squires (2023) show how state laws prohibiting cousin marriage resulted in faster urbanization and more rapid income growth.²⁵ Similarly, illustrating potential pitfalls, a study of India shows how legal changes in 2005 that gave women equal inheritance rights caused a rise in arranged marriages to patrilineal cousins, which in turn resulted in a decline in both gender equality and women entering the labour market. In both cases the social and economic effects were inadvertent, though probably desirable to policymakers in the former case but undesirable in the latter.²⁶

The study of kin-based institutions illustrates two important features of cultural evolution. First, understanding these institutions offers a clear example of why it is crucial to theorize about human nature—without such a framework it is difficult to fathom why people care so much about close relatives, why testosterone responds to the local mating environment (monogamy or polygyny) and why people internalize social norms (where do fairness preferences come from?). Concepts such as norms and institutions are not assumed into existence but instead are understood as arising through clearly defined evolutionary processes.

Second, cultural evolution shows how institutions can emerge without conscious social contracts or rational choice but still operate in functional ways, serving the interests of society or particular subgroups.²⁷ Indeed, like the proverbial fish that does not know it lives in water, most people do not understand how our institutions work. Normative monogamy offers an example of an institution that, operating over generations, dramatically influences societal social dynamics and important outcomes. Yet most people, including policymakers and legal scholars, do not recognize why or how it works or even realize that it “does” anything.²⁸ Here, cultural evolution offers a foundational understanding of kin-based institutions that

highlights an array of potential policy levers as well as potential pitfalls that typically go unrecognized.

Markets, religion and intergroup competition

To understand the evolution of larger scale cooperation above the kin group, cultural evolution offers a multilevel perspective—supported by an armoury of formal models²⁹—that analyses the impact of intergroup competition and conflict. The approach reveals how intense cooperation among smaller groups within societies, such as families, villages and ethnic groups, can undermine cooperation at higher levels such as in kingdoms, states and empires.³⁰ When smaller groups within societies command too much solidarity and loyalty, it gets harder to motivate people to pay taxes, fight wars, build canals and so on. This multilevel evolutionary perspective permits researchers to spot the fault lines where morality breaks down, cooperation plummets and conflict begins. This approach also underlines the challenges to achieving global-level cooperation.³¹

Beyond kin-based institutions, the social norms, beliefs and motivations that drive large-scale cooperation are influenced by many factors, including market institutions, religions and domesticated forms of intergroup competition. Focusing on markets, several lines of evidence indicate that greater market integration is associated with greater impersonal prosociality, including greater trust, fairness and cooperation with anonymous others. The idea, which traces back to the Enlightenment, proposes that by engaging with markets, people acquire and internalize norms that foster reciprocal and mutually beneficial transactions with strangers.³² For example, using a global database of folktales, Enke shows that greater market integration is associated with greater moral universalism and trust in strangers, as captured by people's traditional stories.³³ Similarly, behavioural experiments in Ethiopia show that communities of Bale Oromo that are located closer to markets are more cooperative with anonymous others and consequently are better able to sustainably manage local forests.³⁴

Cultural evolutionists have long argued that intergroup competition, operating over thousands of years, has shaped religions and rituals in ways that expand the sphere of cooperation and exchange,

fostering the scaling up of human societies. Empirically, cultural evolution has explored the impact of different religions on family organization (kinship intensity), aspects of moral psychology, cooperation among strangers and economic outcomes.³⁵ For example, using both economic experiments and surveys, several studies show how stronger beliefs in powerful moralizing gods or universal karmic forces foster greater cooperation and fairness with anonymous others. This finding is particularly striking on realizing that a belief in such deities is not found in most human societies and emerged only during the last few thousand years. Similarly, global variation in people's commitment to world religions is correlated with key economic preferences, including generalized trust, altruism towards strangers and reciprocity with anonymous others.³⁶ Such psychological patterns converge with older research linking economic growth to religious beliefs about the afterlife.³⁷

Finally, cultural evolution has also domesticated forms of intergroup competition within societies that galvanize higher trust and cooperation among strangers against the corrosive effects of self-interest, nepotism and cronyism. Cultural evolutionary theory suggests that competition among groups demands cooperation, resulting in the spread of motivations and practices that increase cooperation. Testing this idea, Francois and colleagues exploited a natural experiment in which changes in banking regulations increased competition among firms, mostly during the 1970s and 1980s.³⁸ They show that this policy change increased competition, which in turn drove trust gradually upward over many years. Supplementing this, the study used panel data for Germany to show that trust rose when individuals moved to a more competitive sector of the economy and declined when they moved to a less competitive sector. In the lab the team confirmed that increasing intergroup competition increased both people's willingness to cooperate with strangers and their inclination to state that “most people can be trusted” on the generalized trust question.

Thinking, feeling and perceiving

Because CE proposes that human brains evolved genetically in worlds structured by changing institutions, languages and technologies, the field was

primed to recognize, study and eventually explain psychological differences across populations. Psychologists and economists typically assume that human minds are like digital computers—that the information-processing hardware is all fixed. However, it is increasingly clear that human brains evolved to ontogenetically adapt their information processing to the challenges that individuals face while growing up and, to a lesser degree, over the course of their lives. For example, recent work exploring the role of paddy rice agriculture, irrigation, ploughs, pastoralism, kin-based institutions and urbanization has sought to explain the variation around the world in moral psychology, conformity, holistic thinking, in-group loyalty, normative tightness, nepotism, honour motivations, individualism, personality structure and impersonal prosociality (trust in strangers).³⁹ It is not just that different institutions create different incentives—as many economists have assumed—it is that people who grow up in different places come to process information differently. That is, they perceive, reason, feel and think differently.⁴⁰

Such psychological variation implies that identical policies, laws and institutions will often have different outcomes due to underlying psychological differences. For example, in a field experiment conducted in Ghana, India and the Philippines, researchers randomly assigned workers to be paid using an individual piece rate, where they were paid according to how much they alone produced; a group piece rate, where they were paid according to the average productivity of their small working group; or a daily wage, where they were paid independent of their productivity.

Strikingly, the most profitable policy depended on the population. In the most individualistic country in this trio, India, both the individual and group piece rates generated roughly a 20 percent increase in average performance, which is about what would be found in the United States using an individual piece rate. In the Philippines the performance-enhancing effects of paying an individual piece rate were only about 10 percent (half that of India), but the effect of the group piece rate was not any better than simply paying a daily wage. In Ghana neither piece rate scheme generated any improvement in performance over the simple daily wage. The performance-enhancing policy depends on the cultural psychology that people bring into the labour market.

Indeed, using data from 11,702 firms around the world, analyses show that firms in more individualistic populations are more likely to rely on performance pay. Here, what might look like a failure to adopt the most effective management practices (that is, not using performance pay) might instead represent an appropriate calibration to the local cultural psychology. Such results, and numerous others, suggest that many insights from standard economic models are most applicable to societies with particular cultural psychologies.⁴¹ CE offers an overarching framework for thinking about human behaviour, psychology and decisionmaking that seats individuals within their historical and cultural contexts, effectively organizing and explaining the potpourri of (mostly) culturally evolved heuristics and biases identified by behavioural scientists.

Wars, hurricanes, earthquakes, epidemics and other shocks

Recognizing the central importance of shocks ranging from volcanic eruptions and plagues to wars and hurricanes, cultural evolutionists have examined how such events affect people's psychology and shape cultural change. A growing body of research demonstrates that shocks can powerfully affect people's sociality—bonding them more closely to their communities while also tightening their commitments to social norms. Using a variety of natural experiments, surveys, economic games, psychological measures (from text analysis) and naturalistic observations, researchers have shown that shocks strengthen cooperation within local groups, tighten social norms of all kinds, increase people's religious commitments and, perhaps oddly, shift them away from a universalistic morality. In Sierra Leone, for example, those most affected by the civil war, which had ended a decade prior, were more cooperative with their local ingroups and more religious but less inclined to cooperate with distant strangers.⁴²

This is important because climate shocks shape morality and cooperation in ways that seem poorly suited to achieving the kind of global cooperation necessary to tackle problems such as climate change. To foster such large-scale cooperation, cultural evolution suggests there may be ways to scale up some of the processes that have galvanized cooperation over

the past 10 millennia. First, intergroup competition, whether among firms or countries, can be harnessed in more benign ways to increase cooperation.⁴³ Second, our evolved psychology of interdependence and ethnic psychologies can be tapped to create a pan-human sense of connection and a global identity that expands the moral sphere.⁴⁴ Third, given our powerful inclination to copy the most successful and determined prestigious nations, groups and individuals

can foster greater cooperation by leading with costly prosocial acts that demonstrate the commitments they are seeking from others, not by waiting to see if others will cooperate.⁴⁵

To conclude, equipped with a theoretically rich conception of human nature, the rapidly growing field of CE offers many new perspectives and approaches on how to think about and study cultural change, economic development and social policy.

NOTES

1. Wilson 2019.
2. Boyd 2017; Henrich 2016, 2020; Laland 2017.
3. Gervais and others 2016; Watts and others 2015.
4. Carvalho and others 2023.
5. Enke 2019; Schulz and others 2019.
6. Xygalatas and others 2013.
7. Galor, Özak and Sarid 2018.
8. Boyd and Richerson 1985; Cavalli-Sforza and Feldman 1981.
9. Tomasello 1999.
10. Chudek and others 2013.
11. Henrich 2016.
12. Boyd and Richerson 2022.
13. Henrich and Muthukrishna 2021; House 2018; House and others 2020.
14. Baimel and others 2021; Cason and Mui 1998; Rand 2016; Salali, Juda and Henrich 2015.
15. Ensminger and Henrich 2014; Falk and others 2018; Henrich 2000; Henrich and others 2005; Lang and others 2019.
16. Acemoglu and Robinson 2012.
17. Henrich, Boyd and Richerson 2012.
18. McNamara and Henrich 2017.
19. Henrich 2020.
20. Zeng, Aw and Feldman 2018.
21. Henrich, Boyd and Richerson 2012.
22. Chaudhary and others 2015; Henrich 2020; Henrich, Boyd and Richerson 2012; Hudson and others 2023.
23. Akbari, Bahrami-Rad and Kimbrough 2019; Alesina and Giuliano 2013, 2015; Bahrami-Rad 2021; Bahrami-Rad and others 2022; Lowes 2022; Moscona, Nunn and Robinson 2017, 2020; Schulz 2022; Schulz and others 2019.
24. Bau 2021.
25. Ghosh, Hwang and Squires 2023.
26. Bahrami-Rad 2021.
27. Henrich 2020; Turchin 2009.
28. Henrich 2020; Henrich, Boyd and Richerson 2012; Hudson and others 2023.
29. Boyd and Richerson 1990, 2002, 2011; Turchin 2015.
30. Turchin 2013; Wilson and others 2023.
31. Desmet, Ortuño-Ortín and Wacziarg 2017; Handley and Mathew 2020; White, Muthukrishna and Norenzayan 2021; Wilson and others 2023.
32. Hirschman 1982.
33. Enke 2023a.
34. Baldassarri 2020; Enke 2023a; Henrich and others 2005; Henrich and others 2010; Kosfeld and Rustagi 2015; Rustagi, Engel and Kosfeld 2010; Voors and others 2012; White, Muthukrishna and Norenzayan 2021.
35. Schulz and others 2019.
36. Atkinson and Bourrat 2011; Caicedo, Dohmen and Pondorfer 2023; Gervais and others 2016; Lang and others 2019; Purzycki and others 2016; White and others 2019.
37. Barro and McCleary 2003.
38. Francois, Fujiwara and van Ypersele 2018.
39. Atari and others 2017; Buggle 2017; Enke 2019; Falk and others 2018; Gelfand and others 2011; Lukaszewski and others 2017; Schulz and others 2019; Talhelm 2020.
40. Apicella, Norenzayan and Henrich 2020; Henrich and others 2022.
41. Bandiera, Barankay and Rasul 2011; Medvedev and others 2024.
42. Bauer and others 2014; Bauer and others 2016; Gelfand and others 2011; Henrich and others 2019; Rao and others 2011; Sinding Bentzen 2019; Winkler 2021.
43. Francois, Fujiwara and van Ypersele 2018; Wilson and others 2023.
44. Handley and Mathew 2020; Moya 2016; White, Muthukrishna and Norenzayan 2021.
45. Chudek and others 2012; Henrich 2009; Henrich and Gil-White 2001; Henrich, Chudek and Boyd 2015; Kraft-Todd and others 2018.

The role of trust and norms in tax compliance in Africa

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The tax system is a key formal institution with a unique role in the social contract between people and governments, as an essential source of revenue for governments to fund public services and programmes that benefit the community. It also provides an important entry point to explore how people engage with institutions across different contexts and the role of culture, beliefs, norms and perceptions in determining issues such as compliance with policies. This spotlight synthesizes findings from recent research on determinants of tax compliance and evasion, with a focus on developing countries.

Mobilizing domestic revenue is crucial for developing countries to achieve the Sustainable Development Goals. However, tax evasion is a major challenge in many countries. Research and policymakers have generally focused on law-based compliance and the role of formal rules and institutions such as audits and penalties to reduce tax evasion—often referred to as enforced compliance.¹ More recently, voluntary compliance²—informal norms and beliefs motivating taxpayers' compliance, particularly trust and norms—have received more attention.³ Voluntary compliance is likely to be particularly important in countries where enforcement capacity is weak.⁴ This spotlight starts with a short theoretical background on how a deeper understanding of trust and norms can enhance our understanding of voluntary compliance. It then examines how these factors vary across different contexts, taxpayers and tax bases and how these variations affect voluntary compliance. The last section discusses policy implications.

Deeper knowledge of trust and norms can enhance our understanding of tax compliance

Trust (a person's belief that another person or institution will act consistently with their expectations of positive behaviour)⁵ fosters social and economic

progress.⁶ Theoretical work emphasizes the importance of trust in the government and in the tax administration, as well as for voluntary tax compliance. Kirchler, Hoelzl and Wahl (2008) develop a theoretical framework in which trust in tax authorities and the power of authorities are the main determinants of tax compliance, where trust fosters voluntary compliance and power leads to enforced compliance. When taxpayers trust the tax administration and perceive it as benevolent and working beneficially for the common good, taxpayers may feel obliged to adhere to decisions, policies and rules, even in the absence of powerful administration and enforcement.⁷ Prichard and others (2019) develop a conceptual framework for tax reform and compliance that highlights four key drivers of trust: fairness (the tax system is fairly designed and administered), equity (burdens are equitably distributed and everyone pays their share), reciprocity (tax revenue is used for public goods and services) and accountability (governments are accountable to taxpayers). While fairness and equity are features of the tax system, reciprocity and accountability relate to broader governance issues. The equity dimension entails that in addition to trust in the tax authority, trust in fellow citizens may be an important determinant of tax compliance.

Both personal and social norms have been argued to be important determinants of tax compliance (table S4.4.1).⁸ Social norms may be important to tax compliance because people care about how they are perceived by others and the social sanctions and rewards associated with these perceptions⁹ or because they want to behave as others do. Importantly, personal and social norms can be misaligned, and people may not always act according to their own personal norms.¹⁰ Several studies have identified the phenomenon of pluralistic ignorance, a situation in which most group members personally reject a norm but believe that most others accept it.¹¹ When pluralistic ignorance exists, providing information about the views of others has been shown

Table S4.4.1 Types of norms and examples

Personal norm or attitude (Moral norm)	Social norm ("a rule of behavior such that individuals prefer to conform to it on the condition that they believe that (a) most people in their reference network conform to it (empirical expectation), and (b) they ought to conform to it (normative expectation)"; Bicchieri 2016, p. 35)	
	Descriptive norm (Empirical expectation)	Injunctive norm (Normative expectation)
What I believe is the right thing to do	What I believe others do	What I believe most people think I should do

Source: Bicchieri 2016; Cialdini, Kallgren and Reno 1991.

to change both tax behaviour¹² and behaviour in other areas.¹³ Thus, to understand taxpayer behaviour, it is important to identify and analyse the personal and social norms associated with tax compliance and to investigate the various factors that influence personal and social norms. Differentiating between personal and social norms is a prerequisite for designing efficient policies to enhance desirable outcomes.¹⁴ Empirically, a large literature of field and lab experiments shows that personal and social norms influence each other and that both motivate behaviour but that social norms affect behaviour more than personal norms do.¹⁵

Trust and norms can vary across different contexts and affect tax compliance

Tax compliance is challenging to measure because individuals are typically trying to hide noncompliant behaviour and attitudes.¹⁶ Empirical investigations of determinants of voluntary compliance have commonly used survey questions from large databases, such as Afrobarometer and the World Values Survey, asking respondents about their views of whether not paying tax is wrong and punishable/justifiable or whether the tax authority has the right to make people pay taxes (figure S4.4.1).¹⁷ In all countries the average respondent thinks that not paying taxes on income is at least “wrong, but understandable” and is closer to agreeing than disagreeing with the statement that the tax authority always has the right to make people pay taxes—but there is substantial variation across countries.

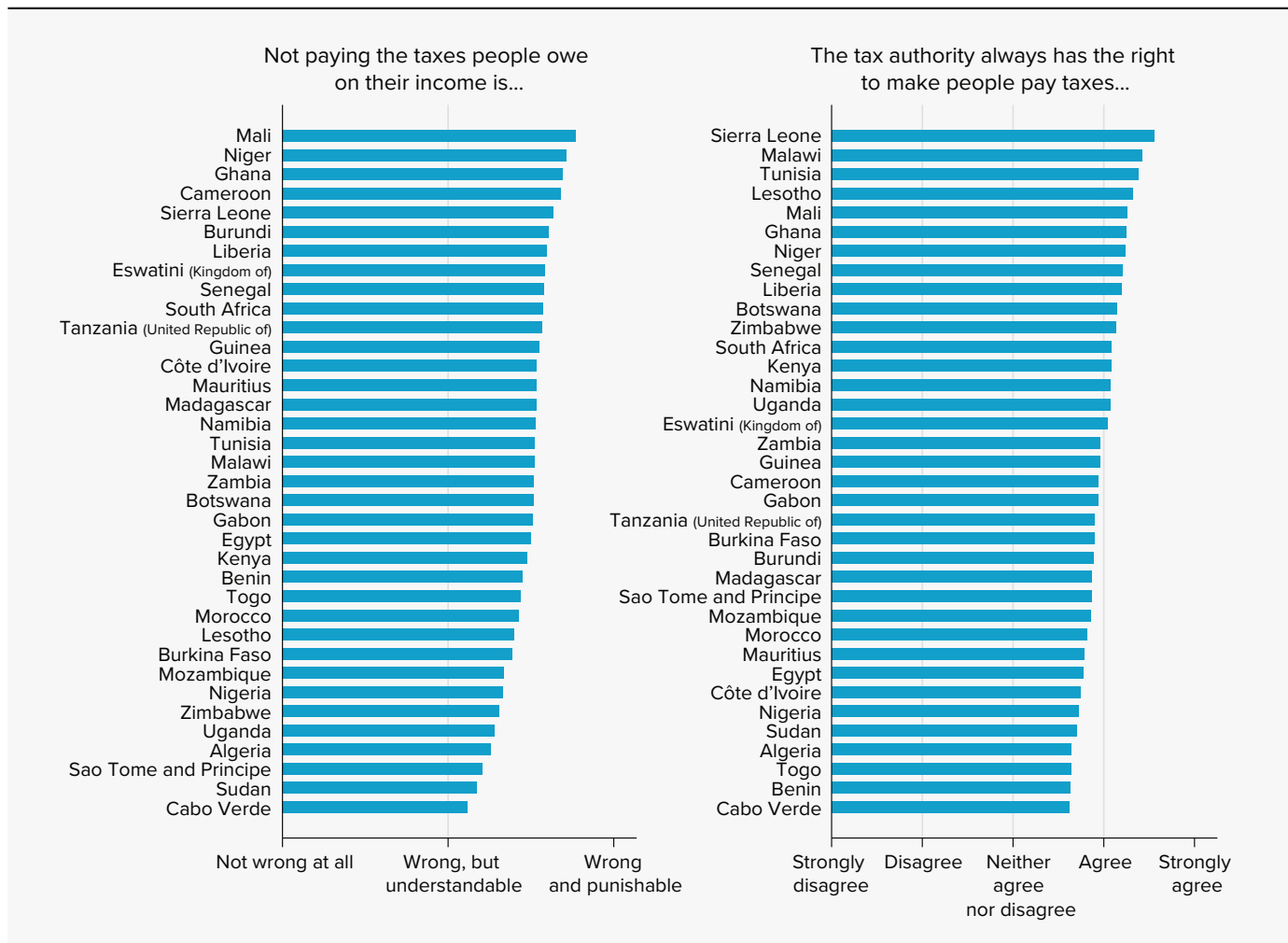
Studies based on such survey measures show that within countries voluntary compliance is positively correlated with a stronger feeling of national identity,¹⁸ trust in the tax authority¹⁹ and perceived fairness in how the government treats the respondent’s own ethnic group,²⁰ which according to the framework of

Prichard and others (2019) is an important driver of trust. Furthermore, there is a positive correlation between voluntary compliance and the perceived social norm for tax compliance, as well as satisfaction with provision of public services.²¹ However, there are also substantial differences in correlates of voluntary compliance among Kenya, United Republic of Tanzania, Uganda and South Africa.²² While these studies provide interesting insights into correlates of voluntary compliance, they do not offer causal evidence or explanations for the mechanisms through which the determinants affect voluntary compliance.

The weight of history in shaping trust and norms today

To better understand the causal mechanisms behind variations in voluntary compliance, one strand of the literature studies the effect of historical roots and cultural heritage on voluntary tax compliance.²³ Cultural heritage is passed on from one generation to the next and coupled with the country or ethnic group of origin. And it is well documented that it can affect people’s trust in others—for instance, trust in people from the same ethnic group or (dis)trust in people from other ethnic groups, as well as trust in public institutions.²⁴ For instance, evidence suggests that trust is an important causal mechanism in the negative relationship between economic development today in parts of Africa and the slave trade: individuals who belong to ethnic groups that were more exposed to slave trade are less trusting in their relatives, neighbours, others of the same ethnicity and local government.²⁵ Moreover, the individual variation in trust in public institutions and neighbourhood caused by differential exposure to the slave trade also explains variations in voluntary tax compliance in several

Figure S4.4.1 Most people in African countries think that not paying taxes on income is at least “wrong, but understandable” and are closer to agreeing than to disagreeing that the tax authority always has the right to make people pay taxes



Note: The survey question for the left figure was “Please tell me whether the following is not wrong at all; wrong, but understandable; or wrong and punishable: Not paying the taxes they owe on their income,” and the survey question for the right figure was “Please tell me whether you disagree or agree: The tax department always has the right to make people pay taxes.”

Source: Based on the results of Afrobarometer Round 6, 2014/2015 (<https://www.afrobarometer.org/>, accessed 25 January 2024).

countries: more trusting individuals have a higher voluntary compliance.²⁶

A study in Uganda finds that history also plays a role in that people in historically centralized parts of Uganda have mistrust towards the central government and public institutions but may be willing to follow rules and pay taxes when they live in a setting with higher interpersonal trust.²⁷ Trust affects voluntary tax compliance, and trust is affected by group heterogeneity shaped by history. Thus, historical events and organization of societies continue to shape present voluntary tax compliance through trust and social norms. This finding relates to results in the

broader literature in institutional economics that history can matter for present-day outcomes through the evolution and persistence of early institutions.²⁸

How trust and norms inform challenges with tax compliance

Opportunities for tax evasion by self-employed individuals

Self-employed professionals have more opportunities than salaried workers to minimize their reported

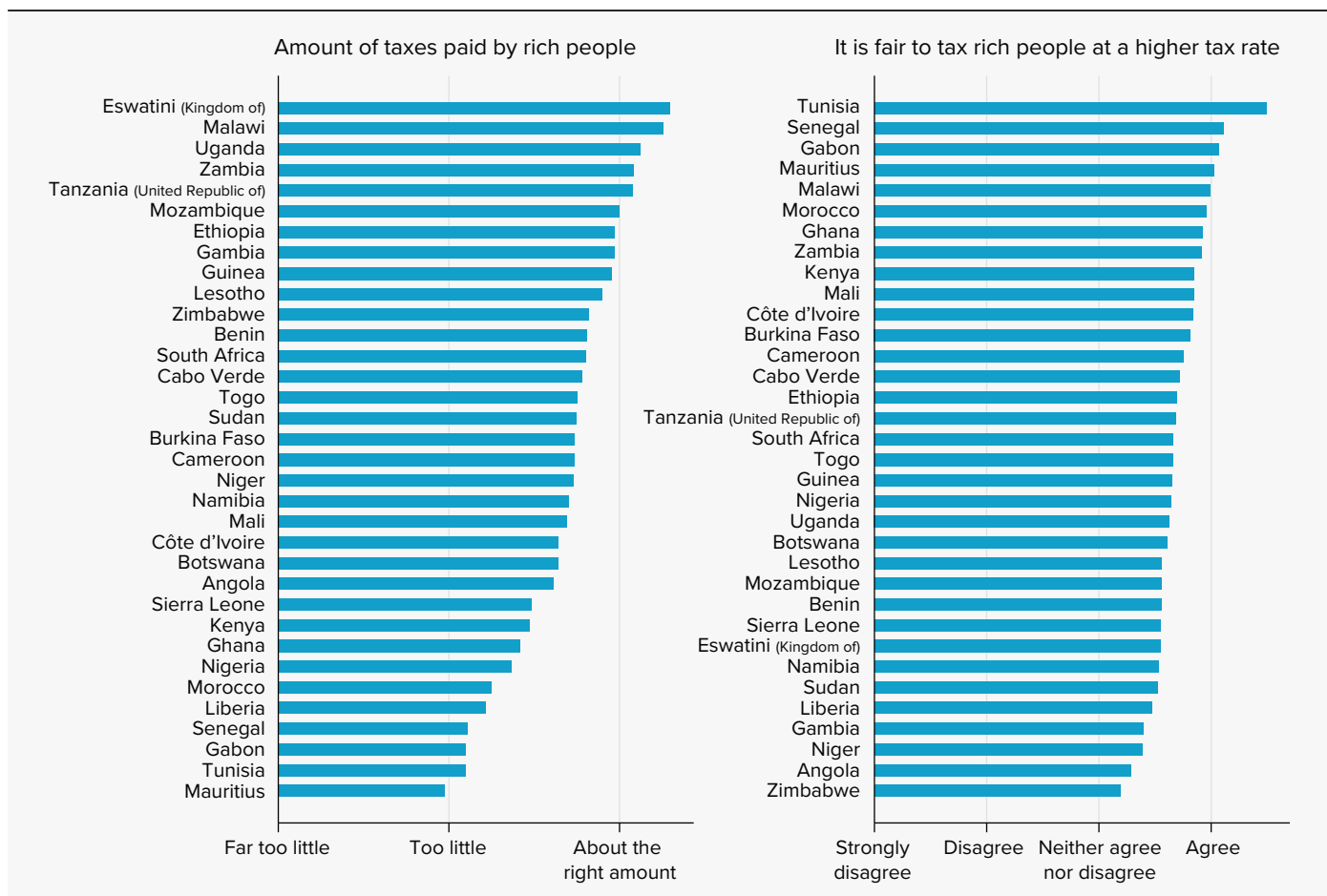
incomes—because more of their income is self-reported as opposed to reported by a third party²⁹—and are more likely to take advantage of these opportunities.³⁰ Opportunities for tax evasion may affect people’s voluntary tax compliance. Research shows that self-employed individuals have less favourable views on taxes and the tax authorities than other taxpayers.³¹ Tax evasion is also found to be high among many self-employed individuals.³²

Taxing the rich: Noble objectives, unrealistic expectations?

Some studies argue that “the weakness of taxes on the wealthy not only affects revenue but also risks undermining broader trust in the tax system and weakening

the social contract.”³³ Thus, it is argued, “taxing the wealthy more effectively is critical not only to increasing revenue, but also to building trust in the tax system, thereby unlocking more sustained political support for taxation and the achievement of longer-term gains.” However, redistribution through taxation is not a salient election issue in most African countries,³⁴ nor is it a strong priority of their citizens.³⁵ In most countries the average response to the Afrobarometer survey question on the amount of taxes that rich people are required to pay is closer to “about the right amount” than to “too little,” and while the average respondent in all countries is closer to agreeing than disagreeing with the statement that rich people should be taxed at a higher rate to help poor people, the support for the statement is relatively weak in many countries (figure S4.4.2).

Figure S4.4.2 Redistribution through taxation is not a salient election issue in most African countries, nor is it a strong priority of their citizens



Note: The survey question for the figure on the left was “Do you think that the amount of taxes that rich people in [COUNTRY] are required to pay is too little, too much, or about the right amount?” and the survey question for the figure on the right was “Do you agree or disagree with the following statement: It is fair to tax rich people at a higher rate than ordinary people in order to help pay for government programmes to benefit the poor.”
Source: Based on the results of Afrobarometer Round 8, 2019/2021 (<https://www.afrobarometer.org/>, accessed 25 January 2024).

Redistributive coalition building in ethnically diverse societies may be especially difficult,³⁶ so that any push for a wider redistributive agenda to benefit the poor tends to be weak.³⁷ While we sympathize with the argument that “the time has come to tax the rich,” the focus of many African governments is to increase revenue by broadening the tax base to incorporate larger segments of individuals and firms in the tax net. The wealthy elites will probably be affected little by these reforms. This is reflected in what Mick Moore refers to as tax administrations’ obsession to register new tax taxpayers, the majority of which are small-scale businesses and poor individuals.³⁸ This approach is associated with the idea that the major source of uncollected revenue in Sub-Saharan Africa is the informal sector.³⁹ A policy of taxing the very rich is not easy to implement.⁴⁰

Corporate taxpayers: Trust and a predictable tax system

Medium and large firms account for most of the tax revenue in many low- and lower-middle-income countries. Their voluntary compliance is likely to be influenced by different factors than individuals and small firms and needs to be conceptualized differently.⁴¹ Voluntary compliance by firms is likely to be driven by self-interest to a larger extent than voluntary compliance by individuals.⁴² Predictability is a critical concern of corporate taxpayers and enhances trust in a way that can allow firms to properly budget and make realistic plans for the future.⁴³ It also ensures that firms will be treated like their competitors. Questions about fairness and equity are often important for corporations because they affect market competition, profitability and the predictability of their operations.⁴⁴ For instance, are other firms in the same sector bearing equivalent tax burdens? Firms also are more likely to be compliant when they believe the government is funding services and activities that benefit them and when they have a voice in shaping those decisions.⁴⁵ Thus, improving the predictability and fairness of tax enforcement can foster voluntary compliance and support for reform for corporations.⁴⁶

Taxing the informal sector

A large share of economic activity in poor countries takes place in the informal sector, which is hard to

tax.⁴⁷ Until recently, tax administrations tended to give it little priority because returns to effort may be low in cash terms, and collection is likely to be difficult. From the economic and administrative perspectives, it makes sense not to tax multitudes of poor people. The value-added tax system generally exempts basic goods that are consumed heavily by poor people, and the income tax code generally excludes individuals and entities with incomes below a certain threshold. However, in recent years several national revenue agencies have introduced special presumptive taxes directed at the informal economy that are based on workers’ presumed rather than actual income, given the type of work they perform.⁴⁸

A wider tax net is not always a good thing, but the possibility that tax reforms are driven by a calculus that emphasizes the advantages of excluding marginal payers must be a cause of concern.⁴⁹ This would be less of a problem if the actual tax burdens in poor countries were fairly and effectively distributed, but they are not. In particular, they often fall heavily on a small number of registered, formal companies.

Evidence suggests that the relationship between firm size and evasion is negative or U-shaped, implying that small firms are more likely to evade taxation.⁵⁰ This evasion may lead to unfair competition, which can undermine trust and negatively affect the voluntary tax compliance of medium firms.⁵¹ Thus, one argument for improving taxation of small and medium enterprises is that it is important for ensuring equity and improving voluntary compliance. It thus makes sense to question the arguments for excluding smaller taxpayers from the tax net on pure efficiency grounds and to explore the potential political and revenue advantages of widening that net, while also carefully considering the administrative implications of doing so.

Policy levers to address tax evasion: Beyond formal laws and regulations

Findings from the research reviewed above show that history, ethnic diversity and how tax revenue is spent may substantially affect people’s voluntary tax compliance and trust in government and other citizens. Voluntary tax compliance is also likely to differ between segments of taxpayers (for example, between

individuals and businesses), between different taxes (for example, between direct and indirect taxes) and in how taxes are enforced. A general conclusion from this literature is that policies aiming to improve attitudes towards taxes in Africa should pay attention to strengthening the general environment of trust.⁵² This is linked to a political economy approach that takes the historical, cultural and political contexts seriously, combined with conventional economic thinking.⁵³ Thus, it is important to move away from a purely technocratic approach when addressing tax evasion. Advice on tax policy, including methods of auditing and better tax design are valuable but must be located in a wider and case-by-case context, especially given the characteristics of many African countries.

A first step to addressing deep-rooted tax evasion norms is understanding how things actually function in the specific context, independently of how we would expect the tax system to perform according to good governance. This calls for more robust analysis of country and local contexts and institutions, particularly trust in tax authorities and social norms for tax compliance. Improving voluntary tax compliance furthermore requires thoroughly analysing different segments of taxpayers and revenue administrations, as well as their environment, to understand key players' norms and incentives.

This analysis leads to a two-pronged approach to reform. The first prong relates to developing policy instruments that are directed at both the incentives and opportunities for evasion. Unless taxpayers recognize that the penalties for being caught are much more severe than the potential gains, they will continue to take risk evading taxes. This, of course, requires enforcing the rules, which depends on the willingness at the top to reduce tax evasion. The second prong must go beyond legal and regulatory reform to address the root causes of tax evasion. Many efforts to adopt stricter rules for tax administration have failed because informal practices have continued. Changing social norms and mindsets is much more difficult than bringing in new regulations in part because social norms are deep rooted. Successful reforms are not achieved overnight. Reformers must keep this in mind and not be discouraged when they face challenges in implementing their reforms.

Social norms can be persistent across generations, economic development and political regimes.⁵⁴ But when they change, it can happen quickly—for instance, when new public information becomes available.⁵⁵ Behavioural tipping points—that is, when enough people have strong attitudes against an existing social norm (or towards a new one)—are decisive for norm change. In situations where the social norms for tax compliance are misperceived (underestimated), providing factual information about others' views may enhance compliance.⁵⁶

Education can play a role when designed to help taxpayers understand the importance of paying taxes and how to do so. A wide range of taxpayer outreach and education activities exist across countries.⁵⁷ For instance, the Tanzania Revenue Authority is working with secondary schools to mainstream tax education into the curriculum. Government taxpayer education and outreach programmes generally often appeal to state-building narratives. Such programmes are valuable, but they must move beyond the frequent emphasis on why people should pay taxes towards emphasizing who pays taxes, how to pay them and what taxpayers receive in return.⁵⁸

An essential component of building trust is the government's ability to demonstrate that tax revenue results in public services and broader benefits for taxpayers.⁵⁹ When governments can demonstrate those connections, it is possible to build meaningful popular support for more effective taxation and compliance.⁶⁰ This, combined with more transparent and predictable tax systems, is likely to result in more positive attitudes towards taxation in Africa and popular support for more effective taxation.

Just as improved service delivery is likely to be critical to encouraging voluntary compliance, so too is there an opportunity for more sustained investment in building trust with taxpayers.⁶¹ A starting point for such trust building lies in improving the basic fairness of tax systems. Although discussions of building voluntary tax compliance often centre on improving the provision of public services, improvements in fairness may be important.⁶² Such improvements are also much more directly under the control of tax administrations, which may be pursuing reform and seeking to build voluntary or quasi-voluntary compliance. Perceived corruption in tax authorities remains a major barrier to improving trust and voluntary compliance.⁶³

NOTES

1. Early research includes Allingham and Sandmo (1972); for a recent review, see Slemrod (2019).
2. A related term for voluntary compliance is “tax morale.” We prefer “voluntary compliance” because it better captures aspects of taxpayer motivation that we consider important.
3. Besley 2020; Besley, Jensen and Persson 2023; Luttmer and Singhal 2014; Prichard and others 2019.
4. Kirchler, Hoelzl and Wahl 2008.
5. OECD 2017.
6. Algan and Cahuc 2014.
7. Kirchler, Hoelzl and Wahl 2008.
8. Kirchler, Hoelzl and Wahl 2008.
9. Besley, Jensen and Persson 2023; Luttmer and Singhal 2014.
10. Köbis, Jackson and Carter 2020; Onu 2016.
11. Miller and McFarland 1987.
12. Wenzel 2005.
13. Bursztyn, González and Yanagizawa-Drott 2020.
14. Bursztyn and Jensen 2017; Hallsworth and others 2017.
15. Bicchieri 2016. In the literature on tax compliance, see, for instance, Antinyan and Asatryan (2020), Bott and others (2020), d’Adda and others (2020), Dwenger and others (2016), Hallsworth and others (2017) and Slemrod (2019).
16. Ali, Fjeldstad and Sjørnsen 2014.
17. See Prichard (2022) for an overview of survey questions used in cross-country studies on voluntary compliance and a discussion of the weaknesses and limitations of these measures. Afrobarometer Round 6 was chosen because it is the most recent survey that includes both of the questions reported in the figure.
18. Besley and Mueller 2021; Blimpo and others 2018.
19. Besley and Mueller 2021.
20. Ali, Fjeldstad and Sjørnsen 2014; Sacks 2012.
21. Ali, Fjeldstad and Sjørnsen 2014; Blimpo and others 2018.
22. Ali, Fjeldstad and Sjørnsen 2014. See Fjeldstad, Schulz-Herzenberg and Hoem Sjørnsen (2012) for a broader review of correlates of voluntary tax compliance.
23. See Nunn (2020) for a review of the research on the historical roots of economic development more broadly.
24. Dinesen 2011; Kouamé 2021; Uslaner 2008; Woolcock and Narayan 2000.
25. Nunn 2008; Nunn and Wantchekon 2011.
26. Kouamé 2021.
27. Ali and Fjeldstad 2023. A state’s organized power to uphold authority implies that it can uniformly apply policies throughout a given territory, such as extracting labour, enforcing the law and demanding taxes (Schraeder 2000).
28. Nunn 2009.
29. Dom and others 2022; Kleven and others 2011.
30. Engström and Holmlund 2009; Saez 2010.
31. Kogler and Kirchler 2020.
32. Chetty, Friedman and Saez 2013.
33. Dom and others 2022, p. 60.
34. Bleck and Van de Walle 2019.
35. Except, perhaps, in Ghana (Bleck and Van de Walle 2019). Inequality per se is not mentioned as a priority of citizens in a large recent Afrobarometer survey of 34 African countries (Coulibaly, Silwé and Logan 2018). Poor access to public services is a major concern, however—one that clearly has equity implications.
36. Mazrui 2008.
37. Bolch, Ceriani and López-Calva 2022.
38. Moore 2023.
39. Moore 2023. For instance, in a survey of 26 national tax administrations for the 2018 African Tax Outlook, 15 reported one or more special programmes or initiatives to deal with the informal sector (ATAF 2018). By contrast, only 4 had special sections for high-net-worth individuals.
40. Harrington 2016.
41. Alm and McClellan 2012; OECD 2019; Prichard and others 2019; Slemrod 2019.
42. Prichard and others 2019.
43. Campos, Lien and Pradhan 1999; World Bank 2018.
44. Alm and McClellan 2012; OECD 2019; Prichard and others 2019.
45. Prichard 2015.
46. Dom and others 2022.
47. Bird and Wallace, 2003. The concept the informal sector is disputed. When the term is used in relation to taxes in Africa, it generally refers to unregistered, small-scale economic operators (Moore 2023). The size of the informal economy is difficult to estimate. Estimates for low- and middle-income countries suggest that informality accounts for 30–70 percent of GDP and 20–80 percent of the labour force (Ulyseia 2020; Ulyseia, Bobba and Gadenne 2023). Estimates from West Africa suggest that more than 80 percent of total employment is informal and up to 60 percent of GDP is produced by informal activities (Benjamin, Mbaye and Diop 2012).
48. Dube and Casale 2016; Joshi, Prichard and Heady 2014; van den Boogaard, Prichard and Jibao 2018.
49. Ali, Fjeldstad and Sjørnsen 2014; Fjeldstad and Moore 2008.
50. Abdixhiku and others 2017; Cowell 2003; Hanlon, Mills and Slemrod 2007; Slemrod 2004.
51. Torgler and Schneider 2007.
52. Kouamé 2021.
53. Besley and Mueller 2021.
54. Jackson and Köbis 2018.
55. UNDP 2019.
56. Wenzel 2005.
57. Dom and others 2022.
58. Dom and others 2022.
59. Ali, Fjeldstad and Sjørnsen 2014; Bird 2011.
60. Dom and others 2022; Sanogo 2019.
61. Dom and others 2022.
62. Kogler, Muehlbacher and Kirchler 2015.
63. Aiko and Logan 2014; Fjeldstad 2006.

CHAPTER

5

Expanding agency for collective action

Expanding agency for collective action

Enhancing human development—including agency—expands possibilities for people to act as “agents who can do effective things.” So, how best to expand agency to foster collective action to address global challenges?

Narrowing agency gaps can support establishing and pursuing common goals, such as providing global public goods, even when differences in preferences, beliefs and interests persist. Expanding agency can thus enhance collective action. Institutions can link human agency and collective action at scale by being people-centred, co-owned and future-oriented.

The toll of mismanaged global interdependence on human development (chapter 1) reflects inadequate or slow collective action on global challenges ranging from climate change to pandemics. Not for a lack of knowledge on what to do. Technologies to power an energy transition or vaccines to save lives either are already in place or have been developed quickly—but our ability to act collectively at scale is falling short (chapter 2).

Institutions and behaviour are intimately interlinked (chapter 4). Policy has long focused on institutional design and interventions premised on a set of fixed and universal assumptions about human behaviour, downplaying broader social contexts and how they change over time. Expanding assumptions about human behaviour with insights from behavioural science and the role of culture can widen the set of options to enhance collective action to provide global public goods (chapter 4). To do so, it is critical to recognize the role of human agency: people’s ability to hold values, set goals and make commitments that may, or may not, advance their wellbeing.¹

Enhancing human development—including agency—expands possibilities for people to act as “agents who can do effective things.”² So how to expand agency to foster collective action to address global challenges?

The question motivates this chapter. Advances in wellbeing can support agency—knowledge, health and material means enhance the possibilities for people to act as agents—but the relationship is far from automatic. Indeed, the chapter documents agency gaps—people’s inability to be, or to believe they can be, agents for change—that persist or are widening, even as the world is reaching peak levels of income, as well as of health and education outcomes, along with unprecedented technological achievements. The focus is on how agency gaps hinder collective action and how they are connected with, for example, intensified perceptions of insecurity and distress in parallel with massive increases in standards of living. For example, only about half of people in the world today feel they have high control over their own lives, a proxy for agency. And the share of people feeling in control drops even more when it comes to influencing collective decisionmaking, since only 31 percent of

people feel they have a say in the decisions of their government.³

These agency gaps parallel deficits in the collective action needed to address shared challenges on a shared planet. Mismanagement of global interdependence may in turn further erode human development (chapter 1) and open space for polarization, resulting in gridlock on collective action (chapter 2). To break free from this gridlock, the chapter explores how narrowing agency gaps can support establishing and pursuing common goals, such as providing global public goods, even when differences in preferences, beliefs and interests persist. In this way it argues that narrowing agency gaps can enhance collective action. It further argues that expanding agency needs to be a complementary policy objective alongside advancing wellbeing achievements and that institutions can link human agency and collective action at scale by being people-centred, co-owned and future-oriented.

How agency gaps hinder collective action

Despite the dip in Human Development Index (HDI) values in 2020–2021 and the unequal recovery since then (chapter 1), there has been notable progress in the wellbeing aspects of human development: in expanding the achievements and freedoms to live a better life. At the same time, the agency aspects of human development⁴—people’s ability to hold values, set goals and make commitments,⁵ which imply the ability to lead a life with purpose—have been relatively neglected as policymaking objectives, particularly those required to pursue collective outcomes.⁶ Agency enhances people’s capabilities and is positively correlated with mental wellbeing.⁷ It is also key to transforming our world towards sustainability and equity, an aspiration codified in the 2030 Agenda for Sustainable Development.⁸

“Agency gaps are opening at multiple levels, limiting people’s ability to act as agents of change to support collective action

Agency gaps are opening at multiple levels, limiting people’s ability to act as agents of change to support collective action. It is curtailed by inequalities and power imbalances that hinder collective decisionmaking.⁹

Shortcomings in collective action: Limits to cooperation, despite unprecedented coordination

Interdependence stems in part from human ultra-sociality,¹⁰ reflected in coordinated actions involving individuals around the world. Markets, which involve interactions between participants who, for the most part, may never meet, have become globalized (chapter 2). Governments have implemented extensive social insurance programmes, with 3.7 billion people covered by at least one social protection benefit.¹¹ Education systems provide schooling for 1.6 billion children worldwide.¹² While still insufficient, these numbers represent massive achievements.

Multilateral institutions, particularly the United Nations, strive to uphold human rights, advance development and promote peace. The United Nations convenes parties to international treaties, enabling agreements such as the establishment of a loss and damage fund at the 28th meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change, from which more than 3 billion people are set to benefit.¹³ Civil society has rallied behind the 2030 Agenda for Sustainable Development,¹⁴ bolstered by social movements that have expanded the realm of possibilities, championing the rights of women; individuals who identify as lesbian, gay, bisexual, transgender, queer, intersex or other sexuality minority; Indigenous peoples; individuals living with disabilities; and more. Social networks facilitate the instantaneous exchange of information among some 5.4 billion internet users.¹⁵

Despite these achievements, which often reflect advances in addressing coordination challenges, international collective action is falling short. For instance, in the case of climate change, the following shortcomings reflect less progress with cooperation:

- Markets fail to account for externalities, but some externalities are now at planetary scale. For example, carbon prices hugely undervalue the costs associated with greenhouse gas emissions,¹⁶ exacerbating global inequalities.¹⁷
- Governments have mobilized substantial investment to facilitate the energy transition—but not at the scale required. In 2023 governments allocated an estimated \$1.34 trillion for clean energy

investment, a 25 percent increase since 2021.¹⁸ But this effort pales next to subsidies to fossil fuels: \$7 trillion in 2022, up from \$4.5 trillion in 2015 (when the Paris Agreement was adopted).¹⁹ Increased political polarization, which affects more than two of every three countries, makes government action even more difficult (chapter 6).²⁰ Financing constraints are another impediment to government action, exacerbated by tax avoidance and evasion: globally, multinationals have shifted 36 percent of their profits to tax havens.²¹

- Multilateral arrangements have not marshalled the pooling of resources required to meet the aspirations of the 2030 Agenda for Sustainable Development and the Paris Agreement. The annual target of \$100 billion in finance to support the mitigation of climate change in low- and middle-income countries has been missed, even though it represents just 0.1 percent of the global economy (about \$100 trillion).²² And the loss and damage fund has received annual pledges totalling more than \$600 million, but the annual loss and damage associated with climate change are estimated to be as high as \$400 billion a year.²³
- Civil society has expanded but is also facing headwinds.²⁴ When people do mobilize, they are often constrained in their efforts to occupy civic space and exercise their rights.²⁵ In several countries environmental activists face violent crackdowns and persecution; nearly 2,000 environmental activists were killed between 2012 and 2022.²⁶

“Agency gaps are both a cause and an effect of the mismanagement of interdependence, in a vicious cycle where shortcomings in collective action to deal with interdependence lead to costly losses in people’s lives

Agency gaps are undermining collective action

Agency gaps are both a cause and an effect of the mismanagement of interdependence, in a vicious cycle where shortcomings in collective action to deal with interdependence lead to costly losses in people’s lives (chapter 1), as well as to feelings of unsettledness²⁷ and human insecurity. Human insecurity fuels

polarization, with many people gravitating towards populism (chapter 2).²⁸ The protectionist stance often associated with populism²⁹ further complicates collective action in addressing global challenges.

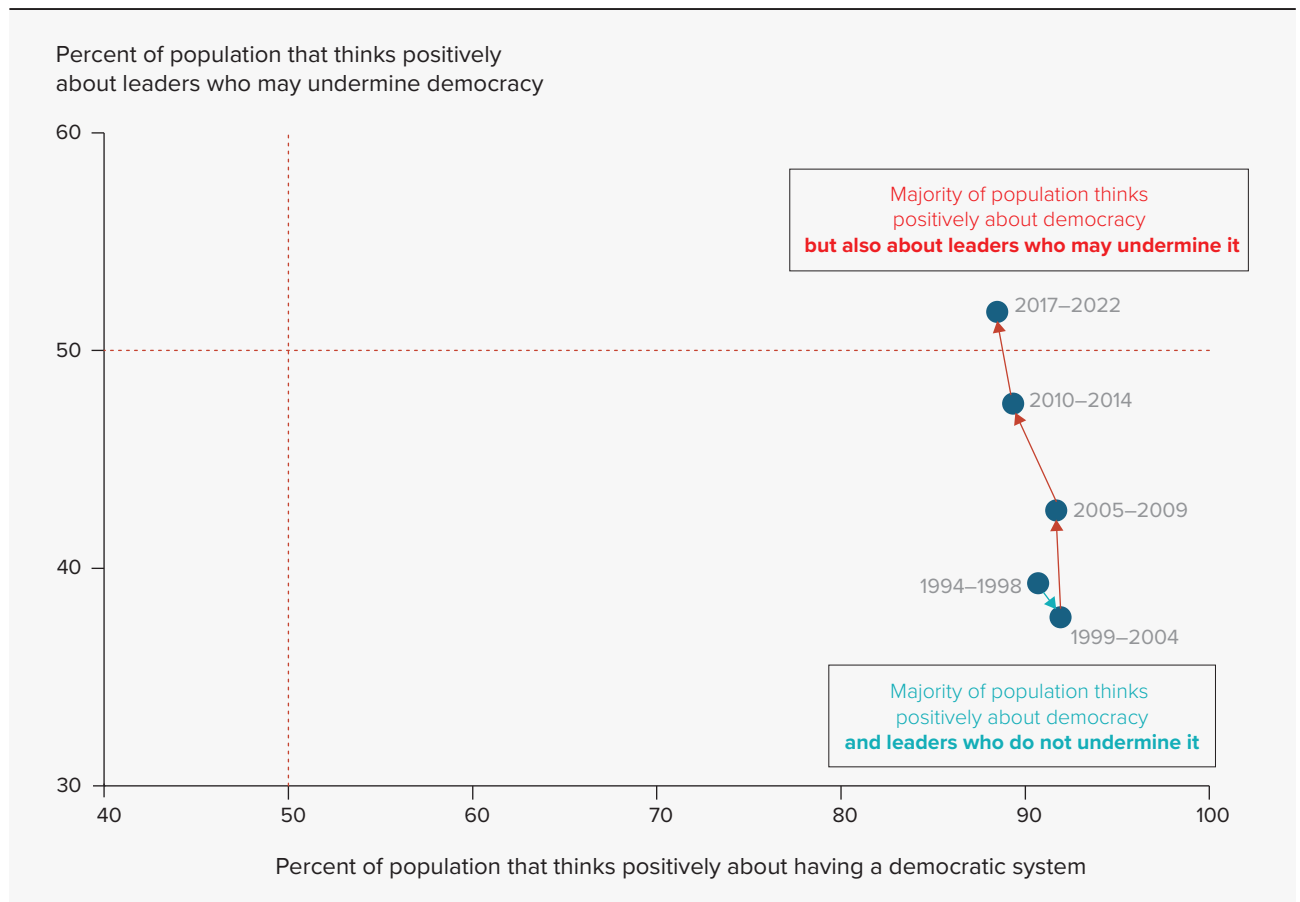
The consequences of this vicious cycle affect democratic norms and practices, as reflected in the decline in indicators tracking people’s ability to shape collective outcomes (chapter 1).³⁰

The erosion of democratic norms and practices is associated not so much with a crisis of support for democracy as an ideal but with a crisis in institutions perceived as not delivering on that ideal.³¹ There is an emerging democracy paradox: nearly 9 in 10 people believe that democracy is a fundamental pillar of political systems. But support for leaders who may

bypass the fundamental rules of the democratic process has markedly increased (figure 5.1). Today, more than half of those polled express support for such leaders.

People are questioning some core principles of collective action. The increase in support for leaders who might undermine democratic norms and practices has been accompanied by a rise in preferences for military rule, which today reaches 39 percent of the population (figure 5.2).³² This apparent paradox (commitment to democracy along with increasing support for leaders who undermine it) mirrors the gridlock in adjusting current institutions—not fit for purpose amid shifting patterns of interdependence—to the evolving demands from people around the world.

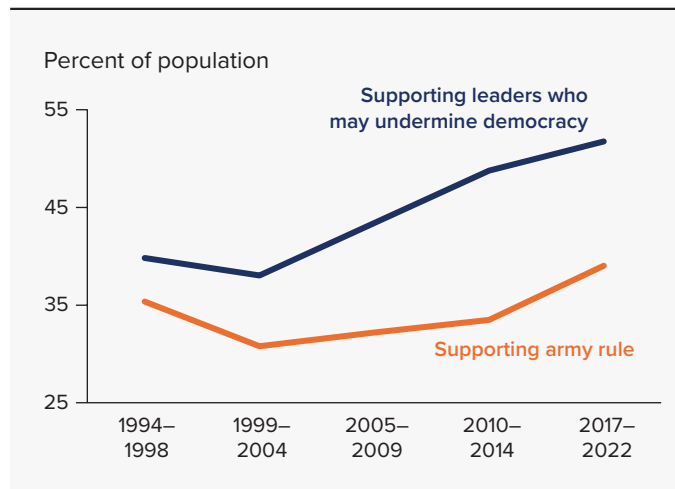
Figure 5.1 The democracy paradox? Unwavering support for democracy along with increasing support for leaders who may undermine it



Note: Data are population-weighted averages for a panel of countries representing 76 percent of the global population. Percent of population on the vertical axis refers to people who responded that having a strong leader who does not have to bother with parliament and elections is “very good” or “fairly good.” Percent of population on the horizontal axis refers to people who responded that having a democratic political system is “very good” or “fairly good.”

Source: Human Development Report Office based on data from multiple waves of the World Values Survey (Inglehart and others 2022).

Figure 5.2 Large and increasing shares of the population support leaders who may bypass democratic norms and practices, 1994–2022



Note: Data are population-weighted averages of a balanced panel of countries representing 76 percent of the global population. Percent of population supporting leaders who may undermine democracy refers to people who responded that having a strong leader who does not have to bother with parliament and elections is “very good” or “fairly good.” Percent of population supporting army rule refers to people who responded that having an army rule is “very good” or “fairly good.”

Source: Human Development Report Office based on data from multiple waves of the World Values Survey (Inglehart and others 2022).

Narrowing agency gaps can strengthen and legitimize institutions that enhance collective action

Narrowing agency gaps can enhance collective outcomes by improving the perceived legitimacy of institutions (see box 4.7 in chapter 4). Narrowing agency gaps allows people to have more opportunities to participate in public reasoning and decisionmaking through institutions they have confidence in. That confidence is in turn rooted in people’s beliefs that institutions deliver on the collective action outcomes they are meant to support. Low confidence in institutions reflects shortcomings in delivering on those collective action outcomes. While economic shocks (such as increased unemployment) do not affect generalized trust or the belief that people are helpful, they are strongly associated with a decline in trust in institutions such as national parliaments (including the European Parliament in countries that are members of the European Union) and in politicians. Trust in the United Nations is less affected, suggesting a strong association between negative economic shocks and a decline in trust in institutions and

individuals that people expect to more directly look after the common interest (figure 5.3).

Based on this reasoning, we assess agency gaps using two proxy variables. First, agency gaps are measured by the percentage of people who report having no or limited control over their lives. Second, agency gaps are measured as the percentage of people who report that their voices are not considered in the political system.³³ About half the world’s people report not being in control of their own lives. And the agency gap in influencing collective outcomes is much higher, with more than two-thirds of people worldwide perceiving that they have little influence in the decisions of their government (figure 5.4).³⁴

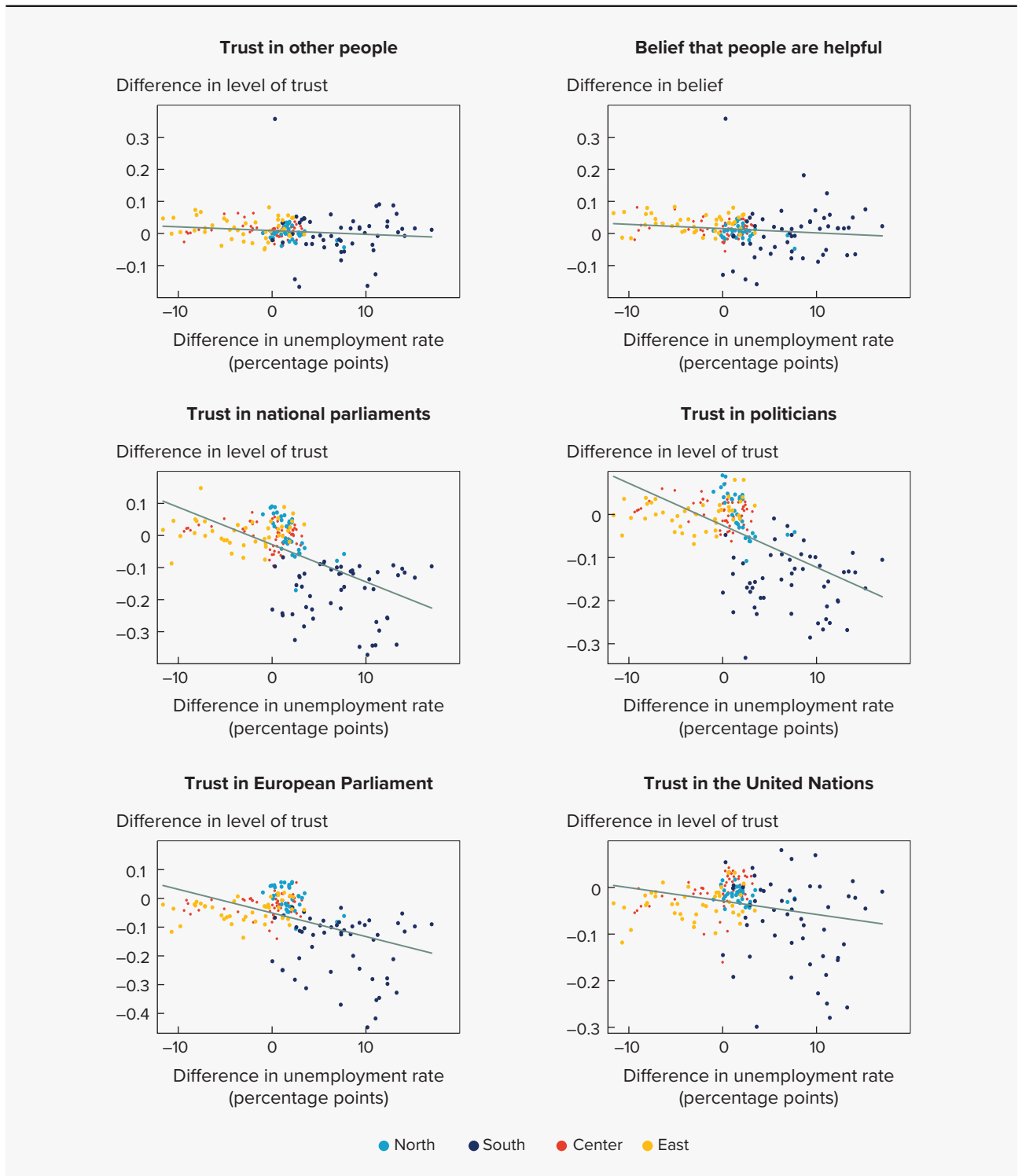
The less that people feel their voice is heard in government, the less confidence they have in government, regardless of how corrupt they perceive authorities to be (figure 5.5). In turn, higher perceptions of corruption are associated with reduced confidence in government. So, while addressing corruption is central to enhancing confidence in government (as widely recognized), confidence in government can also be increased at each level of perceived corruption by giving people more agency (as measured by their perception of having voice in government decisions).³⁵

Narrowing agency gaps to foster collective action

Narrowing agency gaps can enhance collective action, particularly when cooperation is required. Indeed, agency opens space for cooperation beyond self-interest.³⁶ If “the concern for others directly affects one’s own welfare,”³⁷ it pertains to advancing one’s own wellbeing. But when cooperation follows from commitments that go beyond advancing one’s own wellbeing,³⁸ we are in the realm of agency.³⁹

When agency includes the pursuit of commitments associated with collective outcomes, narrowing agency gaps can foster cooperation, but it is important to understand the mechanisms that may facilitate or hinder that link. Over the past several decades the association between agency (as measured by the belief that one is in control of one’s life) and generalized trust (important for cooperation) has weakened; among people reporting high levels of control over their lives, there has been a large increase in those who do not trust others. A third of the

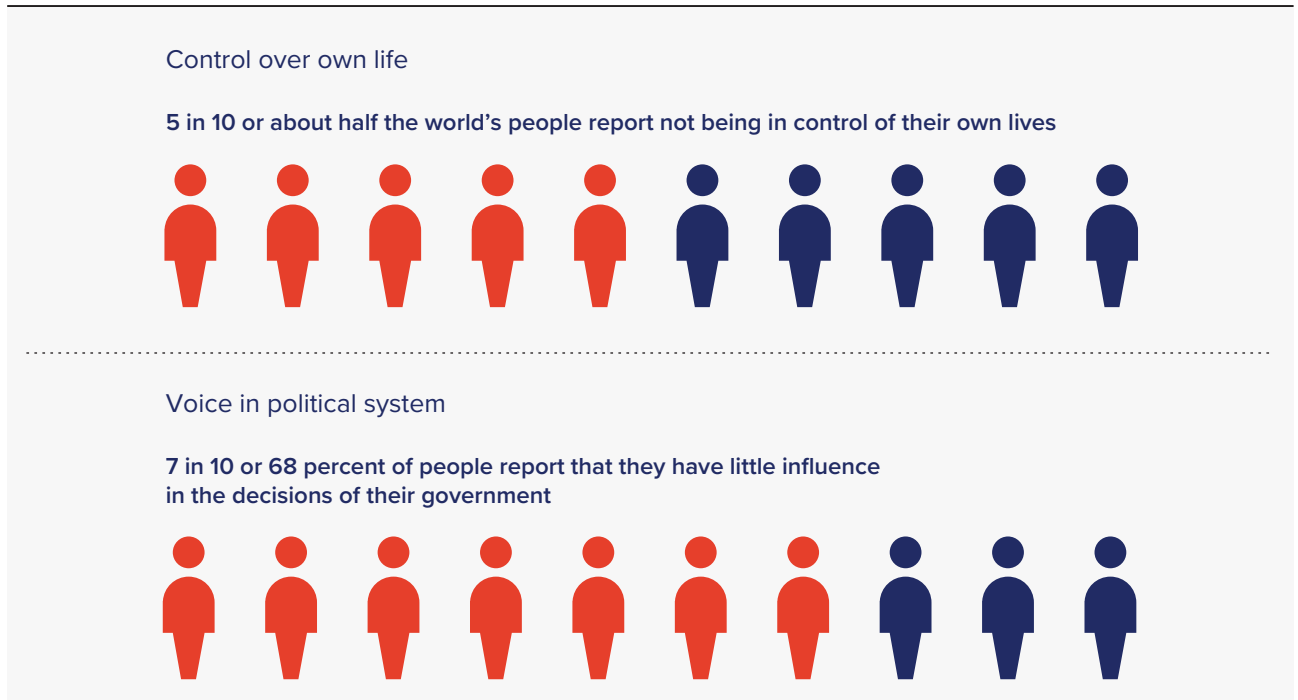
Figure 5.3 Economic shocks are associated with lower trust in institutions—but the relationship is weaker for trust in the United Nations and in one another



Note: Each figure plots subnational regions of 24 European countries at the Nomenclature of Territorial Units for Statistics level of aggregation. Levels of trust are based on responses to the European Social Survey. Differences are between observations pooled before the European debt crisis (2004, 2006 and 2008) and after the crisis (2010, 2012 and 2014).

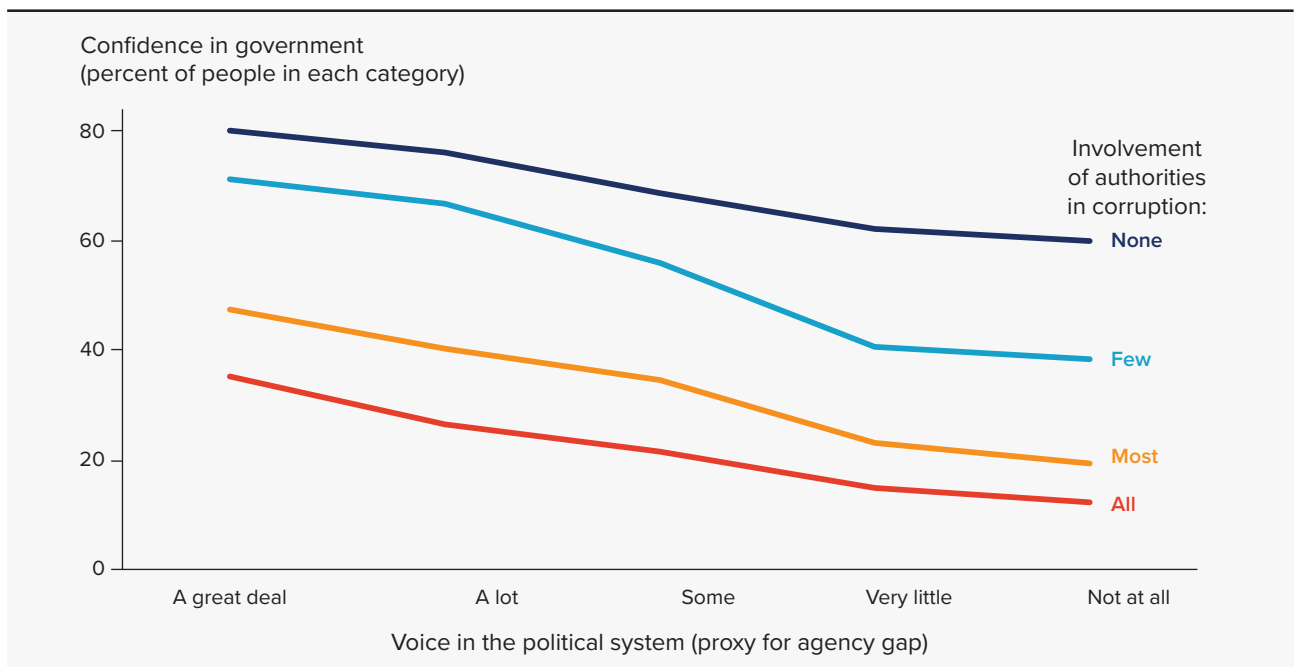
Source: Algan and others 2017.

Figure 5.4 Agency gaps in collective action are higher than those in control over one’s own life



Note: Agency is the ability of people to act as agents who can do effective things based on their commitments (Sen 2013). It is proxied by two indicators: the share of the population that reported feeling in control over their lives (measured on a scale of 1–10, where 1–3 indicates an acute agency gap, 4–7 indicates a moderate agency gap and 8–10 indicates no agency gap) and the share of the population that reported feeling that their voice is heard in the political system (those who responded “A great deal” or “A lot”). Data are computed using microdata and equal weights across countries. **Source:** Human Development Report Office based on data from wave 7 (2017–2022) of the World Values Survey (Inglehart and others 2022).

Figure 5.5 Reducing corruption increases confidence in government but so does narrowing agency gaps



Note: Computed using microdata and equal weights across countries. Confidence in the national government implies reporting “a great deal” or “quite a lot” of confidence (other options: “not very much” or “none at all”). Voice in institution is captured by responses to the question, “How much would you say the political system in your country allows people like you to have a say in what the government does?” Perception of corruption is captured by responses to the question, among state authorities, “How many do you believe are involved in corruption?” **Source:** Human Development Report Office based on data from wave 7 of the World Values Survey (Inglehart and others 2022).

global population reports control over their lives and no trust (figure 5.6). In turn, the share of the world’s people with a high level of agency and trust in others has declined substantially.

Thus, it matters to understand the factors that may account for the link between agency gaps and collective action. Factors that may mediate the relationship between narrowing agency gaps and prospects for cooperation include inequalities, power imbalances, human insecurity, a lack of space for deliberation and social norms biased against cooperation. Overcoming these challenges can make narrowing agency gaps more likely to enhance cooperation.⁴⁰

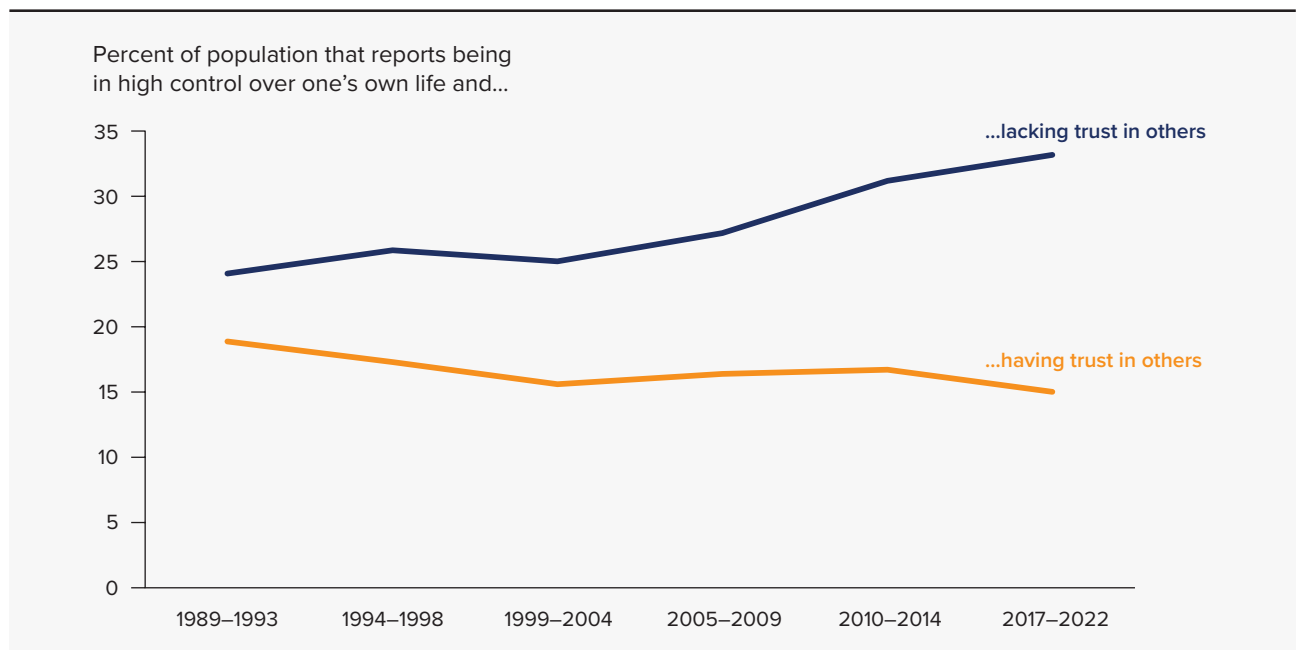
Inequalities and power imbalances shape agency

Inequalities affect different agency gaps. There is a steep decline in the share of people reporting having very low control over their lives for the bottom 50 percent of the income distribution (figure 5.7). That is, agency increases as income grows for the bottom 50 percent of the distribution. At the very bottom lack of agency is particularly heightened (agency gaps

are three times greater among people in the lowest income decile than in decile 6 and above). So, basic capabilities, such as being healthy or acquiring basic writing and numeracy skills, may be a binding constraint for agency (in addition to the well-established implications of people being deprived in wellbeing).⁴¹ Moreover, the share of people reporting having very high control over their lives is low and fairly equal for the bottom 50 percent of the population but rises with income for deciles 6 and above. Thus, income inequalities, which often intersect and are associated with other inequalities in human development, shape agency.

In turn, inequalities in both income and education are associated with inequalities in having an interest in politics, linking inequalities and processes that matter to shape collective action outcomes. The lower the income, the less interested people are in politics and the more likely they are to report never voting (figure 5.8). The relationship with education inequalities is even steeper: the lower the education level, the lower the interest in politics and the higher the likelihood of reporting never voting (figure 5.9).

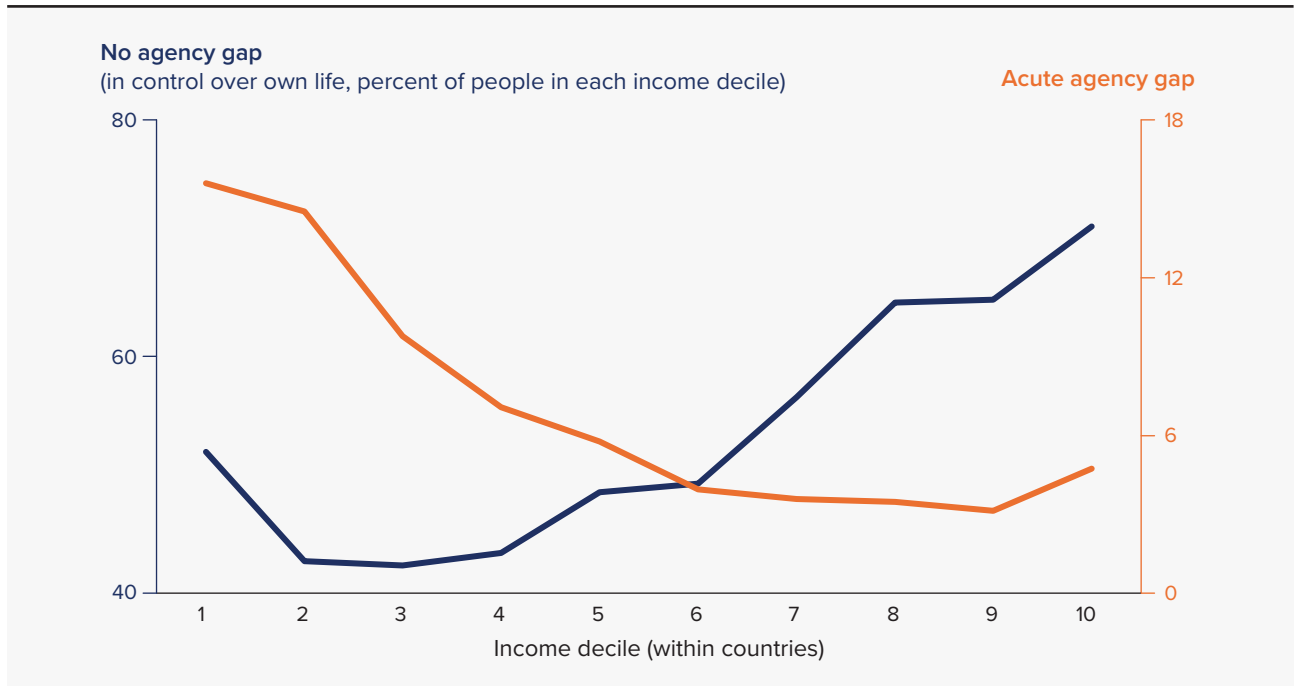
Figure 5.6 Agency in control over one’s own life and trust



Note: Data are population-weighted averages for a balanced panel of countries representing 76 percent of the global population. Agency in control over one’s own life is measured by those reporting high control (8–10 on a 1–10 scale). Trust in others is measured using responses to the question, “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” Figures are based on individual-level data, intersecting both conditions (agency in control over one’s own life and trust or no trust in others).

Source: Human Development Report Office based on data from the World Values Survey (Inglehart and others 2022).

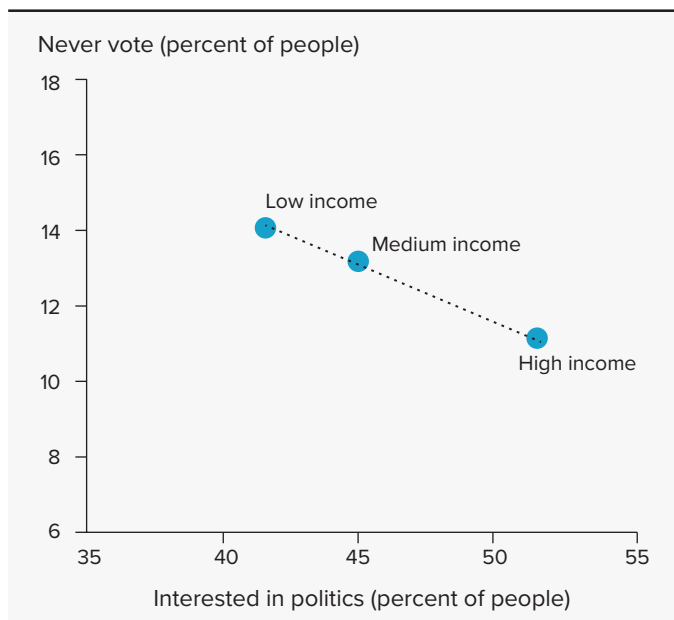
Figure 5.7 The perception of agency (control over one’s own life) is shaped by income



Note: Computed using microdata and equal weights across countries. No agency gap measures the share of the population reporting feeling in control over their lives (options 8–10 on a 1–10 scale). Acute agency gap measures the share of the population reporting feeling no or very low control over their lives (options 1–3 on a 1–10 scale).

Source: Human Development Report Office based on data from wave 7 of the World Values Survey (Inglehart and others 2022).

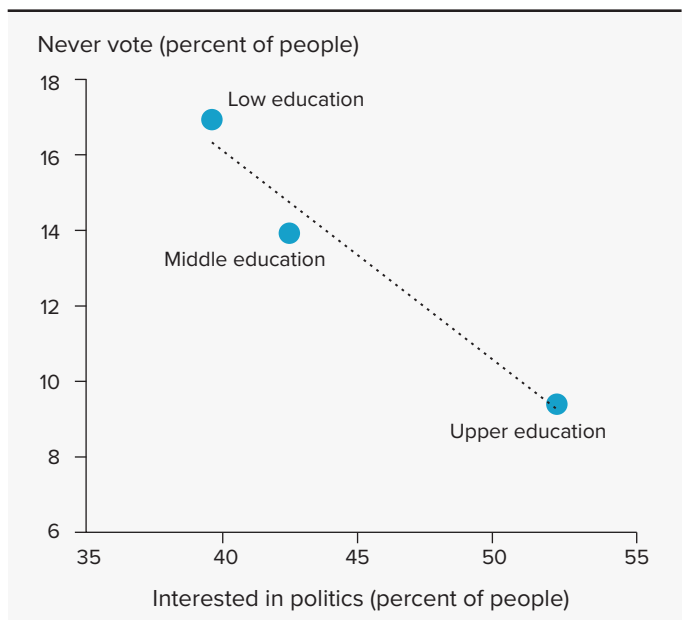
Figure 5.8 The higher the income, the more likely people are to report being interested in politics and voting



Note: Computed using microdata and equal weights across countries. “Never vote” refers to reported voting behaviour in national elections. Income reflects the subjective income level and is measured on a 1–10 scale, which is then recoded into three groups: low (1–3), medium (4–7) and high (8–10).

Source: Human Development Report Office based on data from wave 7 of the World Values Survey (Inglehart and others 2022).

Figure 5.9 The higher the education level, the more likely people are to report being interested in politics and voting



Note: Computed using microdata and equal weights across countries. “Never vote” refers to reported voting behaviour in national elections. Education is categorized based on the highest education level attained: lower education (up to lower secondary education), middle education (upper secondary education and postsecondary nontertiary education) and upper education (tertiary education and above).

Source: Human Development Report Office based on data from wave 7 of the World Values Survey (Inglehart and others 2022).

These inequalities in political participation by income and education achievements can exacerbate the biases in collective outcomes shaped by power imbalances that drive political decisions towards the interests of the more powerful.⁴²

Human insecurity reduces agency

People who report feeling more insecure about some aspects of their lives also report feeling less in control of their lives. The decline of agency with the increase in perception of human insecurity holds across all world regions (figure 5.10). Human security is a multidimensional concept that pertains to people being free from fear, want and indignity.⁴³ Human insecurity constrains agency when people fear participating in social life or using public spaces and deliberation mechanisms without shame.⁴⁴

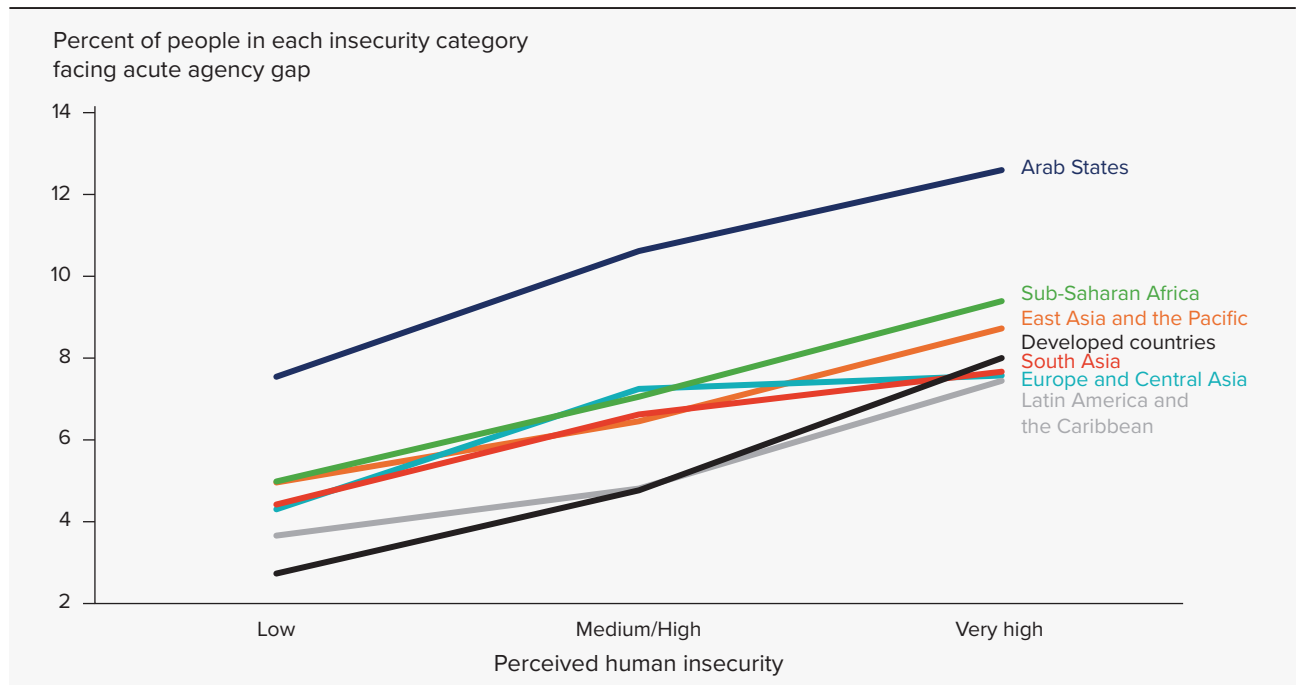
Perception of human insecurity also affects generalized trust, key for cooperation. The higher the perceived insecurity, the lower the share of people reporting generalized trust, with this relationship

stronger at higher HDI levels (figure 5.11). Moreover, among people in very high HDI countries, perceived human insecurity is associated with lower support for democracy and greater tolerance of violence as a means of political action.⁴⁵

Higher perceived human insecurity is also associated with less confidence in institutions across the three branches of government—executive, legislative and judiciary (figure 5.12). The association gets stronger as the HDI level declines. Moving from association to causality between perceived human insecurity and confidence in institutions is difficult. Causality may be mediated by perceived human insecurity; if so, the association reflects shortcomings in the ability of institutions to deliver human security. And if that is so, addressing human security concerns directly can not only restore trust but also improve confidence in institutions. Both channels can enhance collective action.

A human security lens can integrate policy goals and agendas, taking into consideration issues ranging from concerns with social cohesion (spotlight 5.1) to people’s embeddedness in nature.⁴⁶

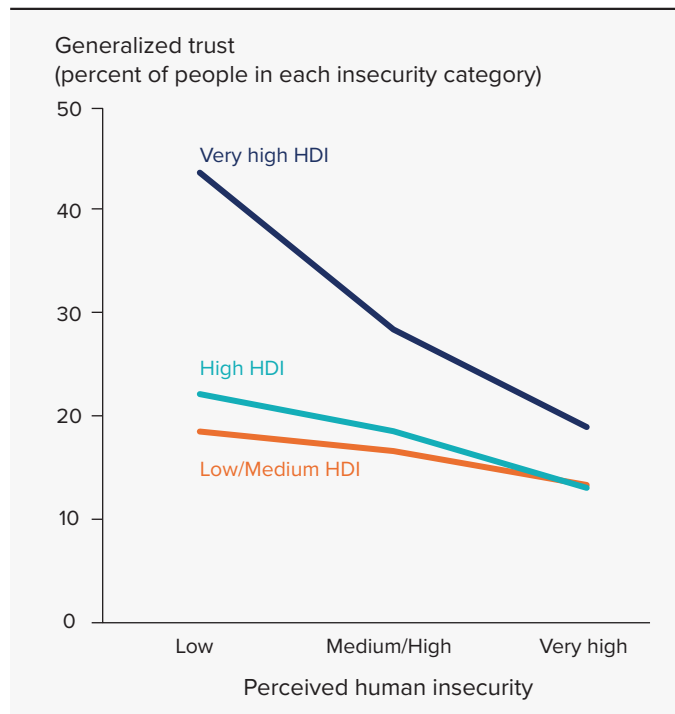
Figure 5.10 The higher the perceived human insecurity, the lower the sense of control over one’s own life



Note: Perceived human insecurity is measured as “low,” “medium and high” and “very high,” using microdata and equal weights across countries, and is based on the index described in annex 1.2 of UNDP (2022d). Acute agency gap measures the share of the population reporting feeling no or very little control over their lives (options 1–3 on a 1–10 scale).

Source: Human Development Report Office based on the latest available data from wave 6 (2010–2014) and wave 7 (2017–2022) of the World Values Survey (Inglehart and others 2022).

Figure 5.11 Perceived human insecurity is related to generalized trust, especially for higher Human Development Index (HDI) groups



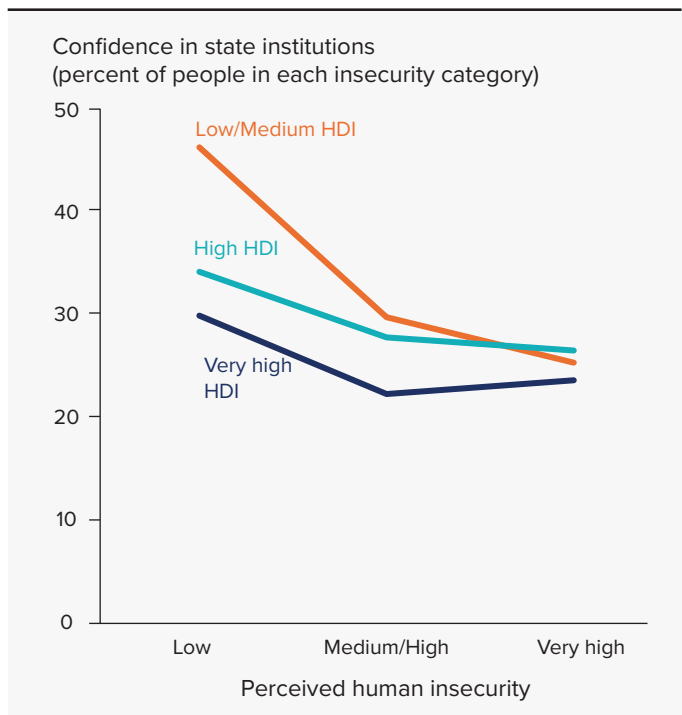
Note: Perceived human insecurity is computed using microdata and equal weights across countries and is based on the index described in annex 1.2 of UNDP (2022d). Generalized trust implies reporting that “most people can be trusted” (other option: “need to be very careful”).
Source: Human Development Report Office based on data from wave 7 of the World Values Survey (Inglehart and others 2022).

Fostering the conditions for agency to enhance collective action through public reasoning and deliberation

Fostering the conditions that enable the formation of collective beliefs that transcend group boundaries can narrow agency gaps to enhance collective action. Promoting meaningful civic engagement in public decisionmaking implies that people feel their voices are heard and considered—not only as an expression of interests but also as a broader process of public input reasoning that scrutinizes beliefs, particularly those associated with polarization (chapter 6). One way to achieve this is through deliberative assemblies that some countries and communities are experimenting with (box 5.1).

Processes of public reasoning and deliberation are also used to enhance collective action at lower scales, as in the world of work, where there is growing

Figure 5.12 Perceived human insecurity is related to confidence in state institutions



HDI is Human Development Index.
Note: Perceived human insecurity is computed using microdata and equal weights across countries and is based on the index described in annex 1.2 of UNDP (2022d). Confidence in state institutions reflects combined confidence in the national government, the parliament and the justice system. Confidence implies reporting “a great deal” or “quite a lot” of confidence (other options: “not very much” or “none at all”).
Source: Human Development Report Office based on data from wave 7 of the World Values Survey (Inglehart and others 2022).

recognition of the need for dialogue (box 5.2). Over the past few decades changes in the world of work—fragmenting global production through global value chains and de-unionizing workers—have reduced some of the established institutions that facilitate collective bargaining. With continuing rapid technological change, the demand for spaces for social dialogue among workers, firms and governments is likely to persist.

Social norms can support or limit collective action

Social norms, shared by many and socially enforced in a decentralized way, affect people’s beliefs and agency and thus shape social behaviours and can support collective action (chapter 4).

Not all social norms are conducive to express human agency in cooperative outcomes. For example,

Box 5.1 Promoting more deliberative forms of citizen participation

UNDP Governance Team

Recent years have seen a surge of interest in deliberative democracy—which has been described as a deliberative wave.¹ Researchers and practitioners see these approaches as having the potential to address the crisis of democracy² by enabling new forms of citizen participation that are truly inclusive and grounded in evidence, informed by thoughtful analysis and conducive to consensus building.

Deliberative minipublics, such as citizen assemblies, are one way to operationalize deliberative democracy ideals. In Ireland a citizen assembly was established in 2016 to review aspects of the Irish constitution. Its recommendations resulted in two constitutional referendums, which led to substantial policy change on same-sex marriage and abortion. Voting patterns differed between voters familiar with the assembly and those not, suggesting an impact on the deliberative nature of the referendum in the wider community.³

Deliberative minipublics face challenges. One is the ethical and methodological difficulty of addressing the impact of inequality on minipublic dynamics.⁴ A second is the complexity of embedding minipublics into broader systems of participation and political representation.⁵ And a third is the risk of minipublics being used as a strategy to displace civic organizing and other forms of activism.⁶ Even so, integrating deliberative standards into citizen engagement processes can overcome polarization and help elaborate high-quality public input.⁷ So, there seems to be great merit in continuing to explore this field.

Notes

1. OECD 2020. 2. Dryzek and others 2019. 3. Elkink and others 2017. 4. Lupia and Norton 2017. 5. Lafont 2017. 6. Young 2001. 7. Curato and others 2017.

Box 5.2 Social dialogue in the world of work

International Labour Organization

Collective action and the representation of workers and employers through social dialogue, essential for democracy and good governance, hold potential for advancing human development. Social dialogue encompasses all types of negotiations, consultations and exchanges of information among representatives, governments, employers and workers. These interactions revolve around issues of common interest related to economic and social policies and include collective bargaining, workplace consultation and cooperation, and bipartite and tripartite social dialogue at the national and sectoral levels.

Social dialogue embodies a fundamental democratic principle: involving those most affected by decisions in shaping policies that directly affect them. Employer and worker organizations are crucial in this process. They act as agents and provide a collective voice for enterprises and workers. By broadening the scope of decisionmaking, social dialogue improves the quality, legitimacy and ownership of decisions, fostering a stronger commitment to their implementation. Consequently, this enhances the adaptability, agility and resilience of economies. Social dialogue—enabled through independent, strong and representative employer and worker organizations—provides space for cooperation and can advance economic and social progress, including by addressing inequality and inclusiveness in labour markets.

However, social dialogue must be based on two fundamental principles and rights at work: freedom of association and the effective recognition of right to collective bargaining. These core labour rights, coupled with effective institutions of work, underpin sustainable economic development and social justice. They empower both workers and employers to engage in meaningful dialogue, ensure that their voices are heard and lay the foundation for decent work and inclusive labour market outcomes.

Throughout the Covid-19 pandemic governments and social partners joined forces to create short-term strategies while formulating comprehensive, forward-looking policies and measures to shape an inclusive, sustainable and resilient recovery. In countries where active engagement between employer and worker representatives was integrated into the response, social dialogue not only was crucial in addressing the immediate challenges but also emerged as a vital part of the medium- and long-term solutions. Social dialogue is expected to play an even more important role in helping governments, working hand in hand with employer and worker organizations, to frame the appropriate policies for managing the deep and rapid transformations

(continued)

Box 5.2 Social dialogue in the world of work (continued)

at play today in the world of work and ensure a just transition towards more sustainable economies and societies, in line with the 2030 Agenda for Sustainable Development.

In this regard social dialogue and collective action by social partners are not just important tools for supporting human development; they are also foundational pillars for revitalizing the social contract, as laid out by the UN Secretary-General in Our Common Agenda.¹ By boosting confidence in democratic governance, promoting equality in opportunities and outcomes and ensuring social peace and prosperity, social dialogue contributes to rebuilding trust in public policies and institutions of work. It stands as an inclusive process for engaging diverse stakeholders, enabling participation in decisionmaking and guaranteeing fundamental rights at work, while extending protections to all.

Note

1. United Nations Secretary-General 2021.

social norms that are biased against the rights of and opportunities for groups of people hinder collective outcomes and hurt human dignity. Social norms biased against women and girls are an example. They are also threats to human security, not allowing some to live lives of dignity, representing an instance of what Amartya Sen would call “clearly remediable injustices.”⁴⁷ Injustice can also be determined against widely agreed consensuses, such as the 1948 Universal Declaration of Human Rights or in the UN Charter and the corpus of international law, including “soft law” (agreements such as the 2030 Agenda for Sustainable Development).

Still, despite these normative and aspirational consensuses, social norms—along with policies and institutions—matter in how they are implemented and pursued. For example, gender social norms can either advance or curtail agency.⁴⁸ To see how, note how at the beginning of the 20th century, women in most countries were officially prohibited from participating in various societal roles, ranging from owning property and attending universities to engaging in politics. Women’s agency gaps were stark and widespread. Throughout the 20th century extensive reforms worldwide recognized the equal legal, social, economic and political rights of women and men.⁴⁹ Although women in many countries still face legal restrictions affecting their agency, the progress in institutional reforms has been remarkable. Agency gaps encoded in formal laws have tended to disappear. The legal right to vote in elections—a basic expression of political agency—serves as a visible example of this evolution.

However, the effective agency of women remains restricted in many areas. A notable example is

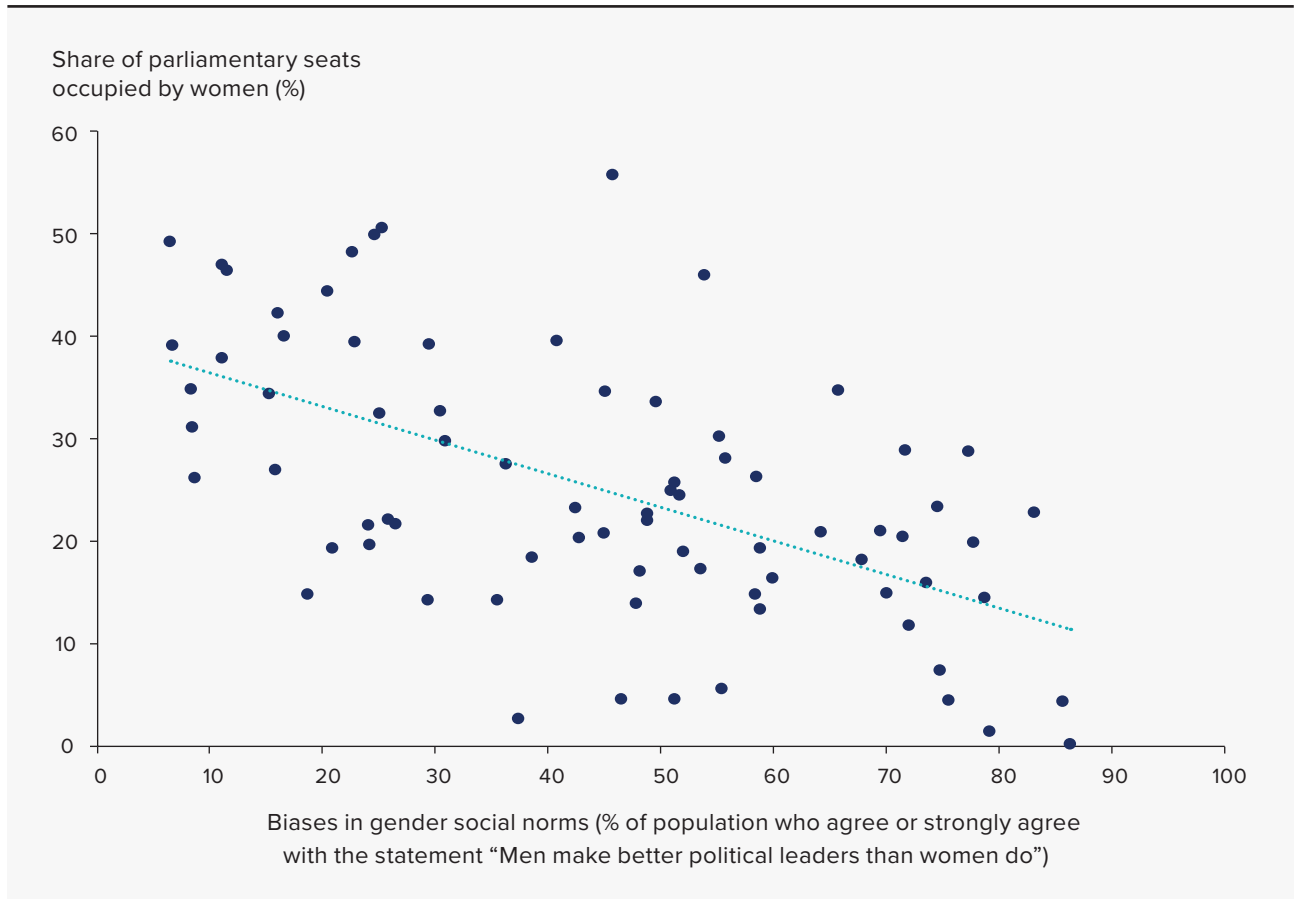
women’s access to top political office—the pinnacle of political agency. Women serve as heads of state or heads of government in only about 10 percent of countries, a share little changed in recent decades.⁵⁰

The 2023 Gender Social Norms Index, which treats biases as deviations from global shared standards of gender equality, shows that gender equality is being constrained by social norms biased against women.⁵¹ Almost half of people believe men make better political leaders than women.⁵² And biased norms might be so entrenched that women who occupy high political offices are judged more harshly. These biases permeate voting booths, interview panels, board meetings and more, limiting women’s agency (figure 5.13). Simultaneously, they diminish our collective potential by perpetuating inequalities, excluding a diverse range of perspectives and experiences from public discourse and fostering further misperceptions and divisions.

When social norms suppress agency, they hinder broader processes of collective action by obstructing participation and cooperation—and exacerbating inequalities and divisions. Biased gender social norms can limit the effectiveness of policies⁵³ and curb women’s agency—even when policies for gender equality are in place.⁵⁴ Fostering more equitable gender norms, where women are seen not just as beneficiaries of development interventions but as active agents of change and contributors to addressing shared challenges, allows for tapping into women’s creative potential and boosts the diversity of ideas that can enhance collective action.⁵⁵

Achieving equal rights and opportunities for women and men and dismantling harmful gender stereotypes advances the wellbeing and agency of everyone,

Figure 5.13 Biased gender social norms limit women’s political agency



Source: Human Development Report Office based on data from wave 7 (2017–2022) of the World Values Survey (for biases in social norms) and data from the Inter-Parliamentary Union (for the share of parliamentary seats occupied by women in 2021). See also UNDP (2023a).

regardless of gender identity and expression. Redressing biased gender social norms can generate collective outcomes that go beyond directly improving the conditions of those excluded.⁵⁶ For example, peace processes that explicitly include women not only uphold women’s human rights and strengthen their agency but also are more likely to result in comprehensive and durable peace agreements.⁵⁷ Close links between female peace agreement signatories and civil society groups, grassroots movements and other networks facilitate more bottom-up influence and local ownership over peace agreements and can enable inclusion of agreement provisions that address inequalities and power imbalances⁵⁸—which are often among the root causes of violent conflicts.⁵⁹ Because women, still today, remain largely absent from formal peace processes,⁶⁰ advancing gender equality and opening spaces for more women to participate in these processes represent a huge potential peace dividend for societies at large.

A gender lens can help identify opportunities to advance collective action. Consider pandemic prevention and response, which require collective action at scale. Applying a gender lens implies recognizing and addressing gender differences in the global burden of diseases, as well as potential gendered impacts of response measures. For example, while men were at higher risk of dying from Covid-19,⁶¹ the measures to contain the Covid-19 pandemic in many cases hit women harder, as they generally suffered higher job and income losses,⁶² increases in domestic violence⁶³ and declines in mental wellbeing.⁶⁴

While social norms are often contrasted with formal institutions and laws, they are always interacting with formal institutions, sometimes in mutually supportive ways and in other cases in tension. Recognizing how social norms may be curtailing agency, and identifying the mechanisms that can trigger norm changes towards enhanced agency, can inform

options to advance collective action. As the discussion on gender social norms shows, pinning all hope on formal institutions can be ineffective and even backfire if social norms are ignored.⁶⁵

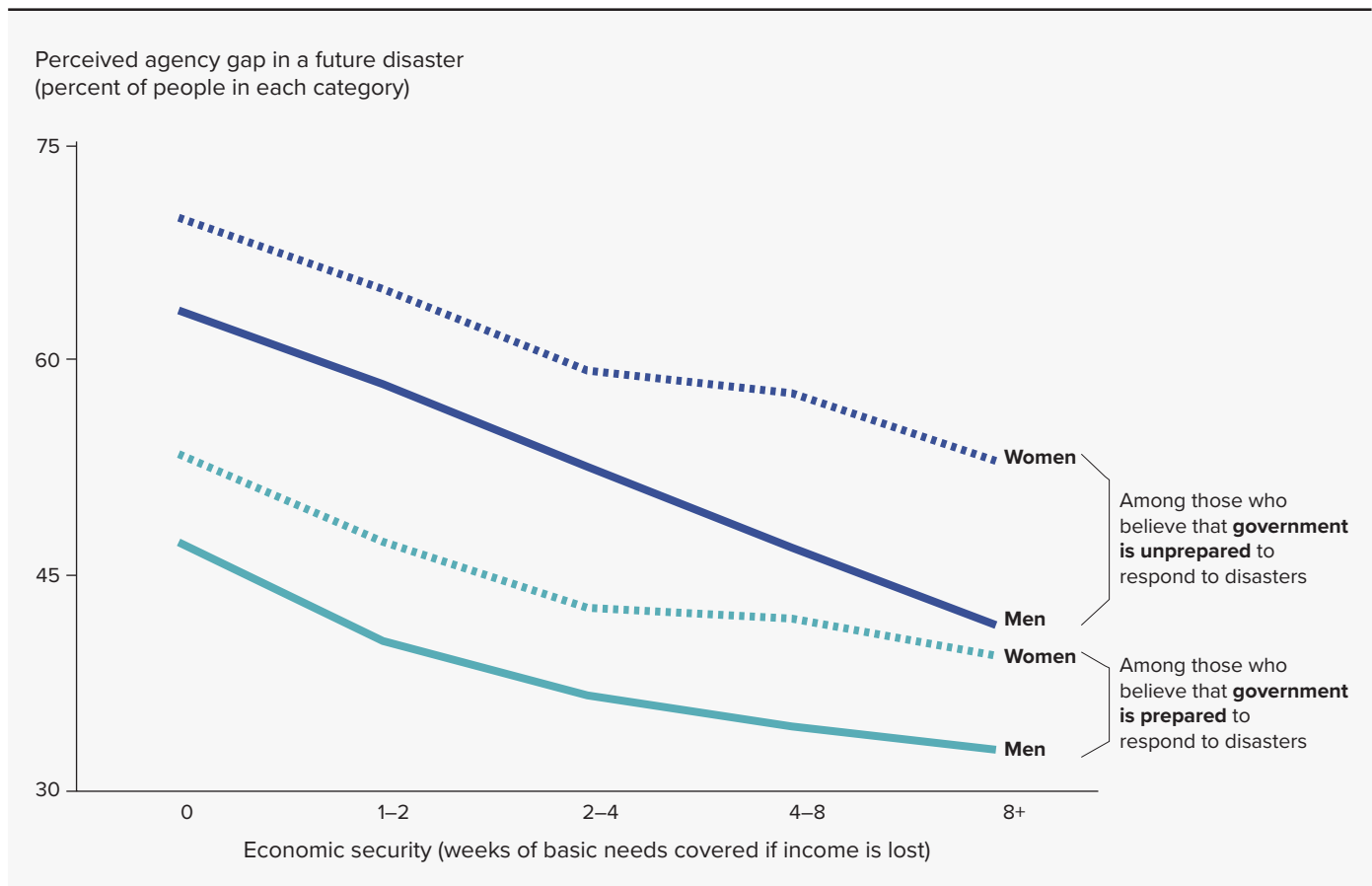
Women also feel less able than men to protect themselves or their families in the face of a future disaster. This can be interpreted as another agency gap, affecting 53 percent of women and 44 percent of men globally.⁶⁶ In addition to the fact that this agency gap is higher for women than for men, other patterns identified in this chapter emerge again: the higher the level of (economic, in this case) insecurity, the higher the agency gap, and belief that the government is unprepared to respond to disasters is associated with higher agency gaps (figure 5.14). This points directly to ways of narrowing agency gaps: eliminating gender inequality, strengthening

national institutions' preparedness to respond to disasters and redressing insecurity. The discussion on disasters, specifically, also has relevance as we go deeper into the Anthropocene, given that unfolding processes of dangerous planetary change are likely to make disaster preparedness and response all the more relevant.⁶⁷

Institutions to bring collective action to scale—people-centred, co-owned and future-oriented

Institutions can link agency with collective action at scale. With global interdependence being reshaped, narrowing agency gaps would be a way to pursue enhanced collective action. Narrowing those gaps involves promoting human security, redressing

Figure 5.14 Gender inequalities in agency gaps in facing future disasters are pervasive



Note: Perceived agency gap in a future disaster is measured as people not responding affirmatively to the question, “Could protect yourself or family in a future disaster?” Government preparedness is measured by the response to the question, “Is the national government well prepared to deal with a disaster?” Economic security is proxied through the number of weeks that a household could cover basic needs if income was lost.

Source: Human Development Report Office, based on data from Lloyd’s Register Foundation and Gallup (2022).

inequalities, promoting social norms for cooperation and widening and strengthening spaces for deliberation.

“Institutions would be better placed to support collective action at scale if they were people-centred, co-owned and future-oriented

To this end, institutions would be better placed to support collective action at scale if they were able to fulfil three core functions: being people-centred, co-owned and future-oriented.

- People-centred is about placing the enhancement of human development (including wellbeing and agency) as the ultimate goal, which includes also advancing human security.
- Co-owned is about the real and perceived fair distribution of the power to set collective goals, of responsibilities to pursue them and of the resulting outcomes.
- Future-oriented is about not only ensuring that future generations will have the ability to advance their human development but also putting in place mechanisms that are more predictable in enabling people to navigate an uncertain and volatile world (spotlight 5.2).⁶⁸

These functions match the framing of beyond income, beyond averages, beyond today put forward in the 2019 Human Development Report.⁶⁹

To illustrate what pursuing these functions would mean in practice, the chapter concludes by analysing what might be missing to support the provision of global public goods—and a perspective on ongoing and perennial debates about the evolution of multilateral institutions.

Building an institutional architecture to enhance the provision of global public goods

Development cooperation is premised on a dichotomy of so-called developed and developing countries, reflecting the aspiration to narrow the great divergence that emerged in the aftermath of the Industrial Revolution and has framed development thinking and practice since the middle of the 20th century.⁷⁰ Development finance evolved to support developing countries in converging, with finance channelled

though both bilateral and multilateral means and comprising both capital and transfers from or guaranteed by developed countries. Development finance—such as official development assistance, including humanitarian funding—remains essential and insufficient. But it is clear, as expressed in the 2030 Agenda for Sustainable Development, that there is a need to look at universal aspirations beyond this dichotomy. One way of giving expression to those aspirations is recognizing the need, in an interdependent world, to enhance the provision of global public goods. And that implies building an institutional architecture to support the endeavour.

Providing global public goods is consistent with the three institutional functions proposed in this chapter. Their pursuit is people-centred, given the losses in human development and exacerbation of inequalities associated with their underprovision.

Given that global public goods are nonrival and nonexcludable at the global scale, institutions geared to support their provision are consistent with being co-owned. Outcomes matter, but so does the process of provision. And global public goods leave legacies well into the future, as with the eradication of smallpox, the mitigation of climate change and the introduction of a novel technology. So, their pursuit is often intrinsically future-oriented.

To elaborate further on how the three functions interplay with providing global public goods, consider how enhancing the capabilities of different countries or groups to contribute to global public goods is both an outcome and a process that matters intrinsically.

They matter because perceptions of fairness, or lack thereof, can stand in the way of providing global public goods (chapter 3).

Often, fairness and the expansion of capabilities work together. Indeed, one way of demonstrating that efforts to enhance the provision of global public goods can also advance equity is by showing that transferring resources and technologies to enhance the provision of global public goods often has national and local benefits in the recipient country.⁷¹ For instance, international assistance to fund a renewable energy project in a low-income country with the aim of mitigating climate change can reduce local pollution and generate jobs.⁷² These ancillary national benefits not only enhance equity—they also enhance efficiency by increasing the aggregate benefits of

enhanced global public good provision.⁷³ They are, however, typically neglected in policymaking associated with global public good provision, such as climate change mitigation,⁷⁴ for which the policy debate often emphasizes costs of mitigation.⁷⁵

At the same time it is important to recognize that supportive policies in high-income countries for outcomes that seek to advance global public goods can have globally beneficial outcomes. In the mid-2000s both Germany's Energiewende and the California Solar Initiative in the United States provided generous benefits for solar installations at substantial short-term cost.⁷⁶ These subsidies led firms around the world, including those outside high-income countries, to innovate more, reducing prices and increasing adoption of solar panels elsewhere.⁷⁷ In addition to this induced innovation effect, subsidies also led to cost reductions through learning by doing and economies of scale.⁷⁸ While learning by doing and economies of scale can largely be appropriated by firms,⁷⁹ the subsidies were key because (in the absence of carbon prices that internalize the externalities of greenhouse gas emissions) they stimulated production that likely would not have happened otherwise due to underpriced fossil fuels.⁸⁰ These examples illustrate how subsidies for technologies in a few high-income countries can result in global spillovers, reaching low- and middle-income countries.

“Co-ownership can considerably enhance the social valuation of global public goods, recognizing them as shared achievements worldwide

Co-ownership can considerably enhance the social valuation of global public goods, recognizing them as shared achievements worldwide. The value and sustainability of global public goods may hinge on their impact and on mechanisms that foster public participation in their provision. If these mechanisms are co-owned, they are more likely to empower people to both contribute to and celebrate these achievements. As Martha Nussbaum points out, the social room for deliberation should be not only a safe space for criticisms and dissenting voices but also a nurturing ground for devotion to ideas that embody an overlapping consensus, which the pursuit of providing global public goods can be mobilized to deliver (chapters 4 and 6).⁸¹

Recognizing that global public goods have both domestic and global benefits has important implications for institutional design, including the support of international cooperation. For example, in climate change mitigation acknowledging the co-benefits of global public goods tends to bolster domestic support for participating in international agreements. Such participation generates benefits at the global and national scales⁸² and may increase the likelihood of forming a robust coalition to combat climate change.⁸³ Providing support to countries in health-related weakest-link or best-shot global public good initiatives can yield substantial national and regional benefits.⁸⁴ Moreover, there can be synergy in flows aimed at advancing local or national public goods that cumulatively contribute to a global public good. International efforts to support biodiversity in African countries, for instance, can complement tourism revenue. Both revenue streams support local conservation efforts, generating biodiversity benefits nationally and globally.⁸⁵

The flip side of co-benefits is that if domestic investment is motivated exclusively by benefits that accrue within borders, there may be underinvestment from a global perspective. At the same time it might not be reasonable to expect low- and middle-income countries, which are more likely to be resource constrained than high-income countries, to incur the additional cost that may be needed for global benefits to emerge. The economics from the national perspective may be such that it is not feasible for a country to invest in renewable energy. So, the international community could provide the funding for the incremental cost that results in generating global benefits. This is one way of interpreting existing financing arrangements that support the provision of global public goods, such as the Global Environment Facility.⁸⁶ The logic of financing this incremental cost could be extended to the support of global public goods beyond the environment, in most cases in the form of fully concessional financing.⁸⁷

Several of the most promising opportunities for global public goods might be in low- and medium-income countries, where some mitigation projects (with global benefits) might be privately profitable. But even in those cases the projects are rarely implemented, because of regulatory challenges, a lack of capital or volatility (real or perceived).⁸⁸ So projects

with global positive externalities face the prospect of underinvestment.

Being future-oriented implies thinking about financing that addresses volatility, which can both attract private financing and make public finance countercyclical. In fact, in a volatile world countries are subject to shocks not of their own making, such as climate-related disasters, pandemics or global financial crises. These shocks often reflect the underprovision of global public goods and leave low- and middle-income countries on the receiving end of having to deal not only with the immediate costs but also with servicing the debt incurred to finance, for instance, infrastructure that may have been wiped out in a tropical cyclone. As the ongoing experience with high debt burdens in low-income countries in the aftermath of the Covid-19 pandemic illustrates, there is no predictable way for countries to collectively agree on how to deal with the challenge.

“Being future-oriented implies thinking about financing that addresses volatility, which can both attract private financing and make public finance countercyclical

One way to have a future-oriented approach is to provide financing through instruments that include state-contingent clauses that pause or defer debt service payments when countries face shocks resulting from climate change or pandemics (spotlight 5.3).⁸⁹ This would increase the ability of low- and middle-income countries to contribute to providing global public goods even in the aftermath of external crises—to the benefit of all. These measures require coordination (if these financing options that carry an insurance element are more expensive than “plan vanilla” options) and enhanced capacity to allocate resources that may include a large share of concessional financing.⁹⁰

Identifying gaps in existing multilateral institutions

Multilateral institutions have supported international cooperation and advanced welfare in several other ways.⁹¹ But there is perennial debate about the need to have these institutions evolve.⁹² How can they be

designed to meet the three functional goals of being people centred, co-owned and future-oriented?

While nominally people-centred, multilateral institutions often have a limited or partial recognition of the pursuit of human development as an explicit goal. International financial institutions and parts of the UN system continue to invest considerable resources in estimating and projecting indicators associated with economic performance. This is very important and needed, but it sometimes is used and interpreted as defining the whole of development prospects and aspirations of people. Thus, the UN Secretary-General’s emphasis on moving “Beyond GDP” aims at restoring a balance on how development progress and policies are assessed, beyond averages at the country level.⁹³ For instance, from the perspective of multidimensional poverty, nearly two-thirds of people in acute multidimensional poverty (730 million) live in middle-income countries.⁹⁴ This agenda offers the prospect of enhancing policymaking to address the multidimensional nature of human development as advocated in Human Development Reports over the years.⁹⁵

Gaps in co-ownership are manifest in the continuation of the governance arrangements through written and unwritten rules that reflect a legacy of the distribution of power in the immediate aftermath of World War II. This extends from international financial institutions to the United Nations, with several proposals over the years to redress the lack of representative governance arrangements.⁹⁶

Co-ownership implies a fair distribution of the burden of government action, avoiding inequalities resulting from tax avoidance and evasion. Over the past decade there has been progress in controlling tax evasion, mainly through increased information and transparency around the world.⁹⁷ And there has been extensive cooperation through the Organisation for Economic Co-operation and Development/Group of 20 Inclusive Framework on base erosion and profit shifting, with the participation of 140 countries and jurisdictions. A recent international tax reform changes the rules for tax jurisdiction and imposes a global 15 percent minimum effective corporate income tax, which is expected to collect \$150–\$200 billion a year.⁹⁸ To facilitate policy coordination on these issues, the UN General Assembly has started the process for a Framework Convention

on International Tax Cooperation.⁹⁹ Global minimum tax rates do not have to be very large to raise substantial sums if they are well enforced.¹⁰⁰ Enforcement is largely a policy choice and hinges on international coordination. For example, leveraging new technologies and advancing regulation that allowed automatic information sharing between banks and financial institutions helped speed progress against tax evasion.¹⁰¹

Trust and social norms also determine tax compliance, and policies that target these aspects can complement incentives and enforcement, such as taxpayer education and information programmes and stronger public services (see spotlight 4.4 in

chapter 4). A future-oriented approach can contribute to a process of reform and effectiveness. The United Nations and the international financial institutions were created cognizant of the need to manage global interdependence (see spotlight 2.1 in chapter 2), objectives still valid today. But there is now greater recognition of the challenges of a planet undergoing dangerous changes and of interdependence being reshaped as we go farther into the Anthropocene.¹⁰² An explicit focus on providing and financing global public goods could also strengthen a future-oriented focus of multilateral institutions—facilitating a push for investment, insurance and innovation.

Strengthening social cohesion to mitigate human insecurity: Promise and peril

Julia Leininger, Armin von Schiller and Charlotte Fiedler, *German Institute of Development and Sustainability*

With growing human insecurity and polarization, policymakers have shifted attention to the resilience of societies. The United Nations Development Programme (UNDP), for example, emphasizes solidarity as an essential building block for addressing universal challenges.¹ “Social cohesion” stands out as a buzzword in these discussions and is often suggested as a cure for many development problems and for the unintended consequences of development efforts.

In particular, social cohesion is praised for its alleged role in mitigating tensions, dealing with shocks and enabling productive cooperation for the common good. As such, social cohesion, understood as the glue that holds societies together, has been declared in policy and academic discussions as a precondition for sustainable and inclusive development. Fostering but also protecting it are now high priority goals in policy documents and in international cooperation. The Covid-19 pandemic accelerated this trend.

But is social cohesion a cure for the apparent dichotomy of human development with human insecurity?² As many governments and international organizations launch or scale up campaigns to promote social cohesion in societies—among groups or between citizens and public institutions—it is time to ask what we know about the relevance of social cohesion for supporting human development and reducing human insecurity. Also, what are the leverage points for policy action, and what is the effectiveness of currently applied measures?

Social cohesion for human development

Social cohesion is not a panacea, but there is proof of its relevance for human development and, thus, human security. One of the most important yet barely recognized values of social cohesion is as the foundation for societies to reach agreement on what a common good is in a particular context and who gets a

share of it. Where polarization divides societies, opposing groups develop unbridgeable disagreements over issue-oriented questions such as the right pandemic measures (for example, Covid-19 vaccines) and over shared values such as the right to live.

Evidence on development outcomes indicates positive effects of social cohesion on a variety of indicators. Overall, social cohesion correlates positively with human development, as measured by the Human Development Index, in Organisation for Economic Co-operation and Development members³ and in Asian countries.⁴ However, such macroanalyses also indicate that human development affects social cohesion more than vice versa. Interestingly, social cohesion’s effect on human development increases further when mediated through state legitimacy.⁵ This underlines that social cohesion is independent of a country’s income level.

One of the richest pools of evidence for the relevance of social cohesion for human development is its relationship with health. Evidence for 39 US states indicates that social cohesion, measured as social trust and membership in voluntary organizations, fosters mental as well as physical health, even moderating the effect of income inequality on increased mortality.⁶ Most studies focus, however, on individual elements of social cohesion and their relationship with health. For example, social trust has a positive impact on health, but the intensity of the impact varies considerably with a country’s socioeconomic development: the impact is much stronger in developed countries than in developing countries.⁷ Also related to social cohesion, disinvestment in social capital is related to higher mortality rates.⁸ Social cohesion also matters for effective decisionmaking and people’s solidarity.⁹ This mechanism is key in times of crisis: where societies are cohesive, governments can assume that their policies enjoy public confidence¹⁰ and that individuals show unity with each other when facing collective problems.¹¹

Social cohesion has a direct positive effect on GDP, particularly in western and Asian countries.¹² Less comprehensive analyses of social cohesion suggest that it has a positive effect on GDP because of the huge economic costs of interracial conflict and war or because it facilitates the emergence of better institutions such as a strong judicial system and freedom of expression.¹³ However, these insights are based on broader measures of social cohesion that include indicators such as ethnic fractionalization. Overall, there is very little cross-country evidence on the relationship between social cohesion and economic development.¹⁴

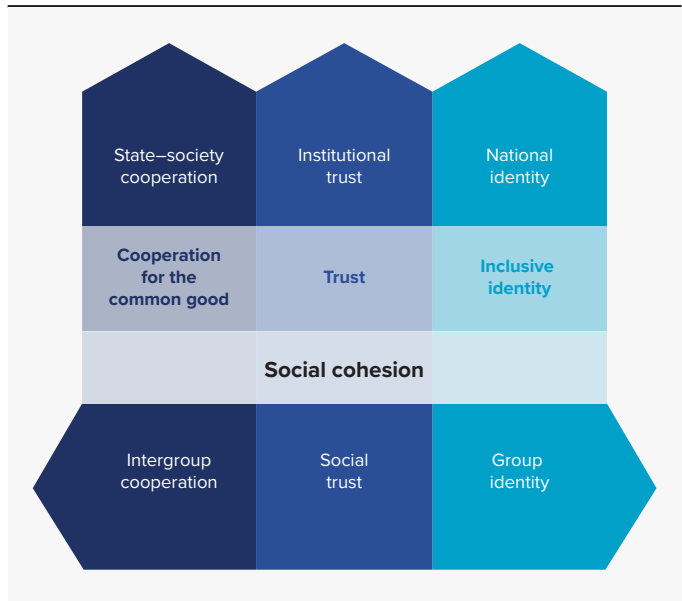
More cohesive societies—particularly societies where citizens trust and are willing to cooperate with state institutions—could be expected to be better positioned to more effectively deliver basic services such as education. But most attention has been drawn to the opposite direction of the relationship: from education to social cohesion. In particular, universal education can contribute to social cohesion by reducing inequality and by creating “strong social bonds among different groups in a society.”¹⁵

Strengthening social cohesion for cooperation

To some degree the salience of the concept of social cohesion and its proven relevance for development masks conceptual and empirical challenges. Social cohesion is to many an elusive concept, and indeed, how it is defined, used and measured varies widely among those using it. That makes it essential to specify what social cohesion is if it is to feature prominently in policy discussion and design. In particular, conceptual clarity is essential to enable exchange on strategies to foster this key foundation of the social fabric in every society and aggregate existing knowledge on how best to do that. A useful and usable concept of social cohesion enables a global exchange, structures policy thinking and aggregates existing knowledge.

The following understanding of social cohesion builds on common denominators in research (figure S5.1.1). The starting point is the consensus that social cohesion is multidimensional. Furthermore, we need a concept that travels across levels and contexts and is therefore as effective in characterizing small

Figure S5.1.1 Proposed elements of social cohesion



Source: Leininger and others 2021.

communities in all regions as characterizing transnational contexts. While the concept needs to be capable of traveling across world regions, its measurement might vary with the context. In any case such an aggregated measure does not substitute for an analysis of the particularities of social cohesion in specific contexts.

In addition, it is essential to keep the concept lean if it is to be instrumental in analysing relationships with other development outcomes, such as human development or inequality. Based on this reasoning, we propose the following definition:

“Social cohesion refers to the vertical and horizontal relations among members of society and the state that hold society together. Social cohesion is characterised by a set of attitudes and behavioural manifestations that includes trust, an inclusive identity and cooperation for the common good.”¹⁶

Trust often appears in conceptualizations of social cohesion. Used here, it includes social and institutional trust and thereby captures both the horizontal and the vertical dimensions of trust.¹⁷ Inclusive identity reflects that individuals can feel that they belong to multiple groups and thus have several identities (religion, ethnicity and gender, for example). A socially cohesive society implies that individuals with

different identities tolerate these differences and can coexist peacefully, so particular identities do not dominate the overall collective identity. Cooperation for the common good means that many people and groups cooperate for public interests that go beyond—and sometimes even conflict with—those of the individuals involved.

Although there is a common sense that social cohesion is more than the sum of its parts, scholars often study its parts individually, and policymakers address discrete parts of it. Most often the focus lies on trust. The concept of social cohesion proposed by the German Institute of Development and Sustainability¹⁸ enables focusing on particular elements and identifying specific weak spots to concentrate on, but structurally it demands conceptualizing these analyses within the broader concept and phenomenon of social cohesion. In this approach trust is important, but it is only one part of the whole. It is important to analyse the other attributes as well as the interactions and synergies between them. But more important, to determine how socially cohesive a society is at a given (measured) time and how social cohesion evolves over time, it is necessary to analyse all of its parts, understanding that not all dimensions will develop in parallel.

Behind the bright light is a dark side of social cohesion

It is also necessary to acknowledge that despite its relevance, social cohesion does not necessarily adhere to the simplistic claim that more is always better. Knowing how social cohesion interacts at different levels, how it is used and how it is constructed is essential to avoid highly cohesive subgroups instrumentalizing social cohesion as a platform for exclusion. Social cohesion does not have only a rosy side.

Social cohesion as fuel for polarization

Social cohesion can be easily interpreted as an equalizer, forcing homogeneity on societies. This is a particularly salient issue in the context of the recent global trend towards autocracy. Nationalist political elites have been using polarization strategies to divide societies and increase their own power. These attempts—often successful—pursue an us-versus-them rhetoric, which defines criteria for “good

citizens” and sets them apart from other groups who are “out.” While this has created cohesive groups, it has also fostered unbridgeable divides over certain issues. Strengthening social cohesion requires understanding that the social fabric is sustainable only if it tolerates differences.

And this brings us back to the idea of solidarity as presented in UNDP’s 2022 Special Report on Human Security.¹⁹ It is about our capacities as human beings who constantly act collectively at different levels to face shared challenges together, such as the effects of climate change or health crises.

Disregard for scale and space can lead to unintended effects

Social cohesion suggests a peaceful social togetherness. Although it can be seen as a function of peace, it has an important discrete meaning. Conceptual distinctions are important because they have critical policy implications. For example, strengthening social cohesion within local groups might increase their togetherness. At the same time fostering bonds within a particular group can have countereffects if the within-group togetherness makes it difficult to bridge conflicts between that group and others.

There are risks to enhancing social cohesion for the sake of cohesion without identifying the basis for the common identity, trust and cooperation, as well as its goals. Social cohesion manifests on different interacting levels (from local to global) and in various spaces (communities in different locations or online spaces). Connecting levels and spaces is thus key for allowing the bright side of social cohesion to shine.

Looking at the bright side

With its potentials and its risks, social cohesion is rightly on national and international agendas. Increased attention to social cohesion comes at a time when polarization has been eroding it and human insecurity has intensified in all parts of the world. Recovering and rebuilding social cohesion are difficult once it has been damaged or lost. In this way it is not different from other positive types of human relationships: we often become aware of them only after they have been substantially weakened.

Using the concept of social cohesion to carefully think through how best to foster cohesive societies and limit polarization is a good starting point for international cooperation and policymaking at a time of increasing challenges. Social cohesion is both an explicit goal and a precondition for effective cooperation at all levels. In this sense it is wise to ensure that discussions are conceptually sound and that

our still-fragmented knowledge is properly and efficiently aggregated to enable governments and international organizations to effectively engage on this topic. At all levels we face problems and crisis that must be addressed, navigated and solved collectively. Social cohesion explicitly addresses this collective dimension that so far has been highly underestimated.

NOTES

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| <ol style="list-style-type: none"> 1. UNDP 2022b. 2. UNDP 2022a, 2022b. 3. Dragolov and others 2013. 4. Delhey and others 2018. 5. Seyoum 2021. 6. Kawachi and Berkman 2001; Kawachi and others 1997. 7. Hamamura, Li and Chan 2017. 8. Kawachi and Kennedy 1997. 9. Leininger and others 2021. 10. Abrams and others 2020; Wilkinson and others 2017. | <ol style="list-style-type: none"> 11. Green and Janmaat 2011. 12. Delhey and others 2018. 13. Easterly, Ritzen and Woolcock 2006; Foa 2011. 14. Sommer 2019. 15. Uslaner 2019, p. 4. 16. Leininger and others 2021, p. 3. 17. Mattes and Moreno 2018. 18. Leininger and others 2021; Leininger and others 2023. 19. UNDP 2022b. |
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Solidarity and creative resolve

Nicole Hassoun, *Binghamton University and the Helsinki Collegium for Advanced Studies, University of Helsinki*

How can we respond to the challenges of our times? This spotlight argues that solidarity and creative resolve can help overcome the threats to human development associated with mismanagement of interdependence and underprovision of global public goods.¹ Solidarity is “a sympathetic and imaginative enactment of collaborative measures to enhance our given or acquired relatedness so that together we fare well enough.”² It requires empathizing with others and recognizing the ways in which we are interdependent and related.³ Often solidarity also requires creative resolve: a fundamental commitment to overcoming apparent tragedy together.⁴ More precisely, creative resolve requires us to question, imagine and act to promote human development insofar as necessary, possible and otherwise permissible.

Consider each component of this resolve in turn. First, creative resolve requires questioning limits to the possibility of promoting human development. We must question the claim that we cannot promote human development, as well as our background beliefs about what we can do. What questions we must raise will depend on the nature of the claims—we might question their reliability, source or implications. Second, this resolve requires seeking out creative ways of promoting human development, even when we do not yet know how to do so. It is not enough to consider existing options; we must often put new options on the table.⁵ Finally, creative resolve requires acting on plans to promote human development, often through social movements or by helping change policies or institutions.⁶ At least, we must strive to promote human development in this way as long as that does not require sacrificing anything more significant.

Solidarity and creative resolve can help in responding well to shared challenges together. Unlike mere teamwork, solidarity connects those on opposite sides of the planet in recognition of the fact that we are all vulnerable and interdependent and engages

us in building the valuable relationships that promote development.⁷ Unlike mere perseverance, creative resolve helps people think outside the box and reveals opportunities for addressing some of the most difficult, and seemingly tragic, problems of our time. Unlike mere problem solving, solidarity and creative resolve require us to put our commitment and cooperation into action to address difficult problems.⁸

Reflecting on how solidarity and creative resolve have helped people address major challenges to human development in the past may help us overcome substantial threats in the future. Consider the smallpox eradication campaign (chapter 3). The campaign was creative and resolute. When traditional vaccinations did not work, the global smallpox eradication programme tried ring vaccination—vaccinating all the people around those who were infected—which eventually helped conquer the disease.⁹ The fact that smallpox was eradicated globally during the Cold War shows that solidarity and creative resolve can spur international cooperation to overcome some of the greatest threats to human development, even when countries face disparate interests and resources.

Contrast the global fight against smallpox with the international response to the Covid-19 pandemic (chapter 3). When the pandemic first swept across the globe, the World Health Organization (WHO) issued a solidarity call to action to realize equitable global access to Covid-19 health technologies through pooling of knowledge, intellectual property and data.¹⁰ The Access to Covid-19 Tools Accelerator—a platform for international support for addressing the disease—helped coordinate the global response. The platform supported diagnostics, vaccines, therapeutics, equitable access and basic health systems development.¹¹ Although the COVID-19 Vaccines Global Access facility (better known as COVAX)—or vaccine arm of the global response—was the best funded, it failed in its aim to vaccinate 20 percent of the world

by the end of 2021.¹² Vaccine nationalism in high-income countries and profit-driven neglect of global equity stymied this effort.¹³

Consider how we might better prepare for, and respond to, future pandemic threats with solidarity and creative resolve. First, the international community should come together and create new funding mechanisms for vaccines and other essential countermeasures. But this funding should be conditional on companies sharing the knowledge, data and intellectual property rights needed to produce resulting products. So, when supply is limited, manufacturers can produce the technologies at low cost and distribute them widely.¹⁴ Moreover, funding should be tied to the health impacts of resulting technologies. While there is considerable development of new drugs for affluent patients, inadequate treatments exist for several of the world's worst killers, and often the global poor cannot access the treatments that do exist in a timely manner.¹⁵ Paying for essential countermeasures based on health impact could incentivize the provision of more impactful technologies. The incentives might consist of advance market commitments for companies with sufficient manufacturing capacity or prize funds for those without such capacity. They should be sufficient to cover the costs of research and development and ensure equitable access to the resulting products for all. Second, the international community should facilitate transparent, accountable, collective procurement and differentially price the resulting innovations, charging market prices in rich countries to recoup investment costs while subsidizing distribution in low- and middle-income countries.¹⁶

Collective procurement and differential pricing may also help us acquire the resources to implement other measures to ensure equitable access to resulting products. The international community must, for example, invest in improved manufacturing, distribution and basic health systems, including monitoring and response capacity, healthcare workers, and transparency, communication and community

engagement activities.¹⁷ Moreover, the international community must support other technology transfer initiatives. For instance, countries should exercise flexibilities in the Agreement on Trade-Related Intellectual Property Rights and support much more extensive patent waivers in future pandemics if companies are unwilling to make existing essential technologies needed to combat these threats available to all on reasonable terms.¹⁸

Some argue that solidarity and creative resolve cannot help the international community promote human development and that proposals along the above lines simply are not feasible, but what we can achieve together is up to us.¹⁹ We should refuse to accept the claim that determining our collective fortunes and promoting human development for all is impossible.²⁰

Solidarity and creative resolve can help us come up with and implement effective responses to a variety of threats beyond global pandemics—including climate change, financial crises and war. Moreover, when good ways to address threats to human development exist, solidarity and creative resolve can help the international community cultivate the political will needed to implement them. To address existential threats such as climate change, we do not just need to create incentives for making the green energy transition, to implement better land and water use policies and so forth.²¹ We need ways of getting people to think differently about their moral obligations.²² If people think that they do not have to act in environmentally sustainable ways because their individual action will not make a difference, humanity holds little hope of overcoming the kind of collective action problems we need to overcome to combat climate change. So, we may have to focus our creative efforts on making the case that we should see ourselves as bound to promote human development for all whenever we can achieve positive change together. Solidarity and creative resolve can give us hope and help us make meaningful progress in addressing the shared global challenges we must overcome to flourish on a changing planet.

NOTES

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1. Ba and others 2021, pp. 391–392.
2. Atuire and Hassoun 2023, p. 4.
3. Atuire and Hassoun 2023; Hassoun 2021c, 2022. This is compatible with using market mechanisms to achieve positive change, but solidaristic efforts might also employ other methods that require changing the ways markets function. For other interpretations of solidarity, see Davies and Savulescu (2019) and Gould (2018).
4. Hassoun 2020.
5. Those who fail to have creative resolve may believe that the status quo is acceptable or think that it is impossible to change. However, there is substantial psychological evidence that people do not consider enough alternatives in decisionmaking and that when we imagine ourselves succeeding in tasks, we are more likely to do so (Bearden, Murphy and Rapoport 2005; Braithwaite 2004; Snyder 1995, 2000). It is important not to take too narrow a view of feasibility or possibility, assuming tight time frames or financial constraints (Brennan and Pettit 2004; Goodin 1995). Many other virtues and capabilities are necessary for creative resolve, and cultivating it may require practice in favourable conditions. For further discussion, see Hassoun (2022) and Hassoun, Friedman and Cosler (2022).
6. Gould 2018; Hassoun 2020. Creative resolve can also help us secure other essential moral goods; for further discussion, see Hassoun (2020) and Hassoun, Friedman and Cosler (2022).
7. Hassoun forthcoming.
8. Hassoun 2022.
9. Hassoun 2020, 2022.
10. WHO 2021b.
11. WHO 2021a.
12. Berkley 2020.
13. Hassoun 2021a.
14. Atuire and Hassoun 2023; Basu, Gostin and Hassoun 2021; Conrad and Lutter 2019; Hassoun 2021b; Miller 2020; Saxena and others 2022.
15. Hassoun 2020; Hassoun, Friedman and Cosler 2022.
16. Basu, Gostin and Hassoun 2021; Moon and others 2011; Saxena and others 2022. Companies and international organizations sometimes use tiered pricing, but here the idea is to provide rich as well as poor countries access to medicines at reasonable costs for their contexts through a global procurement mechanism. Moreover, doing so has the potential to save companies and countries money (as pharmaceutical pricing, even for the public sector, is complex, with many intermediaries).
17. Hassoun 2020, 2021b. We must also do many other things to address the problems with our current global response plans. For instance, we must address the structural and social determinants of health to limit vulnerability and ensure adequate social protection during pandemics (Basu, Gostin and Hassoun 2021; Saxena and others 2022).
18. Basu, Gostin and Hassoun 2021; Saxena and others 2022. Any further health dividend the international community can reap from cooperating to prevent and address major pandemics might be fruitfully redirected towards promoting other aspects of human development. This proposal's novel contribution is to combine delinkage with collective procurement, differential pricing and other measures to ensure access to essential technologies during pandemics to ensure that the mechanism is self-sustaining.
19. McAdams and others 2020; Moon, Alonso Ruiz and Vieira 2021. Drawing together the overarching recommendations on addressing health threats articulated above, we might parallel the World Social Charter's suggestions in creating new, innovative institutional structures to address major global threats; creating a multilateral fund to support these structures; and enhancing efforts to set targets and evaluate performance in addressing these threats.
20. Unless, of course, doing so is impossible or will produce worse results. These limits are part of creative resolve's definition.
21. UNDP 2020a, 2020b.
22. Sen 2008.

The role of multilateral development banks in the provision of global public goods

José Antonio Ocampo and Karla Daniela González, *Columbia University*

There is broad-based agreement among the United Nations and the Group of 20 (G20) and in the proposed Evolution Roadmap of the World Bank that multilateral development banks should provide financing to support developing countries' contribution to global public goods. Multilateral development banks have increased their financing for climate change mitigation and adaptation and to a lesser extent for combating pandemics and supporting biodiversity. However, the resources provided are still very small relative to what is needed. To enhance such financing, the institutions mentioned above share three recommendations.

- Increase financing to support the provision of global public goods by developing countries.
- Include contingency clauses to respond to the vulnerability of countries associated with climatological and health issues and to manage the effects of international economic crises on these countries. These clauses should allow the suspension of debt service with these institutions and even, eventually, a reduction in associated liabilities.
- Work more closely with the private sector to support its contribution to global public goods.

An essential theme of all these proposals is the need to channel concessional credits or donations through multilateral development banks. Furthermore, these benefits must also favour middle-income countries and create mechanisms that allow partial subsidies for credits to the private sector to leverage their investment in providing public goods. To make this possible, official development assistance must be greatly increased, an important challenge given the limited funds now available. Aside from concessional resources, the proposals call for longer-term multilateral development bank loans (30–50 years), with longer grace periods and lower interest rates. To manage exchange rate volatility, multilateral development banks must lend more in the national currencies of borrowing countries, based on the resources

they raise, with the placement of bonds in these currencies, which would also support the development of national capital markets.

Various other financial management proposals would enhance the relationship between the financing of multilateral development banks and their capital, while maintaining the standards that allow these institutions to maintain high investment grades in bond markets. Innovative financial mechanisms are needed to leverage private investment, including guarantees and public-private partnerships.

To expand available resources, the Special Drawing Rights (SDRs) issued by the International Monetary Fund (IMF) that have not been used by developed countries could be channelled through multilateral development banks, which are already authorized to hold such assets. This will require developing a new instrument that preserves the role of SDRs as reserve assets, based on the experiences of IMF funds that have already developed such mechanisms.

One of those funds is the Resilience and Sustainability Trust, which operates as a loan-based trust. Approximately three-quarters of IMF member countries—all low-income countries, developing and vulnerable small states and lower-middle-income countries—are eligible for extended affordable financing from the trust.¹ It is strategically oriented to address prolonged structural challenges, notably those related to climate change and pandemic preparedness. Since becoming operational in October 2022, it has approved 11 arrangements through its Resilience and Sustainability Facility.

For multilateral development banks to fulfil all these functions, as well as their traditional ones, the most important element is their capitalization. Capitalizations of the World Bank in 2018 and of all multilateral development banks after the 2007–2008 global financial crisis responded to this demand. A source of uncertainty, however, is whether some

major shareholders are willing to capitalize the World Bank and regional banks again.

The proposals differ considerably in the magnitude of the capitalizations required. The independent experts organized by the G20 proposed increasing the annual financing of these institutions to \$500 billion by 2030, a third of which would be in official development assistance or concessional credits and the rest in nonconcessional credits.² Given the amount of bank approvals by multilateral development banks to developing countries, this means approximately tripling the value of their loans. UN estimates of the stimulus needed to achieve the Sustainable Development Goals (SDGs) are much more ambitious. In February 2023 the UN Secretary-General highlighted how the relationship between multilateral development bank financing and the size of the world economy was substantially reduced in the 1960s and 1970s, particularly for the International Bank

for Reconstruction and Development of the World Bank Group.³ For this reason the United Nations has suggested that a return to 1960 levels would imply a threefold increase in capitalization, enabling an increase in loans of nearly \$2 trillion, an amount closer to the SDG financing gap.

Finally, it is important that multilateral development banks constitute a service network. In the case of the World Bank, this includes participating in regional projects alongside regional partners.⁴ Added to this is the need for all multilateral development banks to work with national development banks and other public institutions.⁵ Public development banks finance 10–12 percent of investment worldwide,⁶ although with considerable differences across countries. This collaboration would allow national banks to become executors of global public goods programmes, as well as channels of information on the related financing needs of their countries.

NOTES

1. IMF 2023.

2. G20 2023a.

3. UN 2023a.

4. World Bank, 2023.

5. Griffith-Jones and Ocampo 2018.

6. UN 2023a.

CHAPTER

6

**Breaking the
gridlock to enhance
collective action**

Breaking the gridlock to enhance collective action

Polarization divides societies into belligerent and opposing camps, poisoning domestic and international cooperation.

Moving away from zero-sum thinking by providing global public goods can ease polarization indirectly.

Addressing misperceptions about issues and other groups can bridge divides and reduce perceptions of insecurity and thus ease polarization directly.

Collective action that transcends group boundaries—not within groups, such as those defined by country borders, but across groups—is paramount for managing interdependence, including through the provision of global public goods.¹ Collective action is often particularly challenging when cooperation is required.²

This chapter considers how heightened political polarization within countries impedes cross-country cooperation to enhance the provision of global public goods.³ It first delves into how narrow group identification can lead to political polarization, eroding space for acting together on shared challenges. It then shows how political polarization hinders the emergence of shared narratives, beliefs and goals, diminishing the prospects for collective action. Finally, it argues that polarization is surmountable and describes pathways for breaking the gridlock.

How does political polarization come about?

Collective action is influenced by social contexts—through shared beliefs, values, social norms, worldviews, narratives and how agents see themselves and others.⁴ Shared identities enhance social ties that can produce many benefits for people’s wellbeing and positive societal outcomes within groups.⁵ Identifying with social groups is sometimes supported by affiliation with abstract notions, such as being part of a nation.⁶ National parochialism—strong cooperation within countries—is ubiquitous.⁷ But global public goods require transnational collective action that transcends country boundaries (chapter 3).⁸

Identifying with a larger global community would facilitate contributions to global public goods.⁹ In every society many people are inclined to care about others beyond borders.¹⁰ Interdependence is linked with people adopting a more cosmopolitan view of the world, shrinking their perceived social distance with geographically distant others.¹¹ For instance, as people get exposed to greater diversity, stereotypes diminish and lead people to perceive different social groups as more similar.¹² While it is sometimes assumed that cosmopolitan attitudes are held primarily by elites, they are common across the population.¹³ Yet barriers to the emergence and consolidation of beliefs and attitudes supporting international cooperation are appearing as a result of within-country

political polarization, which is particularly harmful when it takes the form of affective polarization, as people favour their group even more and other groups even less.

“Barriers to the emergence and consolidation of beliefs and attitudes supporting international cooperation are appearing as a result of within-country political polarization, which is particularly harmful when it takes the form of affective polarization

To see how, note that collective action is influenced by the way people reason about societal issues—and the beliefs, narratives, attitudes and viewpoints that they bring into public reasoning. And since many of the most pressing challenges must address the priorities of various diverse groups at once, people must transcend group boundaries and fairly consider the needs and priorities of others. To enhance collective action among this diversity of priorities and beliefs, the human development approach emphasizes the centrality of public reasoning and deliberation (box 6.1).¹⁴

Strong group identification can work against intergroup cooperation, particularly when the adoption of norms and values of an ingroup is based on a strong sense of identity.¹⁵ Group affiliation also has consequences for how people form and maintain beliefs. Ingroup favouritism (seeing one’s own group in a positive light) has been described as one of a few fundamental beliefs that form the basis for a range of other behavioural and informational biases.¹⁶ When people identify strongly with a particular group, they may be more receptive to information that aligns with the group’s beliefs while rejecting information that contradicts them, thus engaging in identity-based reasoning.¹⁷

Some forms of identity-based affiliation with an ingroup can lead to affective political polarization—feeling positive about one’s own group and negative about other groups.¹⁸ Social identity can be a powerful driver of positive within-group cooperative behaviour.¹⁹ But it can also hinder intergroup cooperation when it builds on the strong ties that people develop towards their social group and takes a form of polarization that instils a heightened dislike and hostility towards outgroups. Then it can be pernicious,²⁰ such as

Box 6.1 Public reasoning and deliberation for human development

Human development emphasizes people's values, beliefs and aspirations when determining the actions societies might take in shaping our shared future.¹ It also calls attention to processes of social choice and deliberation and to the crucial importance of public reasoning for advancing just outcomes. People's ability to engage in any process of collective action depends both on their individual agency and on the availability of practical avenues to influence policies and decisions.

Agency is in turn enhanced by broader processes of public deliberation, which enable people to gather information, exchange ideas, consider diverse perspectives and resolve disagreements. Public reasoning processes draw on the wide range of values and motivations. For example, people might have differing motives for supporting green policies—from improving conditions in their own neighbourhoods to wanting a better world for future generations. Drawing on different positions might help expand common ground and widen social support for green policies.² In addition to upholding a plurality of views and beliefs, public reasoning can ensure that collective decisions are seen as fair, by engaging a wide range of interests and being seen as justifiable in the eyes of others, including those who have differing views. It also allows for continually refining policies in the light of changing values, new information and societal evolution, thus ensuring that concerns of justice remain relevant.

The efficacy of procedures of social choice is thus greatly enhanced by social contexts that foster public reasoning, with an emphasis on agency and participation. Many of these characteristics of social choice procedures are in line with democratic norms and practices, such as pluralism and accountability. Trust plays a role here as well. In addition to facilitating the most basic activities in social life, generalized trust contributes to aspects of democratic political practice, such as tolerating differences. Generalized trust also contributes to the development of overlapping social networks and the forms of association where people can come together, participate in their communities and engage in civic life.³ By contrast, trust only in those from one's own social group and known others signals a lower radius of trust, with a potentially diminished scope for cooperating with unknown others.⁴

For collective action, procedures of social choice allow people to be motivated by more than their own selfish interests (as discussed in chapter 4). Indeed, one of the biggest challenges to collective action among diverse groups is overcoming people's partiality towards their own groups and any vested interests connected to those groups. The need to overcome this parochialism further underscores public reasoning processes. Subjecting viewpoints to the eyes of others beyond one's own group can help in overcoming potential blind spots and biases when decisions are justified only by the priorities of one's own group. This includes subjecting beliefs and reasoning to an impartial spectator, someone whose interests are not directly advanced by what happens to a particular group.⁵ Consider how unjust positions—such as religious intolerance or gender-based discrimination—can go unchallenged if not subjected to critical scrutiny. Engaging in public reasoning—justifying positions in the eyes of an impartial spectator—can help limit the influence of such parochialism and curbs the possibility of vested interests of some groups dominating the procedures of social choice.

To sum up, procedures of social choice that allow for a diversity of perspectives, draw on agency and mitigate the influence of group biases can enhance collective action in many ways. They expand the possibilities for acting together, by drawing on a larger consensus than within-group agreement alone. They also open possibilities to draw on a wide range of values and actions beyond what the exclusively self-interested model of human behaviour suggests.

Notes

1. The description and value of public reasoning deliberation is based on Sen (2009b). 2. Echoing the arguments made in Oreskes (2019). 3. Uslaner 1999. 4. Enke 2023b. 5. This is an expression that Sen (2009b) borrows from Adam Smith. In contrast with Rawls (1993), Sen (2009b) argues that the possibility of having impartial spectators outside each country could break through parochialism.

undermining support for democratic norms and practices.²¹ Social identity can also erode social preferences.²² By tapping into the anger and biases that come from strong partisan identities, it fosters animosity between groups, even if their positions on issues are not that divergent.²³ Strategic identity signalling can lead to behaviours motivated by belonging to the group

rather than by self-interest.²⁴ It intensifies social divides and heightens divisiveness in political and public life.²⁵ In the political sphere it can lead to the emergence of seemingly immovable and mutually distrusting political blocs, transforming political differences into divisive zero-sum battles of us versus them, with all the negative consequences described in chapter 4.

Affective polarization is widespread and increasing around the world.²⁶ It is affecting national and international politics that will shape how shared global challenges will be addressed in the decades to come.²⁷ Because polarization often translates into intolerance and an aversion to compromise and negotiation, it can lead to political gridlock and dysfunction. It does so in part by eroding trust across communities, impeding efforts to address major shared challenges, such as health crises, violent conflict and climate change. Since many of these issues engender opposing beliefs and intense political competition, polarization poses a major societal obstacle to addressing shared problems.²⁸

Political polarization imperils cooperation

Having diversity in preferences and considering a diverse range of perspectives and priorities can enrich collective decisionmaking and action—it is the clustering and segregation of preferences into opposing groups that can harm collective action.²⁹ Indeed, political institutions have been designed to harness diversity, and even rivalry, to democratically serve the public interest. For instance, the arguments invoked by James Madison in designing the US constitution did not assume away competing interests. They sought, through fragmented and overlapping institutions of authority, to harness that diversity to build safeguards and adaptability to an ever-changing environment. If political polarization threatens that diversity, the very effectiveness of those institutional designs can be impaired.³⁰

“Having diversity in preferences and considering a diverse range of perspectives and priorities can enrich collective decisionmaking and action—it is the clustering and segregation of preferences into opposing groups that can harm collective action

Political polarization goes beyond differences in views between various social groups. It collapses people’s beliefs and preferences into differences defined by a single, salient group identity, coupled with animosity towards those with different viewpoints and priorities. It can have dramatic social and political consequences within societies (spotlight 6.1). This section explores how polarization impedes prospects for intergroup cooperation.

Beliefs tied to single or narrow identities

In many countries polarization parallels political campaigns that heighten the salience of narrow and exclusionary group identities.³¹ Partisanship is often a key dividing line for polarization: it is fairly stable, and it is regularly incited through frequent political campaigning.³² But other social identities can become politically salient as well, such as race, nationality, ethnicity and religion. In many parts of the world, polarization occurs around rifts that are framed as identity conflicts, leading to longstanding political cleavages.³³ Polarization often ensues when such identities are made politically salient, as other cross-cutting ties between groups diminish.³⁴

Polarization can also emerge between groups holding competing political beliefs, opinions and worldviews, where holding a certain opinion is the basis of social identity.³⁵ The Brexit referendum gave rise to new social identities—Leaver and Remainer—which formed the basis of heightened affective polarization between those two groups.³⁶ In the United States and elsewhere, people’s self-identification with their vaccination status during the Covid-19 pandemic was evident in the animosity between vaccinated and unvaccinated groups and the polarized social responses to mandatory vaccination policies.³⁷

Polarizing rhetoric has been described as a strategy of identifying someone over something to blame for group-based concerns and insecurities.³⁸ Economic, political or cultural anxieties create conditions for polarization. Declining economic opportunity and increasing inequality (whether real or perceived) can foster political polarization, leading people towards closer integration with their ingroups.³⁹ And cultural aspects can become more salient as wellbeing improves.⁴⁰ Furthermore, affective polarization has the potential to increase economic inequalities.⁴¹ Insecurities can make people more receptive to polarizing messages—such as narratives that draw on a dominant group’s perceived loss of status or contentious debates framed as moral issues where people are likely to resist compromise (as seen in debates on gender).⁴² The 2021/2022 Human Development Report showed that polarization and insecurity are closely linked: people who feel insecure are more likely to hold extreme political preferences and less likely to trust others.⁴³

So, what matters is not the presence of group differences or disagreements—it is that all differences are collapsed into questions of a narrow or single identity. Polarization ensues when people’s beliefs, attitudes and worldviews are closely tied to the groups they identify with, coupled with strong ingroup bias and loyalty, alongside antipathy and prejudice towards other groups. As discussed below, it diminishes the possibilities for acting together and lends itself to narratives rejecting pluralism.

Us versus them—the toxic brew of zero-sum thinking

Polarization is associated with people perceiving their differences as zero-sum, making them less likely to seek joint actions and identify shared goals. Zero-sum beliefs (see chapter 4) make people in polarized societies less likely to trust or associate with individuals from an opposing political or ideological camp⁴⁴ and more likely to seek social and moral distance from their perceived outgroups and describe their political opponents in dehumanizing or derogatory terms.⁴⁵

“Polarization shaped by zero-sum beliefs can alter the functioning of political institutions, leading to gridlock and dysfunction

By reducing wide-ranging political issues to questions of us versus them, where a group can gain only at the expense of the others losing, polarization can foster resistance to actions viewed as reflecting the values and priorities of outgroups. Because polarization delegitimizes unifying or middle-ground narratives, groups seeking common ground and collaboration in a context shaped by zero-sum beliefs can lose credibility and public support. This can diminish confidence in other social institutions, such as the media and civil society organizations, which come to be seen as biased and untrustworthy (spotlight 6.1).

Polarization shaped by zero-sum beliefs can also alter the functioning of political institutions, leading to gridlock and dysfunction. And because it is often deployed as a political strategy, it can create conditions for a vicious cycle: polarizing rhetoric and mobilization by one party leads opposing groups to also

adopt polarizing messages.⁴⁶ When people view their political opponents not just as people with differing opinions but as enemies that gain at their expense, they tend to adopt a conflict mindset, viewing their own goals as attainable only by excluding outgroup members—and becoming more invested in addressing this perceived threat than in reconciling or cooperating with their opponents.⁴⁷ Opposing groups then lean towards more extreme beliefs and preferences, culminating in greater tolerance for behaviour that flaunts democratic norms and practices.⁴⁸ So, perceptions of political contests as zero-sum battles can lead polarized groups to become more willing to accept extraordinary measures.

Thus, polarization coupled with zero-sum beliefs has contributed to the recent support for populism and to threats to democratic norms and practices,⁴⁹ sometimes increasing support for authoritarianism.⁵⁰ Indeed, increasing support for authoritarianism is also correlated with increases in polarization,⁵¹ breeding cynicism about compromise and tolerance, which are especially important for democratic processes.⁵² Compromise becomes a betrayal of principles rather than a necessary part of the democratic process.

Threats to international cooperation

The rise in political polarization and zero-sum beliefs makes international cooperation more politicized and contested in domestic politics, enflaming beliefs and narratives about international institutions.⁵³ Partisanship and group affiliation often determine people’s preferences on whether leaders should engage in international cooperation and how.⁵⁴ Thus, polarization can also contribute to policy instability, where shifts in political power are accompanied by dramatic policy changes, including on matters of international cooperation and engagement, with direct bearing on the prospects for the provision of global public goods.

Political polarization’s impact on international cooperation is manifested, in part, through reduced support for official development assistance in more polarized high-income countries.⁵⁵ It is also manifested in reduced domestic support for global public goods, such as mitigating climate change.⁵⁶ Scepticism about international cooperation is not new.⁵⁷

But there is a growing recognition that lack of domestic support for international cooperation has paralleled the increase in political polarization.⁵⁸ Between 1970 and 2019 there were 84 referendums concerning international cooperation (such as membership in international organisations), with an increase in recent decades.⁵⁹ There have been campaigns for withdrawing from international institutions in several countries.⁶⁰ The European Union, the World Trade Organization and international justice institutions have been described as facing legitimacy challenges.⁶¹

Taking into account the influence of beliefs, narratives and cultural factors on international cooperation helps in understanding today's heightened relationship between political polarization and support (or lack thereof) for international cooperation. People often hold strong beliefs and views about international issues, contrary to assumptions that people are uninformed or uninterested. People's beliefs about and preferences for foreign policy draw much from their moral values, worldviews and ideological orientations.⁶² The way people conceptualize fairness influences their evaluation of burden sharing in international cooperation: those concerned with equity are less likely to support contributions to cooperative initiatives when other countries are perceived as not paying their fair share.⁶³ In Germany people's perceptions of transnational interdependence strengthen corresponding beliefs about the importance of international institutions for solving problems.⁶⁴

Euro-scepticism often draws on economic and cultural anxieties in shaping political polarization.⁶⁵ People who are hopeful about their societies view the European Union more positively than those who are fearful, with the latter less satisfied with the direction of policy and the quality of democracy in EU decisionmaking.⁶⁶ International cooperation has become more politically contentious in countries where political polarization around economic inequality and immigration has gained prominence in public debate.⁶⁷ The package of openness that international institutions are associated with—the combination of economic integration with exposure to foreign cultural influences and ideas—can contribute to perceptions of insecurity and become a fault line in political polarization.⁶⁸ Additional explanations run through perceptions, attitudes and beliefs

and include popular support for leaders espousing nationalism, protectionist policies and opposition to outside influences, complementing economic explanations for backlash against international engagement (chapter 2).⁶⁹

“With rising polarization, international cooperation can be undermined by political campaigns against international institutions

With rising polarization, international cooperation can be undermined by political campaigns against international institutions. Participation in international institutions can become polarizing. Polarization can make the domestic political dynamics of international participation (domestic ratification processes) uncertain and disincentivize the executive branch of governments from entering agreements. Other nations may view a polarized country as less reliable and predictable in its foreign policy decisions, reducing trust in its commitments and alliances. One country's effort to contest international commitments and alliances can prompt others to do the same, contributing to a contagion effect.⁷⁰ And if such efforts are not seen to be reflected, for example, in international institutions that support those commitments and alliances, that can intensify contestation on the basis that the international institution in question has proven unwilling to accommodate demands.⁷¹ This contagion is not a given, but the possibilities for contagion are shaped strongly by the extent to which people's existing beliefs are polarized.⁷²

Since many global public goods are a matter of choice and agency, people's beliefs, shaped by narratives and ideas, are central for driving action on shared challenges. Political polarization diminishes the space for such action, given its association with zero-sum thinking, making it harder for people to recognize that there are options where all sides can gain. It steers decisionmaking away from collective action, leading instead to contentious battles between opposing political camps. It erodes the possibilities for addressing shared challenges between groups, instead fuelling mutual distrust and suspicion. Perceptions of insecurity exacerbate these dynamics, in part by making people more receptive to narratives of intergroup competition and constraining the possibilities for acting together (chapter 4).

Enhancing international collective action—now

Prospects for cooperation might seem uncertain given that domestic political polarization is compounded by geopolitical upheaval (spotlight 6.2). But international institutions, including the United Nations, have historically been both constrained and enabled in periods of geopolitical change (spotlight 6.3).⁷³ So, there is even more reason to pursue collective action, including through multilateral organizations.

International collective action can be enhanced along four avenues.

- Drawing on a broader understanding of behaviour, as discussed in chapter 4, may give more reason to see additional options going forward, since frames or narratives can shape the cultural and social context for behaviour and institutions. The provision of global public goods can put forward frames beyond zero-sum thinking.
- Expanding international financing for international cooperation beyond official development assistance to include financing for domestic contributions to global public goods.⁷⁴ This may imply new instruments and approaches,⁷⁵ but key considerations are the extent of domestic support to channel resources internationally and whether arguments to finance global public goods crowd out the motive to provide official development assistance. That crowding out appears unlikely.
- Leveraging the high correlation between trust in one another with trust in both national and multilateral institutions.
- Directly addressing political polarization.

Framing alternatives to zero-sum thinking

Zero-sum beliefs lead to predictable psychological reactions and behaviours driven by the idea that if one country gets ahead, others must be left behind, and vice-versa.⁷⁶ Narratives premised on zero-sum beliefs tend to make countries less inclined to cooperate with others⁷⁷ and are at the root of political polarization in some countries.⁷⁸

Adequately provided global public goods are not zero-sum in that a country benefiting from or using a

global public good does not detract from others doing the same. This does not mean that the benefits are equally shared. But recognizing that multiple parties can enjoy the benefits simultaneously may thus provide a framing that gives salience to the pursuit of opportunities for cooperation in arenas that are not zero-sum.⁷⁹ This is particularly the case for planetary public goods, a lens that could offer a new perspective on the inevitability of human mutuality and interdependence on a shared planet.⁸⁰

“Recognizing that multiple parties can enjoy the benefits of global public goods simultaneously may provide a framing that gives salience to the pursuit of opportunities for cooperation in arenas that are not zero-sum

In a selfish choice model of behaviour, agents seeking to advance their self-interest can act strategically, sacrificing their wellbeing to benefit others if there is reciprocity. But reciprocity is not the only mechanism that can lead to and sustain cooperation.⁸¹ As discussed in chapter 4, Elinor Ostrom famously documented the variety of institutional arrangements that structure interactions among people and between people and common pool resources in a variety of mutual engagements that foster collective action in some respects, even when differences and disagreements persist in others.

Determining the regularities of these arrangements and whether they could be scaled up to the global level has been a topic of enduring debate.⁸² But there is evidence that people can support unilateral action on some global public goods, not because they misunderstand the need for collective action but because they have a sense of commitment and obligation, particularly in countries where people perceive the need for the country to take a leadership role⁸³ and even when social norms are not supportive.⁸⁴

Financing global public goods

International flows of resources can be motivated primarily by supporting low- or middle-income countries in making progress, as in official development assistance. Financing for global public goods follows a different rationale—international flows are meant to

enhance the receiving countries' ability to contribute to the provision of global public goods.⁸⁵ Still, even if the concern is purely motivated by, say, the pledge of the 2030 Agenda for Sustainable Development to leave no one behind, the provision of global public goods still matters, given that their underprovision can drive exclusion and inequality. Just consider how the underprovision of multiple global public goods during the Covid-19 pandemic widened inequalities and increased deprivations, as documented in part I of the Report. And looking ahead, failures or delays in providing the global public goods needed to mitigate climate change will increase inequalities, as documented in chapter 1, with some of the most harmful impacts of human development falling on people and countries already deprived.

Moreover, when the incidence of benefits from the provision of global public goods is favourable to those who have the least, that provision can be progressive. So, even those motivated by supporting poorer countries would have reason to support financing global public goods in those instances.⁸⁶

“When the incidence of benefits from the provision of global public goods is favourable to those who have the least, that provision can be progressive

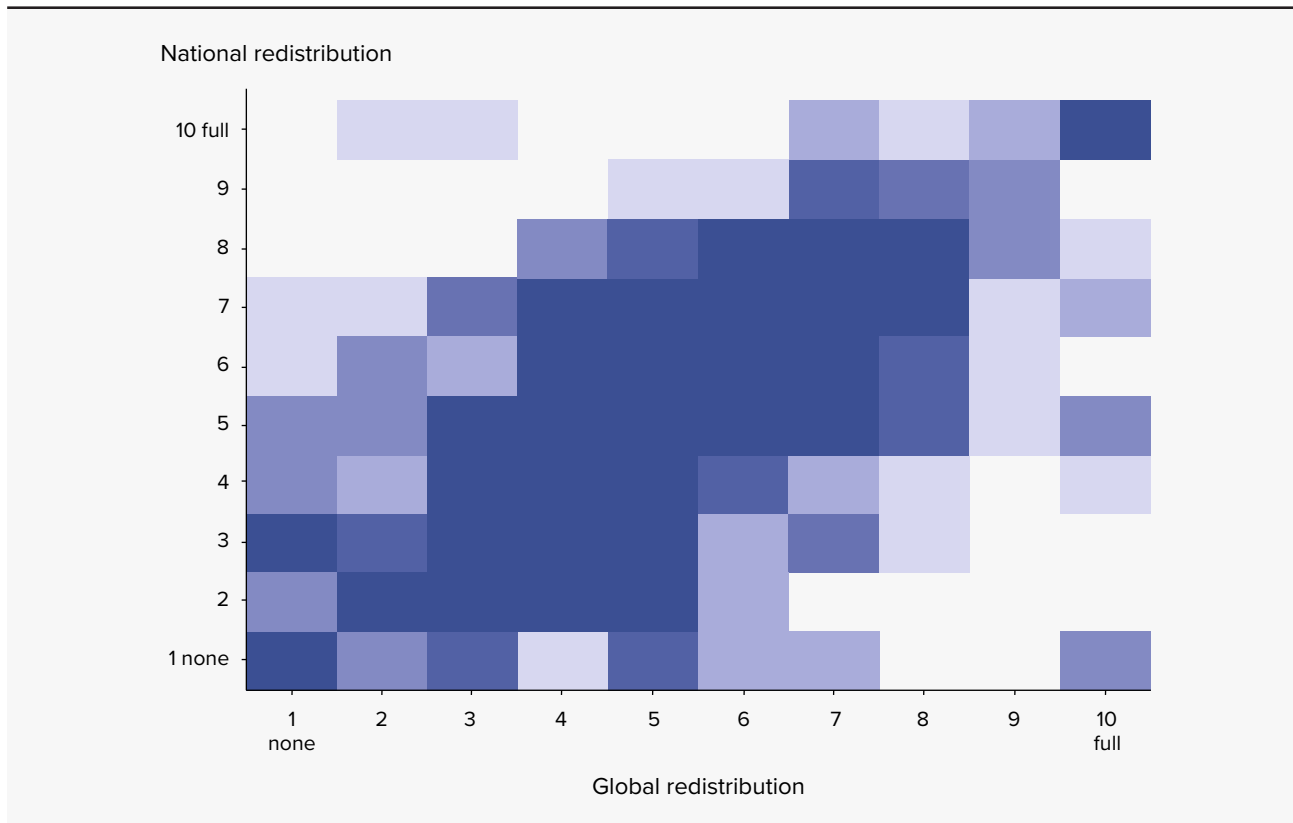
Using public resources internationally depends on support from domestic constituencies. A rationale to finance global public goods might be seen to risk alienating domestic constituencies that support international flows and development cooperation motivated by the support to reduce poverty and make low-income countries progress. Those reasons sustain support for humanitarian aid (saving lives) and income transfers to low-income countries and people living in fragile settings. To address this concern, it is important to establish, first, whether people who support income redistribution at the national level also support it internationally. Chapter 4 documented that preferences for redistribution vary within countries and are influenced by social preferences and by beliefs about whether inequalities are unfair—both of which are heterogenous across and within countries. In Germany, despite a high correlation between support for national and international redistribution (figure 6.1), the share of respondents who prefer the

same redistribution in the national and global contexts was 42 percent. Others want extensive national and very little global redistribution and vice-versa. So, even though the correlation between national and international redistribution is high, it is not perfect, and additional factors beyond blanket support for redistribution must be at play.

While individual support for international flows of resources is a new area of study, the main determinants of that support (whatever the rationale for the flows) seem to be people's beliefs about the geographic and moral boundaries of concern.⁸⁷ Do people believe they hold moral obligations towards others anywhere in the world (a more universalist belief) or only to those who are closer or similar, including those living in the same country (a more parochial belief)? The variation in these beliefs is widespread both within and across countries, but it is possible to place individuals along a spectrum from lower to higher levels of universal beliefs. Evidence from 60 countries with 85 percent of the world's population and 90 percent of global GDP reveals a strong correlation between more universal beliefs and support for the global poor versus helping the local poor and for protecting the global environment versus protecting the local environment (figure 6.2). These results hold after country effects, income, education, age, gender, urban residence and religiosity are controlled for, consistent with evidence that within-country variation in support to political outcomes is more strongly associated with beliefs along the parochial-universal spectrum than with variables such as education and income.⁸⁸

So, people who hold more parochial beliefs are not opposed to redistribution as such, since they support it when asked about local or community-based redistribution.⁸⁹ National redistribution in high-income countries in North America and Europe is highly impersonal,⁹⁰ typically not geared to support particular groups or communities. Thus, the correlation between national and global redistribution in countries such as Germany might be driven by a group of people sharing more universal beliefs. Given the insights about cultural differences in preferences and beliefs reviewed in chapter 4, one cannot assume that universalist beliefs in shaping attitudes towards global redistribution are universal. Indeed, the coefficients of regressions of political attitudes

Figure 6.1 Support for national redistribution is correlated with support for global redistribution in Germany, but some people want extensive national and very little global redistribution and vice-versa



Note: The correlation coefficient is 0.70 ($p < 0.0001$). Darker colors represent more responses in this area.
Source: Fehr, Mollerstrom and Perez-Truglia 2022.

on universalism (with country effects controlled for) are positive for all high-income countries but lower for rich non-WEIRD countries (western, educated, industrialized, rich and democratic)—and even lower for low- and middle-income countries (figure 6.3).

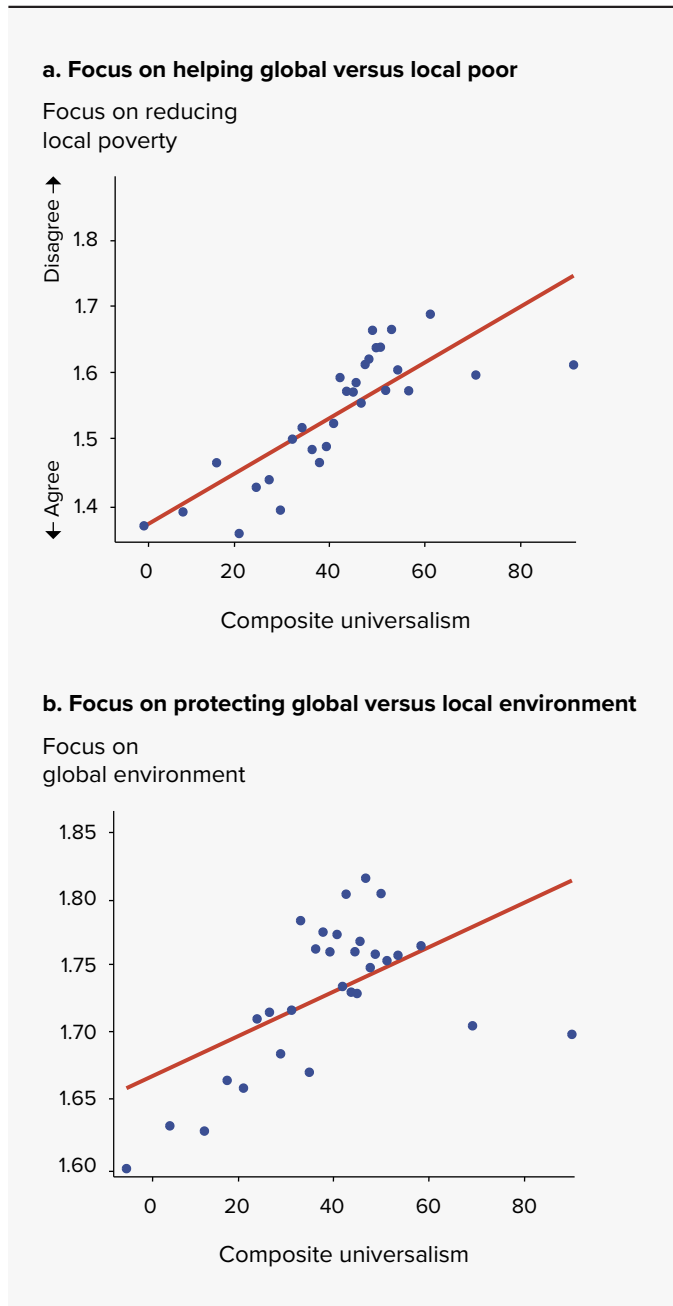
There is thus little reason to believe that presenting a rationale for international flows from high-income countries to finance global public goods would dilute a commitment to international flows based on motives linked to reducing poverty or saving lives, given that the underlying motive for domestic public support for international flows is associated with less parochial beliefs. Moreover, enhancing the provision of many global public goods is key to reducing global inequalities as well as vulnerability to poverty and other deprivations. In addition, some evidence suggests that people in low- and middle-income countries do not always favour international aid as a means of reducing intercountry inequality,⁹¹ with recipients more interested in framings that address

justice and enhance dignity and agency⁹² than in charity-based rationales that recipients may perceive as stigmatizing.⁹³

Advancing equity is also associated with higher domestic support for international agreements perceived as fair, along with low domestic costs of implementation and, crucially, whether other countries also participate.⁹⁴ In high-income countries domestic support to finance global public goods depends in part on the level of ambition in other countries.⁹⁵ This observation is in line with domestic constituencies and political leaders caring about how their countries are portrayed in the international context,⁹⁶ as in global performance indicators.⁹⁷ Still, the impact is not uniform across the population, with some groups more likely than others to have their views shaped by these factors,⁹⁸ making political polarization particularly relevant.

In sum, countries may (and do) find it hard to agree on providing global public goods. But advancing arguments for financing them does not necessarily

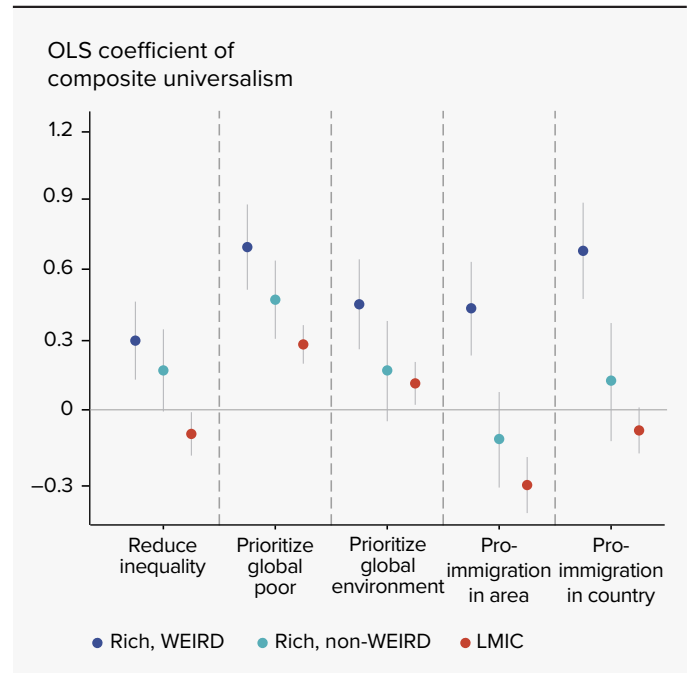
Figure 6.2 More universalist beliefs are correlated with concerns both for the global poor and for the global environment



Note: The scatter plots average agreement with a policy priority for a given level of universalist beliefs, with country fixed effects controlled for. Policy priorities on the vertical axes are coded as 1–4, with 1 corresponding to “strongly disagree” and 4 to “strongly agree.” The index of composite universalism is constructed based on how respondents allocated hypothetical money between a specific ingroup member and a random stranger. The decision is disinterested in that respondents were told that they could not keep any of the money for themselves. Robust evidence suggests that results are similar for hypothetical and real allocations of resources and that it makes little difference when the question is asked invoking a moral concern or avoiding any reference to moral obligations. The positive correlations are statistically significant ($p < 0.01$).

Source: Cappelen, Enke and Tungodden 2022.

Figure 6.3 Universalist beliefs are associated with global redistribution and global environment in high-income countries, but the cultural context matters



OLS is ordinary least squares.

Note: The vertical axis shows the coefficients of ordinary least squares regressions of agreement with policy priorities on composite universalism, as defined in the note to figure 6.2. Each coefficient can be interpreted as the change in agreement with a policy priority (on a scale of 1–4) in response to moving the index of composite universalism from 0 to 100. Whiskers show 95 percent confidence intervals. WEIRD (western, educated, industrialized, rich and democratic) countries comprise Australia, Canada, France, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Spain, Switzerland, the United Kingdom and the United States. Rich, non-WEIRD countries are Chile, Czechia, Croatia, Hungary, Israel, Japan, the Republic of Korea and Poland. LMIC corresponds to a subset of low- and middle-income countries included in the analysis.

Source: Cappelen, Enke and Tungodden 2022.

imply less support for international flows from high-income countries. Financing global public goods is likely to result in the need to substantially increase international flows and potential domestic resource mobilization in high-income countries. But it is likely to enhance global equity through two channels. One, by mitigating the drivers of inequality associated with the underprovision of global public goods. And two, by generating ancillary national benefits, such as less local pollution or poverty through job creation (typically one of the explicit intents of official development assistance). Multilateral institutions might need to more clearly articulate their potential role in channelling these resources, building—but also expanding—on their track record of pooling and allocating international financial resources to meet

country needs. This is well established in the humanitarian realm, for instance, with strong evidence suggesting that when the United Nations allocates humanitarian assistance, it does so on the basis of actual needs and is not driven by other considerations.⁹⁹ The expansion would need to include supporting low- and middle-income countries to contribute to global public goods.

Building trust in international institutions through trust in national institutions

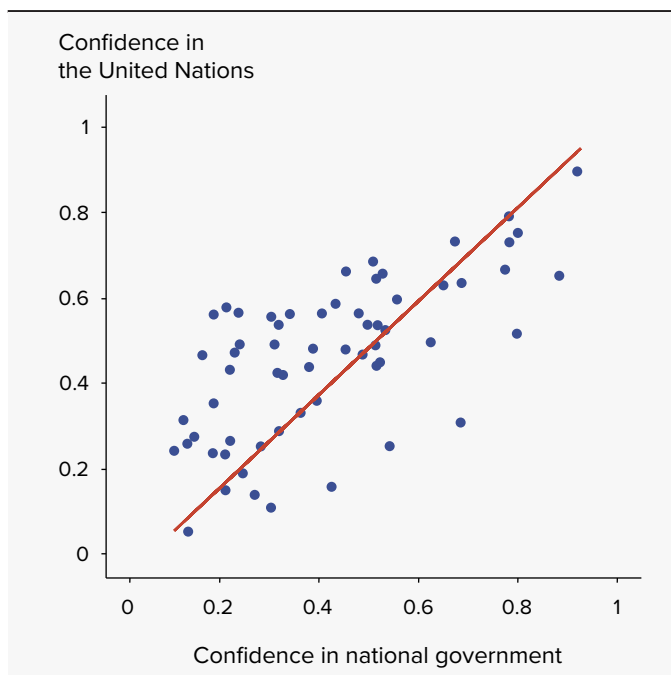
Generalized trust reflects people’s beliefs in the inherent integrity of others and contributes to cooperative action at scale.¹⁰⁰ It is linked to a range of socially beneficial outcomes, and its importance for economic performance is widely documented.¹⁰¹ It is also linked to such outcomes as greater political stability and faster recovery from economic crises.¹⁰² It is especially relevant for cooperating with those one knows little about—or in uncertain situations.¹⁰³ For international cooperation, trust facilitates collective action. Indeed, international cooperation would be nearly impossible without a basic belief that countries will respect their commitments, which also enhances multilateral institutions’ ability to function.¹⁰⁴

While trust in institutions is difficult to specify with precision,¹⁰⁵ positive evaluations of institutions (particularly state institutions) have been associated with support for climate action¹⁰⁶ and are linked with generalized trust.¹⁰⁷ For example, the belief that state institutions are effective punishers of free riders enhances generalized trust.¹⁰⁸ Confidence in national and international institutions is more than 10 percentage points higher among people with generalized

trust (table 6.1). This is consistent with evidence that more-trusting individuals also view international institutions more positively and show greater support for compromising with other countries.¹⁰⁹

Although “confidence in institutions” has varying interpretations and depends on multiple factors, confidence in the national government explains two-thirds of the variance in national averages of confidence in the United Nations (figure 6.4). Assessments

Figure 6.4 Confidence in national institutions is correlated with confidence in multilateral institutions, key for international collective action



Note: Confidence in institutions (the national government and the United Nations) implies reporting “a great deal” or “quite a lot” of confidence (other options: “not very much” or “none at all”).
Source: Human Development Report Office based on data from the World Values Survey (Inglehart and others 2022).

Table 6.1 Confidence in national and international institutions is higher among people who trust others

		People who do not trust others (generalized trust)			People who trust others (generalized trust)		
		Confidence in national government		Total	Confidence in national government		Total
		No	Yes		No	Yes	
Confidence in the United Nations	No	41.0	14.9	55.9	28.2	16.6	44.8
	Yes	17.6	26.5	44.1	17.9	37.3	55.2
Total		58.6	41.4	100.0	46.0	54.0	100.0

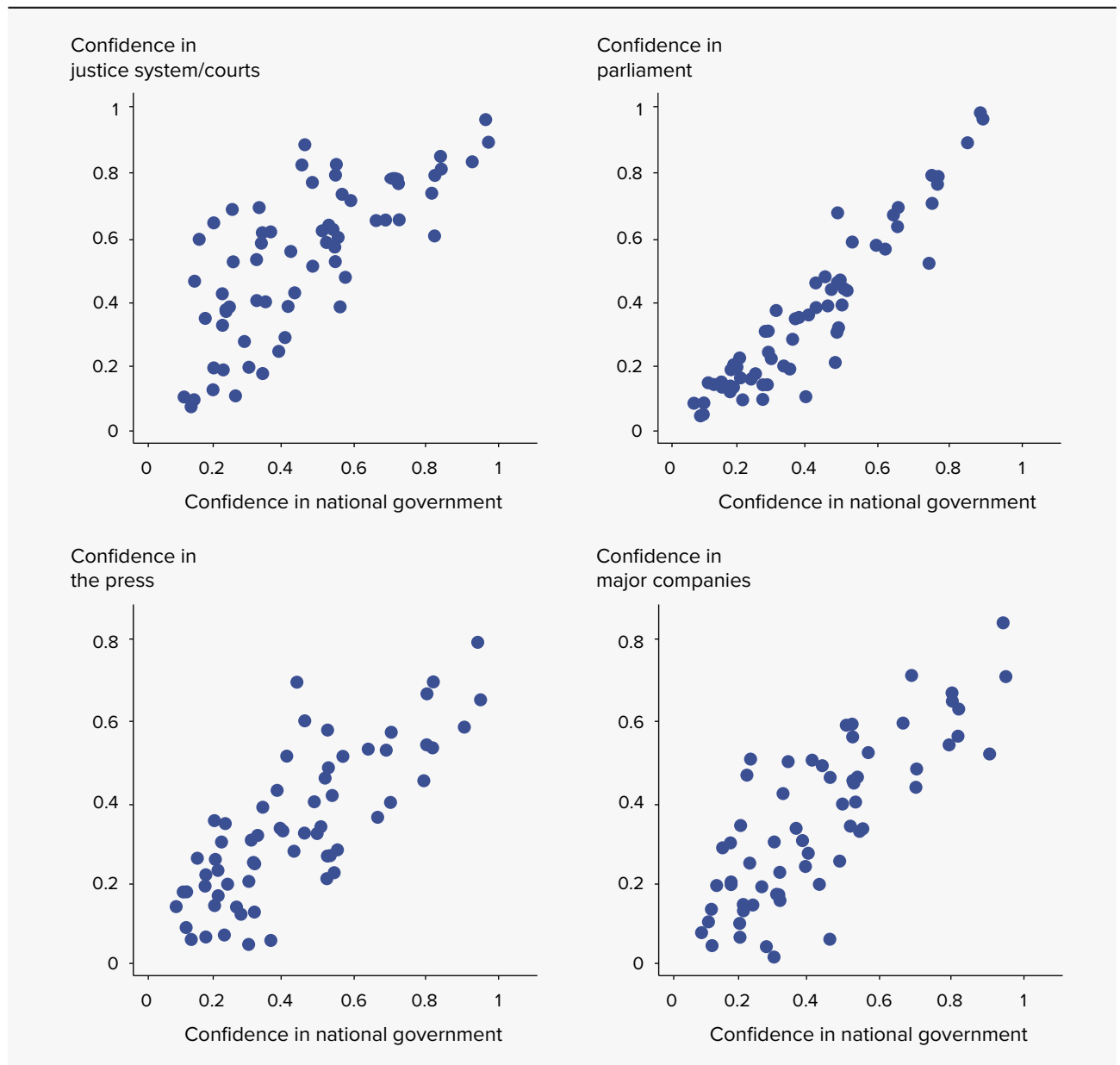
Note: Generalized trust implies reporting that “most people can be trusted” (other option: “need to be very careful”). Confidence in institutions (the national government and the United Nations) implies reporting “a great deal” or “quite a lot” of confidence (other options: “not very much” or “none at all”).
Source: Human Development Report Office based on data from the World Values Survey, using individual observations across countries with data.

of confidence in other institutions relevant for collective action are also highly correlated with confidence in the national government (figure 6.5).

The link between trust in national and international institutions implies that perceptions of the legitimacy of national institutions predict the perceived legitimacy of international institutions.¹¹⁰ There is also evidence that communication by national institutions (governments or civil society organizations) on the performance of international organizations

has more impact on the perceived legitimacy of international institutions than direct communication by international organizations themselves.¹¹¹ To the extent that political polarization both undermines confidence in institutions (national and international) and is associated with perceptions of insecurity that also undermine interpersonal trust, addressing it could be a lever to enhance trust in both national and international institutions, as well as interpersonal trust.

Figure 6.5 Confidence in several institutions is highly correlated with confidence in the national government



Note: Confidence in institutions (national government, justice system/courts, parliament, the press, major companies) implies reporting “a great deal” or “quite a lot” of confidence (other options: “not very much” or “none at all”).

Source: Human Development Report Office based on data from the World Values Survey (Inglehart and others 2022).

Polarization intensifies ingroup trust while eroding outgroup trust. While high ingroup trust is not inherently a problem, its combination with an erosion in generalized trust can impair cooperation between groups. Polarization and declines in generalized trust can be mutually reinforcing.¹¹² Thus, tackling polarization could enhance intergroup cooperation.¹¹³

Tackling polarization directly

This chapter has argued that polarization hinders collective action across social groups and that there are ways to address it indirectly, as discussed up to now. But there are also ways to tackle it directly, three of which are explored here—by acting on people’s misperceptions about issues and about the groups that they do not affiliate with, by enhancing cross-cutting social ties that transcend group divisions and by addressing perceptions of insecurity.

Addressing misperceptions about issues and about other groups

At the individual level the belief that climate change is human-caused is widespread.¹¹⁴ But individual beliefs alone do not determine collective action—what people believe others think about climate change also matters.¹¹⁵ For example, while 69 percent of people around the world report being willing to sacrifice some of their income to contribute to climate change mitigation, only 43 percent perceive others believing the same (a 26 percentage point misperception gap).¹¹⁶ A recent survey in the United States found that 80–90 percent of respondents understand the challenge of climate change. And while 66–80 percent of all respondents support action to mitigate climate change, respondents estimated that the prevalence of that support in the rest of the population was only 37–43 percent.¹¹⁷ Around the world many people experience a “false social reality by underestimating popular climate policy support.”¹¹⁸ In other words people agree on more than they think they do. These misperceptions are pervasive and extend to other concerns that require collective action.¹¹⁹ Misperceiving others’ beliefs can lead to the persistence of pluralistic ignorance,¹²⁰ which sustains policies or political arrangements that are inconsistent

with prevailing individual beliefs.¹²¹ In contrast, motivating societywide responses to collective action challenges can be enhanced if these misperceptions are addressed.¹²²

Misperceptions imply biased beliefs about what others think about actual events and facts and can be polarizing when people hold misperceptions about what outgroups think of them (spotlight 6.4).¹²³ They can also emerge not only within societies but also across countries and can lead to misunderstandings and even conflict.¹²⁴ Such misperceptions can drive people to hold more extreme beliefs than they would otherwise—people evaluate others’ positions when forming their own opinions and are therefore led to adopt more extreme positions.¹²⁵

Misperceptions in the general population affect the positions of political leaders, who often vastly overestimate the animosity among different groups, leading to further misperceptions and related polarization, as well as the erosion of democratic norms.¹²⁶ People often hold (incorrect) beliefs about others that reinforce their own beliefs.¹²⁷ Misperceptions can be further compounded because people tend to interact more often with those who share their own views and consume information that confirms their biases about others.¹²⁸ Polarized societies also tend to be vulnerable to misinformation, given that affectively biased people are more likely to engage in forms of motivated reasoning,¹²⁹ with misinformation, even on otherwise neutral issues, potentially further entrenching misperceptions. The media environment (including social media) and leaders’ messaging often play central roles in the emergence and persistence of misperceptions.¹³⁰

“People agree on more than they think they do. Misperceiving others’ beliefs can lead to the persistence of pluralistic ignorance, which sustains policies or political arrangements that are inconsistent with prevailing individual beliefs

Misperceptions can shape public support across a range of issues. This includes support for income redistribution, which is sensitive to misperceptions about the extent of income inequality in society, about beliefs of the fairness of the origin of inequality and beliefs about where a person sits on the income distribution.¹³¹ It also includes misperceptions

about immigration—in several high-income countries the share of immigrants in the population is perceived to be two to three times higher than the actual share—with the misperception gap hovering around 20 percentage points, independent of education, income, gender, political affiliation and other factors (figure 6.6).¹³²

The focus in this chapter is how incorrect beliefs about others can exaggerate perceived differences between groups and hamper action on shared challenges.¹³³ Misperceptions of what different groups within countries deem fair and appropriate, as with countries, can lead to misunderstandings and even conflict.¹³⁴ While the underlying cognitive and social processes that lead to misperceptions are common across the population, misperceiving others’ beliefs can lead to alienation and hostility across groups—and even to dehumanization.¹³⁵ Misperceptions about polarization can operate as a self-fulfilling prophecy, deepening and entrenching polarization.¹³⁶ They obscure the true distributions of beliefs about political issues, which can result in gaps between people’s preferences and the actual terms of policy debates.¹³⁷

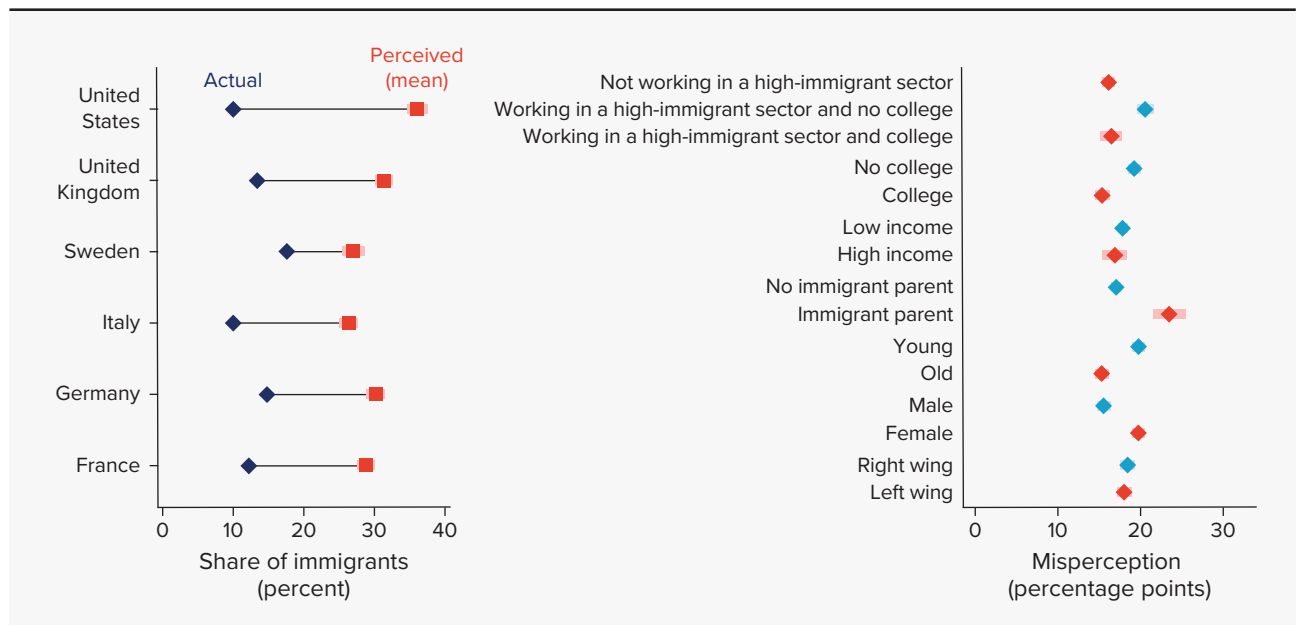
Correcting people’s misperceptions about others can have a positive impact on intergroup cooperation (spotlight 6.4).¹³⁸ People update their political views when they have information about their political

opponents.¹³⁹ Providing accurate information about the proportion of immigrants living in a country also changes people’s beliefs.¹⁴⁰ Exposing people to the true distribution of others’ support for “pro-climate” policies increases support for those policies.¹⁴¹ Correcting people’s perceptions about polarization can stem polarization, leading polarized groups to moderate their opinions of their political opponents.¹⁴²

Less clear is whether these information-based interventions can lead to long-lasting behavioural change. If the links between group identities and misperceptions persist, information-based interventions might not be long-lasting—particularly if group leaders and segments of the media continue to feed narratives that foster misperceptions.¹⁴³ The beliefs and convictions among people in highly polarized societies are cognitively and affectively loaded, which can make them resistant to change.¹⁴⁴ Indeed, polarization often contributes to cognitive rigidity (a reluctance to update beliefs in light of new information).¹⁴⁵

In a highly complex information environment, people are commonly exposed to competing information, and ingroup biases can lead people to discredit or distrust information that conflicts with their existing beliefs.¹⁴⁶ So, efforts that address the cognitive and affective bases of misperceptions can help. Interventions that facilitate more deliberative processing

Figure 6.6 The misperception of the share of immigrants in the population is high and widely shared across society



Source: Stantcheva, Alesina and Miano 2019.

of information can work against people's tendency to arrive at oversimplified beliefs.¹⁴⁷ For example, in contexts of intergroup conflict, presenting information in a frame that induces sadness rather than provoking anger has been found to be depolarizing.¹⁴⁸ Interventions that rely on qualitative and narrative-based approaches, such as storytelling and vignettes, have been particularly effective in shifting misperceptions.¹⁴⁹ Recent evidence suggests that correcting misperceptions about climate change of the sort with which this section started is an effective way of changing people's behaviour to act to mitigate climate change (but not necessarily changing beliefs).¹⁵⁰

Creating space to bridge divides

Emphasizing overlapping identities can be a powerful antidote to intergroup hostility.¹⁵¹ Polarization often leads people to underestimate their commonalities with others. Recognizing that people hold multifaceted identities can mitigate against categorizing others as less deserving of concern, humanizing those otherwise perceived as adversaries.¹⁵² A sense of shared identity need not be built on a superordinate category—such as national identity—which comes with the potential risk of creating other outgroups. Rather than depend on a single overarching similarity, emphasizing the diversity in people's identities allows for multiple cross-cutting ties to be built, countering the likelihood of any one cleavage dominating.¹⁵³ Identifying points of similarity allows groups to discover shared values and concerns, diminishing the otherness often associated with strong biases against outgroups and perceived political opponents.

“Identifying points of similarity allows groups to discover shared values and concerns, diminishing the otherness often associated with strong biases against outgroups and perceived political opponents

A complementary approach for bridging differences emphasizes encouraging intergroup contact.¹⁵⁴ This is often the basis of proposals for more deliberative decisionmaking structures, such as citizen assemblies, which bring representative groups together to collectively debate issues (see also chapter 5 on the importance of public reasoning and deliberation).

Deliberation is distinct from simple discussion of differences; it involves structured engagements that are substantive, inclusive and even-handed in considering diverse perspectives.¹⁵⁵ Deliberative structures have been found to mitigate political polarization.¹⁵⁶ Suggested mechanisms for this effect include that deliberative structures allow people to practice empathy (by taking the perspective of those they perceive to be opponents) or experience others as equals working towards a shared goal.¹⁵⁷ Deliberative processes can enhance people's understanding of the issues at hand, increase confidence in cooperative approaches and encourage respect and tolerance for those with different views.

That said, the effectiveness of deliberation in tackling polarization depends on certain conditions.¹⁵⁸ Perhaps most important is relative equality between participants—structures where some groups or interests dominate others clearly work against the equal and fair consideration of all perspectives.¹⁵⁹ Enhancing equality in this respect might rely on efforts to address inequalities beyond the interpersonal dynamics of small deliberative groups.¹⁶⁰ Deliberation is also unlikely to overcome divides if the goals of participating groups are (or are perceived to be) fundamentally incompatible. So, arriving at some shared goals that all participants can agree on can be a precondition for a deliberative process to overcome divides.¹⁶¹ This is not to say that depolarizing interventions based on deliberation depend on first achieving full equality; instead, working towards relative equality and a shared sense of purpose deserves additional attention in this strategy for tackling polarization.

Addressing perceptions of insecurity

Polarization and mistrust draw on real and perceived insecurities felt by strongly identified groups.¹⁶² Easing narratives of insecurity can help in allaying the underlying fear and anxieties that might make people more receptive to polarizing messages about other groups. Social policies that tackle insecurities are clearly important in this respect, particularly those that build solidarity between groups facing common threats.¹⁶³

An agenda of providing global public goods can expand the possibilities for navigating insecurity together, offering people and societies a greater sense

of agency and control in a turbulent world.¹⁶⁴ Such an agenda presents an opportunity for building a new narrative of possibility and hope rather than anxiety, as well as a strategy for getting there. In this way, pursuing the provision of global public goods—a goal—can also be a means towards having a beneficial impact on stemming polarization.

“Frames associated with providing global public goods could power collective action on urgent challenges, given that the evidence on the political effects of emergency frames alone in advancing action on climate and broader sustainability challenges is mixed

In fact, the use of frames to address collective action is pervasive in the current debate on global challenges, given strong evidence that they affect how people interpret reality, form beliefs and develop value orientations about their needs and aspirations.¹⁶⁵ It has been argued that shifts in frames are associated with major changes in culture, society and the economy. For example, a key cultural change associated with the Enlightenment was the conviction that science and technology could improve living standards.¹⁶⁶ Today, action to address global challenges often draws on emergency frames, supported by science but also strategically deployed to stimulate collective action, as for climate change.¹⁶⁷ Frames associated with providing global public goods could power collective action on urgent challenges, given that the evidence on the political effects of emergency frames alone in advancing action on climate and broader sustainability challenges is mixed.¹⁶⁸

Moreover, as discussed in chapter 4, cooperation can collapse if there is uncertainty about where the dangerous threshold often invoked in emergency frames lies. This feature of uncertainty has been mobilized by powerful opponents of regulation on

challenges from tobacco to fossil fuels to hinder public support for collective action.¹⁶⁹ In addition, those who strongly oppose climate action tend not only to use uncertainty as an argument but also to emphasize purported negative impacts of climate action on consumers.¹⁷⁰

However, the collapse of cooperation under uncertainty thresholds, discussed in chapter 4, can happen even without the strategic mobilization of uncertainty by opponents of climate action. If emergency frames engender fear when used exclusively, they can motivate people to retreat even more to their ingroup, particularly in contexts of uncertainty.¹⁷¹ When this happens, it can exacerbate political polarization within countries: while fear is a powerful driver of ingroup cooperation, more entrenched and polarized groups are less likely to find common ground.¹⁷² If people feel that they have little agency to affect climate change, relying on emergency frames alone can spur anxiety and distress, particularly in young people.¹⁷³

In contrast, the most common way for people to have agency in addressing climate change—how they perceive capacities to act to mitigate climate change—is through being part of a process of collective action (a sense that individual actions are meaningfully embedded in a broader social process).¹⁷⁴ People tend to support climate change action if they believe policies will be effective and fair.¹⁷⁵ Moreover, there is less polarization over concrete ways of acting (for instance, less polarization on advancing renewable energy than on how much one should be concerned about climate change).¹⁷⁶ The urgency to act on climate change and other global challenges cannot be underemphasized,¹⁷⁷ particularly because many people do respond to new information about climate challenges in updating their beliefs.¹⁷⁸ Supplementing emergency frames with an articulation of the aspiration to provide global public goods could foster international collective action and ease political polarization.¹⁷⁹

Identity, polarization and their societal and political consequences

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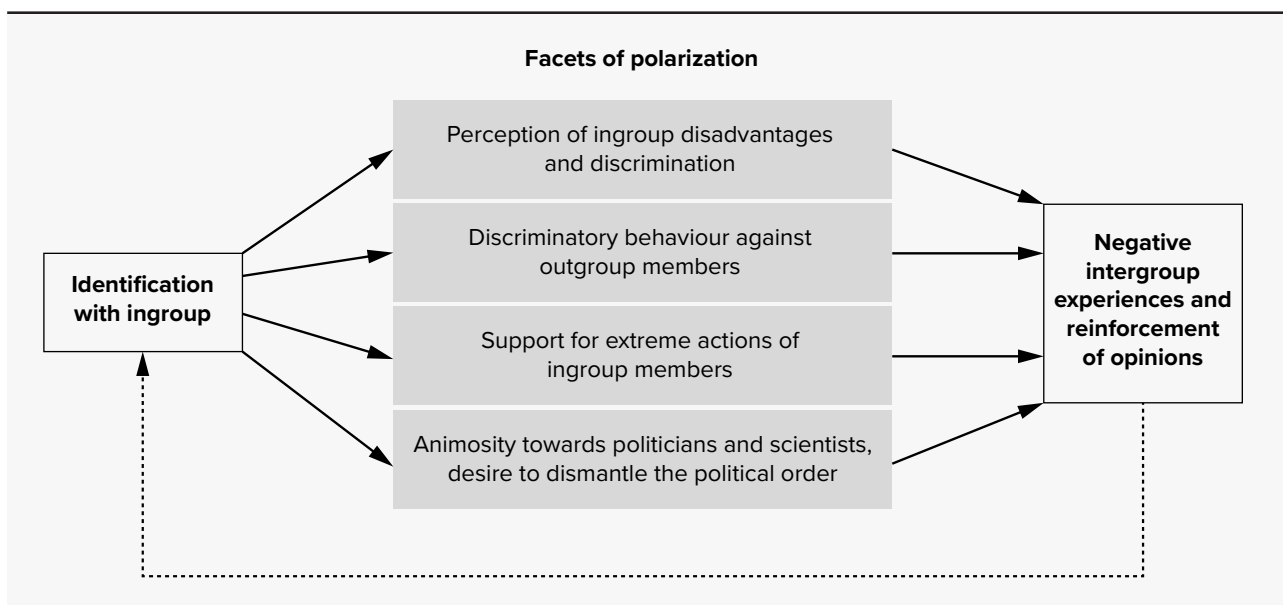
Polarization is a growing concern, affecting societies worldwide. It signifies a deepening divide between groups holding contrasting viewpoints on political matters and on approaches to addressing complex societal issues.¹ This polarization becomes evident in uncompromising stances on critical topics such as mitigating climate change,² controlling infectious disease³ and combating misinformation.⁴ To illustrate, discussions surrounding the adequacy of climate policies have intensified in recent years, with one faction advocating for more stringent measures and another insisting on less restrictive ones. These opinion-based groups are increasingly drifting apart, making reconciliation challenging. Nevertheless, as the global climate crisis and numerous other societal challenges require extensive and large-scale human cooperation transcending group boundaries,⁵ polarization itself emerges as a significant societal obstacle,

hindering our ability to address pressing issues of our time.

To effectively mitigate polarization and the danger it poses to addressing societal challenges, we must understand the nature of polarization and its consequences in the first place. Specifically, what are the facilitating and diminishing factors of polarization in response to societal challenges, and what are its consequences for attitudes towards behaviours?

A wide range of literature has shown that polarization is driven partly by people incorporating opinion-based groups into their self-concept⁶—in their beliefs about who they are and how they relate to others. We suggest that strong identification with one's group (ingroup) can pave the way for biased attitudes and discriminatory behaviours towards people with opposing viewpoints (outgroup). In addition, polarization results in strongly identified minorities who hold

Figure S6.1.1 How group identification might increase polarization



Source: Authors' creation based on Henkel and others (2023) and Sprengholz and others (2023a).

attitudes likely to undermine societal cohesion and democracy (figure S6.1.1). The rest of this spotlight reports evidence for these relations from studies on the Covid-19 pandemic and climate change.

From individual attitudes to opinion-based groups

Polarization frequently arises in discussions of topics central to individuals' identities when there is uncertainty surrounding available information. Consider climate change: both the adverse effects of climate change and the strategies to mitigate it hold major implications for people's lives. But predicting the exact consequences and outcomes is challenging given their inherently uncertain and multicausal nature. In social and information-rich environments characterized by such uncertainty, individuals tend to come together and form bonds. A key aspect of this shift from individual attitudes to social categorization is that people tend to identify with other people who share their beliefs, opinions and attributes, often leading to similar behaviours among them. This phenomenon of group formation and identification reflects how people seek common ground and solidarity when grappling with complex, uncertain issues of personal significance.

A large body of literature in psychology has shown that people's degree of group identification can be reliably measured using surveys.⁷ Building on established group identification scales,⁸ we developed a five-item survey to assess identification with opinion-based groups (for example, "I have a lot in common with people who are vaccinated" or "I have a lot in common with people who think the federal government's climate policy has gone too far"). Participants were asked to indicate their level of agreement with each item on a seven-point scale from 0, "do not agree at all," to 7, "very much agree." The items capture different dimensions of group identification.

With both Covid-19 vaccination⁹ and climate policies,¹⁰ many individuals hold high group identification (with an average level of group identification greater than 4). A December 2021 study in Germany found that 56 percent of unvaccinated participants and 67 percent of vaccinated participants reported strongly identifying with their own vaccination status. In a similar vein, a study in Germany on climate

policies found that 53 percent of people who demanded stricter climate policies and 63 percent of those who wanted policies to do less reported high group identification. About 61 percent of people who considered current climate policies about all right strongly identified with their climate policy opinion group, compared with only 35 percent of people who did not care about climate policy.

So, not only is there a considerable prevalence of individuals with strong identification across different (opposite-minded) groups, but there is also substantial variation in the degree of identification between these groups. These differences could lead to differences in perceptions, attitudes and behaviours, explored next.

Perceived and actual discrimination between opinion-based groups

Being a part of and identifying with opinion-based groups is not inherently negative; in fact, it can serve as a source of connection and support, particularly during uncertain and crisis-ridden periods.¹¹ Group formation may benefit both groups and their individual members. For example, in the context of health decisions, people who identify as active and sportive may find groups of likeminded people that help them maintain their physical activity plans.¹² But the process of social categorization, grounded in attitudes, opinions and attributes, can also have unintended consequences. It might lead to distorted perceptions and discriminatory behaviours that reinforce one's own identity by establishing a sense of superiority over others.¹³ This dual nature of group categorization and identification—support and cooperation within but discrimination and conflict between groups—underscores the importance of understanding its dynamics in response to societal challenges to mitigate potential harms.

In the Covid-19 vaccination study mentioned above, 82 percent of unvaccinated respondents perceived public discourse around vaccination as unfair, moralistic and patronizing, compared with only 23 percent of vaccinated respondents.¹⁴ Importantly, this perception was moderated by respondents' vaccination status identification. That is, higher group identification was associated with perceiving the public discourse as

slightly more positive among vaccinated respondents but with perceiving it as considerably more negative among unvaccinated respondents.

But how do such discriminatory perceptions relate to factual discrimination between opinion-based groups? To answer this question, participants had to distribute 100 euros between themselves and another person in a series of tasks. The other person was presented either as a member of the same group (same vaccination status or climate policy position—ingroup) or as a member of a different group (different vaccination status or climate policy position—outgroup). Intergroup discrimination was calculated by subtracting the amount allocated to an ingroup member in one task from the amount allocated to an outgroup member in the other task. In the vaccination study¹⁵ vaccinated respondents showed larger intergroup discrimination (an average of 18.40 euros) than unvaccinated respondents (7.37 euros). That is, vaccinated respondents gave smaller amounts to unvaccinated respondents than unvaccinated respondents gave to vaccinated respondents, while the amount given to ingroup members was similar for both groups.

In the climate policy study,¹⁶ there was also substantial intergroup discrimination, which varied according to the ingroup and outgroup. While people from the two extreme groups, who wanted either more or fewer climate protection policies, were most discriminatory toward each other, they discriminated equally against those who did not care about climate policy. Interestingly, those who found climate policies all right were more discriminated against by people who wanted less climate protection than by those who wanted more.

In both studies, discrimination against people in other-minded groups was strongly related to respondents' level of group identification. Specifically, the more that people identified with their ingroup, the stronger they discriminated against outgroups. These results provide support for our assumption that group identification undermines cooperative solutions across group boundaries.

Societal and political consequences

In the vaccination study, unvaccinated respondents were asked whether they would demonstrate or sign

a petition against mandatory vaccination in December 2021.¹⁷ This intention was used to predict whether they had attended a demonstration or signed a petition when they were surveyed again in February 2022. Respondents' behavioural intention predicted actual behaviour. Importantly, the effect was moderated by self-reported group identification, with a stronger intention-behaviour link between those who reported higher identification with the unvaccinated group. In another survey, vaccination status identification related to the perceived appropriateness of political action during the Covid-19 pandemic.¹⁸ Vaccinated and unvaccinated respondents who had low identification with their vaccination status rated the political actions taken during the pandemic as similarly appropriate. In contrast, having a higher identification with vaccination status was associated with a larger perceived appropriateness for vaccinated respondents, whereas appropriateness ratings decreased for highly identified unvaccinated respondents.

Moreover, data collected from 10 countries showed that those who found past Covid-19 pandemic measures inappropriate had a stronger desire to punish politicians and scientists for their handling of the pandemic and were less willing to vote, instead favouring dismantling the entire political order. This suggests that identification with opinion-based groups is associated with several societal and political consequences that go beyond the specific opinion-based context and the interactions between these opinion-based groups.

Similar effects were observed for climate policy opinion groups.¹⁹ Given that societies have seen extreme forms of protest for both more and less climate protection, we investigated whether identification played a role in how extreme protests are accepted. German participants who wanted less climate protection read a short text about a hypothetical subgroup called the freedom fighters, seeking the continued use of fossil fuels and demanding that citizens be able to freely decide how they travel, heat or eat. Participants who wanted more climate protection read about the climate fighters, advocating for immediate phaseout of fossil fuel use and demanding environmentally friendly travel, heating and eating.

Both subgroups drew attention to their causes by organizing demonstrations in many cities, damaging

political party buildings and blocking roads to the parliament. About 17 percent of those wanting more climate protection and 22 percent of those wanting less showed increased support for the presented subgroup, 8 percent of those wanting more climate protection and 11 percent of those wanting less were willing to join a demonstration organized by the subgroup and 8 percent of those wanting more climate protection and 10 percent of those wanting less were willing to donate money for the defence of a subgroup member who was recently arrested and charged with criminal damage. Support for the respective subgroup increased with higher group identification, providing further evidence for the important role of group identification.

Potential implications

The question of how to tackle pressing societal challenges, such as climate change or global health crises, often gives rise to opposite opinions, which can lead to the formation of opposing opinion-based groups and societal polarization. Our argument, supported by evidence, suggests that as individuals increasingly identify with these groups, their attitudes and behaviours are more likely to be polarized. This creates a troubling cycle (see figure S6.1.1) where opinions

are continually reinforced, resulting in groups that are unwilling to engage in peaceful interactions or seek common ground. In essence, identifying with opinion-based groups undermines the very cooperation that is crucial for addressing societal challenges on a universal scale.

Our understanding of the intricate interplay among individual attitudes, group identification and polarization is still in its early stages. Future research endeavours are essential to delve deeper into the various causal pathways at play and to pinpoint effective interventions for mitigating polarization. Social and behavioural scientists have proposed various interventions to reduce group-based discrimination and conflict—for example, through decategorization (emphasizing the unique individual characteristics of outgroup members) and recategorization (integrating ingroup and outgroup members within a common group). Some of these might be helpful in reducing polarization of opinions, but they remain to be critically tested in these domains. Another promising avenue involves participatory approaches, where individuals from opposing opinion-based groups are actively engaged in collaborative efforts to discover common ground. These approaches hold potential for bridging divides and fostering constructive dialogue among stakeholders.

NOTES

1. Pew Research Center 2014.
2. Falkenberg and others 2022.
3. Bor, Jørgensen and Petersen 2023; Flores and others 2022.
4. Lazer and others 2018.
5. Van Lange and Rand 2022.
6. Ellemers, Spears and Doosje 2002.
7. Stets and Serpe 2013.
8. Doosje, Ellemers and Spears 1995; Roth and Mazziotta 2015.
9. Henkel and others 2023.
10. Sprengholz and others 2023a.

11. Hogg 2007.
12. Eys, Bruner and Martin 2019.
13. Tajfel and others 1979.
14. Henkel and others 2023.
15. Henkel and others 2023.
16. Sprengholz and others 2023a.
17. Henkel and others 2023.
18. Sprengholz and others 2023b.
19. Sprengholz and others 2023a.

International collective action in a time of geopolitical upheaval

To characterize the geopolitical context, it is useful to draw from different views to explain (and sometimes to predict) the behaviour of states (or, with greater generality, politically autonomous units) in the international arena.

Realism—power is ever changing

The field of international relations considers how states interact internationally when there is no overarching authority. The field has multiple perspectives,¹ dating back at least to Thucydides, who inspired the realist disposition in international relations.² This perspective emphasizes how anarchy in world politics (due to the lack of an overarching authority) drives constant instability, given that states all struggle to advance their security and power (to compel others to act on one's behalf).³ The distribution of power across countries, and its change over time, informs the security threats that states face—or believe they face—as a result of, for instance, the security dilemma, also known as the Thucydides trap.⁴

The distribution of power is ever-changing. More than whether the world is bipolar, unipolar or multipolar, what matters are the continually changing dynamics of power among states, which tend to be destabilizing. And human behaviour remains the same—driving states to be ever-more ambitious rather than sated. So, there is no endpoint of stability. Once a disagreement is settled, a new one is bound to emerge because of the changing dynamics of power between states, so that “disputes in world politics are less problems to be solved than relations to be managed.”⁵ Although not inevitably, these disputes can culminate in violent conflict.⁶

Liberalism—realizing aggregated preferences

The liberal perspective on international relations shares the realists' view that the international arena is anarchic but has a different disposition on state behaviour that makes the implications of anarchy less troubling. States are not agents as such but are assumed to

represent the aggregate preferences of what emerges from domestic economic and political processes where individuals and groups (the ultimate agents here) exchange and interact to promote their diverse interests.⁷ State behaviour is then determined by how each state pursues the realization of the preferences it represents, given the constraints imposed by the preferences that other states present. When preferences are mutually compatible, states coexist peacefully and cooperatively. When they are mixed (compatible in part, but with scope for mutual gains), states can negotiate some accommodation (more easily through coordination), perhaps facilitated by international institutions.⁸ When they are incompatible and zero-sum (if one wins, the other loses), there is tension and potentially conflict.

Constructivism—recognizing that much is socially constructed

Some researchers have argued that social constructs, which can include norms, may constrain state behaviour and make “the world hang together.”⁹ Norms are sometimes supported by, and codified in, multilateral agreements and institutions.¹⁰ In the more assertive elaborations of these constructive perspectives on international relations, even the notion of anarchy is presumed to be socially constructed—and what states make of it¹¹—and thus to represent an entirely different disposition from realism and liberalism. But while constructivism is sometimes presented as an alternative to both realism and idealism, it is perhaps better understood as an approach (thus compatible with at least some theories in both realism and liberalism) that recognizes that shared beliefs and norms shape state behaviour, whether they seek to enhance their security and power (realists) or fulfil the preferences of their populations (liberals).¹²

Different dispositions

A crucial question is whether there is more to the interests of states than security in the realist perspective or

more than the aggregation of individual preferences in aggregated state preferences in liberalism. Many theories under either disposition say no.¹³ Others allow for interests or preferences to be determined not only by objective material conditions but also by the social context that shapes states' understanding of their interests or preferences.¹⁴ For instance, some realists hold that states seek both power and purpose (resulting from notions of national identity, a set of widely shared beliefs within a country that are not reducible to the aggregation of individual views) and that these two goals together shape the interests of states. And the liberal theory of democratic peace holds that countries that self-identify, and identify others, as liberal democracies tend not to go to war, premised on a socially constructed notion of shared identity and values.¹⁵

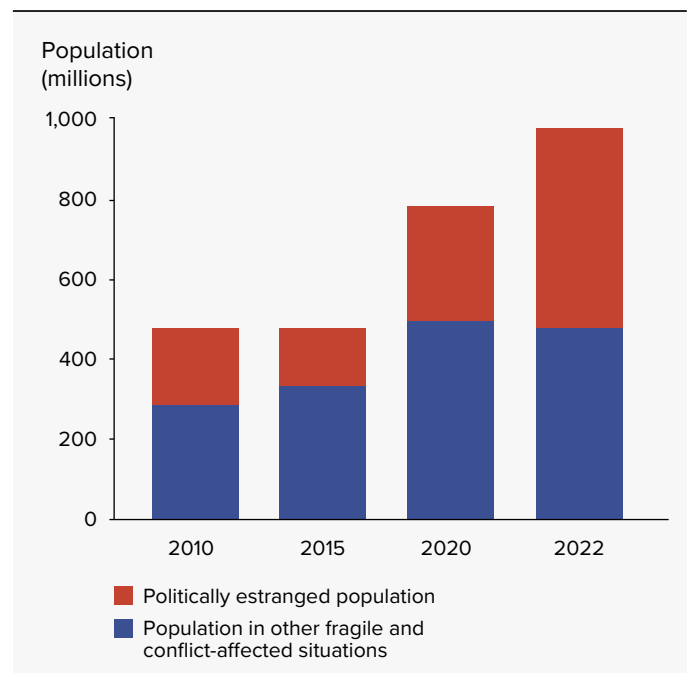
The salience of the different dispositions ebbs and flows depending on what is actually happening in the world.¹⁶ The realist disposition provided a helpful framework during the Cold War but was less successful in explaining its (for the most part) peaceful end, with some authors declaring that we had reached the end of history by the early 1990s¹⁷—anathema for any realist. The great strides in international cooperation even during the Cold War—for instance, the eradication of smallpox or the Montreal Protocol, as discussed in chapter 4—can be better understood through a liberal view. With the ongoing geopolitical upheaval and heightened geopolitical tensions, the realist disposition is acquiring more salience, with not just the possibility but the reality of violent conflict across countries very much present.

It may appear that models of country behaviour dominated by interests and competition are the most appropriate to characterize the current context. Although different theories in international relations may also offer plausible accounts, staying with this view would suggest that the international order built in the aftermath of World War II—centred on multilateralism, economic openness and security cooperation—appears to be fraying amid a new cascade of wars,¹⁸ as well as the greater protectionism and surge in populist politics around the world.¹⁹ By this account, the potential fragmentation in the international system that appears to emerge today would derive from structural shifts as new countries and coalitions seek to gain power and influence, as well as to respond to perceived threats to their security.²⁰ In

addition, the scale and complexity of today's global challenges might be creating new pressures on international institutions that were built for an altogether different era.

The current geopolitical context is thus characterized by uncertainty, insecurity and potential for greater fragmentation and disorder. This is further compounded by the fact that many people live in countries whose governments experience unconstitutional changes in power, internationally contested elections or are under major sanctions (figure S6.2.1). The behaviour of some of these countries in the international context may be harder to predict or interpret, with the potential for greater regional instability or even violent conflict. Moreover, in addition to states, new agents play a role in providing global public goods, not just multilateral organizations but other entities, from multinational firms to civil society and philanthropic organizations. While the establishment of new international organizations has declined sharply in the 21st century, transnational public-private governance initiatives have exploded.²¹

Figure S6.2.1 Half a billion people live in politically estranged situations, about five times more than in 2010



Note: Politically estranged situations refer to countries where relations between donors of official aid and national authorities are frayed or broken because of unconstitutional changes in government, internationally contested elections or major sanctions.

Source: Cliffe and others 2023.

NOTES

1. A recent international relations textbook, Dunne, Kurki and Smith (2021), includes chapters on classical realism, structural realism, liberalism, neo-liberalism, the English School, Marxism, poststructuralism, postcolonialism, normative international relations theory and green theory.
2. For a recent articulation of this perspective in its classical form, and its relevance in today's world in contrast with other perspectives, see Kirshner (2022), from which the description of the realism disposition in this spotlight is drawn.
3. This is the traditional definition of power proposed by Weber (2016), rearticulated by Dahl (1957, pp. 202–203): “my intuitive idea of power, then, is something like this: A has power over B to the extent that he can get B to do something that B would not otherwise do.” For a review of other approaches to defining and conceptualizing power, see Guinote (2017).
4. This occurs when efforts taken by a state to increase its security are perceived by others as making them less secure, even if there is no aggressive intention on the part of the state enhancing its security.
5. Kirshner 2022, p. 16.
6. Acemoglu and Wolitzky 2023.
7. Moravcsik (1997), which forms the basis of the description of the liberal disposition in this paragraph.
8. Katzenstein, Keohane and Krasner 1998.
9. Ruggie 1998.
10. Ruggie 1992.
11. Wendt 1992.
12. Finnemore and Sikkink 2001.
13. That is why the word “disposition” is used, given the multiple theories and variations that fit under each, in line with Kirshner (2022).
14. Checkel 1998.
15. Both examples are from Kirshner (2022).
16. Keohane 2020.
17. Fukuyama 1992.
18. Poast 2023.
19. Ikenberry 2018.
20. See Colgan and Keohane (2017), Ikenberry (2018), Jones and Malcorra (2020) and Shidore (2023).
21. Reinsberg and Westerwinter 2021, p. 73.

Geopolitics and the early history of the United Nations: Friend or foe?

Andrew Thompson, *Oxford University*

“The United Nations was not formed because nations were united.” This is one way of explaining how the different countries of the world came together in San Francisco, California, in 1945 to discuss their common problems. Or, in the bleaker words of the second UN Secretary-General, the Swedish diplomat Dag Hammarskjöld, “the United Nations was not created in order to bring us to heaven, but in order to save us from hell.”¹

In truth, the United Nations has always been defined by geopolitics, not because it is simply or straightforwardly a creature of such but rather because geopolitics highlight its dual function sometimes to challenge and sometimes to uphold the geopolitical regime surrounding it. Put another way, the United Nations, throughout its history, has taken on tasks that states are unable or unwilling to; by the same token its ways of working reflect the rival conceptions of international cooperation latent within a prevailing state system.

What this means in practice is that the fledgling United Nations was animated as well as constrained by interstate rivalry and enabled as well as restricted by geopolitical change. Like many of the international organizations that either emerged from or expanded their remit after World War II, the United Nations was one of the makers—and not just the receivers—of the new global orders that sought to re-civilize Europe and to “make an old world new.”

In a fundamental sense, the United Nations was unlike the League of Nations, which preceded it.² The fractured world order that emerged from World War I certainly led to changes in the international sphere: a raft of new regulatory agencies, an emergent discourse of protection for minority groups, and the rhetoric and reality of anticolonialism. But although the League of Nations held out the hope of a more international society, sharing liberal and democratic values with the interests of nations locked together, any such collective guardian of the peace

required all sovereign states to sign up. This never happened.

After 1919 the world divided itself into different geopolitical zones, of which the membership of the League of Nations—anchored in Europe and practically coextensive with the British and French colonial systems beyond—was only one. The geopolitical realignments post-1945 were distinctive in two respects. First, the growth of global issues sped up markedly. Second, in championing a new global order, the United Nations was never to be captured by any single, major power bloc, however much the breakneck expansion of the United States meant that in this sphere, as in many others, US influence held a major sway.

The post-World War II global order was considerably more complex than that of the interwar era, notwithstanding the broadly bipolar equilibrium that eventually established itself. Many historians focus on the year 1945 as a sort of ground zero. Yet the decisive shifts happened later, with the gathering speed of decolonization, an intensifying Cold War and new forms of globalization. Despite attempts by European powers to retain control of their colonies, the 1950s demonstrated that old imperial models were fast losing traction. Cold War tensions between the capitalist and communist worlds were also heating up, and new regional configurations—including the Non-Aligned Movement—were emerging from a combination of the tectonics of empire on the one hand and super-power rivalry on the other.

So how do we characterize the state of postwar geopolitics, which the United Nations set about trying to tame? Before a breakpoint in about 1960, there was a US zone encompassing Latin America and much of the Pacific, except the western fringe and Korea, which were contested by China. Alongside the US zone was a UK zone, which extended over much of the Middle East until 1956; East, South and much of Central Africa; the Indian Ocean; and part of South East Asia. And there was a Soviet zone, which

included China until the Sino-Soviet split of 1955–1956 divided the communist world. Not until after 1960, just as the United Nations was experiencing a massive increase in membership, particularly of African members, did these geopolitical zones solidify. The US global reach was consolidated, the Soviet Union became more active in the “Third World” and, beyond that, there was the recovery of Germany and Japan.

This sounds like distinctly unpropitious territory for global governance—indeed, by 1970 the veto power of UN Security Council members had begun to be exercised more regularly, a sure sign of the economic woes and escalating political tensions that marked the rest of that decade. Yet at a time of accelerating globalization, however much the state depended on power, power no longer depended on the state. International organizations were not passive bystanders in the face of the geopolitical upheaval of the 1970s: the oil and debt crises, civil wars and frequent military coups, and the global struggle between the North Atlantic Treaty Organization and the Warsaw Pact. Instead, they possessed power in their own right: the power to spotlight suffering and to make indifference a costly posture and the power to recognize new sovereignties and to make those sovereignties more recognizable.

The United Nations especially was coming of age. Carving out a more activist role for itself and seeking a wider meaning in world affairs, it implicitly, if not explicitly, challenged the state domination of the global political system. By arranging institutions correctly, UN civil servants—many of whom chose international over national politics—believed that they could better pursue collaborative solutions to the world’s problems and better manage the consequences of increasing interdependency. The United Nations was in effect moving into territory previously occupied by nation-states; indeed, the weaker the system of interstate diplomacy, the more postwar international organizations were forced to assume the burdens of its lapses and failures. In this situation geopolitics was to take on a double significance—driving the calamities that put international organizations such as the United Nations in business yet also shaping the priorities for and the forms of international cooperation.

But to play an active part in world ordering required the United Nations to go far beyond anything

the League of Nations had envisaged; the amalgam of functions it came to discharge grew to encompass peace and security, state-building and development, the proclamation and protection of basic human rights and the provision of emergency humanitarian relief. Different legal and institutional architectures developed around each of these functions, which made them seem more distinct than they actually were. The ways they played off each other can, however, be studied through the first generation of UN peacekeeping operations.³

In many ways the United Nations came of age, at least operationally, through its peacekeeping operations. Peacekeeping, as an instrument of conflict resolution, was closely identified with the United Nations. Because the United Nations did not have any of the built-in assets to act like a superpower, peacekeeping had a fundamentally self-restricting character: it was not intended to enforce the Security Council’s collective will, which owing to the Cold War did not exist. Instead, UN peacekeeping, which relied on member states for personnel, supervised cease-fires, oversaw truces and interposed troops between warring parties.

Notwithstanding this self-restricting character, UN peacekeeping could not help but be affected by the power vacuums created by colonial disengagement. Nor could it sidestep the difficult question of the meaning of self-determination, at a time when the concept was elevated as an international norm, yet postcolonial states risked fracturing as a result of secessionist movements.

The aim of the initial operations was to place a buffer between belligerent parties, while ensuring host-state consent, the impartiality of UN forces and the use of force only as a last resort in self-defence. That all changed in Congo in 1960, when the United Nations adopted a far more expansive conception of peacekeeping.⁴ Not only did the Congo crisis, as it was known at the time, transform the meaning of decolonization in Africa; it also transformed the fortunes of the United Nations. As the Belgians abruptly withdrew, leaving chaos and catastrophe behind, and East and West competed for African allegiance, the United Nations embarked on an unprecedented operation—a four-year mission, deploying a multinational force of almost 20,000 (predominantly African) troops to restore the unity of the country and

enable the newly independent government to function. For the first time in UN peacekeeping, Ethiopian, Indian, Irish and Swedish forces, under the organization's control, were authorized to use offensive force to bring an end to the secession of the resource-rich province of Katanga.

What was arguably the most controversial UN peacekeeping operation—prior to those in the 1990s—led to multiple tragedies: the death of Hammarskjöld, when his plane crashed in Northern Rhodesia (present-day Zambia) on a mission to bring peace to the Congo, in circumstances that some continue to suspect involved foul play; a major international human rights controversy about violations committed by UN forces; and the United Nations teetering on the brink of bankruptcy, with peacekeeping having cost a staggering \$10 million a month (over \$100 million in today's dollars).

Like so many other postwar conflicts that the United Nations had to decide whether to insert itself into, the Congo crisis was internationalized from the very start. Paradoxically, peacekeeping had curbed neocolonial and Cold War involvement in Africa while becoming a focus of that involvement. The “muscular action” mandated by the Security Council prevented the breakup of Congo and was assessed positively at the time as a result. Yet the morphing of defensive peacekeeping into offensive fighting plunged the United Nations into crisis, painfully revealing the limits of the Hammarskjöld model: enforcement was rapidly abandoned in favour of observation and interposition.

Despite this negative military verdict, for Hammarskjöld security was never an end in itself but a necessary precondition for providing a structure that might hold Congo together. If anything, the Secretary-General saw the long-term contribution of the United Nations as lying more in the civilian field, comprising a complex state-building programme (setting up and running a parallel administration) and an equally complex relief operation (particularly to prevent the total collapse of the Congolese health system). Expelling Belgian mercenaries and defeating the Katangese secessionists were simply stepping stones towards these greater goals.

Understanding postwar peacekeeping operations is historically instructive: it reveals how the United Nations struggled to manage decolonization and to

serve as a bridge between East and West during the Cold War. The legacy of that peacekeeping is also important for how the United Nations conceives of itself today. What postwar peacekeeping shows (even when it backfires) is that the United Nations possesses power—not only to declare a crisis but, crucially, to define the nature of the crisis to which it responds.

In declaring the Congo crisis, the United Nations positioned itself as the prime responder—thereby providing the institutional matrix into which other international organizations, such as the Red Cross, had to accommodate themselves. In defining the Congo crisis, the United Nations went further—to set out exactly what type of response was called for. If those who recognize a crisis possess the power to intervene, those who construct a crisis can similarly go a long way to determine how it should be managed.⁵

This question of crisis ordering, of what gets linked to what and why, is no less pertinent to today's geopolitics, an age of polycrisis in which global shocks are deeply interconnected. International norms are increasingly disregarded, not just in Ukraine and Gaza but in more than 100 armed conflicts, only some of which make the headlines. In the 21st century geopolitical rifting is complicated by a global environmental crisis that is escalating humanitarian needs and threatening the gains made in world poverty reduction and human development over the last quarter century.

Our capacity to cope, therefore, rests on recognizing that climate and conflict now often go hand in hand, with climate change set to become a risk multiplier for tomorrow's conflicts as well as an additional complication for existing ones. The greatest complications nevertheless remain geopolitical. However much human activity is the dominant force shaping our planet, considerations of territorial security are repeatedly trumping human security. As extreme weather events multiply, tackling the negative impacts of climate change will mean creating clearer pathways to intervention amid a rising tide of populism and intensifying polarization. New paths must be explored and creative methods given a chance.

Geographical representation and the power of engagement will be key considerations in any reform process, especially if the fundamental imbalances and historical injustices in the current global order are to be addressed. Much will hinge on the ability—and

agility—of the United Nations to reinvigorate a post-war institutional architecture, now nearly 80 years old, and to close the gap between what multilateral institutions are expected to do and what they are capable of doing. Only by closing that gap, and adopting more radically inclusive approaches to problem-solving,

will faith in multilateralism be enhanced and effective global cooperation improved. As the early history of the United Nations reveals, this is emphatically not the first time the organization has faced a geopolitical challenge of this scale, complexity or urgency.

NOTES

The author is grateful to Mr. Adama Dieng, former Special Adviser to the UN Secretary-General for the Prevention of Genocide, for his insightful comments on an earlier draft of this spotlight.

1. Hammarskjöld 1954.

2. For the comparison, see Darwin (2007).

3. See, especially, MacQueen (2014).

4. For a new account of the UN Congo operation, relating the military to the civilian aspects of peacekeeping, see Thompson (forthcoming).

5. For crisis declaration and definition, and the part each played in constructing new world orders, see the Changing Global Orders project, funded by the Oxford Martin School, of which the author is one of the four directors <https://www.oxfordmartin.ox.ac.uk/changing-global-orders/> (accessed 24 January 2024).

(Mis)perceiving others

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Most people are influenced by others when making important decisions or when forming opinions. Perceptions about others should play a key role in these contexts. Indeed, people are influenced by what they think others think or do. But what if people misperceive others? If these misperceptions are common, many people might be making decisions based on incorrect information. More than that, important behaviours could then conceivably be changed by simply recalibrating people's beliefs about others.

This spotlight begins by examining misperceptions about gender norms. The conclusion is clear: misperceptions about gender norms are globally ubiquitous, and simple information provision could lead to improvements in women's labour market participation. The spotlight then summarizes a meta-analysis of the recent literature on misperceptions that concludes that misperceptions about others are widespread, asymmetric and much larger when about outgroup members. Moreover, experimental treatments to recalibrate misperceptions generally work as intended and often lead to important changes in behaviours. So, interventions correcting misperceptions could build empathy and cooperation across groups and reduce conflict and hostility.

Misperceived gender norms: Global evidence

A newly designed module from Gallup World Poll examines actual and perceived gender norms using nationally representative samples from 60 countries, which together cover more than 80 percent of the world population.¹ One aspect of gender norms examined is how people view whether women should be allowed to work outside the home and how people perceive others' views on the topic. The patterns are striking: in every single country examined the (often overwhelming) majority of people support the idea of women working outside the home. And in every

single country, people underestimate the level of support by others.

The next question that comes to mind is whether gender norms are themselves the anomaly in terms of the accuracy of perceptions: perhaps people particularly misperceive others' opinions in this domain but not in other contexts. The results from a recent meta-analysis of the literature help answer this question.

Misperceptions about others across settings

A detailed review of 81 papers published across the social sciences over the past 20 years measures perceptions about others across a wide range of contexts.² The picture is clear: across societies individuals widely misperceive what others think, what others do and even who others are. These misperceptions cover a variety of topics, from beliefs about the size of immigrant populations to perceptions of partisans' political opinions to perceptions of the vaccination behaviours of others in a community. The analysis yields a few key stylized facts.

- Misperceptions about others prevail in various domains and are not simply due to measurement error. Assessing misperceptions requires eliciting perceptions about others and knowing the corresponding truth. For example, perceptions of a population's racial composition can be compared with an objective truth—that is, the population shares of each racial group, as reported in census data. For perceptions of other people's opinions about a topic, the truth refers to the relevant population's reported views (for example, their average level).
- Misperceptions about others tend to be asymmetric, with beliefs leaning heavily to one side when compared with reality. The asymmetry of misperceptions is the ratio of respondents on one side of the truth to those on the opposite side. In this definition the higher number always acts as

the numerator, regardless of whether beliefs are under- or overestimations of reality. Therefore, a ratio of 1 signifies a perfect balance, and a higher ratio indicates a more pronounced imbalance. Misperceptions about others typically tilt one way, and the tilt is large.

- Misperceptions about ingroup members are markedly less pronounced than those about outgroup members. In more than half the studied areas, most respondents have more accurate perceptions about their ingroup than about outgroup members. Additionally, perceptions about outgroup members tend to exhibit greater spread across respondents than those about ingroup members. This indicates that views about ingroup members are not only more precise on average but also more consistently aligned with reality. Moreover, perceptions of ingroup members are more symmetrically distributed around the truth than those about outgroup members.
- One's own attitudes and beliefs are strongly, positively correlated with misperceptions about others' attitudes and beliefs on the same issues. Moreover, respondents tend to think that other ingroup members share their characteristics, attitudes, beliefs or behaviours, while those in the outgroups are the opposite of themselves.

Does information provision aimed at correcting misperceptions work? Does it lead to behavioural changes? The answer is that these interventions are generally effective—but there are some nuances in the findings.³ Interventions that are more qualitative and narrative, such as those that involve anecdotes, vignettes and storytelling, tend to have larger effects in correcting misperceptions. However, while some treatments lead to large changes in behaviours, large changes often occur only in studies that examine behavioural adjustments shortly after the interventions, suggesting a potential rigidity in the mapping between misperceptions and some behaviours: even though beliefs may have changed, the deeper underlying drivers of behaviour may not have. The findings mirror other recent work suggesting that qualitative and narrative-driven interventions may be particularly effective and may have longer lasting effects.⁴ Understanding the most effective ways to correct misperceptions and generate long-lasting behavioural changes is an important avenue for future

research—and one that could have meaningful policy implications.

Another, more conceptual path for future work involves better understanding the general forces that lead to persistent misperceptions. The origin, rigidity and persistence of misperceptions about others can in principle be explained by different conceptual frameworks, such as stereotyping,⁵ motivated reasoning⁶ and pluralistic ignorance.⁷ But most existing study designs cannot disentangle the role of these different models. Enhancing understanding of the role of these mechanisms would allow for better policy design.

A final area for consideration is how to think of welfare in contexts of widespread misperceptions. One such normative consideration—out of the scope of the existing literature—is to examine whether informing people about the true state of the world to correct their perceptions is something that is always desirable. It is understood that many authoritarian regimes may maintain their political control by directly manipulating citizens' perceptions of each other.⁸ In such contexts, would interventions that correct some perceptions about others expand political rights and freedom to more people around the world? To the extent that misperception might be self-fulfilling, can policy be designed to engineer misperceptions that lead to more socially desirable outcomes (as in the contexts of racial tolerance and gender equality)?

Lessons for building intergroup cooperation and reducing hostility

People tend to have much larger misperceptions about outgroup members than about ingroup members. In many cases these misperceptions exaggerate perceived differences across groups, as for Democrats and Republicans in the United States.⁹ Such a phenomenon may not be surprising, given the growing focus on an us versus them mentality by the media and politicians. One potential implication relates to a long-standing hypothesis in social psychology that perceived similarity is a key input for someone to feel empathy towards outgroups. Information provision and intergroup contact can lead to an increase in perceived similarity with outgroups, which in turn generates greater altruism and empathy towards those

groups.¹⁰ Correcting misperceptions about outgroups thus has the potential to reduce hostility and increase cooperation and altruism—an important outcome in a world increasingly divided and polarized.

Across societies and across domains, people widely misperceive what others think, what others do and

even who others are. The body of work reviewed here indicates that in many important contexts changes in behaviours and attitudes might be achieved with simple and cost-effective policy interventions through information provision in the form of statistics, vignettes, anecdotes or narratives.

NOTES

1. Bursztyn and others 2023. This work extends findings from Saudi Arabia, where the vast majority of young married men privately support women working outside of home but incorrectly believe that the majority of other men (including their own neighbours) oppose it (Bursztyn, González and Yanagizawa-Drott 2020).
2. Bursztyn and Yang 2022.
3. Bursztyn and Yang 2022.
4. Graeber, Roth and Zimmermann 2023.
5. Bordalo and others 2016.
6. Bénabou and Tirole 2016.
7. Bursztyn, Egorov and Fiorin 2020; Bursztyn, González and Yanagizawa-Drott 2020; Kuran 1997.
8. Kuran 1997.
9. Bordalo, Gennaioli and Shleifer 2022; Bordalo, Tabellini and Yang 2020.
10. Andries and others 2024.

Notes and references

Notes

SNAPSHOT

- 1 See UNDP (2020, 2022a).
- 2 Watson and others 2022.
- 3 See the United Nations Development Programme's Global Dashboard for Vaccine Equity at <https://data.undp.org/insights/vaccine-equity>.
- 4 Vaidyanathan 2024. These pledges still fall short of the annual loss and damages associated with climate change, which have been estimated to be as high as \$400 billion a year.
- 5 <https://about.bnef.com/blog/global-clean-energy-investment-jumps-17-hits-1-8-trillion-in-2023-according-to-bloombergnef-report/> (accessed 31 January 2024).
- 6 HDI data up to 2022 are from table 1 in the *Statistical Annex*. Values for 2023 are projections using the same data sources used for that table.
- 7 Msemburi and others 2023.
- 8 See UNDP (2022a).
- 9 Some 3 billion people report feeling worried today, an increase of 687 million people over the past decade; 2 billion people report sadness, 540 million people more than a decade ago; and 2.9 billion people experience stress, an increase of 596 million people over the past decade (Human Development Report Office calculations based on data from Gallup 2023). Daly and Macchia (2023) document an increase in the prevalence of feelings of emotional distress between 2009 and 2021.
- 10 See Kurlantzick (2022), Nichols (2021) and UNDP (2023b).
- 11 Funke, Schularick and Trebesch 2023.
- 12 Andre and others 2024.
- 13 Fernbach and Van Boven 2022.
- 14 Gur, Ayal and Halperin 2021.
- 15 Graeber, Roth and Zimmerman 2023; Vogt and others 2016.
- 16 Demeritt and Hoff 2023. Expanding agency is about enhancing the ability of people to be agents of change. Policies have not stressed enough the central role of agency as a key pillar of human development. Narrowing agency gaps allows people to participate in public reasoning and decisionmaking through institutions they have confidence in.
- 17 On the importance of co-ownership for political institutions, see Allen (2023).

- 18 On the mobilization of the future as a political idea, see White (2023).

OVERVIEW

- 1 Persson and Bennich 2023.
- 2 IRC 2023a; UNHCR 2023b, 2023c.
- 3 Msemburi and others 2023; Wang and others 2022;
- 4 Bolyky and others 2022; Lenton, Boulton and Scheffer 2022.
- 5 Bolyky and others 2022.
- 6 Henkel and others 2023.
- 7 Kumar and others 2022.
- 8 Druedahl, Minssen and Price 2021.
- 9 Gleeson and others 2023.
- 10 NASA 2023.
- 11 UNDP's Human Climate Horizons is an interactive visualization platform (<https://horizons.hdr.undp.org/>) consisting of a dynamic digital public resource that projects up to the end of the 21st century impacts of climate change on people and its implications for human development.
- 12 Albrecht 2012, p. 250. See also Clayton and Karazsia (2020), Stanley and others (2021) and Wullenkord and others (2021).
- 13 Hickman and others 2021.
- 14 Funke, Schularick and Trebesch 2016; Guiso and others 2019; Gyöngyösi and Verner 2022; Mian, Sufi and Trebbi 2014.
- 15 Funke, Schularick and Trebesch 2023.
- 16 Cerra, Fatás and Saxena 2023.
- 17 Aiyar and others 2023.
- 18 Aiyar and others 2023; Xing, Gentile and Dollar 2021.
- 19 Ganapati and Wong 2023.
- 20 Chen, Mrkaic and Nabar 2019; Lane and Milesi-Ferretti 2018.
- 21 Holland and Pazarbasioğlu 2024.
- 22 WTO 2023.
- 23 As of 2023, based on data from the International Telecommunication Union (<https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>, accessed 16 November 2023).
- 24 IOM 2022.
- 25 UNDP 2009.
- 26 Koczan and others 2021.
- 27 Engler and others 2020.
- 28 Stiglitz 1998.
- 29 See Alcalá and Ciccone (2004), Bartley Johns and others (2015); Frankel and Romer (2017) and IMF (2001). See Birdsall and others (1993) for reflections on the East Asian miracle. Trade also had differential impacts across population groups (Engel and others 2021).
- 30 White and others 2023.
- 31 Walter 2021b.
- 32 Alstadsæter and others 2023.
- 33 Minerals, energy, key crops, electronics, pharmaceuticals, basic metals, chemicals, financial services, professional services intellectual property (Seong and others 2022).
- 34 Contributions to conceptualizing global public goods gaining force at the turn of the 20th century (Kanbur, Sandler and Morrison 1999; Kaul, Grunberg and Stern 1999; Sandler 1997). A first wave of policy interest in global public goods is reflected in Kaul and Conceição (2006), Kaul and others (2003) and Zedillo and others (2006). For a recent review of the increasing importance of global public goods in today's world, see Buchholz and Sandler (2021).
- 35 Boese and others 2022; Card and others 2022; Iyengar, Sood and Lelkes 2012; McCoy and Somer 2019; Wagner 2021.
- 36 Levin, Milner and Perrings 2021.
- 37 See Van Bavel and others (forthcoming) for the costs of polarizing a pandemic.
- 38 Schimmelpfennig and others 2022.
- 39 As argued in Bednar (2021).
- 40 Bednar 2021.
- 41 Hobolt, Leeper and Tilley 2021.
- 42 Henkel and others 2023.
- 43 De Vries, Hobolt and Walter 2021.
- 44 Bearce and Jolliff Scott 2019.
- 45 Deitelhoff 2020; Dellmuth and Tallberg 2015; Nye Jr 2001; Schneider 2018.
- 46 See Conceição and Mendoza (2006) and chapter 3.
- 47 Sparkman, Geiger and Weber 2022.
- 48 Graeber, Roth and Zimmerman 2023.
- 49 The notion of agency linked with collective outcomes has been referred to as "collective agency." See, for instance, Ibrahim (2006),

- Leßmann (2022), Pelenc, Bazile and Ceruti (2015) and Rauschmayer and others (2018).
- 50 See also Prados de la Escosura (2022).
- 51 O'Madagain and Tomasello 2022; Tomasello 2022.
- 52 UNDP 2023a.
- 53 UNDP 2023a.
- 54 UNDP 2023a.
- 55 UN 2023b.
- 56 For instance, the Stiglitz Commission for the Reform of the International Financial and Monetary System (convened in 2008, in the middle of the 2007–2008 global financial crisis) suggested establishing a Global Economic Coordination Council as an option (Stiglitz Commission 2009).
- 57 Through the 171 members of the Global Forum on Transparency and Exchange of Information for Tax Purposes. In 2022 information on almost EUR 12 trillion in assets was automatically exchanged. See OECD (2024b).
- 58 United Nations Secretary-General 2023.
- 59 Alstadsæter and others 2023.
- 60 Sen 1999, p. 18.
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- ## PART I
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- ### CHAPTER 1
- 1 HDI data up to 2022 are from table 1 in the *Statistical Annex*. Values for 2023 are projections using the same data sources used for that table.
- 2 See also Independent Panel for Pandemic Preparedness and Response (2021).
- 3 UNDP 2022a.
- 4 Rockström and others 2024; UNDP 2020b.
- 5 NOAA National Centers for Environmental Information 2023.
- 6 Ebi and others 2021.
- 7 NASA Earth Observatory 2023.
- 8 Oatis 2023.
- 9 Mlaba 2023.
- 10 Obermeier and Rustad 2023.
- 11 If the war in Yemen continues until 2030, human development will be reversed by 40 years—or by one and a half generations (Moyer and others 2019; UNDP and ESCWA 2023).
- 12 UN 2023d.
- 13 UN 2023d.
- 14 Sen (1999) argues that development is the process of expanding human freedoms in a variety of dimensions, including political freedom (such as freedom from tyranny and oppression), economic freedom (such as freedom from poverty and hunger), social opportunities (such as ability to access social services), transparency (such as freedom of expression) and security.
- 15 WEF 2023c.
- 16 Msemburi and others 2023.
- 17 Least Developed Countries have low levels of income and face vulnerabilities that make them “the poorest and weakest segment” of the international community (<https://www.un.org/ohrlls/content/about-least-developed-countries>).
- 18 See discussions in UNDP (2022a, 2022b).
- 19 See, for instance, Cerra, Fatás and Saxena (2023) and Göcke (2002).
- 20 Cerra, Fatás and Saxena 2023.
- 21 See, for instance, Yagan (2019) on employment hysteresis in the United States after the 2007–2008 global financial crisis.
- 22 See, for instance, Anzoategui and others (2019).
- 23 For instance, Schwandt and Von Wachter (2020) analyse the effects of recessions on health of those cohorts entering the labour market during a large recession.
- 24 For instance, in the context of the post–2007–2008 global financial crisis, Ball (2014) studies 23 OECD countries and finds evidence of both a loss in potential output and a reduction in the growth rate of potential output, which compounds over time.
- 25 See, for instance, Conceição and Kim (2014), Conceição, Kim and Zhang (2010), Conceição, Mukherjee and Nayyar (2011) and Molina and others (2014). See also the estimated effect on human development of political business cycles in Africa, studied by Iddrisu and Mohammed (2019) for 38 African countries from 1990 to 2015. See the effects of global shocks on a set of national human development indicators across 29 countries in West-Central Europe and Commonwealth of Independent States in Horváth, Ivanov and Peleah (2012). Additionally, global economic fluctuations have been found to affect HDI values through different components of the balance of payments in Egypt (see Emara and Mohamed 2023). See Kim and Conceição (2010) on the effects of conflict shocks on human development.
- 26 Molina and others 2014.
- 27 For instance, Camarena and others (2022) analyse the trend and cyclical component of social indicators such as the unemployment rate, income poverty and HDI value for 15 Latin American countries. They find that while the cyclical component explains 72.1 percent of the variance in the unemployment rate and 32.1 percent of the variance in monetary poverty, it explains only 3.3 percent of the variance in HDI value. Leite and Ferreira (2023), using within-country data for five regions in Brazil, find that HDI value is the social indicator with the lowest cyclical component among those analysed.
- 28 For instance, the origin of the modern use of economic cycles dates back to one century ago, when they were seen as alternating periods of crisis and prosperity in the studies of the National Bureau of Economic Research (Cerra, Fatás and Saxena 2023).
- 29 UNDP 2022a.
- 30 PISA is an OECD assessment that compares basic education attainment among 15-year-olds around the world by measuring abilities in basic mathematics, reading and science.
- 31 Johnson 2019.
- 32 Msemburi and others 2023. This figure is based on excess mortality computations. The number recorded by national authorities was much lower. See Johns Hopkins University (2023).
- 33 Rosenwald 2021.
- 34 Al Amin and others 2021; Lau and others 2022; Pujolar and others 2022.
- 35 Kaczorowski and Del Grande 2021; Ziedan, Simon and Wing 2022.
- 36 Keynejad 2023.
- 37 WHO 2022b.
- 38 Santomauro and others 2021.
- 39 UNICEF 2021.
- 40 Lee 2020.
- 41 Patel and others 2022, p. 2.
- 42 See Ravens-Sieberer and others (2023). For instance, anxiety prevalence increased from 15 percent before the pandemic to 30 percent in December 2020–January 2021 then fell to 25 percent in September–October 2022.
- 43 Schady and others 2023.
- 44 Schady and others 2023.
- 45 OECD 2023.
- 46 Dorn and others 2021.
- 47 Dorn and others 2021.
- 48 Bryant and others 2022.
- 49 Bryant and others 2022.
- 50 IMF 2021c.
- 51 IMF 2021c.
- 52 ILO 2023.
- 53 Alon and others 2022.
- 54 Alon and others 2022.
- 55 UNDP 2023a.
- 56 Flor and others 2022; Goldin 2022.
- 57 Gross national income in real purchasing power parity terms (Human Development Report Office calculations based on projections by the International Monetary Fund, World Economic Outlook database, October 2023, <https://www.imf.org/en/Publications/WEO/weo-database/2023/October>, accessed 1 December 2023).
- 58 Arellano, Bai and Mihalache 2020.
- 59 UN Global Crisis Response Group 2023.
- 60 UN Global Crisis Response Group 2023, p. 4.
- 61 Ecker and others 2023.
- 62 Molina and Jensen 2023. Somalia is excluded because an HDI value was not calculated for 2019.
- 63 Guterres 2023a.
- 64 Aas Rustad 2023; Arasmith, Østby and Aas Rustad 2022.
- 65 Institute for Economics & Peace 2023.

- 66 Buhaug and Gleditsch 2008.
- 67 Institute for Economics & Peace 2023.
- 68 De Maio 2010.
- 69 Hyndle-Hussein 2015.
- 70 SIPRI 2023.
- 71 The number of deaths in battle grew substantially in 2022. An estimate released in mid-2023 placed the number at 177,000–303,000 (Davies, Pettersson and Öberg 2023). The number of deaths is likely to be closer to the upper bound, based on reports of higher-than-anticipated estimates for the main conflicts that year (Cooper and others 2023; Pilling and Schipani 2023). Although uncertain, these estimates indicate that deaths in battle are reaching levels not seen since the end of World War II. This is consistent with the fact that in 2022 the world recorded the highest level of state-based armed conflicts since 1945. See Obermeier and Rustad (2023) for long-term conflict trends.
- 72 Persson and Bennich 2023.
- 73 Persson and Bennich 2023; Uppsala Conflict Data Program 2023.
- 74 Food and humanitarian aid often fail to reach affected population on time due to political obstacles, increasing civilian death tolls, as seen in Ethiopia, Gaza, Syrian Arab Republic, Sudan and Yemen.
- 75 Internationalized conflicts are civil conflicts with at least one or more third-party governments involved in the conflict through the contributing or deploying of combat personnel.
- 76 Obermeier and Rustad 2023.
- 77 IISS 2023.
- 78 Regan 2002.
- 79 Obermeier and Rustad 2023.
- 80 IRC 2023a; UNHCR 2023b; UNHCR 2023c.
- 81 OCHA 2023.
- 82 Nisbet, Lestrat and Vatanparast 2022.
- 83 UNHCR 2023a.
- 84 IOM 2022.
- 85 UNHCR 2023b.
- 86 OCHA 2023.
- 87 International Rescue Committee 2023.
- 88 Intergovernmental Panel on Climate Change 2023.
- 89 Aichele and Felbermayr 2015.
- 90 Jakob and others 2022.
- 91 NASA 2023.
- 92 Dance 2023.
- 93 UNDP 2022b.
- 94 While the focus of the discussion is between-country interdependence and inequalities, there is also interdependence between people and planet that is being mismanaged, resulting not only in climate change but also in other environmental challenges, such as declines in biodiversity (see Caillon and others 2017; Redvers and others 2022; Richardson and others 2022).
- 95 He and Silliman 2019; Reimann, Vafeidis and Honsel 2023.
- 96 UNDP 2024. For example, Human Climate Horizons platform projections show that the share of population living in 1-in 20-year floodplains in Kiribati could increase from 2.27 percent in the coming decades to 9.35 percent by the end of the century under a moderate emissions scenario.
- 97 Persson and Bennich 2023.
- 98 UN 2023d.
- 99 Persson and Bennich 2023.
- 100 World Bank 2022.
- 101 World Bank 2022.
- 102 UN 2023c.
- 103 World Bank 2022.
- 104 UN 2023c.
- 105 World Bank 2022.
- 106 Global income inequality, as measured by the ratio of the average income of the richest 10 percent to the average income of the poorest 50 percent (Chancel and others 2022).
- 107 Chancel and others 2022.
- 108 Persson and Bennich 2023.
- 109 Chancel and others 2022. These patterns have important links to the process of globalization itself. Evidence suggests that from 1980 to 2010 between-country inequality fell as emerging economies were growing and catching up to high-income economies. During the same time global integration shifted low-skilled jobs to labour-abundant countries, the lower income earners in advanced countries lost income while the lower and middle-income earners in labour-abundant countries gained. This simultaneously drove an increase in within-country inequality in high-income economies. Within-country inequality also rose in low- and middle-income countries as the gains for the rich became disproportionately larger than those for the poor.
- 110 Chancel and others 2022.
- 111 UNDP 2023a.
- 112 UN 2022.
- 113 Olaberria 2022.
- 114 Coppedge and others 2022.
- 115 Persson and Bennich 2023.
- 116 Papada and others 2023.
- 117 UNESCO 2022.
- 118 Sen 1999.
- 119 Papada and others 2023.
- 120 UNESCO 2022.
- 121 UNDP 2022a.
- 122 Scheidel and others 2023.
- 123 UNDESA n.d.
- 124 McIver and others 2014.
- 125 Roy 2019.
- 126 Albrecht 2019; Cianconi and others 2023.
- 127 Crabtree 2022.
- 128 There is a question of how abstract climate change is. As stated at one level, the disasters literature overlaps with the eco-emotions literature, as disasters may have already affected certain people. Other issues might include people's worry about climate change affecting them directly (perhaps they live in a flood zone) or how good people are at putting themselves in another person's place. "Worry," for example, about climate change may mean very different things to different people.
- 129 Hickman and others 2021.
- 130 Klinenberg, Araos and Koslov 2020.
- 131 UNDP 2022b.
- 132 Rovenskaya, Gomez Echeverri and Patil 2023, p. 2.
- 133 Otto and others 2020.
- 134 UNDP 2022a.
- 135 Marquardt 2017; Rovenskaya, Gomez Echeverri and Patil 2023.
- 136 Marion Suiseeya, Elhard and Paul 2021; Otto and others 2020; Pattberg and Stripple 2008.
- 137 Around 2005, AIDS-related deaths reached nearly 2 million a year, which moderated to 1 million a year following advancements in antiretroviral therapy that make it possible for people to survive and live with AIDS, even as the prevalence of infection continues to be high (Roser and Ritchie 2023). Life expectancy jumped back up in many countries in Africa where it had fallen by 10–20 years in the mid-2000s.
- 138 Consider the largest-ever stimulus package of €2 trillion by the European Union to support recovery from the pandemic (European Commission 2023; Matina 2020). A centrepiece of the package was grants dedicated to assisting the hardest-hit member nations.

CHAPTER 2

- 1 Helleiner 2021; WEF 2022.
- 2 Stiglitz 2002.
- 3 Georgieva, Loayza and Mendez Ramos 2018.
- 4 See, for example, Escande (2023), Fink (2022) and Helleiner (2021).
- 5 McBride and Siripurapu 2022.
- 6 Altman and Bastian 2022; Seong and others 2022; Seong and others 2024.
- 7 Balsa-Barreiro and others 2020.
- 8 See, for example, Frankel and Romer (1999, 2017) on the relationship between economic interdependence (as proxied by international trade) and economic growth. Also consider how trade in medical equipment, personal protective equipment and vaccines was key to saving lives during the Covid-19 pandemic (OECD 2021); mRNA vaccine development relied heavily on cross-border, cross-regional partnerships for sourcing components (Kumar and others 2022), clinical development and trials, and manufacturing (Druedahl, Minssen and Price 2021). With

- more equitable access and distribution, even more lives might have been saved and the duration of the pandemic shortened.
- 9 The recent Covid-19 pandemic and the 2007–2008 global financial crisis are illustrations of this.
- 10 Coyle 2023; Rodrik 2023; Stiglitz 2007, 2002b; White and others 2023.
- 11 Goldberg 2023.
- 12 Rodrik 2018, 2021.
- 13 As elaborated later in the chapter.
- 14 Mondliwa, Roberts and Ponte 2021.
- 15 And the “neat coloured boxes of nation states in political maps of the world belie the complexity of ... interconnections” (Dalby 2020, p. 7).
- 16 While many people still live in small communities, more than half the world’s population now lives in cities, and both the number of cities and the world’s urban population is expected to increase—especially in low-income countries (UN-Habitat 2022).
- 17 In fact, recent archaeological findings suggest that long-distance transportation of materials such as obsidian emerged very early in human evolution. Blegen (2017) reports finding obsidian that originated about 166 kilometres away from archaeological sites dated to about 200,000 years ago. Brooks and others (2018) and Deino and others (2018) show that social exchange over large distances may have started even earlier, as early as 320,000 years ago. Of course, in historical times there are multiple records of exchanges taking place over vast distances. A more recent well-known example is the so-called Silk Road, which dates back to the 1st century BCE and connected Central Asia, China, India, Persia, Arabia and Europe. Beckwith (2009) argues that the “road” in “Silk Road” downplays the engagements with peoples of Central Asia, as if the exchanges were merely a conduit from China to Europe, when in fact there were deep interactions across all of Eurasia, with pervasive and long-lasting economic and cultural exchanges
- 18 For example, Ganapati and Wong (2023) show that global transport costs for goods have declined substantially; the cost to transport 1 tonne of goods 1 kilometre has fallen approximately 35 percent since 1970, and the cost to transport \$1 worth of goods 1 kilometre has fallen more than 50 percent.
- 19 Rodrik 2018.
- 20 Rodrik 2011; Stiglitz and Greenwald 2014.
- 21 A large body of literature maps the links among trade, economic growth and poverty reduction (see, for example, Dollar and Kraay 2004; Frankel and Romer 2017; Sala-i-Martin 2007). However, the literature also points to some nuance. For example, Dollar and Kraay (2003) find that both institutions and trade openness matter for economic growth and that countries with “better” institutions trade more. Furthermore, researchers have found that in the long run institutions matter more than trade for economic growth (see, for example, Rodrik, Subramanian and Trebbi 2004). Even the success of the so-called Asian Tigers has been ascribed to a mix of export-led growth strategies and industrial policies (Stiglitz 1996).
- 22 Nolan, Richiardi and Valenzuela 2019.
- 23 Hirte, Lessmann and Seidel 2020; Rodríguez-Pose 2012.
- 24 Autor, Dorn and Hanson 2013, 2016; Dix-Carneiro and others 2023.
- 25 Stiglitz and Greenwald 2014.
- 26 IMF 2023c.
- 27 WEF 2023b.
- 28 Goldberg and Reed 2023.
- 29 Aiyar and others 2023. While there are multiple definitions and measures of globalization, including the KOF Index of Globalisation, which measures globalization along economic, social and political dimensions (Gygli and others 2019), and the DHL Global Connectedness Index, which measures trade, capital, people and information flows (Altman and Bastian 2022), globalization in the economics literature is commonly referred to as international trade and finance openness and is measured by the sum of exports and imports as a share of global GDP (Aiyar and others 2023; Cevik 2023). Using this latter metric, Cevik (2023) finds no structural retreat of globalization. Furthermore, the indices mentioned above also show high globalization after a temporary downturn during the Covid-19 pandemic (Altman and Bastian 2022). That said, some researchers argue that the current trends of increasing trade barriers and other inward-looking policy measures examined in this chapter have yet to have a full effect on the level of globalization (Goldberg and Reed 2023).
- 30 Wolf 2024.
- 31 Lane and Milesi-Ferretti 2018. Their research finds that international financial integration, understood as as cross-border holdings of assets and liabilities, remains high, even though the pace of integration has declined since 2007/2008. Emerging and developing economies are playing an increasingly important role, offsetting some of the declines in cross-border banking among advanced economies.
- 32 Minerals, energy, key crops, electronics, pharmaceuticals, basic metals, chemicals, financial services, professional services and intellectual property (Seong and others 2022).
- 33 Xing, Gentile and Dollar 2021. Services—including finance, logistics, communication and, increasingly, digital services—enable global value chains and are playing an even more important role for global trade. In fact, trade in intermediate goods now slightly exceeds trade in final goods (Aiyar and others 2023).
- 34 Transport use for goods, whether counted by weight or by value, has more than doubled between 1965 and 2020 as emerging economies increasingly established themselves on the international market (Ganapati and Wong 2023).
- 35 IOM 2022.
- 36 IOM 2022.
- 37 UNDP 2009.
- 38 Engler and others 2020.
- 39 Bond 2022; Esses 2018; Koczan and others 2021.
- 40 For a review, see Koczan and others (2021), who, among many things, show that immigration has no significant effect on unemployment in the receiving country. Or consider Engler and others (2020), who find that a 1 percentage point increase in immigration in advanced economies increases economic output by almost 1 percent within five years.
- 41 Altman and Bastian 2022; UNCTAD 2022.
- 42 González and Ferencz 2018.
- 43 Gopalan, Reddy and Sasidharan 2022; Xing, Gentile and Dollar 2021.
- 44 ITU 2023.
- 45 Balsa-Barreiro and others 2020.
- 46 The trade blocs of the European Union, North America and the 10 nations of the Association of Southeast Asian Nations account for almost 70 percent of global trade (Broom 2023; Sytsma 2020).
- 47 For example, Sub-Saharan Africa, home to many countries heavily dependent on international trade for income, accounts for a minuscule share of global trade (around 3 percent; Coulibaly 2022).
- 48 Kamin, Arteta and Ruch 2023.
- 49 Iacoviello and Navarro (2019) show that an increase in the US interest rate by 100 basis points reduces foreign GDP by 0.5 percent in advanced economies and 0.8 percent in emerging economies after three years, amounts that are similar to the domestic effects of a monetary shock (found to reduce GDP in the United States by 0.7 percent after two years).
- 50 Iacoviello and Navarro 2019. See also IMF (2014).
- 51 See, for example, Stiglitz and Greenwald (2014).
- 52 Cortinovis, Crescenzi and Van Oort 2020; Crescenzi, Dyèvre and Neffke 2022; Xing, Gentile and Dollar 2021.
- 53 Narula and Pineli 2019.
- 54 Autor and others 2020b; De Loecker and Eeckhout 2018; De Loecker, Eeckhout and Unger 2020; Karabarbounis 2023; Karabarbounis and Neiman 2013; UNCTAD 2023.
- 55 Howard 2021.
- 56 J. Clapp 2021, 2023; Lianos and others 2022; Palazzo and Vollerero 2022.
- 57 Wallach 2021. By way of illustration, in 2021 the market capitalization—the total value of a company’s shares in the stock market—of Apple was larger than the GDP of Brazil, Canada, Italy, the Republic of Korea, the Russian Federation and many more.
- 58 White and others 2023.
- 59 Lund and others 2020.
- 60 Coyle (2023, p. 8) suggests that globalization forces and technological advancements, not least in the reorganization of production and

- trade processes, have led to such strong specialization patterns that “the scope of the market seems to have reached a limit that means there is a trade-off between continuing division of labour and the rigour of competition.” In other words markets of “too big to fail” are now also accompanied by markets of “too few to fail.”
- 61 White and others 2023.
- 62 Birshan 2023; Seong and others 2024.
- 63 WEF 2023a.
- 64 WEF 2023a.
- 65 Autor, Dorn and Hanson 2016.
- 66 Evidence from the 1980s and early 1990s showed a positive relationship between government spending and trade openness in a majority of countries. However, this relationship no longer seem to hold true (Trubowitz and Burgoon 2023; see also Anderson and Obeng 2021).
- 67 Autor and others (2020a) link political polarization in the United States with the implications of globalization, while Fetzer (2019) argues that it was the incidence of austerity policies in the United Kingdom that was the proximate causal factor.
- 68 Guriev and Papaioannou 2022; Trubowitz and Burgoon 2023. In 2002 Joseph Stiglitz’s groundbreaking book *Globalization and its Discontents* (Stiglitz 2002) argued that the prevailing economic policies of globalization at the time—market liberalization, privatization and austerity policies—had failed to deliver on their promises of growth, stability and poverty reduction and had instead led to adverse outcomes such as loss of jobs and income, increased inequalities and stifled development for many countries. We build on this work but focus on how feelings of discontent and antiglobalization sentiment have seemingly globalized.
- 69 Guriev and Papaioannou 2022.
- 70 Guriev and Papaioannou 2022.
- 71 Walter (2021b) finds that antiglobalization sentiment has not increased among the general public but that antiglobalization narratives have become increasingly common in partisan discourse.
- 72 Altomonte, Gennaro and Passarelli 2019; De Vries, Hobolt and Walter 2021.
- 73 Rodrik 2021.
- 74 See, for example, Bonomi, Gennaioli and Tabellini (2021) and Noury and Roland (2020); see also Funke, Schularick and Trebesch (2023) on the economic costs of populism.
- 75 Gyöngyösi and Verner 2022; Mian, Sufi and Trebbi 2014.
- 76 Tooze 2023.
- 77 Jordà and Taylor 2016.
- 78 Naoi 2020.
- 79 Autor and others 2024.
- 80 For example, in the European context Rommel and Walter (2018) show that those exposed to offshoring of jobs tend to favor parties that promote redistribution and social protection and that offshoring did not increase the likelihood of voting for nationalist parties on the right.
- 81 Naoi 2020; Walter 2021b.
- 82 Bardhan 2022; Mutz 2018. More broadly, researchers link feelings of ontological (in)security—security of one’s being and place in the world (as opposed to security of survival)—to nationalistic sentiment and support for white supremacy. See, for example, Kinnvall and Kisić Merino (2023) and Stenner and Andreouli (2023).
- 83 Wolf 2023; see also Rodríguez-Pose (2018, 2022) and Rodríguez-Pose, Terrero-Davila and Lee (2023).
- 84 Algan and others 2021; Guiso and others forthcoming; Rodríguez-Pose, Terrero-Davila and Lee 2023.
- 85 UNDP (2022b) opened space for new metrics on subjective wellbeing, using data from the World Values Survey. It introduced the Index of Perceived Human Insecurity, which measures how secure people felt in their everyday life alongside a number of dimensions. The report found that six out of seven people worldwide reported feeling insecure about many aspects of their lives. UNDP (2022a) explored mental wellbeing by surveying data on feelings of stress, worry and sadness and exploring the connections between mental wellbeing and human development.
- 86 Some 3 billion people report feeling worried today, an increase of 687 million over the past decade; 2 billion people report sadness, 540 million more than a decade ago; and 2.9 billion people experience stress, an increase of 596 million over the past decade (Human Development Report Office calculations based on data from Gallup 2023).
- 87 Blanchflower 2023.
- 88 Daly and Macchia 2023; Yonzan, Gerszon Mahler and Lakner 2023.
- 89 De Vries, Hobolt and Walter 2021.
- 90 Altomonte, Gennaro and Passarelli 2019.
- 91 Ajzenman, Cavalcanti and Da Mata 2023; Guriev and Treisman 2019.
- 92 Alstadsæter and others 2023.
- 93 De Vries, Hobolt and Walter 2021.
- 94 Walter 2021b.
- 95 Bonomi, Gennaioli and Tabellini 2021.
- 96 Autor and others (2024) find that increases in US import tariffs in 2018–2019 led to retaliatory foreign tariffs that resulted in concentrated job loss in certain US regions and sectors. Despite the negative economic outcomes, voters in regions that were more exposed to tariffs were more likely to re-elect candidates that supported import tariffs.
- 97 McConnell and others 2018.
- 98 Ajzenman, Cavalcanti and Da Mata 2023.
- 99 Funke, Schularick and Trebesch 2023.
- 100 Funke, Schularick and Trebesch 2023.
- 101 Aas Rustad and Østby 2023; Arasmith, Østby and Aas Rustad 2022.
- 102 UN and World Bank 2018.
- 103 UNDP 2022b.
- 104 UN 2021.
- 105 Muriuki and others 2023.
- 106 Melin 2023.
- 107 Sklair 2020. Available at <https://iiraorg.com/2021/01/22/globalization-and-the-challenge-of-the-anthropocene/> accessed 5 August 2023
- 108 Degroot 2022; Degroot and others 2021.
- 109 IPCC 2021b.
- 110 Vitousek and others 1997.
- 111 UCMP 2023.
- 112 Allan and others 2020.
- 113 IPCC 2021a.
- 114 UNDP 2020b.
- 115 Espagne and others 2023.
- 116 Dalby 2020.
- 117 Wu and Wan 2023.
- 118 For example Gourdel, Monasterolo and Gallagher (2023) find that introducing carbon pricing in China may decrease demand for Indonesian coal, reducing GDP by 4.4 percent and increasing public debt to 9.6 percent of GDP.
- 119 For example, Chepeliev, Osorio-Rodarte and van der Mensbrugghe (2021) find that regional and global collaboration around nationally determined contributions of greenhouse gas emissions reductions will reduce the burden of the climate transition on people living in poverty. Conversely, a scenario where countries meet their nationally determined contributions without regional cooperation result in a 0.45 percent increase in the number of people living in severe poverty.
- 120 Liu and others 2015.
- 121 Guerrero and others 2021; Pacheco 2012.
- 122 Marin and others 2022. That said, soybean production has also been linked to sustainability challenges (Song and others 2021).
- 123 Williams and others 2019.
- 124 Hughes and others 2018.
- 125 Keys and others 2019; Martín-López and others 2019; Pellowe and others 2023.
- 126 Williams and others 2019.
- 127 Dalby 2020, p. 8.
- 128 Wu and Wan 2023.
- 129 Feng, Li and Wang 2023.
- 130 Feng, Li and Wang 2023.
- 131 Kinnunen and others 2020.
- 132 OECD 2018.
- 133 Howard and Hendrickson 2020.
- 134 Degroot 2022.
- 135 Kinnunen and others 2020; Monterrosa and others 2020
- 136 UNCTAD 2023.

137 Anderson and others 2019.

138 FAO and others 2023.

139 IOM 2022.

140 Black and others 2011; McLeman and others 2021.

141 Lenton and others 2023. See also Xu and others (2020).

142 <https://horizons.hdr.undp.org/>.

143 Clement and others 2021; Rigaud and others 2018.

144 ITU 2023.

145 In 2020 the number of internet users reached 4.9 billion people, and more than half of the global population were active social media users (ITU 2022).

146 Consider the international implications of the failure of Silicon Valley Bank, where uncertainty and panic spread throughout the global tech and banking system, potentially accelerating the well-known contagion of behaviour at the heart of bank runs. Although management decisions were at the heart of the crisis, social media played an integral role, as information and rumors related to the bank's solvency quickly spread and may have contributed to the bank run (Cookson and others 2023).

147 For example, a recent Amnesty International Report found that the horrific persecutions and violence against the Rohingya people in Myanmar in 2017 were predated by flourishing hate speech and misinformation about the Rohingya on major social media platforms, aggravating an already atrocious situation for the minority (Amnesty International 2022). The violence forced thousands of people to flee, spreading the conflict cross national borders. Almost 1 million people reached neighbouring Bangladesh, where they to this day continue to face extremely challenging circumstances in the world's largest refugee camp (USA for UNHCR 2023).

148 Michaelsen 2020. This may have provided opportunities to restrict freedoms through persuasion and control of information as opposed to relying on violence (Guriev and Treisman 2019).

149 Altman and Bastian 2022.

150 González and Ferencz (2018) find that a 10 percent increase in bilateral digital connectivity leads to a 2 percent increase in trade in goods.

151 See chapter 6 in Xing, Gentile and Dollar (2021).

152 Buckley 2018.

153 Espagne and others 2023.

154 WTO 2023.

155 Creutzig and others 2022.

156 Cowsls and others 2021; Creutzig and others 2022.

157 Creutzig and others 2022.

158 Creutzig and others 2022.

159 ITU 2023.

160 ITU 2022.

161 Cornelli, Frost and Mishra 2023.

162 Frank 2021. See also Cornelli, Frost and Mishra (2023) and UNDP (2020b, 2022a).

163 Cornelli, Frost and Mishra 2023; UNDP 2020b.

CHAPTER 3

- 1 A global public goods lens can help countries understand better ways to focus their contributions towards addressing shared global challenges. For instance, mitigating climate change requires all countries to reduce greenhouse gas emissions, but eradicating a disease depends on its being eliminated in the last country where the disease is still endemic. Particularly at a time when the international community is engaged in designing new treaties or improving existing ones to control pandemics or deal with global environmental challenges, it matters to know how national contributions aggregate to provide global public goods.
- 2 Such as the United Nations Secretary-General High-Level Advisory Board on Effective Multilateralism (<https://highleveladvisoryboard.org/>).
- 3 As proposed in G20 (2023a).
- 4 It states that the lengths of two sides of a right triangle (a and b), when squared, equal the length of the hypotenuse (c) squared ($a^2 + b^2 = c^2$).
- 5 This means that the Pythagorean theorem is globally nonrival in consumption and production. The nonrivalry of ideas such as the theorem was captured by Thomas Jefferson's analogy of the flame of a candle, which is not extinguished if it is used to light another candle (as quoted in Bryan and Williams 2021).
- 6 Although its use depends on other complementary factors, including the ability to understand it.
- 7 This means that the Pythagorean theorem is globally nonexcludable.
- 8 "Good" suggests social desirability but does not imply a moral assessment—there are many things that can be considered morally good under different ethical frameworks that are not global public goods. Global public goods have the two distinctive characteristics of being nonrival and nonexcludable in consumption or production. Full nonrivalry means that someone benefiting from a global public good does not take away from what is available for everyone else to enjoy. Full excludability means that the benefits are available to everyone without the possibility of excluding anyone.
- 9 Stiglitz 1999.
- 10 As elaborated also in Buchholz and Sandler (2021), which inspires and informs much of this paragraph.
- 11 This argument draws from Cornes and Sandler (1996). What matters is the incentive structure that shapes production and consumption. For instance, while a loaf of bread is fully rival and excludable, a collective that produces bread and distributes it equally among the members of the collective has

an incentive structure equivalent to that of providing a public good (Cornes and Sandler 1996). Many countries decide to provide public services that could also be provided privately (from health and education to water and sanitation) (Cornes and Sandler 1996). And while ideas in the public domain are global public goods, if their use is restricted by exploiting monopoly power or intellectual property rights, some can be excluded. There are many reasons why these choices are justified. For example, while making knowledge excludable tends to be inefficient—because, given nonrivalry, there is no cost to enabling an additional person anywhere in the world to access knowledge once it has been created (remember the candle that is not extinguished by lighting another)—the incentives to generate new knowledge could be weakened if the artist writing a novel or mathematician researching a new theorem had no way to earn a living from the knowledge that would be eventually produced. At the same time, it is not necessary to make knowledge excludable in order to provide incentives to generate new ideas, since other institutions—from public funding of science, in which scientists are institutionally rewarded by claiming priority to a scientific discovery, to prizes for scientific or artistic breakthroughs (potentially funded by philanthropic organizations)—also encourage the creation of new knowledge (Dasgupta and David 1994).

- 12 See also Liang and others (2023). Still, there is a wide gap between the potential for information and communications technologies to enable this sharing of knowledge and its reality, given price and other barriers to access, as presciently envisioned in (Stiglitz 1999).
- 13 Social choices can often determine whether and how something is a global public good by shaping the incentive structures that the relevant agents face in contributing to the global public good, including how financing is structured. Some goods can have some characteristics that are—and others that are not—global public goods. Take money, and consider the three economic functions that it performs: store of value, unit of account and medium of exchange. While far from being a public good as a store of value, money is fully public as a unit of account. This point was made by Kindleberger (1986).
- 14 The advantages of a lens that reduces complexity has a cost in simplifying, for instance, interconnections between global challenges (for a perspective on these links, see Newell, Goldstein and Foster 2019) and being less relevant for global challenges that are not strictly linked with cross-border spillovers. But this lens brings analytical clarity and makes it easier to discern common features across global challenges that may seem not related and to clarify what lessons from what kind of successful efforts to address global challenges can be extrapolated to others. For example, finding commonalities between mitigating climate change and tackling the Covid-19 pandemic (as in Ringsmuth and others 2022) is disciplined with a global public goods approach by recognizing that they are provided in different ways, as explored in the chapter.

- 15 Externalities reflect uncompensated interdependence among agents (meaning that one agent makes decisions without regard to the impacts that the decision might have on other agents). International externalities reflect uncompensated interdependence between two or more countries and can be negative (as in a disease that spreads) or positive (as in disseminating knowledge about how to curb the spread of the disease). While not all externalities are related to public goods, global public goods always involve international externalities. We are grateful to Todd Sandler for suggesting this formulation. Cornes and Sandler (1996, p. 7) argue that in the analysis of public goods, “the concept of an externality is the basic one.” Taking James Meade’s approach, an externality can be seen as “an event which confers an appreciable benefit (inflicts an appreciable damage) on some person or persons who were not fully consenting parties in reaching the decision or decisions which led directly or indirectly to the event in question.” As cited in Cornes and Sandler (1996, p. 39). This is only one of many ways to define an externality. For example, Kenneth Arrow defines an externality in the context of deviations from the axioms underpinning the Pareto efficiency of competitive markets (Arrow 1969), which Cornes and Sandler (1996) use to present a theory of externalities. For multiple examples and instances of the relationship between border-transgressing externalities and the provision of global public goods, see Kaul and Conceição (2006a) and Kaul and others (2003).
- 16 This reality is inspiring fresh perspectives on earth system governance (Biermann 2014, 2021; Biermann and Kalfagianni 2020; Burch and others 2019), polycentric governance for resilience (Folke and others 2019; Keys and others 2019a; Galaz 2022; Rockström and others 2021; Rockström and others 2023) and multilevel governance in climate change (Bulkeley 2005; Bulkeley and Newell 2023; Newell and Simms 2020; Stoddard and others 2021). A global public goods lens can also further inform and enrich these perspectives, as opposed to replacing or substituting for them.
- 17 They are rival in consumption.
- 18 For an early, and still canonical, presentation on managing local, regional and global environmental challenges as global public goods, see Barrett (2003a). For a more focused discussion on global commons, see Barrett (2006b).
- 19 As argued in Buchholz and Sandler (2021).
- 20 For instance, songbirds protect crops in North America during the spring and summer by feeding on insects but migrate to Central and South America for the winter. Degrading ecosystems in meridional regions can reduce the population of songbirds in North America, hurting crops there (Myers 1992, as cited in Buchholz and Sandler 2021). The negative effects on the bird population can be exacerbated by climate change (Youngflesh and others 2023).
- 21 Barrett (2003a) provides a list with dates of signature, ratification and other information about international environmental treaties up to about the turn to the 21st century. For a more comprehensive database going further in time and up to the present, see Mitchell and others (2020).
- 22 Additional illustrative examples related to water: on the impact of ocean acidification on marine ecosystems, see Doney and others (2020); on the importance of incorporating human activity in depictions of the global water cycle, see Abbott and others (2019); and on advances in the understanding of that relationship, see Allan and others (2020); on quantum sensing for gravity cartography that has applications for monitoring temporal variations in aquifers and geodesy, see Stray and others (2022); on the use of satellite data to identify hotspots of changes in river flows, see Wu and others (2023); and on improvements in understanding atmospheric ice nucleation (which is important for understanding global precipitation and the structure and reflectivity of clouds, which has crucial bearing on climate change), see Knopf and Alpert (2023). Changes in vegetation and dust patterns appear to have been critical in the abrupt end of the Green Sahara (which persisted for thousands of years, up to approximately 5,000 years ago), an insight that is now critical to understanding the implications of climate change in the Sahara and the Sahel going forward. On the Green Sahara, see Tierney, Pausata and deMenocal (2017), Tierney and others (2020a) and Tierney and others (2020b), and on the importance of understanding the past to inform the future of climate change and its interaction with society, see Degroot and others (2022).
- 23 Keys and others 2017.
- 24 Keys and others 2019b.
- 25 Keys and others 2012. For example, 89 percent of the rainfall over the Nile basin originates outside the basin itself (te Wierik and others 2021).
- 26 There is an extensive literature documenting the “great acceleration” in human-driven changes to planetary processes (see, for instance, Steffen and others 2015).
- 27 See Head and others (2022a) and Head and others (2022b) for evidence supporting the case for a new epoch. Crawford Lake, in Canada, was proposed by the Anthropocene Working Group as a “golden spike” (formally, a global boundary stratotype section and point) of the Anthropocene (McCarthy and others 2023). This designation is being considered by the broader community of geologists before a formal decision is made. The concept of the Anthropocene has transcended geology (see Malhi 2017 for a review), leading some to argue that rather than a formal new epoch in the geological time scale, it should instead be seen as a “emergent, unfolding, intensifying event” (Edgeworth and others 2023, p. 1; see also Bauer and others 2021, Gibbard and others 2022a and Gibbard and others 2022b). For a response to this view, see Waters and others (2023). Whether the Anthropocene is ultimately characterized as a formal unit in the geological timescale or a geological event does not detract from the widely accepted notion that humans are fundamentally transforming the planet in unprecedented ways, and it is in that spirit that the term is used in this Report, following UNDP (2020b).
- 28 On the depletion of the ozone layer, see Barrett (2003a). The global public goods literature on climate is extensive; see Buchholz and Sandler (2021), Keohane and Victor (2016) and Stiglitz (2015). For a recent take on preserving global diversity as a global public good, see Barrett (2022) and Buchholz and Sandler (2021).
- 29 Folke and others 2021.
- 30 Schell (1982, pp. 166–167), in his meditation of the implications of a nuclear war in the early 1980s, already echoed an intuition for the relevance of planetary public goods: “[...]the earth’s environment is seen not merely as a surrounding element in which it is more or less pleasant to live but as the foundation of human as other life. The oneness of the earth as a system of support for life is already visible around us. Today, no matter how strenuously statesmen may assert the ‘sovereign’ power of their nations, the fact is that they are all caught in an increasingly fine mesh of global life, in which the survival of each nation depends on the survival of all.”
- 31 We are grateful to Belinda Reyers for these suggestions and for the further elaboration in this note. The biosphere as a planetary public good could be seen as playing two key roles, adapting the formulation in Mace and others (2014). First, is the role as a global source of diversity of organisms’ functional traits. Organisms with different functional traits can differentially affect important global and regional ecosystem properties, such as primary production, decomposition or detoxification, and react differently to changes in the environment. When certain combinations of functional traits are lost in the face of environmental change, these key global and regional functions could be at risk. Second is the role as the library of life—in other words, the evolutionary potential to help us adapt, change and stay resilient as the world and human societies change. In the long term—over centuries to millennia—human wellbeing will depend on the biosphere’s continued ability to support desired ecosystem services and processes in the face of often rapidly changing selective pressures.
- 32 A planetary public goods lens does not imply some sort of naturalistically determined imperative to provide these goods. Ultimately, the reality of the Anthropocene, which results from human agency, and the disruption to planetary processes with implications that do not stop, and cannot be stopped, at borders justify the potential usefulness of this lens. A planetary public goods lens also does not mean that there will not be any contestation, in part because the benefits of planetary public goods (like those for any global public good) accrue differently to different people across the globe, in part because the process of providing these goods is not neutral.
- 33 Knuth 1972; Maor 2019. Even though there are hundreds of different ways to prove the theorem, Pythagoras was perhaps the first to codify a rigorous proof—or, at least, his proof corresponds to the most ancient record found

to date (Loomis 1968). For a list of more than 100 proofs, see <https://www.cut-the-knot.org/pythagoras/index.shtml> (accessed 15 December 2023).

- 34 Ideas and knowledge are created and diffused in culturally contingent and evolving contexts, but individuals can still be central players, in the form of what Joel Mokyr called “cultural entrepreneurs” (Mokyr 2013, 2016). Sen (2009b) also describes the importance of Mary Wollstonecraft’s writings in the 18th century advocating for the rights of women and the abolishment of slavery.
- 35 Global public goods can be provided by different agents at multiple scales—under multiple incentive structures that can motivate agents to contribute to their provision. For the multitude of agents involved in several aspects of transnational policymaking, see Pouliot and Thérien (2023) and Stone and Moloney (2019).
- 36 Many people depend on knowing and using the Pythagorean theorem for their livelihoods; others can go through life without even knowing what it states (not only not using it, but also not relishing its beauty).
- 37 In fact, some theories of economic development attribute to ideas the fundamental role in driving progress precisely because of their nonrivalry and because they are the foundation of even more and newer ideas (in this sense, they have important positive externalities), including on how to make more efficient, equitable and sustainable use of the limited physical resources on our (materially limited) planet (Jones 2023). The formal economic analysis of ideas as distinct from other (rival) goods was pioneered by Arrow (1962). That pathbreaking analysis established the implications of the nonrivalry of ideas (and the uncertainty associated with their potential impact) for both production and demand. Formal models of economic growth in which the generation of ideas is endogenous were pioneered by Romer (1986, 1990, 1993). Jones (2019) explains how the nonrivalry of ideas sits at the core of these endogenous growth models. Enhancing incentives to produce and use ideas drives these growth models, and given that ideas need to come from people (Jones 1995, 2020), other factors contribute, including enhancing the allocation of talent—namely by reducing gender or racial discrimination (Hsieh and others 2019; Jones 2022).
- 38 Although how far the idea is disseminated depends on multiple variables, from how it is stored to people’s ability to make sense of it and use it. Many ideas may have emerged and never been disseminated. Rather than a statement on the nature of idea creation and dissemination, the intention here is to illustrate the features of a global public good for which the level of provision depends on the actions of the single agent that contributes the most.
- 39 To simplify, agents are countries producing and benefiting from a global public good. This crude simplification ignores the many interactions between the domestic context and countries’ international actions. These include, for instance, the impact of the size of

a country’s population (Boadway and Hayashi 1999) and wealth inequalities within countries (Bardhan, Ghatak and Karaivanov 2007). In addition, as Murdoch, Sandler and Sargent (1997) show, the unitary model of countries as decisionmakers does not perform well when many agents in the country are engaged in determining the provision status of the public good in question. For instance, there are environmental agreements that mandate reductions in the emissions of both sulphur and nitrogen oxides for 25 countries in Europe. But while sulphur emissions tend to originate in a few industries, nitrogen oxide emissions are generated across a range of sectors and economic activities. Thus, through the 1980s, sulphur emissions in these countries declined by the treaty-mandated 30 percent or more, but the same countries had trouble reducing emissions of nitrogen oxides.

- 40 Until Hirshleifer (1983), all public goods (global or not) were implicitly assumed to follow a summation aggregation, so much of the original analysis of public goods and policy discourse (including on global public goods) continues to implicitly carry that assumption. The discussion of how global public good provision depends on different types of aggregations of country contributions is done discursively in this chapter, drawing on examples. For formal and more comprehensive treatments of aggregation “technologies,” not only for global public goods but also for other public goods, see Kanbur, Sandler and Morrison (1999) and Sandler and Arce M. (2002). The relevance of distinguishing different aggregation technologies for international cooperation was explored in the final report of the International Task Force on Global Public Goods (Zedillo and others 2006), as well as some of the background material produced for the task force (in particular, Barrett 2006b). For a recent summary of the literature, see Buchholz and Rübbelke (2017). For instance, for airborne pollutants that, unlike greenhouse gas emissions, dissipate quickly in the atmosphere, the location of the countries originating and being affected by those pollutants, matters, along with prevailing winds. The reach may, therefore, not be global—in that case, one confronts the provision of transnational public goods that may be regional or subregional, as explored in Arce M. and Sandler (2002), Kanbur, Sandler and Morrison (1999), Sandler (1998) and Sandler and Arce M. (2002). There is no perfect substitutability, as with greenhouse gas emissions, because some countries may have a larger impact than others, and some countries may also be more affected. Thus, the provision is still determined by summing the contributions of the relevant countries, but with those that contribute more weighing more in the aggregate than those that contribute less—in a weighted summation.
- 41 Sandler 1997.
- 42 Rao 2022.
- 43 That same country, the United States, established a system to monitor tropical cyclones in the Western Hemisphere because the net national gains from that effort justified the investment, even though the benefits also

accrue to many other countries and, potentially, the world (Sandler 1997). Through the US Centers for Disease Control and Prevention, it also monitors disease outbreaks and seeks to isolate new pathogens around the world. Both are presumably motivated by a desire to protect US citizens, but they also bring global benefits (Sandler 2015).

- 44 One implication of best-shot global public goods is that their provision is enhanced when countries coordinate their efforts based on their resources and capabilities. There is some evidence that countries recognize this. For instance, Kyle, Ridley and Zhang (2017) report that a 10 percent increase in US government funding for medical research for a specific disease is associated with a 2–3 percent reduction in funding for research on that disease by governments and foundations in 41 other countries as those countries presumably adjust funding to focus on their research strengths. Coordination could enhance the overall allocation of resources.
- 45 The concentration of greenhouse gases in the atmosphere is determined by the total level of emissions, net of the capacity of the biosphere to “absorb” them—that is, the sum of the emissions from each country.
- 46 For summation global public goods, each country’s contribution adds equally (at the margin) to the overall provision.
- 47 Smith and others 2004.
- 48 To improve the provision of weakest-link global public goods, allocating resources beyond the country, or countries, with the least capacity to contribute makes little difference because that will make little difference in the overall provision. In contrast, it is imperative to enhance the ability to contribute for those least able to do so, because their contribution determines the overall level of provision of the global public good.
- 49 The discussion assumes that the provision of global public goods is driven by how countries interact in a world where states seek to advance their self-interest and have different levels of resources and capabilities (see box 3.2).
- 50 Sandler (2016, p. 42) says, “Averting a regional financial crisis through an infusion of funds is a best-shot public good.”
- 51 There are efforts to coordinate, and even cooperate, on several scientific endeavours, such as nuclear fusion, for which ITER (<https://www.iter.org/>) brings together 35 countries, and particle physics, for which the European Organization for Nuclear Research (better known as CERN) brings together 23 countries (<https://www.home.cern/>).
- 52 For example, in codifying rules and pooling of resources to provide liquidity to countries facing balance of payments crisis, as with the creation of the International Monetary Fund after World War II.
- 53 For descriptions and analysis of multilayered and multiagent governance, see Slaughter (2004) and Stiglitz and Kaldor (2013).
- 54 This situation parallels the outcome of the prisoner’s dilemma, when the sum of the

- individual contributions is lower than what would be collectively desirable and feasible. Chen and Zeckhauser (2018) provide evidence that some countries “cheap ride” when it comes to contributions to reducing greenhouse gas emissions.
- 55 A country committing to contributions would be expected to change the incentives for others to do so in the future. Some models suggest that this might be the case (as in Boadway, Song and Tremblay 2007), but the question remains: what would make a country commit in the first place?
- 56 Beyond the possibility of countries having altruistic preferences (Goussebaïle and others 2023), fairness is required when there is a strong need for reciprocity (Fehr and Gächter 2000; Fehr and Schmidt 1999).
- 57 Since several greenhouse gases can stay in the atmosphere for decades (IPCC 2007).
- 58 For a discussion of the different dimensions of climate justice, see Dolšák and Prakash (2022). On the importance of reciprocity and perceptions of fairness in climate change mitigation, see Buchholz and Peters (2005), Buchholz, Peters and Ufert (2018), Buchholz and Rübbelke (2019), Carattini, Levin and Tavoni (2019) and Cairney, Timonina and Stephan (2023). For an argument as to why current financial flows to support mitigation are unfair, see Pachauri and others (2022). On the debate over whether the size of each country’s economy should be accounted for using purchasing power parity or market exchange rates, see Pachauri and others (2023) and Semieniuk, Ghosh and Folbre (2023).
- 59 For a discussion about the importance of side payments in enhancing cooperation for environmental global public goods, see Barrett (2003a), who argues that in a side payment game, concerns with fairness do not drive individual country decisions, but an outcome that is seen as fair will still be especially compelling.
- 60 In the formal literature on providing public goods, this is the well-known “Warr neutrality result” (Warr 1983), which establishes that transfers of resources from richer to poorer agents do not affect the level of provision of (summation) public goods. The intuition is that while the agent receiving income contributes more (increases in income result in higher contributions to a public good), that contribution is offset by a proportional reduction in the contribution of the agent for which income is reduced. An implication of this result is that for (summation) global public goods, “new money” is typically required to enhance the provision level—other than the implications that income transfers may have for fairness and reciprocity. In the international context, philanthropic organizations have often played this role of providing new and additional income. In the end, any allocation of burdens of contributing to climate change is irreducibly normative and needs to be supported through ethical reasoning (Dooley and others 2021).
- 61 Because if any country does not contribute, there is no provision of the global public good at all. This is a very different situation from summation global public goods, where even with equal preferences and resources, countries face incentives to not contribute.
- 62 Sandler (1997) discusses how equity across countries can enhance prospects for the provision of weakest-link global public goods. This is also shown in Jayaraman and Kanbur (1999).
- 63 Whether the support is in income or in kind also matters, as does the relative efficiency that rich countries have in delivering in-kind support; see Vicary and Sandler (2002).
- 64 For a recent discussion of the prospects for providing weakest-link public goods, emphasizing the importance of transfers, see Caparrós and Finus (2020b).
- 65 Olson (1971) emphasized the general point that as the number of agents engaged in a prisoner dilemma situation increases, the likelihood of cooperation declines. For recent evidence on the limit of group sizes enabling cooperation at the local level, see Casari and Tagliapietra (2018). For a specific discussion in the case of weakest-link global public goods and how free-riding concerns related to international transfers to shore up weakest links are magnified the more rich countries there are, see Sandler (2016).
- 66 Sandler 2016.
- 67 This approach complements other efforts that sought to draw lessons from the Covid-19 pandemic for managing global challenges—for instance, from a systemic risk perspective (Ringsmuth and others 2022) and informed by approaches based on integrated social, economic and ecological systems on a changing planet (Crona, Folke and Galaz 2021; Galaz 2022; Galaz and others 2021; Keys and others 2019a). It is not meant to be a comprehensive review or assessment of a multifaceted and complex period, still beset by many unknowns, though some assessments take the form of official commissions of inquire (such as Clark 2022, Response 2022 and Sirleaf and Clark 2021), while others are informal (such as Cable and others 2022, Frenk and others 2022, Sachs and others 2022 and Williamson and others 2022). For a review and analysis of the legitimacy and impact of these assessments, see Becker and Nouwen (2019), Stone and Schmitter (2023) and Weible and others (2020). For a “constructivist” critique on how these assessments are framed, see Shiffman and Shawar (2022). Assessments are likely to be dynamic and evolving, as the threats to global health in the 21st century multiply, and a commission has been established to analyse just that (Kanem, Murray and Horton 2023). A global public goods lens could bring an analytic frame to support these efforts. The analysis draws selectively from some of the events and choices that unfolded during the Covid-19 pandemic to further illustrate the analytical insights on providing global public goods discussed thus far. It is inspired by other attempts to use a global public goods lens to analyse the Covid-19 pandemic, such as Brown and Susskind (2020) and Sandler (2020, 2023).
- 68 As argued early in the Covid-19 pandemic by Caparrós and Finus (2020a).
- 69 See Arhin-Tenkorang and Conceição (2003) and Sonntag (2010) for a global public goods perspective on health challenges.
- 70 For a discussion of the context of uncertainty in shaping the Covid-19 response, see Collins, Florin and Renn (2020), Kreps and Kriner (2020) and Leach and others (2022). For a general analysis of responses to epidemics under uncertainty see Barnett, Buchak and Yannelis (2023).
- 71 For a further elaboration on the need for multiscale approaches to pandemic preparedness, see Wilkinson and others (2023).
- 72 Some estimates indicate that the economic burden in 2019 was \$1.115–\$3.346 trillion (in 2017 purchasing power parity international dollars) for tuberculosis, \$678–\$2,035 billion for AIDS and \$564–\$1,693 billion for malaria (Bloom, Kuhn and Pretzner 2022).
- 73 When the eradication effort started in 1967, smallpox was endemic in 31 countries and caused as many as 15 million cases and about 2 million deaths a year (Fenner 1993).
- 74 Barrett (2007) For further analysis of disease eradication as a global public good, see Barrett (2003b, 2013b).
- 75 Sandler 2015.
- 76 For instance, those having nonhuman hosts may be very difficult or impossible to eradicate (Arhin-Tenkorang and Conceição 2003).
- 77 For a discussion of the conditions for disease eradication and the evolution of the initial efforts to eradicate polio, see Arhin-Tenkorang and Conceição (2003). A key person in the eradication of smallpox, D. A. Henderson, reported being sceptical about the feasibility of eradicating polio (Henderson and Klepac 2013). Because many of the difficulties envisioned by Henderson came to pass, the accumulation of costs in the eradication effort made the effort seem less attractive, but the benefits are so high that estimates suggest that eradicating polio would still bring net benefits even if it occurred in 2029 (Thompson and Kalkowska 2021), although the cost-effectiveness would be lower than earlier estimates (Thompson and Tebbens 2007). In addition, eradication efforts brought benefits in and of themselves (Badizadegan, Kalkowska and Thompson 2022). The analysis of the “polio endgame” continues to inform ongoing efforts to eradicate polio (Thompson, Kalkowska and Badizadegan 2022). However, the Covid-19 pandemic substantially disrupted eradication efforts (Burkholder and others 2023; Kalkowska and others 2023; Thompson 2022).
- 78 WHO 2019.
- 79 Barrett 2011; Cohen 2023.
- 80 While the analysis emphasizes the usefulness of having a conceptual framework for understanding global public good provision informed in part by different ways of aggregating individual country contributions, multiple other factors shape the provision of global public goods. For example, addressing the thinning of the ozone layer and mitigating climate change share many properties as global public goods, but the effectiveness of

the response to each has been markedly different. Sandler (2017) explores in detail how contextual factors have contributed to the different outcomes for global public goods that share many characteristics.

81 Assessments conducted since the outbreak of the Covid-19 pandemic have established that countries with more generic public health capacities were better able to control the disease, highlighting the importance not only of an emergency response but also of building surveillance and public health capacities (Neill and others 2023).

82 Usher 2020.

83 Laxminarayan, Reif and Malani 2014.

84 Saak and Hennessy 2018.

85 Suzman 2023.

86 An aspiration that emerged from the lessons of dealing with the Covid-19 pandemic (Saville and others 2022).

87 Gouglas, Christodoulou and Hatchett 2023.

88 African Centres for Disease Control and Prevention 2022.

89 WHO 2021.

90 The initial context of limited supply of vaccines may have provided incentives, even if not a justification, for countries to share little, but after this constraint was released, self-interested countries would have been better off sharing vaccines (Lampert and others 2022). As of 20 May 2022, when global vaccine supply was no longer a constraint (supply constraints for COVAX were heightened over the course of 2021; Gouglas, Christodoulou and Hatchett 2023), 80 percent of people in high-income countries had received a single dose, compared with 16 percent in low-income countries (WHO 2022a).

91 <https://www.who.int/initiatives/act-accelerator/covax>.

92 Usher 2021.

93 A similar challenge almost derailed the eradication of smallpox. Despite very strong incentives for each individual rich country to finance the eradication effort (and even for the United States to shoulder the cost alone), each country would have rather had others contribute instead (Barrett 2007; Fenner and others 1988). Smallpox was successfully eradicated during the Cold War largely because it eventually received strong support from both the Soviet Union and the United States. In 1958, the Soviet Union aligned its position in the WHO with a control effort focused on vaccination and surveillance (Fenner 1993). The United States breathed new life into the effort in the mid-1960s with a unilateral decision to support eradication in African countries. Interestingly, that decision appears to have been made for political expediency, not out of self-interest or for strategic reasons (Barrett 2007). But the WHO appears to have made a strategic move by proposing mandatory contributions that fell far short of the total international assistance needed. This made an agreement on mandatory contributions possible and unlocked enough voluntary contributions to successfully finance the eradication effort. Thus, success

did not hinge on the WHO's ability to enforce the agreement to eradicate but on countries coordinating their actions (Barrett 2007).

94 Rogers and Mandavilli 2020.

95 Emanuel and others 2020.

96 That rich countries had violated reciprocity norms. On the relationship between fairness and reciprocity, see Fehr and Gächter (2000), who refer to retaliatory actions or words to perceived violation of fairness norms as "negative reciprocity." Suzman (2023) offers an interpretation as to how these reciprocity violations were perceived by low- and middle-income countries, given the inequities in vaccine access.

97 Hu and others 2021; Wu and others 2020; Zhu and others 2020.

98 Haynes and others 2020; Jiang and others 2012.

99 Kiszewski and others 2021. When it comes specifically to mRNA vaccines, the US government invested at least \$337 million between 1985 and 2019 into research and development that directly contributed to key innovations in the mRNA Covid-19 vaccine (Lalani and others 2023).

100 As argued in Brown and Susskind (2020).

101 Kim and others 2021.

102 Dyer 2020.

103 <https://www.cdc.gov/museum/timeline/covid19.html> (accessed 15 December 2023).

104 Le and others 2020.

105 Hanney and others 2020.

106 DiMasi and others 2020; Excler and others 2023.

107 Kim and others 2021.

108 <https://www.cdc.gov/museum/timeline/covid19.html> (accessed 15 December 2023).

109 Excler and others 2023.

110 Lalani and others 2023.

111 Kremer, Levin and Snyder 2020. For a proposal on how to improve on the ad hoc approach and deploy a more structured advanced market commitment that also ensures equitable access, see Towse and others (2021).

112 Sampat and Shadlen 2021. For an argument proposing ethical obligations to pharmaceutical companies during a global health emergency, see Emanuel and others (2021).

113 Countries are not the only relevant players, given the increasing complexity of international cooperation (Alter and Raustiala 2018). For example, Hale (2020) documented in 2018 more than 190 transnational initiatives aimed at addressing climate change with more than 12,000 substate and nonstate actors participating. Still, countries remain primarily players in the provision of global public goods.

114 For instance, national institutions (such as the US Centers for Disease Control and Prevention and the Pasteur Institute), networks (such as CGIAR), multistakeholder partnerships (such as the Global Fund to Fight AIDS, Tuberculosis and Malaria and Gavi, the Vaccine

Alliance) and charitable foundations (such as the Wellcome Trust and the Bill & Melinda Gates Foundation) have also been increasingly active in contributing to the provision of global public goods.

115 Following the discussion in Buchholz and Sandler (2021).

116 The establishment of multilateral arrangements is tightly linked with the assumption that states are the key agents in providing global public good, as recognized in early contributions, going back to Stiglitz (1995).

117 Hoffman and others 2022.

118 On the determinants of environmental treaty effectiveness, see Finus, Cooper and Almer (2017) and Libecap (2014). For empirical evidence on treaty effectiveness, see Hoffman and others (2022).

119 As argued by Barrett (2006a).

120 WHO 2021.

121 To be precise, this goes beyond global public goods, because the nonexcludability property is not present and benefits are partially nonrival (for instance, because of congestion in the use of the club).

122 Axelrod and Keohane 1985. Clubs include the Intelsat communication network, the global air traffic control system and the internet. Partial nonrivalry implies that it is not necessarily wasteful to exclude countries, while excludability encourages countries to reveal their preferences for the good and to contribute accordingly (for instance, in the form of access fees). There have been proposals to advance climate change mitigation by establishing climate clubs, (Nordhaus 2015, 2020, 2021), but these proposals do not correspond to the definition of clubs used here.

123 Pecetta and others 2022; Shanmugaratnam and others 2021.

124 Athey and others 2022; Glennerster, Snyder and Tan 2022.

125 Pecetta and others 2023.

PART II

CHAPTER 4

1 Mantel 2009, p. 305.

2 As does any public policy set of measures and interventions, as argued in Shafir (2013). Merz and others (2023) call for identifying the behavioural drivers behind the planetary pressures of the Anthropocene. Davidson and others (2024) argue that standard models used in sustainability science (such as integrated assessment models for climate change, engineering-economic optimization approaches and agent-based models) need to be enhanced by incorporating institutional and behaviour elements.

3 Following Elster (2015b), collective action can arise out of horizontal interactions between decisionmakers within a group or through vertical measures that compel or oblige members of the group to contribute to the collective. Collective action implies multiscale

interactions across members of a collective and feedback from the properties of the collectives that influence members' behaviour, resulting in behaviour that can be analysed as a complex adaptive system, as argued in Bak-Coleman and others (2021).

4 In the broadest sense, collective action "can be defined as decentralized action by the members of a group to eliminate public bads that affect all of them or to create public goods that benefit all of them" (Elster 2015b, p. 382). The tight connection between collective action and public goods was articulated long ago by Olson (1971, 2012), inspiring a large literature in economics (put in context in his original contribution in Sandler 2015). Ostrom (1998) recognized the limitations of standard economic analysis of collective action and advocated for a richer description of human behaviour. Beyond economics collective action has been the subject of many formulations and approaches in fields such as sociology (Oliver 1993; Van Zomeren, Postmes and Spears 2008), political science (Medina 2013) and anthropology (DeMarrais and Earle 2017), among others.

5 This echoes Schill and others (2019) and Schlüter and others (2017) in the need to consider a broad range of human behavioural assumptions to address the challenges of the Anthropocene.

6 That is, beliefs are not only driven by an effort to be accurate; they can also be motivated in a self-serving way to make people feel better about themselves or about convictions they hold (Bénabou and Tirole 2016; Zimmermann 2020). There is evidence that people gain affection for their beliefs and have a hard time letting them go (Litovsky and others 2022). This can generate belief traps (Scheffer and others 2022), with negative social implications when the beliefs are harmful. For instance, if people feel threatened, regardless of whether there is an objective threat, they act accordingly: "[...] a fundamental fact about human beings: we are belief-driven creatures, but we are epistemically fallible – prone to serious errors in the formation and preservation of our beliefs. What we believe makes a difference in how we act and sometimes even fully determines how we act, but we can be and often are mistaken in our beliefs. If we falsely believe that the Other poses a threat, we react just as strongly and negatively as we would if our belief were true. The beliefs, not the facts, are what matter" (Buchanan 2020, p. 181).

7 Through social norms people conform with behaviour for the sake of seeing themselves and being seen by others as upstanding members of a community. In a widely cited case the introduction of fines by a school to punish parents who were late picking up their children led to an increase in parents being late, because what sustained cooperative behaviour before the fines were introduced (perhaps a social norm or an intrinsic commitment) was undermined by a financial incentive (Gneezy and Rustichini 2000). For a review of a broader set of cases, see Gneezy, Meier and Rey-Biel (2011). Bénabou and Tirole (2003) provide an early contribution to the analysis of when and

how incentives can undermine intrinsic motivation. Incentives and other motivations are not always in opposition; they can also reinforce each other (see Rajapaksa and others 2019 for an example of a combination of approaches that enhanced water conservation).

8 We are grateful to Melissa Leach for this formulation. Anthropologists, sociologists, structural linguists and historians look at the interplay between structures of power and action in various ways.

9 We are grateful to Karla Hoff for this formulation. Kotchen, Rising and Wagner (2023) argue for the need to involve more insights from behavioural science to address climate change. Bastini and others (2023), Bergquist and others (2023) and Vlasceanu and others (2023) provide reviews and experimental results for possible behavioural interventions to mitigate climate change. Taberna and others (2023) show that behavioural uncertainty mediates the importance of physical factors in responding to changes in incentives to adapt to environmental shocks. Bergstrom and Hanage (2024) and Saad-Roy and Traulsen (2023) argue for the importance of a richer description of human behaviour to understand disease dynamics.

10 This corresponds to what Demeritt and Hoff (2018) and Hoff and Demeritt (2023) called the second wave of behavioural economics, while the behavioural choice corresponds to what they called the first wave. For a review of applications of the first wave of behavioural economics to development, see Kremer, Rao and Schilbach (2019), and for the second wave, see Hoff and Demeritt (2023).

11 One example is the endowment effect, where people demand more money to give up something they own than they are willing to pay to acquire it. Apicella and others (2014) showed that this was not universal but prevalent in groups exposed to notions and practices of ownership and market exchanges of goods and labour. For a broader review, see Apicella, Norenzayan and Henrich (2020).

12 On the instrumental power of hope and optimism to improve wellbeing and how different contexts shape them, see, for instance, Graham and Pinto (2019) and Lybbert and Wydick (2018). On aspirations, see Fruttero, Muller and Calvo-Gonzalez (2021) and Genicot and Ray (2017, 2020). For a discussion on aspirations and human development interventions, see Conradie and Robeyns (2013). On the relationship among aspirations, social norms and development outcomes, see La Ferrara (2019).

13 Evidence suggests that people see vaccines not only as self-protection but also as part of a social contract with their community to reduce the spread of infections (Böhm and Betsch 2022; Korn and others 2020).

14 A social contract between people and a national government can be struck on the basis of which national public goods are provided, rules are enforced and fiscal resources from individuals are mobilized to finance those public goods.

15 With some arguing that globalization, if anything, has strengthened the desire of more

states to preserve sovereignty and autonomy (Krasner 1999).

16 The reality of the Anthropocene has stimulated debate on how enhancing global governance affects international law (see, for instance Kotzé 2019, Woolley and Harrington 2022 and Kotzé and Kim 2022). But countries would still need to voluntarily agree to adopt these proposed measures, so the analysis in this section can also be applied to understand the conditions that could make that discussion advance.

17 This distinction draws from Sen's (2009b) contrast between procedures of social choice to advance justice and Rawlsian approaches on the design of social contracts based on a theory of justice. Sen goes further, arguing that the pursuit of social contracts within each country limits the potential only for an impartial spectator from other countries to improve processes of social choice. Addressing global challenges requires systemic interventions, as argued in Chater and Loewenstein (2022). But given that at the global level systemic interventions have to be voluntarily agreed to by countries, even if a possible intervention can be specified, that still leaves open the question of how to go about getting sovereign countries to agree on it.

18 As Kirshner (2022, p. 15) argued, "Individuals are the ultimate actors in world politics; therefore assumptions about human behavior are inherent to (and consequential for) any paradigm, even if they remain implicit." That is the spirit under which the discussion in this chapter unfolds, trying to make explicit different human behavioural assumptions.

19 Sen 2009b. See also the discussion in chapter 3 of UNDP (2022b).

20 Burgio, Gómez and Arenas 2023; Hébert-Dufresne and others 2022.

21 Dannenberg and Gallier 2020.

22 For a discussion of the implications of these behavioural assumptions in international law, see van Aaken and Broude (2020) and Fikfak, Peat and van der Zee (2022).

23 This is sometimes designated homo economicus (Persky 1995).

24 It is also typically the baseline for expected human behaviour, against which several deviations (or biases) are established in the fields of behavioural economics and behavioural science more broadly.

25 Centola and Baronchelli 2015; Centola and others 2018.

26 Efferson 2021b.

27 For instance, in a context where countries have yet to coordinate and all must move in a certain direction, a country that does not trust that others will move in that direction (one that everyone desires) may decide to "play it safe" and stick to the status quo, so coordination can fail. This can be interpreted as the Dag Hammarskjöld quote, "It is when we all play safe that we create a world of utmost insecurity" (as cited recently by UN Secretary-General António Guterres (2023b)).

- 28 Thomas Schelling argued that focal points can perform this coordination function (Schelling 1965, 1978). There is an extensive literature on interventions to overcome coordination failures, including results from experiments (reviewed in Devetag and Ortmann 2007, but see Avoyan and Ramos 2023 and Kendall 2022 for more recent reviews).
- 29 Although alternative analyses reject that these correspond to examples of mutually beneficial equilibria, pointing instead to the pervasive role of power and interests in setting these standards only in some cases (Krasner 1991).
- 30 Keohane and Victor 2016.
- 31 Buchholz and Sandler 2021.
- 32 While much is made of the fact that the non-legally binding nature of many international agreements makes them ineffective in supporting the provision of global public goods, just making a treaty legally binding is not a guarantee that states pursuing their self-interest will change their behaviour. Countries may choose to not enter into the agreement to begin with or to withdraw from it, as the exit of the United Kingdom from the European Union demonstrated (Barrett 2016).
- 33 Barrett 2016.
- 34 This can thus be modelled as an assurance (or stag hunt) game (Sandler 2016).
- 35 For a detailed description, see Barrett (2003a).
- 36 Barrett and Dannenberg 2022.
- 37 For the treaty to succeed, enough countries need to sign to make it in everyone's interest to be a party.
- 38 See Barrett (2003a) for a historical account of the negotiations informed by an analysis of the incentive structures put in place by the treaty that compelled high-income countries first, through trade incentives, and then low- and middle-income countries, through side payments, to sign and ratify the treaty.
- 39 Although other uncertainties can make communicable disease control difficult, as explored in Leach and others (2022).
- 40 Armstrong McKay and others 2022; Rockström and others 2009; Rockström and others 2021; Rockström and others 2023; Steffen and others 2015.
- 41 Brovkin and others 2021; Lenton 2013; Lenton and Williams 2013; Lenton and others 2008; Steffen and others 2018.
- 42 Kemp and others 2022a.
- 43 Barrett 2016.
- 44 These conditions are akin to the incentives countries face in providing a weakest-link global public good.
- 45 No such threshold was defined in the Montreal Protocol. For a different perspective on how uncertainty can make agreements on international environmental agreements difficult, see Ulph, Pintassilgo and Finus (2019).
- 46 Barrett 2016.
- 47 Burgess, Pielke and Ritchie 2022; Keen and others 2022; Kemp and others 2022b. And differences in damages across countries may foster cooperation (Waichman and others 2021). At the same time inequalities in resources may create a countervailing effect (Brown and Kroll 2021).
- 48 Barrett 2013a; Barrett and Dannenberg 2012.
- 49 If there is uncertainty about where the threshold lies, but there is a known upper bound, countries would need to cooperate to stay collectively below the upper bound. If the uncertainty is large, each country would know that being just a little bit below its individual contribution to the upper bound is unlikely to make the world go over the threshold. So, the situation resembles that of a summation global public good, in which each country faces an incentive to individually contribute just under what needs to happen to avoid going over the threshold—behaviour confirmed in experiments (Barrett and Dannenberg 2012, 2017). Schill and Rocha (2023) report that this uncertainty does not preclude cooperation to sustain local commons, but Ahsanuzzaman, Palm-Forster and Suter (2022) condition this result on the possibility of having effective communication at the local level.
- 50 Dannenberg and Barrett 2018; Dannenberg and Gallier 2020. On existential risks, see Ord (2020).
- 51 Barrett and Dannenberg 2014.
- 52 For an early review of deviations from the rational choice model in actual collective action behaviour, see Ostrom (1998), which also provides a set of ideas on how to expand behavioural assumptions to account for those observations. For recent reviews, see Dijk and Dreu (2021) and Van Lange and Rand 2022.
- 53 These departures should not assume that the standard selfish choice model gives a more accurate account of human behaviour but rather that a model of choices provides a reference against which to structure deviations. Thus, expressions such as cognitive biases and nonstandard preferences are not necessarily deviations from rationality but rather deviations from the standard selfish choice model. Attempts to empirically measure economic rationality have been shown to be unreliable (Nitsch and others 2022). The discussion of behavioural insights adopted here follows the language proposed by DellaVigna (2009), who grouped deviations from the standard selfish choice model in three categories: nonstandard preferences, nonstandard beliefs and nonstandard decision-making. Care must be taken in extrapolating insights from theory and experiments based on individual choices to group choices, given some early suggestive evidence that groups or teams may be less subject to behavioural biases (see Ambrus, Greiner and Pathak 2015; Charness and Sutter 2012; Feri, Irlenbusch and Sutter 2010; Kugler, Kausel and Kocher 2012.). However, more recent analysis suggests that behavioural insights are also relevant for group and team behaviour (Charness and Chen 2020). See Bechtoldt and others (2021) for a specific mobilization of insights from psychology to understand underinvestment in climate change adaptation. Before experimental evidence appeared, much of it reviewed here, Amartya Sen had already undertaken a critique of some of the behavioural assumptions of the selfish choice models (as in Sen 1973, 1977, 1997).
- 54 As argued in Boon-Falleur and others (2022) for the global public good of climate change mitigation and in Van Bavel and others (2020) for the global public good of Covid-19 control. See Van Bavel and others (2022) for a review of the interplay between cognition, norms, and institutions in shaping group cooperation.
- 55 Fehr and Schmidt (1999) documented that respondents in experiments exhibited inequality aversion, valuing others' payoffs positively if the others were worse off than the respondents and negatively if the others were better off. Another expression of social preference is pure altruism, where payoffs of others are never valued negatively (Andreoni 1989; Andreoni and Miller 2002; Charness and Rabin 2002). We are grateful to Wolfgang Buchholz for pointing out that Kantian optimization is an alternative to purely selfish utility maximization (Roemer 2019; Van Long 2020). Prosocial motives can sometimes be in tension, or even conflict, presenting cognitive challenges on how to resolve them in decisionmaking (Li and others 2022; Sinnott-Armstrong and McKee 2022). Other approaches to nonstandard preferences include Frank (1987) on endogenous preferences and Akerlof and Kranton (2000) on the role of identity.
- 56 Axelrod and Hamilton 1981. Recent advances in genetic, microbiological and analytical approaches have revolutionized our understanding of cooperation across all forms of life and all levels of biological organization (West, Griffin and Gardner 2007a; West and others 2021), from genes, to cells—and even viruses (Leeks, West and Ghoul 2021). For instance, bacteria depend on the excretion of products from individuals that benefit the bacterial group to enable scavenging for nutrients or for communication (Belcher and others 2022; West, Griffin and Gardner 2007a). Biologists have provided a unified theory that explains the emergence and maintenance of cooperation across the natural world based on the notion that an individual gains inclusive fitness (reproduction of its genes) through the impact on direct fitness (their own reproduction) or on indirect fitness (reproduction of related individuals due to the behaviour of the individual). Evolutionarily stable strategies describe interactions where cooperation evolves and is maintained (see Alger 2023 for a recent review), and longstanding debates on kin versus group selection are now mostly clarified (Birch 2019). Social preferences or their equivalent are not required. While this is also the case for humans in many instances (thus, the enduring relevance of the selfish choice model), human cooperation has distinct features, given in part the ability of humans to evolve culturally (Apicella and Silk 2019) and to engage in social learning (although that does not always imply cooperation; Burton-Chellew, El Mouden and West 2017, and cooperation does not always imply positive societal outcomes, as when it involves firms colluding or illicit networks). Still, there is debate on whether cultural evolution, discussed in spotlight 4.3, fits with these broader findings of cooperation

in the natural world, driven in part by issues of language and meaning attributed to the same terms (Micheletti, Brandl and Mace 2022; West, Griffin and Gardner 2007b).

- 57 Herrmann, Thöni and Gächter (2008) show that antisocial punishments also exist and that they can be socially beneficial when supported by strong norms of cooperation. The motivations for punishment and reward often go beyond what would be required to simply sustain self-interest in reciprocal relationships (Fehr and Gächter 2000, 2002). It has been argued that social preferences rather than selfish preferences are the rule (Bruhin, Fehr and Schunk 2018). Burton-Chellew (2022) argues that what has been interpreted as altruism in experiments may result from confusion over the rules and that humans are thus self-interested. Still, there is strong evidence that people often behave as if having other-regarding preferences. For instance, recent evidence from neural correlates of social preferences, which have been mobilized to inform economic behaviour in multiple perspectives (Camerer, Loewenstein and Prelec 2005), suggests that while strategic deliberation in how to advance self-interest may also play a role, emotional processing is a key mechanism. Pioneering studies include Corradi-Dell'Acqua and others (2013), Corradi-Dell'Acqua and others (2016), Gabay and others (2014) and Sanfey and others (2003). Wang and others (2020) find evidence that altruistic behaviours relieve physical pain. For a recent meta-analysis confirming the findings that emotional processing is key for social preferences, see Cutler and Campbell-Meiklejohn (2019). Rhoads, Cutler and Marsh (2021) establish that prosocial behaviour can be associated with strategic intent but may also be motivated purely by altruistic reasons. Much of this literature relies on functional magnetic resonance imaging (fMRI). For caution on how to interpret fMRI results in light of lack of knowledge about how the brain functions, see Bellucci and others (2020). Further, deviations from fairness are more aversive for individuals with more prosocial preferences (Liu and others 2019), and exceptionally altruistic behaviour (for instance, by kidney donors) cannot be accounted for by utilitarian reasoning (Amorino, Ploe and Marsh 2022; Rhoads and others 2023a; Rhoads and others 2023b).
- 58 Some of which may be associated with heritability (Benjamin and others 2012; Cesarini and others 2008).
- 59 Fehr and Charness forthcoming.
- 60 A different explanation for the experimental results interpreted as revealing social preferences is that participants were confused about the experiments, and as they started to understand what was at stake and learned, they behaved in a way consistent with the selfish choice model (see Burton-Chellew 2022, Burton-Chellew and West 2021, Burton-Chellew, El Mouden and West 2016 and Burton-Chellew, Nax and West 2015). There is also the possibility that nonselfish behaviour derives from personal norms rather than from social preferences (Capraro and Perc 2021; Capraro and others 2019).
- 61 The share of the population with inequality aversion social preferences ranges from 23 percent to 68 percent, and the share of altruists is between 12 percent and 47 percent. Student samples, often used in experiments, deviate from these populationwide distribution of preferences (for instance, the share of selfish preferences in student samples ranges from 29 percent to 58 percent; Fehr and Charness forthcoming). It also appears that prosocial preferences are more consistent and less context dependent than the choices people make that involve moral reasoning, such as when weighing ends-versus-means tradeoffs (Bénabou, Falk and Henkel 2024).
- 62 Iwasaki 2023.
- 63 As established in Thielmann, Spadaro and Balliet (2020), a recent meta-analysis of 770 studies reporting on 3,523 effects of a range of prosocial behaviours in interdependent situations modelled in six commonly studied economic games (dictator game, ultimatum game, trust game, prisoner's dilemma, public goods game and commons dilemma). When people mix private and social motivations (for example, a vaccine provides individual protection but also advances herd immunity), the social motivation often is a more powerful driver of behaviour (Böhm and Betsch 2022; Korn and others 2020; Pfattheicher, Petersen and Böhm 2022). Chang and others (2023) show that reminders, but not monetary incentives, increased the uptake of Covid-19 boosters in California in the United States. For a discussion of the conditions in which prosocial preferences support cooperation beyond groups, see Tilman, Dixit and Levin (2019).
- 64 See Fehr and Charness (forthcoming) for the theoretical implications of inequality aversion for cooperation and a review of confirmatory evidence.
- 65 Brekke and Johansson-Stenman 2008; Buchholz and Sandler 2017.
- 66 Elster 1989.
- 67 Legros and Cislighi 2020; Tverskoi and others 2023.
- 68 Van Lange and Rand 2022.
- 69 Fehr and Charness (forthcoming) provide a discussion of the theory and a review of the evidence on how social image concerns can drive prosocial behaviour. Self-image concerns (how one sees oneself) also matter but appear to be less important than other-regarding motives (Vu and others 2023).
- 70 Lergertporer and others 2014.
- 71 Overly strict social norms across countries can trigger more violations, according to the findings of Aycinena and others (2022).
- 72 Some evidence suggests that rewards outperform punishment in promoting cooperation to provide public goods (Rand and others 2009).
- 73 Elster 1998, 2015b. Sociologists going back to Goffman (1959) have emphasized how guilt and stigma contribute to norm compliance. Social norm compliance and related emotions such as stigma have also been shown to affect economic outcomes—for example, unemployment (Lindbeck, Nyberg and Weibull 1999). Social norms can be so much part of people's mindset that they become embedded (Granovetter 1985). Basu (2010) argues that the "invisible hand" of Adam Smith would not be able to deliver if not for certain norms guiding behaviour. For further elaborations and implications of this reasoning, see Basu (2022, 2024).
- 74 Fehr and Schurtenberger 2018. Ohtsuki and Iwasa (2006) identify eight social norms of indirect reciprocity that can maintain evolutionarily stable strategies of cooperation in evolutionary models, but the number is reduced when assessments of who are good cooperators are private and noisy (Fujimoto and Ohtsuki 2023).
- 75 The evolutionary and psychological processes underpinning the norm of conditional cooperation (or social norms more widely) remain an area of active research (Gross and Vostroknutov 2022). There is evidence that norm psychology is universal but that different norms can emerge in different historical and cultural contexts (House and others 2020; Kanngiesser and others 2022), but see Heyes (2023) for a different view. There is evidence of universality in the positive moral valence of cooperation (documented for a set of cooperative behaviours observed in the ethnographic record of 60 societies across all regions of the world (Curry, Mullins and Whitehouse 2019; see also Rossi and others 2023 and Van Bavel and others 2022, who identify shared cross-cultural principles of prosocial behaviour). Compliance with cooperative behaviour can be explained as an internalization of social norms through cultural evolution (Gavrilets and Richerson 2017; but see Akdeniz and van Veelen 2021 for a different perspective and Bar-On and Lamm 2023 for the potential role of social identity). Tverskoi and others (2023) show that conformity with personal and social norms has more impact in decisionmaking than material benefits.
- 76 Due in part to processes of social comparison. See Bergquist and others (2023), Frank (2021) and Helferich, Thøgersen and Bergquist (2023) for applications to behaviours to mitigate climate change.
- 77 Constantino and others (2022) discuss the opportunities and challenges of harnessing social norms to address climate change.
- 78 Gelfand and others 2011; Jackson, Gelfand and Ember 2020.
- 79 Choi and others 2022; Jackson and others 2019.
- 80 Gelfand 2021. The threat can be either real or perceived, because, as Buchanan (2020, p. 181) put it, "[...] a fundamental fact about human beings: we are belief-driven creatures, but we are epistemically fallible—prone to serious errors in the formation and preservation of our beliefs. What we believe makes a difference in how we act and sometimes even fully determines how we act, but we can be and often are mistaken in our beliefs. If we falsely believe that the Other poses a threat, we react just as strongly and negatively as we would if our belief were true. The beliefs, not the facts, are what matter."

- 81 Gelfand 2021; Gelfand and others 2021.
- 82 Gelfand and others 2020.
- 83 Giuliano and Nunn 2020; Gelfand, Gavrillets and Nunn 2024; Nunn 2022.
- 84 Meyer 2010.
- 85 Pierotti 2013. On the mechanisms for this diffusion of norms (including the roles of media and international organizations) in a specific country, see Swindle (2023).
- 86 On the politics of backlash, see Alter and Zürn (2020a, 2020b). On the link with political polarization, see Röllicke (2023).
- 87 Sandler 2017; Schwerhoff 2016.
- 88 These insights have been characterized as opening a golden age for social science (Buyalskaya, Gallo and Camerer 2021).
- 89 Sometimes called nudge units.
- 90 Aumann (2019) argues that many of the cognitive biases emerge from contrived situations that are not what most people confront in their day-to-day life.
- 91 More precisely, choices reflecting a larger aversion to potential losses than the appeal of an equal-size gain relative to some point of reference (Kahneman and Tversky 1979; Tversky and Kahneman 1992). For a review of empirical estimates and efforts to quantify the strength of loss aversion, see Brown and others (forthcoming). However, there are also circumstances under which it does not appear to hold (Rakow, Cheung and Restelli 2020; Zeif and Yechiam 2022).
- 92 Camerer and others 1997.
- 93 Alesina and Passarelli 2019.
- 94 Litovsky and others 2022.
- 95 Olitsky and Cosgrove 2023.
- 96 Following the taxonomy proposed in Chetty (2015).
- 97 Allcott and Kessler 2019. Reck and Seibold (2023) provide a theoretical elaboration with an application to the design of retirement policies.
- 98 As advocated by Sunstein (2022).
- 99 See Milkman and others (2021) for successful reminders that increased vaccination uptake.
- 100 Van Bavel and others 2020.
- 101 Muthukrishna and Henrich 2019. The heterogeneity of experimental designs is also a barrier to the generalization of findings from experiments, as shown in Huber and others (2023).
- 102 Following Davis (2023), who makes this argument to improve international relations theory.
- 103 See Hecht and others (2023) for an account of how contextual factors affect behavioural interventions.
- 104 As argued in Stiglitz (2021).
- 105 We are grateful to Melissa Leach for this observation.
- 106 For the metrics of these cultural packages, Muthukrishna and Schaller (2020) and White, Muthukrishna and Norenzayan (2021) draw on a metric of cultural distance from the United States. Obradovich and others (2022) draw on social media behaviour of 2 billion people to create metrics for different cultural dimensions.
- 107 Brooks and others 2018; Kaaronen, Mulder and Waring 2023; Lawson and Gibson forthcoming; Richerson and others 2016; Waring, Goff and Smaldino 2017; Waring and others 2015.
- 108 Bar-On and Lamm 2023.
- 109 As defined in North (1990) comprising both formal and informal institutions that shape people's behaviour. Following Schimmelpfennig and Muthukrishna (2023), formal institutions can be considered "hardened culture," written down to allow for easier coordination and application but still underpinned by cultural norms.
- 110 Kaushik Basu (2018) argued that there is an "if and only if" condition.
- 111 One of the greatest impacts of international treaties is making salient in domestic constituencies an issue immediately after a treaty is adopted rather than as a result of the often long and drawn-out process of ratification and entering into force—that is, ideas seem to be more powerful than legal obligations (Hoffman and others 2022).
- 112 The discussion in this chapter is not meant to suggest that collective action can always be reduced to the atomistic behaviour of individual agents interacting to shape institutions. As noted at the beginning of the chapter, collective action can also be described as an emergent outcome in complex adaptive systems, with agents interacting at multiple levels of aggregation under constraints imposed by formal institutions.
- 113 See also Bednar (2023) and Bednar and Page (2018).
- 114 Efferson, Vogt and von Flüe forthcoming.
- 115 Otto and others 2020; Sparkman, Howe and Walton 2021; Winkelmann and others 2022.
- 116 Rode and Weber 2016.
- 117 Centola and others 2018; Centola and Baronchelli 2015.
- 118 Efferson (2021a) shows that this is particularly challenging outside of social coordination norms, which are often assumed to be in place (Szasz and others 2018).
- 119 A replication of the study mentioned in box 4.3 on whether people return wallets failed to confirm the results when the reporting of the missing wallet was done physically rather than by e-mail (Yang and others 2023). But see Tannenbaum, Maréchal and Cohn (2023) and Zhang and others (2023).
- 120 Cohn, Fehr and Maréchal (2014) found that although Swiss bankers in general were honest, when their profession was made salient through priming, they behaved less honestly. In contrast, when people with other professions also had their professions made salient through priming, there was no change in behaviour. However, the results could not be replicated in other cultural contexts (Cohn, Fehr and Maréchal 2019). Rahwan, Yoeli and Fasolo (2019) conducted the same study in five different populations across three continents and found that the results did not generalize, in part because of differences in banking culture in different jurisdictions. An analysis of intrinsic honesty across 23 countries provides evidence consistent with the hypothesis that behaviours and institutions/culture coevolve (Gächter and Schulz 2016).
- 121 Henrich and others 2001. These exceptions are often observed in small-scale societies, and there is some evidence suggesting that, at least when it comes to cooperation, there might be greater similarity in behaviour across large-scale societies (Spadaro and others 2022)—that is, even though over time there were differences across cultures (some of which remain small scale and where those behaviours persist), there may be some convergence of behaviour when it comes to large-scale societies, but the evidence is still not conclusive.
- 122 Henrich, Heine and Norenzayan 2010b.
- 123 Apicella, Norenzayan and Henrich 2020; Henrich, Heine and Norenzayan 2010a.
- 124 Schäfer, Haun and Tomasello 2015. On the importance of cultural similarities across and between countries, see White, Muthukrishna and Norenzayan (2021).
- 125 This corresponds to a type of social preference that takes as a reference point net equality in incomes, as in the inequality aversion social preferences (Fehr and Schmidt 1999) considered earlier in the chapter, but the type of equality that is considered fair, which is different for different people, depending on their views of fairness. For an implication of this perspective for how to measure inequality without having absolute equality as a reference, see, for instance, Hufe, Kanbur and Peichl (2022).
- 126 As in Fleurbaey (1995), as noted in Almås, Cappelen and Tungodden (2020).
- 127 Almås, Cappelen and Tungodden 2020.
- 128 Almås and others 2017.
- 129 Almås and others 2010.
- 130 See Almås and others (2022) for documentation of the variation in the belief that rich are selfish across and within countries.
- 131 Almås and others (2022) show that plotting country-level responses to the question from the World Values Survey, "Should the national government aim to reduce the economic differences between rich and poor?" against inequality in disposable income shows no correlation, but when the answer to the question is plotted against "Inequality is unfair," there is a strong positive correlation between beliefs that inequality is unfair and support for redistribution. However, there are other determinants of preferences for redistribution; see, for instance, Charité and others (2022).
- 132 See Thomas and Markus (2023).
- 133 This recognition can provide guidance on whom to target, how and for what. Is the purpose to simply change behaviour, or is it to enhance welfare—goals that may not always be aligned. We are grateful to Charles Efferson for these insights. See also Berger,

- Efferson and Vogt (2023), Efferson, Vogt and Fehr (2020), Efferson, Vogt and von Flüe (forthcoming), Richerson, Boyd and Efferson (2024) and von Flüe, Efferson and Vogt (2024).
- 134 Brooks, Hoff and Pandey 2018.
- 135 Carlson and others 2022.
- 136 Balliet and Lindström 2023; Colnaghi and others 2023; Fiedler and others forthcoming.
- 137 Halevy 2017, 2023; Halevy, Chou and Murnighan 2012.
- 138 Halevy and Halali 2015; Halevy and others 2006.
- 139 Shiller (2017) describes how narratives shape macroeconomic outcomes. Levy (2022) explains the social processes that lead people to hold beliefs, often shaped by the context of the group with which they are affiliated, and the limits of assumptions that beliefs will be formed on the basis of individual rational processing of information. De Vries (2023) explores how four different foundational narratives about the European Union continue to shape political, economic and legal outcomes. For a recent review on the literature on the psychology of poverty, see Haushofer and Salicath (2023).
- 140 Gelfand, Gavrilets and Nunn 2024; Nunn 2022.
- 141 Ellis 2024; Richerson, Boyd and Efferson 2024; Waring, Wood and Szathmáry 2024.
- 142 Hoff and Demeritt forthcoming.
- 143 Hoff and Demeritt forthcoming. For a discussion on how these insights can be mobilized to imagine pathways to navigate the Anthropocene that ease planetary pressures and advance equitable human development, see Efferson (2023), Efferson, Vogt and von Flüe (forthcoming) and Ellis (2024).
- 144 Constantino and Weber 2021, p. 151. For evidence on how socially dominant groups can harbor biases against other groups, see Morehouse, Maddox and Banaji (2023).
- 145 Daley, Newell and Twena 2022; Fleurbay and others 2018; Scoones and others 2020; Stirling 2015; Stoddard and others 2021.
- 146 As articulated in Amartya Sen's (Sen 1985, 2009b) notions of agency expressed both as achievements and as freedoms. For more recent articulations of similar ideas, see Bednar (2023) and Carugati and Levi (2021).
- 147 Shared interests can be conceived as falling along a spectrum, from none, where there is high potential for conflict, to complete, where there is high potential for cooperation, following West and Ghoul (2019), in an analysis of how cooperation and conflict coexist in the natural world. Most situations fall somewhere close to the endpoints, thus suggesting the potential for both conflict and cooperation. The provision of global public goods can be seen as exploring domains of the spectrum closer to where there are shared interests and thus where the potential for cooperation is higher.
- 148 Davidai and Tepper 2023. While these findings are at the individual level, a multilevel study of 43 countries confirmed an isomorphism in zero-sum beliefs that scales from the individual to the country level (Rózycka-Tran and others 2018).
- 149 Davidai and Ongis 2019.
- 150 As reflected in reductions in helping others (Chernyak-Hai and Davidai 2022) or countries agreeing to host refugees (Piotrowski and others 2019).
- 151 Carvalho and others 2023.
- 152 Melis and Raihani 2023, p. 532.
- 153 O'Madagain and Tomasello 2022. In other words, it is the essence of what can be termed cultural cognition, as argued in Tomasello and Vaish (2013) and Tomasello and others (2005).
- 154 Gross and others 2020.
- 155 Melis and Raihani 2023, p. 532.
- 156 For instance, there is evidence that the care motive leads to higher levels of cooperation, driven by more optimistic beliefs, and shifts towards more social preferences than when cooperation is sought by activating an anger motivation (Ring, Schütt and Snower 2023). See also Akerlof and Snower (2016) and Bartke and others (2019).
- 157 Some evidence suggests that contributions to public goods and cooperative dynamics emerge voluntarily when people are given the choice of which public good to contribute to (Shi and others 2020). If this extends to countries in the international context, different countries could take the lead in volunteering to contribute to trigger cooperative dynamics.
- 158 Again, there are differences across people, with traits differing across domains on whether people are more or less likely to affiliate with groups (Kranton and others 2020). See also Doğan, Glowacki and Rusch (2022).
- 159 Romano and others 2017; Romano and others 2021a; Romano and others 2021b. For a description of correlates of people developing a more cosmopolitan orientation, see Zhang and others (2024).
- 160 Schimmelpfennig and others 2022.
- 161 Boeltzig, Johansson and Bramão 2023; Vasconcelos and others 2021.
- 162 Bechtel, Genovese and Scheve 2019.
- 163 Chinoy and others 2023.
- 164 Van Bavel and others forthcoming; Wagner and others 2020.
- 165 Bollyky and others 2022a; Bollyky and others 2022b; Bor, Jørgensen and Petersen 2023; Lenton, Boulton and Scheffer 2022.
- 166 Henkel and others 2023.
- 167 Berger, Vogt and Efferson 2022.
- 168 Berger, Efferson and Vogt 2023.
- 169 For a review of the social identity theory of collective action, see Van Zomeren, Postmes and Spears (2008). Whitehouse (2018) and Whitehouse and Lanman (2014) describe identity fusion, the visceral sense of oneness with the group, as eliciting cooperation within groups to the point of potentially leading to extreme self-sacrifice. See also Huettel and Kranton (2012).
- 170 Sen 2005, 2006, 2009a. Dulberg and others (2023) show how having multiple selves could have evolved as a solution to the perennial problem of balancing multiple needs in changing contexts.
- 171 This implies that the assumption that tipping can be triggered under what is assumed to be a social coordination norm may not hold and that interventions can be either ineffective or counterproductive (Efferson and others 2015).
- 172 Efferson, Vogt and Fehr 2020; Efferson and others 2015; Ehret and others 2022.
- 173 Under the assumption that many people are conditional cooperators (Berger, Efferson and Vogt 2023).
- 174 The ecological macro model places humans in the context of their relationships with predators and prey (Lehman and others 2021).
- 175 The period of rapid population growth can be described as one where humans entered into a mutualistic interaction with animals and plants rather than being their predator (see also Pollan 2002); this followed a first ecological transition when humans were able to out-compete their predators (Lehman and others 2021). In both transitions processes of cultural evolution were determinant. Mutualism is pervasive in many forms across many species in the natural world and tends to be maintained by either shared interest or enforcement, but it is likely to evolve in the first place as a result of shared interest, with enforcement evolving later to strengthen the mutualism (West and others 2021).
- 176 Colleran 2016.
- 177 Lehman and others 2021.
- 178 Lehman and others 2021.

CHAPTER 5

- 1 Sen 1991; UNDP 2022a. Goal-directed agency (exhibited by reptiles) and even intention-directed agency (exhibited by mammals) are not exclusive to humans, nor is the pursuit of self-interest, as in the models of selfish choices reviewed in chapter 4 (exhibited by great apes, for instance; Jensen, Call and Tomasello 2007 found evidence that chimpanzees are rational maximizers in an ultimatum game). Nonhuman animals appear also to follow (descriptive) social norms (based on the need to conform that humans share with other social, nonhuman animals) (Andrews, Fitzpatrick and Westra 2024; Westra and others forthcoming). But, according to O'Madagain and Tomasello (2022) and Tomasello (2022), humans are different in that they evolved the ability to define and pursue shared intentionality and agency, which have been argued to be the basis for the origins of cultural cognition (Tomasello and others 2005). While there are different views on the evolutionary pathways that led humans to be able to evolve injunctive and moral norms (Stanford 2017, 2018), this corresponds to an expression of human agency that transcends the pursuit of self-interest. It has also been argued that humans have a flexible moral psychology that enables, through processes of public reasoning and deliberation (see

- chapter 6), to establish moral norms, and institutions that support them, that are inclusive of not just all humans but potentially other beings (Buchanan 2020, 2021; Buchanan and Powell 2018). For one psychological view on human agency, see Bandura (2001, 2006).
- 2 Sen 2016, p. 7.
 - 3 Based on data from the World Values Survey (see figure 5.3 later in the chapter).
 - 4 The distinction between wellbeing and agency aspects of development follows Sen's (1985, 1991) framing.
 - 5 Sen 1991.
 - 6 "Strategies for human development initially emphasized investing in education and health, and promoting equitable economic growth—the three dimensions of the HDI. These mobilize the individual agency of people and strengthen their productive capacity for their own private interest" (Fukuda-Parr 2003, p. 309).
 - 7 Based on Dr. Engel's biopsychosocial model, briefly explained in Conti (2022).
 - 8 Folke and others 2021; UNDP 2022a.
 - 9 Following Elster (2015a), collective decision-making is the processes through which decisions emanating from collective belief formation and collective action get implemented. Those processes include arguing, voting and bargaining.
 - 10 Turchin 2013.
 - 11 This is equivalent to 47 percent of the global population. According to reporting on Sustainable Development Goal indicator 1.3.1 (<https://www.social-protection.org/gimi/WSPDB.action?id=32>, accessed 16 November 2023).
 - 12 As of 2022, in preprimary, primary and secondary education. According to the database of the United Nations Educational, Scientific and Cultural Organization Institute of Statistics (<http://data.uis.unesco.org/>, accessed 16 November 2023).
 - 13 Vaidyanathan 2024.
 - 14 For instance, in 2023 the SDG Action Campaign mobilized 150 million actions (EIN Presswire 2023).
 - 15 As of 2023, based on data from the International Telecommunication Union (<https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>, accessed 16 November 2023).
 - 16 Carleton and Greenstone 2022; Stiglitz and Stern 2017.
 - 17 See Carleton and others (2022).
 - 18 IEA 2023a.
 - 19 Black and others 2023.
 - 20 Papada and others 2023.
 - 21 Tørslov, Wier and Zucman 2022.
 - 22 Based on OECD (2022) The mobilization of resources reached \$83.3 billion in 2020, which is less than 0.1 percent of the \$85 trillion of global GDP in that year. In 2022 global GDP surpassed the \$100 trillion mark (International Monetary Fund World Economic Outlook database, April 2003, <https://www.imf.org/en/Publications/WEO/weo-database/2023/April/weo-report>).
 - 23 Vaidyanathan 2024.
 - 24 See Sénit (2020).
 - 25 Tørres 2021.
 - 26 Global Witness 2023.
 - 27 Including the rise of negative experiences, such as anger, stress, sadness, physical pain and worry (Clifton 2022).
 - 28 For evidence on economic insecurity and support for populism (in Europe), see Guiso and others (2019, forthcoming). While it has also been argued that economic insecurity has led to fractionalization (that is, the emergence of more, niche parties beyond those broadly representing different segments along the political spectrum) of the political system, there is a distinction between polarization and fractionalization in electoral systems; see Norris (forthcoming).
 - 29 Funke, Schularick and Trebesch 2023; Rodrik 2021.
 - 30 Prados de la Escosura 2022.
 - 31 Support for democracy was also found to be strong and robust in a detailed study of Brazil, France and the United States (Adserà, Arenas and Boix 2023).
 - 32 See Kurlantzick 2022; Nichols 2021; UNDP 2023b.
 - 33 This question was suggested by the United Nations Development Programme, contributing towards the pilot of the measure for Sustainable Development Goal indicator 16.7.2.
 - 34 The notion of agency linked with collective outcomes has been referred to as "collective agency." See, for instance, Ibrahim (2006), Leßmann (2022), Pelenc, Bazile and Ceruti (2015) and Rauschmayer and others (2018).
 - 35 Confidence in institutions depends on multiple factors. For instance, Hirai (2020) presents a framework where confidence in institutions is linked to trust in their intentions and competence. Elster (2015a) also argues that trust in institutions is often underspecified in that it can mean different things (integrity, competence or even that the institution is feared). Another related concept is legitimacy of institutions (see Levi, Sacks and Tyler 2009 and chapter 4). In this and chapter 6, trust and confidence in institutions are used interchangeably to reflect the sense to which people consider that they are delivering what is expected of them.
 - 36 Sen 1991; UNDP 2022a.
 - 37 Sen 1977, p. 326.
 - 38 There are many potential sources for these commitments and their relationship to sustaining cooperation, from social norms (see spotlight 4.3 in chapter 4) to inferences about other people's motives (Carlson and others 2022) to moral values (Stanford 2018) to individual and public reasoning about what should be the subject of moral concern that shapes different perspectives on moral progress (Buchanan 2020; Sauer and others 2021; Sterelny 2019). Commitments can also take the form of codes of conduct to, for example, punish actions against agents that defect during cooperation (even if this punishment harms the wellbeing of the punisher), which is a mechanism that sustains cooperation (Ostrom 2000).
 - 39 Leßmann 2022.
 - 40 Advancements in reducing inequality, addressing human insecurity and challenging biases against cooperation in social norms, as well as in enhancing spaces for deliberation, can influence the stressors and facilitators for large-scale collective action, as described by Jagers and others (2020).
 - 41 For an elaboration on the relationship between agency and poverty, see Rahman (2023).
 - 42 Rasmussen and Reher 2023.
 - 43 For the definition of perceptions of insecurity and the link with the notion of human security, see UNDP (2022b).
 - 44 For an elaboration on the connections between human security and constraints on people's engagement with collective action, see UNDP (2022b).
 - 45 UNDP 2022a.
 - 46 UNDP 2022b; Ziervogel, Cowen and Zinides 2016.
 - 47 Sen 2009, p. vii.
 - 48 UNDP 2023a.
 - 49 See, for instance, Schaeffer (2020).
 - 50 UNDP 2023a.
 - 51 UNDP 2023a.
 - 52 UNDP 2023a.
 - 53 Abdul Latif Jameel Poverty Action Lab 2020; UNDP 2023a.
 - 54 UNDP 2023a.
 - 55 UNDP 2022a.
 - 56 Corat and Raimondo 2011.
 - 57 Krause, Krause and Bränfors 2018; Stone 2015; UN Women 2015.
 - 58 Krause, Krause and Bränfors 2018.
 - 59 Stewart, Holdstock and Jarquin 2002; World Bank 2018.
 - 60 For example, between 1992 and 2019, only 6 percent of peace agreement signatories were women. See Council on Foreign Relations (2023).
 - 61 Gebhard and others 2020; Huang and others 2021. In part due to higher prevalence of pre-existing cardiovascular conditions, which were found to increase vulnerability to Covid-19 (Griffith and others 2020).
 - 62 P. Clapp 2023; Dang and Nguyen 2021.
 - 63 UN Women 2021. Several studies find evidence of increased domestic violence during the Covid-19 pandemic, in both developing (Agüero 2021; Decker and others 2022; Kifle and others 2024) and developed countries (Berniell 2021; Piquero and others 2021).
 - 64 Blanchflower and Bryson 2022.

65 Brooks, Hoff and Pandey 2018; Hoff and Walsh 2019.

66 Lloyd's Register Foundation and Gallup 2022.

67 UNDP 2020b.

68 Jens Beckert has long emphasized the importance of future framings on enabling institutions to deliver "promisory legitimacy" in addition to process and outcome legitimacy (Beckert 2013; Beckert 2020; Beckert and Bronk 2018; Beckert and Suckert 2021).

69 UNDP 2019.

70 See UNDP (2019) for a review of the literature on the great divergence.

71 These are called joint products in the literature, and formally, this makes these cases instances of impure global public goods, because they also generate (private) country-specific benefits in recipient countries. See Cornes and Sandler (1996).

72 Can, because there might also be negative effects and trade-offs, as discussed in Cohen and others (2021), Finus and Rübhelke (2013) and Pittel and Rübhelke (2008). For a review of co-benefits of climate change mitigation, see Deng and others (2018).

73 Ürge-Vorsatz and others 2014.

74 Karlsson, Alfredsson and Westling 2020; Negev and others 2022.

75 Some of the costs, at least in macroeconomic terms, of pricing carbon appear to be overstated. See Metcalf and Stock (2020).

76 For details on these initiatives and the short-term costs of subsidies, see Buchholz, Dippl and Eichenseer (2017) for Germany and Hughes and Podolefsky (2015) for California.

77 Gerarden 2023.

78 Carvalho, Dechezleprêtre and Glachant 2017.

79 Bollinger and Gillingham 2019.

80 Gillingham and Stock 2018.

81 Nussbaum 2013.

82 Bernauer and Gampfer 2015.

83 Brumme and Rübhelke 2023.

84 Kremer 2006; Kremer and Leino 2004.

85 Amin 2016.

86 As explored in Chan (2019).

87 King 2006.

88 Glennerster and Jayachandran 2023.

89 Shiller and others 2018. State-contingent sovereign debt instruments have been supported by, among others, the International Monetary Fund (IMF 2017). If state-contingent debt instruments are more expensive than standard ones, there is a need to either subsidize this cost or coordinate their deployment, to avoid arbitrage. International financial institutions can play a role in this regard. Shiller (2006) argues that state-contingent debt instruments have properties that are similar to equity financing, noting that equity-like financing for sovereigns (unlike for corporates) is typically not available.

90 G20 2023a.

91 Haq and Streeten 1995.

92 For discussions related to economic governance in what the works describe as a fractured world, see Brown, El-Arian and Spence (2023) and Tucker (2022).

93 UN 2023b.

94 OPHI and UNDP 2023.

95 UNDP 2022b.

96 For instance, the Stiglitz Commission for the Reform of the International Financial and Monetary System (convened in 2008, in the middle of the global financial crisis) suggested establishing a Global Economic Coordination Council as an option (Stiglitz Commission 2009).

97 Notably, through the 171 members of the Global Forum on Transparency and Exchange of Information for Tax Purposes. In 2022 information on almost EUR 12 trillion in assets was automatically exchanged. See OECD (2024b).

98 OECD 2024a.

99 United Nations Secretary-General 2023.

100 Alstadsæter and others 2023.

101 Alstadsæter and others 2023.

102 The 2030 Agenda for Sustainable Development was an important step in that direction. More recently, the World Bank announced a new mission statement: "to end extreme poverty and boost shared prosperity on a livable planet by strengthening inclusion, resilience, and sustainability," which aligns with a forward-looking and planetary perspective (Development Committee 2023).

CHAPTER 6

1 The emergence and management of the deep interdependence documented in part I of the Report have been supported by international collective action. Many aspects of this interdependence are associated with post-World War II international organizations and regimes (Keohane 1982) and numerous global public goods (Kaul, Grunberg and Stern 1999; Kaul and others 2003).

2 As discussed in chapter 4, coordination across countries is often easier to achieve than cooperation.

3 This chapter considers polarization from different perspectives. The emphasis common to all perspectives is the divisiveness in society across political or identity lines: "It signifies a deepening divide between groups holding contrasting viewpoints on political matters and on approaches to addressing complex societal issues" (spotlight 6.1). Within this broad definition political polarization is understood as "the extent to which citizens become ideologically entrenched in their own values and political beliefs, thereby increasing the divide with citizens who hold different values and political beliefs" (van Prooijen 2021, p. 2). Another related concept is affective polarization, defined as the tendency to view outgroup members negatively and ingroup members positively in ways that often trigger visceral or emotional responses

(Iyengar, Sood and Lelkes 2012). Affective polarization is particularly concerning because it reinforces ingroup solidarity and outgroup hostility, where interests and other motivations of behaviour become secondary to an overarching sense of belonging to the group. Thus, affective polarization has implications on behaviour that extend beyond differences in views, affecting many aspects of people's lives (where to live, who people choose as friends or partners). Thus, affective polarization can become a self-sustaining runaway process as people become more and more sorted and divided, deepening polarization even more (the discussion on affective polarization here is based on Baldassarri and Page 2021). There is evidence that polarization even implies different neurological responses to different attitudes (Leong and others 2020; Moore-Berg and others 2020).

4 Kosse and others 2020.

5 Charness and Chen 2020; Charness and Sutter 2012; Doğan, Glowacki and Rusch 2022.

6 Appiah 2019, p. 26. The same applies to the cultural similarity of people that affiliate with the same religion, even when they live in different countries (White, Muthukrishna and Norenzayan 2021).

7 Romano and others 2021b.

8 For the analysis of the difference in cooperation within and across countries, see Aldering and Böhm (2020).

9 Buchan and others 2011.

10 Romano and others 2017. Kranton and others (2020) show that "groupy" and "nongroupy" attitudes by individuals stretch across different domains (from politics to simplified social contexts). See also the discussion later in the chapter on differences in attitudes towards global concerns among people within countries.

11 Baldassarri and Abascal 2020; Buchan and others 2009.

12 Bai, Ramos and Fiske 2020. Stereotyping in itself is also a barrier to cooperation, in that people who are perceived as conforming with one are seen as less trustworthy (Stewart and Raihani 2023). In a fascinating new study musical tastes and preferences are shown to become more diversified as people visit new cities and countries (Kim, Askin and Evans 2024).

13 Gorman and Seguin 2020.

14 Asking people to make judgements on different goals before coming to a decision—appealing to reason and subjecting beliefs to scrutiny—is effective in decreasing polarization and extremism (Kvam and others 2022).

15 Whitehouse 2018; Whitehouse and Lanman 2014.

16 Oeberst and Imhoff 2023.

17 For instance, users choose to engage with more partisan news after doing Google searches, so there is volition-conscious selection, not merely passive exposure to partisan information in "echo chambers" (Robertson and others 2023). Still, digital media can also drive

- processes of affective polarization by shifting the focus of intergroup differences from one of divergence in opinions to one of sorting people into different groups (Törnberg 2022). See Tokita, Guess and Tarnita (2021) on how polarized information systems can reorganize social networks in ways that foster polarization. See also Santos, Lelkes and Levin (2021).
- 18 Jost, Baldassarri and Druckman 2022. While often discussed in binary terms in two-party systems, affective political polarization also happens in multiparty systems (see Martin-Gutierrez, Losada and Benito 2023) and can manifest itself beyond party lines when groups take opposing positions beyond party lines of issues.
- 19 Charness and Chen 2020.
- 20 Baldassarri and Page 2021. See also McCoy, Rahman and Somer (2018) and McCoy and Somer (2019).
- 21 Kingzette and others 2021.
- 22 Dimant 2024.
- 23 Lelkes 2016; Mason 2015. Theories of affective polarization build on work identifying the importance of social identity for people's self-esteem. Social identity theory posits that individuals categorize themselves and others into various social groups based on shared characteristics and that they derive a sense of self-worth from their affiliations with these groups. See Tajfel and Turner (2001).
- 24 This includes online behaviour (van der Does and others 2022).
- 25 See Iyengar, Sood and Lelkes (2012) and McCoy, Rahman and Somer (2018).
- 26 Boese and others 2022; Card and others 2022; Iyengar, Sood and Lelkes 2012; McCoy and Somer 2019; Wagner 2021.
- 27 Levin, Milner and Perrings 2021.
- 28 See Van Bavel and others (forthcoming) on the costs of polarizing the Covid-19 pandemic.
- 29 Vasconcelos and others 2021.
- 30 This draws heavily from Bednar (2021). See also Kawakatsu and others (2021), who explore how polarization hinders Madison's institutional design to address what he called the mischiefs of faction: Madison assumed that people would have different views on different issues and that they would not sort themselves into opposing groups on many or almost all issues (and thus that a greater diversity of interests in a political system with institutions supporting a pluralistic society would cure the mischief of factions; that is hindered with polarization). For a review of the literature on democratic resilience, see Holloway and Manwaring (2023).
- 31 McCoy and Somer 2019.
- 32 Iyengar and others 2019.
- 33 McCoy and Somer 2019.
- 34 Bradley and Chauchard 2022. These rifts often lend themselves to political mobilization, where political actors and leaders employ narratives of group-based grievances and us versus them competition in political campaigns.
- 35 Hobolt, Leeper and Tilley 2021.
- 36 Hobolt, Leeper and Tilley 2021.
- 37 Henkel and others 2023.
- 38 McCoy, Rahman and Somer 2018.
- 39 Stewart, McCarty and Bryson 2020.
- 40 As long argued by Ronald Inglehart (see Inglehart 2020 and Norris and Inglehart 2011). For a recent formulation of this argument that frames values as luxury goods (relative demand for values relative to material things increases as income grows) and how that relates to political polarization, see, Enke, Polborn and Wu (2022).
- 41 Stewart, Plotkin and McCarty 2021.
- 42 McCoy and Somer 2019.
- 43 UNDP 2022a.
- 44 McCoy, Rahman and Somer 2018.
- 45 McCoy, Rahman and Somer 2018; McCoy and Somer 2019.
- 46 McCoy and Somer 2019.
- 47 De Dreu and Nijstad 2008.
- 48 UNDP 2022a.
- 49 McCoy, Rahman and Somer 2018.
- 50 See Osborne and others (2023) for the psychological causes of authoritarianism, compounded by worldviews associated with perceptions of threat. Worldviews that see the world as competitive also yield more violations of democratic norms and practices that do not necessarily take the form of authoritarianism.
- 51 Papada and others 2023.
- 52 MacKuen and others 2010.
- 53 For evidence and discussions on how polarization hinders the provision of global public goods, and international cooperation more broadly, see Baldassarri and Page (2021), Levin and Weber (forthcoming) and Perrings, Hechter and Mamada (2021).
- 54 De Vries, Hobolt and Walter 2021; Ecker-Ehrhardt 2014.
- 55 Schneider (2018). Heinrich, Kobayashi and Lawson (2021) find that the channels run through nativism and antielitism, often ways in which political polarization is expressed.
- 56 Bechtel, Genovese and Scheve 2019.
- 57 For instance, Hurd (2022) argues for recognizing that cooperation cannot be considered unequivocally beneficial; rather, it generates benefits to some groups over others, and the political responses to this must be understood.
- 58 De Vries, Hobolt and Walter 2021; Ecker-Ehrhardt 2014; Zürn, Binder and Ecker-Ehrhardt 2012.
- 59 De Vries, Hobolt and Walter 2021.
- 60 Bearce and Jolliff Scott 2019.
- 61 Deitelhoff 2020; Dellmuth and Tallberg 2015; Schneider 2018.
- 62 Kertzer and others 2014.
- 63 Powers and others 2022.
- 64 Ecker-Ehrhardt 2012.
- 65 De Vries, Hobolt and Walter 2021.
- 66 De Vries and Hoffmann 2019.
- 67 More in De Vries, Hobolt and Walter (2021).
- 68 Margalit 2012.
- 69 Norris and Inglehart 2019.
- 70 De Vries, Hobolt and Walter 2021; Walter 2021a.
- 71 Walter 2021a.
- 72 Walter 2021a.
- 73 In addition to international relations and history, considered in spotlights 6.2 and 6.3, political science has also provided insights into how to enhance international collective action. See, for example, Cashore and Bernstein (2023), Colgan and Hinthorn (2023), Guy, Shears and Meckling (2023), Keohane and Victor (2016), Meckling and Karplus (2023), Meckling and others (2022), Peng and others (2021) and Victor, Lumkowsky and Dannenberg (2022).
- 74 Building on the case made in Kaul and Conceição (2006a), particularly in Kaul and Conceição (2006b).
- 75 For instance, the international concessional financing of the incremental cost of an investment that contributes to a global public good, compared with the size of the investment that a country would undertake considering only the country benefit alone (see King 2006).
- 76 Davidai and Tepper 2023.
- 77 Chernyak-Hai and Davidai 2022.
- 78 Chinoy and others 2023; Davidai and Ongis 2019.
- 79 Evolutionary approaches to cooperation suggest that, with mutuality and interdependence, an agent recovers the investment in the welfare of others with whom the agent is interdependent because the fitness of those others also contributes to the fitness of the sacrificing agent (Stanford 2017).
- 80 See also Rockström and others (2024).
- 81 See also Balliet and Lindström (2023) and Colnaghi and others (2023).
- 82 Ostrom 2007, 2009a; Ostrom and others 1999.
- 83 McEvoy and Cherry 2016.
- 84 Carattini, Levin and Tavoni 2019; Rinscheid, Pianta and Weber 2021.
- 85 Goussebaile and others 2023.
- 86 On the impact of the Covid-19 pandemic on inequalities in power, for example, see Dávalos and others (2020).
- 87 Enke 2023b.
- 88 Enke 2020a; Enke and others 2023. Although this does not mean that education and income are irrelevant. For instance, Dechezleprêtre and others (2022), in a survey of 20 countries covering the major greenhouse gas emitters in both high- and lower income countries, show that support for climate change is associated with beliefs about the effectiveness of emissions-reduction policies, their distributional impacts on lower income households and their impact on respondents' households. At the same time, respondents with higher

- levels of education and income report stronger support for climate policies, perhaps as a result of the way in which education and income interact with other factors in shaping respondents' beliefs. Also, the extent to which beliefs, rather than economic variables, matter in the context of protecting the national environment is unclear. Kahn and Matsusaka (1997) argue that both income and price factors, as well as beliefs, matter in the national context, at least in the state of California, United States. Grandin and others (2022) also find that economic variables matter, but through the relative position in terms of socioeconomic status—with higher status tending to be more supportive of the national environment.
- 99 Cappelen, Enke and Tungodden 2022; Enke and others 2023.
- 90 As argued by Enke (2023b).
- 91 Becker (2023) find that people in Kenya vastly underestimate intercountry inequalities and that when provided with the accurate degree of inequality, their tolerance for inequality declines, but their demand for international aid does not increase, suggesting that they would rather have inequalities addressed through other means. This is consistent with evidence across a wide range of countries showing that poorer people are not more supportive of redistribution (Hoy and Mager 2021). There is evidence that views on inequality and support for redistribution within countries are linked to beliefs about the extent to which the processes that generated those inequalities are fair (Almås, Cappelen and Tungodden 2020; Almås and others 2022; Andersen and others 2023; Cohn and others 2023; Reyes and Gasparini 2022). For a recent review on preferences towards redistribution, see Mengel and Weidenholzer (2022).
- 92 This holds even for people who are vulnerable and in need of humanitarian aid, as is often the case for refugees. Bauer, Boemelburg and Walton (2021) report that reframing refugees' identity as being, by its very nature, a source of strength and skills rather than portraying them with a stigmatized identity as weak and unskilled victims enhanced refugees' perseverance and boosted their confidence to help them succeed in the new host country.
- 93 Thomas and others (2020) emphasize that enhancing agency implies looking at a broader set of interventions beyond income transfers (see also Bossuroy and others 2022) and that what enhances agency and confers dignity is likely to be context specific, which implies the need to attend to cultural differences (see also Thomas and Markus 2023). There is evidence from a large study in China that moving out of poverty does not seem to change preferences towards inequality but does reduce selfishness (Li and others 2023).
- 94 Bechtel and Scheve 2013; Beiser-McGrath and Bernauer 2022.
- 95 Beiser-McGrath and others (2021) find that support in Japan for domestic carbon taxes to mitigate climate change is higher when people are told that other countries are also imposing carbon taxes. Beiser-McGrath and Bernauer (2019b) find that proposals to recycle revenue from carbon taxes gain popular support in Germany and the United States only when other high-income countries adopt similar carbon taxes. Beiser-McGrath and Bernauer (2019a) also find that the more countries participating in a climate agreement, the more popular that agreement is in China and the United States but also that lack of commitment from other countries to fulfilling the agreement's obligations does not reduce support for climate action. The effect appears to be heterogeneous across countries because what other countries do is more likely to influence the behaviour of high-income countries that already have strong domestic concerns about climate change and have made ambitious commitments (Dannenberg and others 2023).
- 96 Koliev, Page and Tallberg 2022.
- 97 Doshi, Kelley and Simmons 2019; Kelley and Simmons 2015.
- 98 Tingley and Tomz 2022.
- 99 Dellmuth and others 2021.
- 100 See Balliet and Van Lange (2013).
- 101 Falk and others 2018.
- 102 Nunn, Qian and Wen 2023.
- 103 Yamagishi and Yamagishi 1994.
- 104 Rathbun 2011.
- 105 Because many surveys do not specify the meaning of trust, trust in institutions could be understood to mean the integrity, legitimacy or competence of the institution, which are not the same things—see the criticism of the notion of trust in institutions in Elster (2015b).
- 106 Fairbrother 2016; Fairbrother, Johansson Sevä and Kulin 2019.
- 107 For a review on this, see Kaasa and Andriani (2022).
- 108 Herreros (2023) identifies this as the first of four potential mechanisms. The others include projecting perceptions of trust in institutions to the whole population (that is, if the state is seen as corrupt, most of the population is perceived that way), believing in the effectiveness of the state (for instance, in redressing inequalities) and believing that the state fosters trust by providing information on who is trustworthy.
- 109 Connaughton and Moncus 2020.
- 110 Dellmuth and Tallberg 2020.
- 111 Dellmuth and Tallberg 2021.
- 112 Torcal and Thomson 2023.
- 113 This relationship likely goes both ways. In the social trust approach, generalized trust among people is thought to spill over into trust in institutions. Alternatively, well-functioning institutions can be expected to support generalized trust through different channels—for instance, by dissuading opportunistic behaviour or enhancing social cohesion and belonging (Herreros 2023).
- 114 Steg 2023.
- 115 Mildenberger and Tingley 2019. Particularly because there is little evidence that personal climate change behaviour driven by individual beliefs spills over to influence collective action (Lacroix and others 2022). So, expecting that highly motivated individuals acting on climate change and behaving accordingly would encourage others to do the same is not likely: second-order beliefs (what people think others think) appear to matter crucially for collective action (Bouman and Steg 2019).
- 116 Andre and others 2024.
- 117 Sparkman, Geiger and Weber 2022.
- 118 This is the title of Sparkman, Geiger and Weber (2022).
- 119 Lees and others (2023) show that the misperceptions in the United States extend to the relative importance of addressing climate change compared with other policy priorities. Pearson and others (2018) show that misperceptions are pervasive in the United States for environmental concerns. Mildenberger and Tingley (2019) add evidence from China on climate change misperceptions. Duffy (2018) provides evidence of misperceptions across a wide range of issues in several countries.
- 120 Also known as collective illusion, where people mistakenly believe others have an opinion different from their own and go along with a view that they do not hold because they think most other people in the group hold this belief.
- 121 This includes maladaptive social norms (Smerdon, Offerman and Gneezy 2020). There is much literature on how pluralistic ignorance influences behaviour (Prentice and Miller 1993) and is associated with political regimes that transition rapidly once misperceptions are resolved (Elster 2015b; Frank 2021). Mastroianni and Dana (2022) show how misperceptions about attitude change can drive policies that are inconsistent with people's actual beliefs and preferences.
- 122 Bouman and Steg 2019; Welsch 2022.
- 123 Ahler 2014; Ahler and Sood 2018; Bursztyn and Yang 2022; Graeber, Roth and Zimmermann 2023; Yudkin, Hawkins and Dixon 2019.
- 124 Acemoglu and Wolitzky 2023.
- 125 Ahler 2014, p. 607.
- 126 Druckman and others 2023; Flores and others 2022; Pereira 2021; Sheffer and others 2023; Soontjens 2023; Walgrave and others 2023.
- 127 There is strong evidence that beliefs on how to act on climate change are shaped by worldviews and affiliation with groups (Bumann 2021; Dietz and Whitley 2018; Hornsey and others 2016; Krange, Kaltenborn and Hultman 2021; Mayer and Smith 2023) and that motivated reasoning is the mechanism that leads people to hold their beliefs (Bago, Rand and Pennycook 2023), though this has been contested (Bayes and Druckman 2021; Bowen, Dmitriev and Galperti 2023; Druckman and McGrath 2019). Krishnarajan (2023) argues that motivated reasoning can explain perceptions of the acceptability of the violation of democratic norms and practices.
- 128 Belief polarization can emerge without motivated reasoning if, in a context of abundant information and some initial misperceptions, people selectively choose what information

- they rely on and share with their groups (Bowen, Dmitriev and Galperti 2023).
- 129 Hornsey and Lewandowsky 2022.
- 130 Nyhan 2020. Gustafson and others (2019) show how, in only four months, the policy proposal for the Green New Deal became polarized in the United States and how partisan media played a role in driving that polarization.
- 131 Fehr, Mollerstrom and Perez-Truglia 2022; Hvidberg, Kreiner and Stantcheva 2023; Xu and others 2023.
- 132 See also Alesina, Miano and Stantcheva (2020).
- 133 Judge and others 2023; Steg 2023.
- 134 Rojek-Giffin and others 2023.
- 135 Levy 2022; Morehouse, Maddox and Banaji 2023.
- 136 Ahler 2014; Fernbach and Van Boven 2022.
- 137 Mastroianni and Dana 2022.
- 138 Ahler and Sood 2018.
- 139 Carlson and Hill 2022.
- 140 Jørgensen and Osmundsen 2022.
- 141 Andre and others 2021; Mildenberger and Tingley 2019.
- 142 Ahler and Sood 2018.
- 143 Nyhan 2021; Nyhan, Porter and Wood 2022.
- 144 Changing laws, for instance, may or may not be effective in changing misperceptions (Eisner, Turner-Zwinkels and Spini 2021; Hoff and Walsh 2019).
- 145 Wu and others 2022.
- 146 For reviews of the implications for the economics of information in a context of disinformation, see Stiglitz and Kosenko (2024a, 2024b).
- 147 Fernbach and Van Boven 2022.
- 148 Gur, Ayal and Halperin 2021.
- 149 Graeber, Roth and Zimmermann 2023.
- 150 Vlasceanu and others 2024.
- 151 Dulberg and others 2023; Sen 2005, 2009a.
- 152 Crisp, Hewstone and Rubin 2001.
- 153 Sen 2009b.
- 154 Weiss, Ran and Halperin 2023.
- 155 Luskin and others 2022.
- 156 Caluwaerts and others 2023; Fishkin and others 2021; Strandberg, Himmelroos and Grönlund 2019.
- 157 Caluwaerts and others 2023.
- 158 Caluwaerts and others 2023.
- 159 Or, worse, where hidden agendas and interests shape the deliberation environment to bias outcomes towards powerful groups (Oreskes and Conway 2011; Supran and Oreskes 2021).
- 160 Powell 2022.
- 161 Powell 2022.
- 162 Buchanan 2020.
- 163 UNDP 2022b.
- 164 Framings have been shown to affect engagement and behaviour intentions of people on shared challenges such as climate change, with motivational framings more effective than sacrifice framings (Gifford 2014; Gifford and Comeau 2011).
- 165 Chuang, Manley and Petersen 2020; Cukier, Mayer-Schönberger and de Véricourt 2022; Siegrist and Bearth 2021. Judge, Fernando and Begeny (2022) show that changes in behaviour extend to collective, not just individual, action. This is premised on the broader determinants of human behaviour beyond self-interest motivations discussed in chapter 4. See also Wildavsky (1987). Even language can have an effect on, for instance, future-oriented economic behaviour: choices made under language that does not sharply distinguish between the present and the future are more future-oriented than those made under language with a sharp distinction (Ayes, Katz and Regev 2023).
- 166 This is the thesis of Joel Mokyr (see Greif and Mokyr 2017 and Mokyr 2013, 2016). For recent empirical evidence that supports his hypothesis, see Almelhem and others (2023).
- 167 Cointe and Guillemot forthcoming.
- 168 Patterson and others 2021. In part because of heterogeneity across the population on predisposition to act (Wiest, Raymond and Clawson 2015).
- 169 Oreskes 2015.
- 170 Cann and Raymond 2018.
- 171 Campante, Depetris-Chauvin and Durante 2024; Halevy 2023; Jost and others 2017; Lerner and Keltner 2001; Satici and others 2020; van Prooijen and others 2015; Wildavsky, Dake and Darwin 2001.
- 172 With cultural threat perceptions even predicting violent extremism (Obaidi and others 2023). While finding a common enemy or threat across groups can enhance intergroup cooperation (West and others 2006), that is more difficult or unlikely when issues such as climate change polarize (Chinn, Hart and Soroka 2020; Egan and Mullin 2017). Moreover, individuals who support slower action on climate change are grouped with climate change denialists by those who support stronger action on climate change, further exacerbating polarization (Bretter and Schulz 2023), particularly given the importance of social identities and groups in determining individual beliefs on the need to act on climate change (Hornung 2022). Polarization can also lead to the breakdown of collective action to address long-term challenges, even when people care a lot about the future, if beliefs about whether collapse will happen and how severe it is are polarized (Barfuss and Mann 2022; Barfuss and others 2020).
- 173 Adger and others 2022; Biermann and others 2022; Croasdale and others 2023; Hickman 2024; Hickman and others 2021.
- 174 Toivonen 2022.
- 175 Bergquist and others 2022; Dechezleprêtre and others 2022. An action-oriented dialogue also opens the space for plural valuations to emerge (Pascual and others 2023; Zafra-Calvo and others 2020).
- 176 Hamilton and others 2018.
- 177 Sustainable science has clearly articulated that urgent action is needed but also that to move forward, it is crucial to have a broader understanding of human motivations, as explored in chapter 4 (Clark and Harley 2020). Such understanding is needed when it comes to the estimated cost of reducing greenhouse gas emissions (Kotchen, Rising and Wagner 2023), particularly given that addressing climate change involves a portfolio of economic and other policies (Blanchard, Gollier and Tirole 2023).
- 178 Doran and others 2023. However, evidence also suggests that updating of beliefs may not occur in highly polarized contexts, even when people confront actual climate hazards, such as heatwaves (Anderson and Robinson 2024).
- 179 Bretter and Schulz (2023) argue that rather than focusing on combating climate denialism, seeking common ways to address climate change accounting and respecting differences in views about how quickly action should take place could reduce polarization around climate change.

References

- Aaldering, H., and Böhm, R. 2020.** "Parochial Versus Universal Cooperation: Introducing a Novel Economic Game of within- and between-Group Interaction." *Social Psychological and Personality Science* 11(1): 36–45.
- Aas Rustad, S., and Østby, G. 2023.** "Conflict Measurement." Background Research Paper, United Nations Development Programme, Human Development Report Office, New York.
- Abbott, B. W., Bishop, K., Zarnetske, J. P., Minaudo, C., Chapin, F. S., Krause, S., Hannah, D. M., and others. 2019.** "Human Domination of the Global Water Cycle Absent from Depictions and Perceptions." *Nature Geoscience* 12(7): 533–540.
- Abdixhiku, L., Krasniqi, B., Pugh, G., and Hashi, I. 2017.** "Firm-Level Determinants of Tax Evasion in Transition Economies." *Economic Systems* 41(3): 354–366.
- Abdul Latif Jameel Poverty Action Lab. 2020.** "Enhancing Women's Agency: Cross-Cutting Lessons from Experimental and Quasi-Experimental Studies in Low- and Middle-Income Countries: Evidence Review." Abdul Latif Jameel Poverty Action Lab, Cambridge, MA.
- Abeler, J., Nosenzo, D., and Raymond, C. 2019.** "Preferences for Truth-Telling." *Econometrica* 87(4): 1115–1153.
- Abi-Jaoude, E., Naylor, K. T., and Pignatiello, A. 2020.** "Smartphones, Social Media Use and Youth Mental Health." *CMAJ: Canadian Medical Association Journal* 192(6): E136–E141.
- Abrams, D., Lalot, F., Broadwood, J., Davies Hayon, K., and Platts-Dunn, I. 2020.** "The Social Cohesion Investment: Local Areas That Invested in Social Cohesion Programmes Are Faring Better in the Midst of the Covid-19 Pandemic." *Belong - The Cohesion and Integration Network*, Manchester, UK.
- Acemoglu, D., and Robinson, J. 2022.** "Non-Modernization: Power–Culture Trajectories and the Dynamics of Political Institutions." *Annual Review of Political Science* 25(1): 323–339.
- Acemoglu, D., and Robinson, J. A. 2012.** *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. New York, NY: Random House.
- Acemoglu, D., and Robinson, J. A. 2023.** "Culture, Institutions and Social Equilibria: A Framework." Working Paper 28832, National Bureau of Economic Research, Cambridge, MA.
- Acemoglu, D., and Wolitzky, A. 2023.** "Mistrust, Misperception, and Misunderstanding: Imperfect Information and Conflict Dynamics." Working Paper 31681, National Bureau of Economic Research, Cambridge, MA.
- Acemoglu, D., Cheema, A., Khwaja, A. I., and Robinson, J. A. 2020.** "Trust in State and Nonstate Actors: Evidence from Dispute Resolution in Pakistan." *Journal of Political Economy* 128(8): 3090–3147.
- Adger, W. N., Barnett, J., Heath, S., and Jarillo, S. 2022.** "Climate Change Affects Multiple Dimensions of Well-Being through Impacts, Information and Policy Responses." *Nature Human Behaviour* 6(11): 1465–1473.
- Adserà, A., Arenas, A., and Boix, C. 2023.** "Estimating the Value of Democracy Relative to Other Institutional and Economic Outcomes among Citizens in Brazil, France, and the United States." *Proceedings of the National Academy of Sciences* 120(48): e2301618120.
- African Centres for Disease Control and Prevention. 2022.** "Partnerships for African Vaccine Manufacturing (PAVM) Framework for Action." <https://africacdc.org/download/partnerships-for-african-vaccine-manufacturing-pavm-framework-for-action/>. Accessed 15 December 2023
- Agarwal, R., and Reed, T. 2022.** "Financing Vaccine Equity: Funding for Day-Zero of the Next Pandemic." *Oxford Review of Economic Policy* 38(4): 833–850.
- Agrawal, V., Sood, N., and Whaley, C. M. 2023.** "The Impact of the Global Covid-19 Vaccination Campaign on All-Cause Mortality." Working Paper 31812, National Bureau of Economic Research, Cambridge, MA.
- Agüero, J. M. 2021.** "COVID-19 and the Rise of Intimate Partner Violence." *World Development* 137: 105217.
- Ahler, D. J. 2014.** "Self-Fulfilling Misperceptions of Public Polarization." *The Journal of Politics* 76(3): 607–620.
- Ahler, D. J., and Sood, G. 2018.** "The Parties in Our Heads: Misperceptions About Party Composition and Their Consequences." *The Journal of Politics* 80(3): 964–981.
- Ahsanuzzaman, Palm-Forster, L. H., and Suter, J. F. 2022.** "Experimental Evidence of Common Pool Resource Use in the Presence of Uncertainty." *Journal of Economic Behavior & Organization* 194: 139–160.
- Aichele, R., and Felbermayr, G. 2015.** "Kyoto and Carbon Leakage: An Empirical Analysis of the Carbon Content of Bilateral Trade." *Review of Economics and Statistics* 97(1): 104–115.
- Aiko, R., and Logan, C. 2014.** *Africa's Willing Taxpayers Thwarted by Opaque Tax Systems, Corruption*. Afrobarometer.
- Aiyar, S., Chen, J., Ebeke, C. H., Garcia-Saltos, R., Gudmundsson, T., Ilyina, A., Kangur, A., and others. 2023.** "Geo-Economic Fragmentation and the Future of Multilateralism." Staff Discussion Note 2023/001. International Monetary Fund, Washington, DC.
- Ajzenman, N., Cavalcanti, T., and Da Mata, D. 2023.** "More Than Words: Leaders' Speech and Risky Behavior During a Pandemic." *American Economic Journal: Economic Policy* 15(3): 351–371.
- Akbari, M., Bahrami-Rad, D., and Kimbrough, E. O. 2019.** "Kinship, Fractionalization and Corruption." *Journal of Economic Behavior & Organization* 166: 493–528.
- Akdeniz, A., and van Veelen, M. 2021.** "The Evolution of Morality and the Role of Commitment." *Evolutionary Human Sciences* 3: e41.
- Akerlof, G. A., and Kranton, R. E. 2000.** "Economics and Identity." *The Quarterly Journal of Economics* 115(3): 715–753.
- Akerlof, G. A., and Snower, D. J. 2016.** "Bread and Bullets." *Journal of Economic Behavior & Organization* 126: 58–71.
- Al Amin, S., Morrison, S. D., Kabir, M., and Sajib, M. R. U.-Z. 2021.** "Challenges for Non-Covid Patients with Chronic Kidney Disease in Bangladesh: An Observation During Coronavirus Disease Pandemic." *Inquiry* 58: 0046958021997337.
- Albrecht, G. 2012.** "Psychoterratic Conditions in a Scientific and Technological World." In Kahn Jr., P. H., and Hasbach, P. H., (eds.), *Ecopsychology: Science, Totems, and the Technological Species*. Cambridge, MA: MIT Press.
- Albrecht, G. A. 2019.** *Earth Emotions: New Words for a New World*. Ithaca, NY: Cornell University Press.
- Alcalá, F., and Ciccone, A. 2004.** "Trade and Productivity." *The Quarterly Journal of Economics* 119(2): 613–646.
- Alesina, A., and Giuliano, P. 2013.** "Family Ties." *Handbook of Economic Growth*. Elsevier.
- Alesina, A., and Giuliano, P. 2015.** "Culture and Institutions." *Journal of Economic Literature* 53(4): 898–944.
- Alesina, A., and Passarelli, F. 2019.** "Loss Aversion in Politics." *American Journal of Political Science* 63(4): 936–947.
- Alesina, A., Miano, A., and Stantcheva, S. 2020.** "The Polarization of Reality." *AEA Papers and Proceedings* 110: 324–328.
- Algan, Y., and Cahuc, P. 2014.** "Trust, Growth, and Well-Being: New Evidence and Policy Implications." In Aghion, P. and Durlauf, S. N., (eds.), *Handbook of Economic Growth*. Elsevier.

- Algan, Y., Guriev, S., Papaioannou, E., and Passari, E. 2017.** "The European Trust Crisis and the Rise of Populism." *Brookings Papers on Economic Activity*, Brookings Institution, Washington, DC.
- Alger, I. 2023.** "Evolutionarily Stable Preferences." *Philosophical Transactions of the Royal Society B: Biological Sciences* 378(1876): 20210505.
- Ali, M., and Fjeldstad, O.-H. 2023.** "Pre-Colonial Centralization and Tax Compliance Norms in Contemporary Uganda." *Journal of Institutional Economics* 19(3): 379–400.
- Ali, M., Fjeldstad, O.-H., and Sjursen, I. H. 2014.** "To Pay or Not to Pay? Citizens' Attitudes toward Taxation in Kenya, Tanzania, Uganda, and South Africa." *World Development* 64: 828–842.
- Allan, R. P., Barlow, M., Byrne, M. P., Cherchi, A., Douville, H., Fowler, H. J., Gan, T. Y., and others. 2020.** "Advances in Understanding Large-Scale Responses of the Water Cycle to Climate Change." *Annals of the New York Academy of Sciences* 1472(1): 49–75.
- Allcott, H. 2011.** "Social Norms and Energy Conservation." *Journal of Public Economics* 95(9): 1082–1095.
- Allcott, H. 2015.** "Site Selection Bias in Program Evaluation." *The Quarterly Journal of Economics* 130(3): 1117–1165.
- Allcott, H., and Kessler, J. B. 2019.** "The Welfare Effects of Nudges: A Case Study of Energy Use Social Comparisons." *American Economic Journal: Applied Economics* 11(1): 236–276.
- Allcott, H., and Rogers, T. 2014.** "The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation." *American Economic Review* 104(10): 3003–3037.
- Allen, D. 2023.** *Justice by Means of Democracy*. Chicago, IL: The University of Chicago Press.
- Allen, W., Baisden, T., Burgess, J., Crawford, S., Ellis, L., Hall, D., Hall, T., and others. 2023.** "A Guide to Just Transitions for Communities in Aotearoa New Zealand." Motu Economic and Public Policy Research, Wellington.
- Alingham, M. G., and Sandmo, A. 1972.** "Income Tax Evasion: A Theoretical Analysis." *Journal of Public Economics* 1(3): 323–338.
- Alm, J., and McClellan, C. 2012.** "Tax Morale and Tax Compliance from the Firm's Perspective." *Kyklos* 65(1): 1–17.
- Almås, I., Cappelen, A. W., and Tungodden, B. 2020.** "Cutthroat Capitalism Versus Cuddly Socialism: Are Americans More Meritocratic and Efficiency-Seeking Than Scandinavians?" *Journal of Political Economy* 128(5): 1753–1788.
- Almås, I., Cappelen, A. W., and Tungodden, B. 2020.** "Cutthroat Capitalism Versus Cuddly Socialism: Are Americans More Meritocratic and Efficiency-Seeking Than Scandinavians?" *Journal of Political Economy* 128(5): 1753–1788.
- Almås, I., Cappelen, A. W., Salvanes, K. G., Sørensen, E. Ø., and Tungodden, B. 2017.** "Fairness and Family Background." *Politics, Philosophy & Economics* 16(2): 117–131.
- Almås, I., Cappelen, A. W., Sørensen, E. Ø., and Tungodden, B. 2010.** "Fairness and the Development of Inequality Acceptance." *Science* 328(5982): 1176–1178.
- Almås, I., Cappelen, A. W., Sørensen, E. Ø., and Tungodden, B. 2022.** "Global Evidence on the Selfish Rich Inequality Hypothesis." *Proceedings of the National Academy of Sciences* 119(3): e2109690119.
- Almas, I., Cappelen, A. W., Sorensen, E., and Tungodden, B. 2022.** "Attitudes to Inequality: Preferences and Beliefs." *IFS Deaton Review of Inequalities*.
- Almelhem, A., Iyigun, M., Kennedy, A., and Rubin, J. 2023.** "Enlightenment Ideals and Belief in Progress in the Run-up to the Industrial Revolution: A Textual Analysis." IZA Discussion Paper 16674, Institute of Labor Economics, Bonn, Germany.
- Alon, T., Coskun, S., Doepke, M., Koll, D., and Tertilt, M. 2022.** "From Mancession to Shecession: Women's Employment in Regular and Pandemic Recessions." *NBER Macroeconomics Annual* 36(1): 83–151.
- Alstadsæter, A., Godar, S., Nicolaidis, P., and Zucman, G. 2023.** *Global Tax Evasion Report 2024*. Paris: EU Tax Observatory.
- Alter, K. J., and Raustiala, K. 2018.** "The Rise of International Regime Complexity." *Annual Review of Law and Social Science* 14(1): 329–349.
- Alter, K. J., and Zürn, M. 2020a.** "Conceptualising Backlash Politics: Introduction to a Special Issue on Backlash Politics in Comparison." *The British Journal of Politics and International Relations* 22(4): 563–584.
- Alter, K. J., and Zürn, M. 2020b.** "Theorising Backlash Politics: Conclusion to a Special Issue on Backlash Politics in Comparison." *The British Journal of Politics and International Relations* 22(4): 739–752.
- Altman, S. A., and Bastian, C. 2022.** *DHL Global Connectedness Index: An In-Depth Report on the State of Globalization*. Bonn, Germany: Deutsche Post DHL Group.
- Altomonte, C., Gennaro, G., and Passarelli, F. 2019.** "Collective Emotions and Protest Vote." CESifo Working Paper 7463, Center for Economic Studies and Institute for Economic Research, Munich, Germany.
- Alvarez, J., Sollaci, A. B., Andaloussi, M. B., Maggi, C., Stuermer, M., and Topalova, P. 2023.** "Geo-economic Fragmentation and Commodity Markets." IMF Working Paper 23/201, International Monetary Fund, Washington, DC.
- Ambrus, A., Greiner, B., and Pathak, P. A. 2015.** "How Individual Preferences Are Aggregated in Groups: An Experimental Study." *Journal of Public Economics* 129: 1–13.
- Amin, A. 2016.** "Exploring the Role of Economic Incentives and Spillover Effects in Biodiversity Conservation Policies in Sub-Saharan Africa." *Ecological Economics* 127: 185–191.
- Amnesty International. 2022.** *The Social Atrocity: Meta and the Right to Remedy for the Rohingya*. London: Amnesty International.
- Amnesty International. 2023.** *DRC: Powering Change or Business as Usual?* London: Amnesty International.
- Amormino, P., Ploe, M. L., and Marsh, A. A. 2022.** "Moral Foundations, Values, and Judgments in Extraordinary Altruists." *Scientific Reports* 12(1): 2211.
- Andersen, A., Franklin, S., Getahun, T., Kotsadam, A., Somville, V., and Villanger, E. 2023.** "Does Wealth Reduce Support for Redistribution? Evidence from an Ethiopian Housing Lottery." *Journal of Public Economics* 224: 104939.
- Anderson, A., and Robinson, D. T. 2024.** "Climate Polarization and Green Investment." NBER Working Paper 32131, National Bureau of Economic Research, Cambridge, MA.
- Anderson, B., Böhmelt, T., and Ward, H. 2017.** "Public Opinion and Environmental Policy Output: A Cross-National Analysis of Energy Policies in Europe." *Environmental Research Letters* 12(11): 114011.
- Anderson, E., and Obeng, S. 2021.** "Globalisation and Government Spending: Evidence for the 'Hyper-Globalisation' of the 1990s and 2000s." *The World Economy* 44(5): 1144–1176.
- Anderson, W., Seager, R., Baethgen, W., Cane, M., and You, L. 2019.** "Synchronous Crop Failures and Climate-Forced Production Variability." *Science Advances* 5(7): eaaw1976.
- Andre, P., Boneva, T., Chopra, F., and Falk, A. 2021.** "Fighting Climate Change: The Role of Norms, Preferences, and Moral Values." CESifo Working Paper 9175, Center for Economic Studies and Institute for Economic Research, Munich, Germany.
- Andre, P., Boneva, T., Chopra, F., and Falk, A. 2024.** "Globally Representative Evidence on the Actual and Perceived Support for Climate Action." *Nature Climate Change*.
- Andreoni, J. 1989.** "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence." *Journal of Political Economy* 97(6): 1447–1458.
- Andreoni, J., and Miller, J. 2002.** "Giving According to Garp: An Experimental Test of the Consistency of Preferences for Altruism." *Econometrica* 70(2): 737–753.
- Andreoni, J., Nikiforakis, N., and Siegenthaler, S. 2021.** "Predicting Social Tipping and Norm Change in Controlled Experiments." *Proceedings of the National Academy of Sciences* 118(16): e2014893118.
- Andrews, K., Fitzpatrick, S., and Westra, E. 2024.** "Human and Nonhuman Norms: A Dimensional Framework." *Philosophical Transactions of the Royal Society B: Biological Sciences* 379(1897): 20230026.
- Andries, M., Bursztyn, L., Chaney, T., and Djourelova, M. 2024.** "In Their Shoes." Working Paper.
- Antinyan, A., and Asatryan, Z. 2020.** "Nudging for Tax Compliance: A Meta-Analysis." CESifo Working Paper, Center for Economic Studies and Institute for Economic Research, Munich, Germany.
- Anzoategui, D., Comin, D., Gertler, M., and Martinez, J. 2019.** "Endogenous Technology Adoption and R&D as Sources of Business Cycle Persistence." *American Economic Journal: Macroeconomics* 11(3): 67–110.
- Apicella, C. L., and Silk, J. B. 2019.** "The Evolution of Human Cooperation." *Current Biology* 29(11): R447–R450.

- Apicella, C. L., Azevedo, E. M., Christakis, N. A., and Fowler, J. H. 2014.** "Evolutionary Origins of the Endowment Effect: Evidence from Hunter-Gatherers." *American Economic Review* 104(6): 1793–1805.
- Apicella, C., Norenzayan, A., and Henrich, J. 2020.** "Beyond WEIRD: A Review of the Last Decade and a Look Ahead to the Global Laboratory of the Future." *Evolution and Human Behavior* 41(5): 319–329.
- Appiah, K. A. 2019.** "The Importance of Elsewhere." *Foreign Affairs* 98(2): 20–26.
- Arasmith, A., Østby, G., and Aas Rustad, S. 2022.** "Patterns and Trends of Conflict-Affected Populations, 1990-2020: Advancing a New Measurement Framework." Background Paper for Human Development Report 2021/2022, United Nations Development Programme, Human Development Report Office, New York.
- Arce M., D. G., and Sandler, T. 2002.** *Regional Public Goods: Typologies, Provision, Financing, and Development Assistance*. EGD Secretariat, Ministry for Foreign Affairs.
- Arellano, C., Bai, Y., and Mihalache, G. P. 2020.** "Deadly Debt Crises: Covid-19 in Emerging Markets." NBER Working Paper 27275, National Bureau of Economic Research, Cambridge, MA.
- Arhin-Tenkorang, D., and Conceição, P. 2003.** "Beyond Communicable Disease Control: Health in the Age of Globalization." In Kaul, I., Conceição, P., Le Gouvelven, K. and Mendoza, R. U., (eds.), *Providing Global Public Goods: Managing Globalization*. New York, NY: Oxford University Press.
- Armstrong McKay, D. I., Staal, A., Abrams, J. F., Winkelmann, R., Sakschewski, B., Loriani, S., Fetzer, I., and others. 2022.** "Exceeding 1.5°C Global Warming Could Trigger Multiple Climate Tipping Points." *Science* 377(6611): eabn7950.
- Arnhart, L. 1994.** "The Darwinian Biology of Aristotle's Political Animals." *American Journal of Political Science* 38(2): 464–485.
- Arrow, K. J. 1962.** "Economic Welfare and the Allocation of Resources for Invention." *The Rate and Direction of Inventive Activity*. Princeton, NJ: Princeton University Press.
- Arrow, K. J. 1969.** "The Organization of Economic Activity: Issues." *The Analysis and Evaluation of Public Expenditures: The PPB System: Part 1*. Washington, DC: Joint Economic Committee, United States Congress.
- ATAF (African Tax Administration Forum). 2018.** *African Tax Outlook 2018*. Pretoria, South Africa: ATAF.
- Atari, M., Barbaro, N., Sela, Y., Shackelford, T. K., and Chegeni, R. 2017.** "The Big Five Personality Dimensions and Mate Retention Behaviors in Iran." *Personality and Individual Differences* 104: 286–290.
- Athey, S., Castillo, J. C., Chaudhuri, E., Kremer, M., Simoes Gomes, A., and Snyder, C. M. 2022.** "Expanding Capacity for Vaccines against Covid-19 and Future Pandemics: A Review of Economic Issues." *Oxford Review of Economic Policy* 38(4): 742–770.
- Atkinson, Q. D., and Bourrat, P. 2011.** "Beliefs About God, the Afterlife and Morality Support the Role of Supernatural Policing in Human Cooperation." *Evolution and Human Behavior* 32(1): 41–49.
- Atuire, C. A., and Hassoun, N. 2023.** "Rethinking Solidarity Towards Equity in Global Health: African Views." *International Journal for Equity in Health* 22(1): 52.
- Aumann, R. J. 2019.** "A Synthesis of Behavioural and Mainstream Economics." *Nature Human Behaviour* 3(7): 666–670.
- Autor, D. H., Dorn, D., and Hanson, G. H. 2013.** "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *American Economic Review* 103(6): 2121–2168.
- Autor, D. H., Dorn, D., and Hanson, G. H. 2016.** "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade." *Annual Review of Economics* 8(1): 205–240.
- Autor, D., Beck, A., Dorn, D., and Hanson, G. H. 2024.** "Help for the Heartland? The Employment and Electoral Effects of the Trump Tariffs in the United States." NBER Working Paper 32082, National Bureau of Economic Research, Cambridge, MA.
- Autor, D., Dorn, D., Hanson, G., and Majlesi, K. 2020a.** "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure." *American Economic Review* 110(10): 3139–3183.
- Autor, D., Dorn, D., Katz, L. F., Patterson, C., and Van Reenen, J. 2020b.** "The Fall of the Labor Share and the Rise of Superstar Firms." *The Quarterly Journal of Economics* 135(2): 645–709.
- Avoyan, A., and Ramos, J. 2023.** "A Road to Efficiency through Communication and Commitment." *American Economic Review* 113(9): 2355–2381.
- Axelrod, R., and Hamilton, W. D. 1981.** "The Evolution of Cooperation." *Science* 211(4489): 1390–1396.
- Axelrod, R., and Keohane, R. O. 1985.** "Achieving Cooperation under Anarchy: Strategies and Institutions." *World Politics* 38(1): 226–254.
- Aycinena, D., Rentschler, L., Beranek, B., and Schulz, J. F. 2022.** "Social Norms and Dishonesty across Societies." *Proceedings of the National Academy of Sciences* 119(31): e2120138119.
- Ayres, I., Katz, T. K., and Regev, T. 2023.** "Languages and Future-Oriented Economic Behavior—Experimental Evidence for Causal Effects." *Proceedings of the National Academy of Sciences* 120(7): e2208871120.
- Ba, M., Gebremedhin, L. T., Masako, P., Msigallah, F., Kone, K. E., and Baird, T. L. 2021.** "Diversity and Solidarity in Global Health." *The Lancet Global Health* 9(4): e391–e392.
- Baba, C., Lan, T., Mineshima, A., Misch, F., Pinat, M., Shahmoradi, A., Yao, J., and Elkan, R. v. 2023.** "Geoeconomic Fragmentation: What's at Stake for the EU." IMF Working Paper 23/245, International Monetary Fund, Washington, DC.
- Badizadegan, K., Kalkowska, D. A., and Thompson, K. M. 2022.** "Polio by the Numbers—a Global Perspective." *The Journal of Infectious Diseases* 226(8): 1309–1318.
- Bago, B., Rand, D. G., and Pennycook, G. 2023.** "Reasoning About Climate Change." *PNAS Nexus* 2(5).
- Bahrami-Rad, D. 2021.** "Keeping It in the Family: Female Inheritance, Inmarriage, and the Status of Women." *Journal of Development Economics* 153: 102714.
- Bahrami-Rad, D., Beauchamp, J., Henrich, J., and Schulz, J. 2022.** "Kin-Based Institutions and Economic Development." <http://dx.doi.org/10.2139/ssrn.4200629>.
- Bai, X., Ramos, M. R., and Fiske, S. T. 2020.** "As Diversity Increases, People Paradoxically Perceive Social Groups as More Similar." *Proceedings of the National Academy of Sciences* 117(23): 12741–12749.
- Baimel, A., Juda, M., Birch, S., and Henrich, J. 2021.** "Machiavellian Strategist or Cultural Learner? Mentalizing and Learning over Development in a Resource-Sharing Game." *Evolutionary Human Sciences* 3: e14.
- Bak-Coleman, J. B., Alfano, M., Barfuss, W., Bergstrom, C. T., Centeno, M. A., Couzin, I. D., Donges, J. F., and others. 2021.** "Stewardship of Global Collective Behavior." *Proceedings of the National Academy of Sciences* 118(27): e2025764118.
- Baldassarri, D. 2020.** "Market Integration Accounts for Local Variation in Generalized Altruism in a Nationwide Lost-Letter Experiment." *Proceedings of the National Academy of Sciences* 117(6): 2858–2863.
- Baldassarri, D., and Abascal, M. 2020.** "Diversity and Prosocial Behavior." *Science* 369(6508): 1183–1187.
- Baldassarri, D., and Page, S. E. 2021.** "The Emergence and Perils of Polarization." *Proceedings of the National Academy of Sciences* 118(50): e2116863118.
- Ball, L. 2014.** "Long-Term Damage from the Great Recession in OECD Countries." *European Journal of Economics and Economic Policies* 11(2): 149–160.
- Balliet, D., and Lindström, B. 2023.** "Inferences About Interdependence Shape Cooperation." *Trends in Cognitive Sciences* 27(6): 583–595.
- Balliet, D., and Van Lange, P. A. 2013.** "Trust, Conflict, and Cooperation: A Meta-Analysis." *Psychological Bulletin* 139(5): 1090.
- Balsa-Barreiro, J., Vié, A., Morales, A. J., and Cebrián, M. 2020.** "Deglobalization in a Hyper-Connected World." *Palgrave Communications* 6(1): 1–4.
- Bandiera, O., Barankay, I., and Rasul, I. 2011.** "Field Experiments with Firms." *Journal of Economic Perspectives* 25(3): 63–82.
- Bandura, A. 2006.** "Toward a Psychology of Human Agency." *Perspectives on Psychological Science* 1(2): 164–180.
- Bar-On, K. K., and Lamm, E. 2023.** "The Interplay of Social Identity and Norm Psychology in the Evolution of Human Groups." *Philosophical Transactions of the Royal Society B: Biological Sciences* 378(1872): 20210412.
- Barbieri, S. 2023.** "Complementarity and Information in Collective Action." *Economic Theory* 75(1): 167–206.
- Bardhan, P. 2022.** *A World of Insecurity: Democratic Disenchantment in Rich and Poor Countries*. Cambridge, MA: Harvard University Press.

- Bardhan, P., Ghatak, M., and Karavanov, A. 2007.** "Wealth Inequality and Collective Action." *Journal of Public Economics* 91(9): 1843–1874.
- Barfuss, W., and Mann, R. P. 2022.** "Modeling the Effects of Environmental and Perceptual Uncertainty Using Deterministic Reinforcement Learning Dynamics with Partial Observability." *Physical Review E* 105(3): 034409.
- Barfuss, W., Donges, J. F., Vasconcelos, V. V., Kurths, J., and Levin, S. A. 2020.** "Caring for the Future Can Turn Tragedy into Comedy for Long-Term Collective Action under Risk of Collapse." *Proceedings of the National Academy of Sciences* 117(23): 12915–12922.
- Barnes, J. L., Krishen, A. S., and Chan, A. 2022.** "Passive and Active Peer Effects in the Spatial Diffusion of Residential Solar Panels: A Case Study of the Las Vegas Valley." *Journal of Cleaner Production* 363: 132634.
- Barnett, M., Buchak, G., and Yannelis, C. 2023.** "Epidemic Responses under Uncertainty." *Proceedings of the National Academy of Sciences* 120(2): e220811120.
- Barrett, S. 2003a.** *Environment and Statecraft: The Strategy of Environmental Treaty-Making: The Strategy of Environmental Treaty-Making*. Oxford: Oxford University Press.
- Barrett, S. 2003b.** "Global Disease Eradication." *Journal of the European Economic Association* 1(2–3): 591–600.
- Barrett, S. 2004.** "The Provision Status of Disease Eradication." New York: UNDP.
- Barrett, S. 2006a.** "Climate Treaties and 'Breakthrough' Technologies." *American Economic Review* 96(2): 22–25.
- Barrett, S. 2006b.** "Managing the Global Commons." In *Expert Paper Series Two: Global Commons*. Stockholm: Secretariat of the International Task Force on Global Public Goods.
- Barrett, S. 2007.** "The Smallpox Eradication Game." *Public Choice* 130(1): 179–207.
- Barrett, S. 2011.** "Stop! The Polio Vaccination Cessation Game." *The World Bank Economic Review* 24(3): 361–385.
- Barrett, S. 2013.** "Climate Treaties and Approaching Catastrophes." *Journal of Environmental Economics and Management* 66(2): 235–250.
- Barrett, S. 2013.** "Economic Considerations for the Eradication Endgame." *Philosophical Transactions of the Royal Society B: Biological Sciences* 368(1623): 20120149.
- Barrett, S. 2016.** "Coordination Vs. Voluntarism and Enforcement in Sustaining International Environmental Cooperation." *Proceedings of the National Academy of Sciences* 113(51): 14515–14522.
- Barrett, S. 2022.** "A Biodiversity Hotspots Treaty: The Road Not Taken." *Environmental and Resource Economics*.
- Barrett, S. Forthcoming.** "Property Rights to the World's (Linear) Ocean Fisheries in Customary International Law." *Journal of the Association of Environmental and Resource Economists*.
- Barrett, S., and Dannenberg, A. 2012.** "Climate Negotiations under Scientific Uncertainty." *Proceedings of the National Academy of Sciences* 109(43): 17372–17376.
- Barrett, S., and Dannenberg, A. 2014.** "Sensitivity of Collective Action to Uncertainty About Climate Tipping Points." *Nature Climate Change* 4(1): 36–39.
- Barrett, S., and Dannenberg, A. 2016.** "An Experimental Investigation into 'Pledge and Review' in Climate Negotiations." *Climatic Change* 138(1): 339–351.
- Barrett, S., and Dannenberg, A. 2017.** "Tipping Versus Cooperating to Supply a Public Good." *Journal of the European Economic Association* 15(4): 910–941.
- Barrett, S., and Dannenberg, A. 2022.** "The Decision to Link Trade Agreements to the Supply of Global Public Goods." *Journal of the Association of Environmental and Resource Economists* 9(2): 273–305.
- Barrett, S., Dasgupta, A., Dasgupta, P., Adger, W. N., Anderies, J., Bergh, J. v. d., Bledsoe, C., and others. 2020.** "Social Dimensions of Fertility Behavior and Consumption Patterns in the Anthropocene." *Proceedings of the National Academy of Sciences*.
- Barro, R. J., and J.-W. Lee. 2018.** Dataset of Educational Attainment, June 2018 Revision. <http://www.barrolee.com>. Accessed 9 August 2023.
- Barro, R. J., and McCleary, R. M. 2003.** "Religion and Economic Growth across Countries." *American Sociological Review* 68(5): 760–781.
- Barry, J. M. 2004.** "The Site of Origin of the 1918 Influenza Pandemic and Its Public Health Implications." *Journal of Translational Medicine* 2(1): 1–4.
- Bartke, S., Bosworth, S. J., Snower, D. J., and Chierchia, G. 2019.** "Motives and Comprehension in a Public Goods Game with Induced Emotions." *Theory and Decision* 86(2): 205–238.
- Bartley Johns, M., Brenton, P., Cali, M., Hoppe, M., and Piermartini, R. 2015.** *The Role of Trade in Ending Poverty*. Washington, DC: World Bank.
- Bastini, K., Kerschreiter, R., Lachmann, M., Ziegler, M., and Sawert, T. 2023.** "Encouraging Individual Contributions to Net-Zero Organizations: Effects of Behavioral Policy Interventions and Social Norms." *Journal of Business Ethics*.
- Basu, K. 2010.** *Beyond the Invisible Hand: Groundwork for a New Economics*. Princeton, NJ: Princeton University Press.
- Basu, K. 2018.** *The Republic of Beliefs: A New Approach to Law and Economics*. Princeton, NJ: Princeton University Press.
- Basu, K. 2022.** "Conventions, Morals and Strategy: Greta's Dilemma and the Incarceration Game." *Synthese* 200(1): 1–19.
- Basu, K. 2024.** *Reason to Be Happy*. London: Penguin Random House.
- Basu, K., Gostin, L., and Hassoun, N. 2021.** "Pandemic Preparedness and Response: Beyond the WHO's Access to Covid-19 Tools Accelerator." *Brookings Global Working Paper Series*.
- Bau, N. 2021.** "Can Policy Change Culture? Government Pension Plans and Traditional Kinship Practices." *American Economic Review* 111(6): 1880–1917.
- Bauer, A. M., Edgeworth, M., Edwards, L. E., Ellis, E. C., Gibbard, P., and Merritts, D. J. 2021.** "Anthropocene: Event or Epoch?" *Nature* 597(7876): 332–332.
- Bauer, C. A., Boemelburg, R., and Walton, G. M. 2021.** "Resourceful Actors, Not Weak Victims: Reframing Refugees' Stigmatized Identity Enhances Long-Term Academic Engagement." *Psychological Science* 32(12): 1896–1906.
- Bauer, M., Blattman, C., Chytilová, J., Henrich, J., Miguel, E., and Mitts, T. 2016.** "Can War Foster Cooperation?" *Journal of Economic Perspectives* 30(3): 249–274.
- Bauer, M., Cassar, A., Chytilová, J., and Henrich, J. 2014.** "War's Enduring Effects on the Development of Egalitarian Motivations and in-Group Biases." *Psychological Science* 25(1): 47–57.
- Bayes, R., and Druckman, J. N. 2021.** "Motivated Reasoning and Climate Change." *Current Opinion in Behavioral Sciences* 42: 27–35.
- Beare, D. H., and Jolliff Scott, B. J. 2019.** "Popular Non-Support for International Organizations: How Extensive and What Does This Represent?" *The Review of International Organizations* 14: 187–216.
- Bearden, J. N., Murphy, R. O., and Rapoport, A. 2005.** "A Multi-Attribute Extension of the Secretary Problem: Theory and Experiments." *Journal of Mathematical Psychology* 49(5): 410–422.
- Bechtel, M. M., and Scheve, K. F. 2013.** "Mass Support for Global Climate Agreements Depends on Institutional Design." *Proceedings of the National Academy of Sciences* 110(34): 13763–13768.
- Bechtel, M. M., Genovese, F., and Scheve, K. F. 2019.** "Interests, Norms and Support for the Provision of Global Public Goods: The Case of Climate Co-Operation." *British Journal of Political Science* 49(4): 1333–1355.
- Bechtoldt, M. N., Göttsmann, A., Moslener, U., and Pauw, W. P. 2021.** "Addressing the Climate Change Adaptation Puzzle: A Psychological Science Perspective." *Climate Policy* 21(2): 186–202.
- Becker, A., Enke, B., and Falk, A. 2020.** "Ancient Origins of the Global Variation in Economic Preferences." *AEA Papers and Proceedings* 110: 319–323.
- Becker, B. 2023.** "International Inequality and Demand for Redistribution in the Global South." *Political Science Research and Methods*: 1–9.
- Becker, M. A., and Nouwen, S. M. H. 2019.** "International Commissions of Inquiry: What Difference Do They Make? Taking an Empirical Approach." *European Journal of International Law* 30(3): 819–841.
- Beckert, J. 2013.** "Imagined Futures: Fictional Expectations in the Economy." *Theory and Society* 42(3): 219–240.
- Beckert, J. 2020.** "The Exhausted Futures of Neoliberalism: From Promissory Legitimacy to Social Anomy." *Journal of Cultural Economy* 13(3): 318–330.

- Beckert, J., and Bronk, R. 2018.** *Uncertain Futures: Imaginaries, Narratives, and Calculation in the Economy*. Oxford, UK: Oxford University Press.
- Beckert, J., and Suckert, L. 2021.** "The Future as a Social Fact. The Analysis of Perceptions of the Future in Sociology." *Poetics* 84: 101499.
- Beckwith, C. I. 2009.** *Empires of the Silk Road: A History of Central Eurasia from the Bronze Age to the Present*. Princeton, NJ: Princeton University Press.
- Bednar, J. 2021.** "Polarization, Diversity, and Democratic Robustness." *Proceedings of the National Academy of Sciences* 118(50): e2113843118.
- Bednar, J. 2023.** "Governance for Human Social Flourishing." *Daedalus* 152(1): 31–45.
- Bednar, J., and Page, S. E. 2018.** "When Order Affects Performance: Culture, Behavioral Spillovers, and Institutional Path Dependence." *American Political Science Review* 112(1): 82–98.
- Beiser-McGrath, L. F., and Bernauer, T. 2019a.** "Commitment Failures Are Unlikely to Undermine Public Support for the Paris Agreement." *Nature Climate Change* 9(3): 248–252.
- Beiser-McGrath, L. F., and Bernauer, T. 2019b.** "Could Revenue Recycling Make Effective Carbon Taxation Politically Feasible?" *Science Advances* 5(9): eaax3323.
- Beiser-McGrath, L. F., and Bernauer, T. 2022.** "Domestic Provision of Global Public Goods: How Other Countries' Behavior Affects Public Support for Climate Policy." *Global Environmental Politics* 22(1): 117–138.
- Beiser-McGrath, L. F., Bernauer, T., Song, J., and Uji, A. 2021.** "Understanding Public Support for Domestic Contributions to Global Collective Goods." *Climatic Change* 166(3): 51.
- Belcher, L. J., Dewar, A. E., Ghoul, M., and West, S. A. 2022.** "Kin Selection for Cooperation in Natural Bacterial Populations." *Proceedings of the National Academy of Sciences* 119(9): e2119070119.
- Bellucci, G., Camilleri, J. A., Eickhoff, S. B., and Krueger, F. 2020.** "Neural Signatures of Prosocial Behaviors." *Neuroscience and Biobehavioral Reviews* 118: 186–195.
- Bénabou, R., and Tirole, J. 2003.** "Intrinsic and Extrinsic Motivation." *The Review of Economic Studies* 70(3): 489–520.
- Bénabou, R., and Tirole, J. 2016.** "Mindful Economics: The Production, Consumption, and Value of Beliefs." *Journal of Economic Perspectives* 30(3): 141–164.
- Bénabou, R., Falk, A., and Henkel, L. 2024.** "Ends Versus Means: Kantians, Utilitarians, and Moral Decisions." Working Paper 32072, National Bureau of Economic Research, Cambridge, MA.
- Benjamin, D. J., Cesarini, D., Loos, M. J. H. M. v. d., Dawes, C. T., Koellinger, P. D., Magnusson, P. K. E., Chabris, C. F., and others. 2012.** "The Genetic Architecture of Economic and Political Preferences." *Proceedings of the National Academy of Sciences* 109(21): 8026–8031.
- Benjamin, N., Mbaye, A. A., and Diop, I. T. 2012.** *The Informal Sector in Francophone Africa: Firm Size, Productivity, and Institutions*. Washington, DC: World Bank.
- Berger, J., Efferson, C., and Vogt, S. 2023.** "Tipping Pro-Environmental Norm Diffusion at Scale: Opportunities and Limitations." *Behavioural Public Policy* 7(3): 581–606.
- Berger, J., Vogt, S., and Efferson, C. 2022.** "Pre-Existing Fairness Concerns Restrict the Cultural Evolution and Generalization of Inequitable Norms in Children." *Evolution and Human Behavior* 43(1): 1–15.
- Bergquist, M., Nilsson, A., Haring, N., and Jagers, S. C. 2022.** "Meta-Analyses of Fifteen Determinants of Public Opinion About Climate Change Taxes and Laws." *Nature Climate Change* 12(3): 235–240.
- Bergquist, M., Thiel, M., Goldberg, M. H., and van der Linden, S. 2023.** "Field Interventions for Climate Change Mitigation Behaviors: A Second-Order Meta-Analysis." *Proceedings of the National Academy of Sciences* 120(13): e2214851120.
- Bergstrom, C. T., and Hanage, W. P. 2024.** "Human Behavior and Disease Dynamics." *Proceedings of the National Academy of Sciences* 121(1): e2317211120.
- Berkley, S. 2020.** "COVAX Explained." GAVI, the Vaccine Alliance. Geneva. <https://www.gavi.org/vaccineswork/covax-explained>.
- Bernauer, T., and Gampfer, R. 2015.** "How Robust Is Public Support for Unilateral Climate Policy?" *Environmental Science and Policy* 54: 316–330.
- Berniell, I., and Facchini, G. 2021.** "COVID-19 Lockdown and Domestic Violence: Evidence from Internet-Search Behavior in 11 Countries." *European Economic Review* 136: 103775.
- Besley, T. 2020.** "State Capacity, Reciprocity, and the Social Contract." *Econometrica* 88(4): 1307–1335.
- Besley, T., and Mueller, H. 2021.** "Fiscal Capacity and State Fragility." In Chami, R., Espinoza, R. and Montiel, P. J., (eds.), *Macroeconomic Policy in Fragile States*. Oxford, UK: Oxford University Press.
- Besley, T., Jensen, A., and Persson, T. 2023.** "Norms, Enforcement, and Tax Evasion." *The Review of Economics and Statistics* 105(4): 998–1007.
- Bettencourt, L. M., Lobo, J., Helbing, D., Kühnert, C., and West, G. B. 2007.** "Growth, Innovation, Scaling, and the Pace of Life in Cities." *Proceedings of the National Academy of Sciences* 104(17): 7301–7306.
- Bhanot, S. P. 2021.** "Isolating the Effect of Injunctive Norms on Conservation Behavior: New Evidence from a Field Experiment in California." *Organizational Behavior and Human Decision Processes* 163: 30–42.
- Bicchieri, C. 2016.** *Norms in the Wild: How to Diagnose, Measure, and Change Social Norms*. Oxford, UK: Oxford University Press.
- Bicchieri, C., and Dimant, E. 2022.** "Nudging with Care: The Risks and Benefits of Social Information." *Public Choice* 191(3): 443–464.
- Bicchieri, C., Dimant, E., and Sonderegger, S. 2019.** "It's Not a Lie If You Believe It: On Norms, Lying, and Self-Serving Belief Distortion." CeDEx Discussion Paper Series 2019-07.
- Biermann, F. 2014.** "The Anthropocene: A Governance Perspective." *The Anthropocene Review* 1(1): 57–61.
- Biermann, F. 2021.** "The Future of 'Environmental' Policy in the Anthropocene: Time for a Paradigm Shift." *Environmental Politics* 30(1–2): 61–80.
- Biermann, F., and Kalfagianni, A. 2020.** "Planetary Justice: A Research Framework." *Earth System Governance* 6: 100049.
- Biermann, F., Hickmann, T., Sénit, C.-A., Beisheim, M., Bernstein, S., Chasek, P., Grob, L., and others. 2022.** "Scientific Evidence on the Political Impact of the Sustainable Development Goals." *Nature Sustainability* 5(9): 795–800.
- Birch, J. 2019.** "Are Kin and Group Selection Rivals or Friends?" *Current Biology* 29(11): R433–R438.
- Bird, R. M. 2011.** "Subnational Taxation in Developing Countries: A Review of the Literature." *Journal of International Commerce, Economics and Policy* 2(01): 139–161.
- Birdsall, M., Campos, J. E. L., Kim, C.-S., Corden, W. M., MacDonald, L., Pack, H., Page, J., and others. 1993.** "The East Asian Miracle: Economic Growth and Public Policy: Main Report." World Bank Policy Research Paper, World Bank, Washington, DC.
- Birshan, M. N., J.; Seong, J.; White, O., 2023.** "A New Paradigm for Our Connected World?" McKinsey Global Institute.
- Biswas, G., Sankara, D. P., Agua-Agum, J., and Maiga, A. 2013.** "Dracunculiasis (Guinea Worm Disease): Eradication without a Drug or a Vaccine." *Philosophical Transactions of the Royal Society B: Biological Sciences* 368(1623): 20120146.
- Black, R., Bennett, S. R., Thomas, S. M., and Beddington, J. R. 2011.** "Migration as Adaptation." *Nature* 478(7370): 447–449.
- Black, S., Liu, A. A., Parry, I., and Vernon, N. 2023.** "IMF Fossil Fuel Subsidies Data: 2023 Update." Working Paper 2023/169, International Monetary Fund, Washington, DC.
- Blanchard, O., Gollier, C., and Tirole, J. 2023.** "The Portfolio of Economic Policies Needed to Fight Climate Change." *Annual Review of Economics* 15(1): 689–722.
- Blanchflower, D. B., A., 2023.** "Were Covid and the Great Recession Well-Being Reducing?" Background Research Paper, United Nations Development Programme, Human Development Report Office, New York.
- Blanchflower, D. G., and Bryson, A. 2022.** "Covid and Mental Health in America." *PLoS One* 17(7): e0269855.
- Bleck, J., and Van de Walle, N. 2019.** *Electoral Politics in Africa since 1990: Continuity in Change*. Cambridge, UK: Cambridge University Press.
- Blegen, N. 2017.** "The Earliest Long-Distance Obsidian Transport: Evidence from the ~200ka Middle Stone Age Sibilo School Road Site, Baringo, Kenya." *Journal of Human Evolution* 103: 1–19.

- Blimpo, M., Mensah, J. T., Opalo, K. O., and Shi, R. 2018.** "Electricity Provision and Tax Mobilization in Africa." Policy Research Working Paper 8408, World Bank, Washington, DC.
- Bloom, D. E., Kuhn, M., and Pretzner, K. 2022.** "Modern Infectious Diseases: Macroeconomic Impacts and Policy Responses." *Journal of Economic Literature* 60(1): 85–131.
- Boadway, R., and Hayashi, M. 1999.** "Country Size and the Voluntary Provision of International Public Goods." *European Journal of Political Economy* 15(4): 619–638.
- Boadway, R., Song, Z., and Tremblay, J.-F. 2007.** "Commitment and Matching Contributions to Public Goods." *Journal of Public Economics* 91(9): 1664–1683.
- Bodansky, D. 1995.** "Customary (and Not So Customary) International Environmental Law." *Indiana Journal of Global Legal Studies* 3(1): 105–119.
- Boeltzig, M., Johansson, M., and Bramão, I. 2023.** "Ingroup Sources Enhance Associative Inference." *Communications Psychology* 1(1): 40.
- Boese, V. A., Alizada, N., Lundstedt, M., Morrison, K., Natsika, N., Sato, Y., Tai, H., and Lindberg, S. I. 2022.** *Democracy Report 2022. Autocratization Changing Nature?* Gothenburg, Sweden: Varieties of Democracy Institute at the University of Gothenburg.
- Bogart, E. L. 1920.** *Direct and Indirect Costs of the Great World War.* New York: Oxford University Press.
- Böhm, R., and Betsch, C. 2022.** "Prosocial Vaccination." *Current Opinion in Psychology* 43: 307–311.
- Böhm, R., Rusch, H., and Baron, J. 2020.** "The Psychology of Intergroup Conflict: A Review of Theories and Measures." *Journal of Economic Behavior & Organization* 178: 947–962.
- Böhm, R., Rusch, H., and Güreker, Ö. 2016.** "What Makes People Go to War? Defensive Intentions Motivate Retaliatory and Preemptive Intergroup Aggression." *Evolution and Human Behavior* 37(1): 29–34.
- Bolch, K. B., Ceriani, L., and López-Calva, L. F. 2022.** "The Arithmetics and Politics of Domestic Resource Mobilization for Poverty Eradication." *World Development* 149: 105691.
- Bolhuis, M., Chen, J., and Kett, B. 2023.** "Fragmentation in Global Trade: Accounting for Commodities." Working Paper 2023/073, International Monetary Fund, Washington, DC.
- Bollinger, B., and Gillingham, K. 2012.** "Peer Effects in the Diffusion of Solar Photovoltaic Panels." *Marketing Science* 31(6): 900–912.
- Bollinger, B., and Gillingham, K. 2019.** "Learning-by-Doing in Solar Photovoltaic Installations." <https://dx.doi.org/10.2139/ssrn.2342406>.
- Bollyky, T. J., and Bown, C. P. 2020.** "Vaccine Nationalism Will Prolong the Pandemic." *Foreign Affairs* 29(12): 2020.
- Bollyky, T. J., Angelino, O., Wigley, S., and Dieleman, J. L. 2022a.** "Trust Made the Difference for Democracies in Covid-19." *The Lancet* 400(10353): 657.
- Bollyky, T. J., Hulland, E. N., Barber, R. M., Collins, J. K., Kiernan, S., Moses, M., Pigott, D. M., and others. 2022b.** "Pandemic Preparedness and Covid-19: An Exploratory Analysis of Infection and Fatality Rates, and Contextual Factors Associated with Preparedness in 177 Countries, from Jan 1, 2020, to Sept 30, 2021." *The Lancet* 399(10334): 1489–1512.
- Bond, R. 2022.** *Understanding International Migration: Social, Cultural and Historical Contexts.* Cham, Switzerland: Springer Nature.
- Bonomi, G., Gennaioli, N., and Tabellini, G. 2021.** "Identity, Beliefs, and Political Conflict." *The Quarterly Journal of Economics* 136(4): 2371–2411.
- Boon-Falleur, M., Grandin, A., Baumard, N., and Chevallier, C. 2022.** "Leveraging Social Cognition to Promote Effective Climate Change Mitigation." *Nature Climate Change* 12(4): 332–338.
- Bor, A., Jørgensen, F., and Petersen, M. B. 2023.** "Discriminatory Attitudes against Unvaccinated People During the Pandemic." *Nature* 613(7945): 704–711.
- Bordalo, P., Coffman, K., Gennaioli, N., and Shleifer, A. 2016.** "Stereotypes." *The Quarterly Journal of Economics* 131(4): 1753–1794.
- Bordalo, P., Conlon, J. J., Gennaioli, N., Kwon, S. Y., and Shleifer, A. 2022.** "Memory and Probability." *The Quarterly Journal of Economics* 138(1): 265–311.
- Bordalo, P., Gennaioli, N., and Shleifer, A. 2022.** "Salience." *Annual Review of Economics* 14(1): 521–544.
- Bordalo, P., Tabellini, M., and Yang, D. Y. 2020.** "Issue Salience and Political Stereotypes." Working Paper 27194, National Bureau of Economic Research, Cambridge, MA.
- Bose, D., and Camerer, C. 2021.** "Trust and Behavioral Economics." *The Neurobiology of Trust*: 36–53.
- Bossuroy, T., Goldstein, M., Karimou, B., Karlan, D., Kazianga, H., Parienté, W., Premand, P., and others. 2022.** "Tackling Psychosocial and Capital Constraints to Alleviate Poverty." *Nature* 605(7909): 291–297.
- Bott, K. M., Cappelen, A. W., Sørensen, E. Ø., and Tungodden, B. 2020.** "You've Got Mail: A Randomized Field Experiment on Tax Evasion." *Management Science* 66(7): 2801–2819.
- Bouman, T., and Steg, L. 2019.** "Motivating Society-Wide Pro-Environmental Change." *One Earth* 1(1): 27–30.
- Bowen, T. R., Dmitriev, D., and Galperti, S. 2023.** "Learning from Shared News: When Abundant Information Leads to Belief Polarization." *The Quarterly Journal of Economics* 138(2): 955–1000.
- Box-Steffensmeier, J. M., Burgess, J., Corbetta, M., Crawford, K., Duflo, E., Fogarty, L., Gopnik, A., and others. 2022.** "The Future of Human Behaviour Research." *Nature Human Behaviour* 6(1): 15–24.
- Boyd, R. 2017.** *A Different Kind of Animal: How Culture Transformed Our Species.* Princeton, NJ: Princeton University Press.
- Boyd, R., and Richerson, P. J. 1985.** *Culture and the Evolutionary Process.* Chicago, IL: University of Chicago Press.
- Boyd, R., and Richerson, P. J. 1990.** "Group Selection among Alternative Evolutionarily Stable Strategies." *Journal of Theoretical Biology* 145(3): 331–342.
- Boyd, R., and Richerson, P. J. 2002.** "Group Beneficial Norms Can Spread Rapidly in a Structured Population." *Journal of Theoretical Biology* 215(3): 287–296.
- Boyd, R., and Richerson, P. J. 2011.** "Rapid Cultural Adaptation Can Facilitate the Evolution of Large-Scale Cooperation." *Behavioral Ecology and Sociobiology* 65: 431–444.
- Boyd, R., and Richerson, P. J. 2022.** "Large-Scale Cooperation in Small-Scale Foraging Societies." *Evolutionary Anthropology: Issues, News, and Reviews* 31(4): 175–198.
- Bradley, M., and Chauchard, S. 2022.** "The Ethnic Origins of Affective Polarization: Statistical Evidence from Cross-National Data." *Frontiers in Political Science* 4: 920615.
- Braithwaite, V. 2004.** "The Hope Process and Social Inclusion." *The Annals of the American Academy of Political and Social Science* 592(1): 128–151.
- Brekke, K. A., and Johansson-Stenman, O. 2008.** "The Behavioural Economics of Climate Change." *Oxford Review of Economic Policy* 24(2): 280–297.
- Brennan, G., and Pettit, P. 2004.** *The Economy of Esteem: An Essay on Civil and Political Society.* New York, NY: Oxford University Press.
- Bretter, C., and Schulz, F. 2023.** "Why Focusing on 'Climate Change Denial' Is Counterproductive." *Proceedings of the National Academy of Sciences* 120(10): e2217716120.
- Brooks, A. S., Yellen, J. E., Potts, R., Behrensmeier, A. K., Deino, A. L., Leslie, D. E., Ambrose, S. H., and others. 2018.** "Long-Distance Stone Transport and Pigment Use in the Earliest Middle Stone Age." *Science* 360(6384): 90–94.
- Brooks, B. A., Hoff, K., and Pandey, P. 2018.** "Cultural Impediments to Learning to Cooperate: An Experimental Study of High- and Low-Caste Men in Rural India." *Proceedings of the National Academy of Sciences* 115(45): 11385–11392.
- Brooks, J. S., Waring, T. M., Borgerhoff Mulder, M., and Richerson, P. J. 2018.** "Applying Cultural Evolution to Sustainability Challenges: An Introduction to the Special Issue." *Sustainability Science* 13(1): 1–8.
- Broom, D. 2023.** "These Are the World's Biggest Trading Blocs." World Economic Forum. <https://www.weforum.org/agenda/2023/04/growth-summit-2023-world-biggest-trading-blocs/>. Accessed 20 November 2023.
- Brovkin, V., Brook, E., Williams, J. W., Bathiany, S., Lenton, T. M., Barton, M., DeConto, R. M., and others. 2021.** "Past Abrupt Changes, Tipping Points and Cascading Impacts in the Earth System." *Nature Geoscience* 14(8): 550–558.
- Brown, A. L., Imai, T., Vieider, F., and Camerer, C. Forthcoming.** "Meta-Analysis of Empirical Estimates of Loss-Aversion." *Journal of Economic Literature*.
- Brown, G., and Susskind, D. 2020.** "International Cooperation During the Covid-19 Pandemic." *Oxford Review of Economic Policy* 36(Supplement 1): S64–S76.

- Brown, G., El-Arian, M. A., and Spence, M. 2023.** *Permacrisis: A Plan to Fix a Fractured World*. London: Simon & Schuster.
- Brown, T. C., and Kroll, S. 2021.** "Inequality Hinders Group Efforts to Avoid Environmental Disasters." *Q Open* 1(1).
- Bruhlin, A., Fehr, E., and Schunk, D. 2018.** "The Many Faces of Human Sociality: Uncovering the Distribution and Stability of Social Preferences." *Journal of the European Economic Association* 17(4): 1025–1069.
- Brumme, A., and Rübhelke, D. 2023.** "Minimum Participation Requirements and the Role of Co-Benefits in International Climate Policy." *Frontiers in Environmental Economics* 1: 1106186.
- Bryan, C. J., Tipton, E., and Yeager, D. S. 2021.** "Behavioural Science Is Unlikely to Change the World without a Heterogeneity Revolution." *Nature Human Behaviour* 5(8): 980–989.
- Bryan, K. A., and Williams, H. L. 2021.** "Innovation: Market Failures and Public Policies." In Ho, K., Hortaçsu, A. and Lizzeri, A., (eds.), *Handbook of Industrial Organization*. Elsevier.
- Bryant, J., Child, F., Espinosa, J., Dorn, E., Hall, S., Schmutz, D., Kola-Oyeneyin, T., and others. 2022.** "How Covid-19 Caused a Global Learning Crisis." McKinsey & Company, Seattle, WA.
- Buchan, N. R., Brewer, M. B., Grimalda, G., Wilson, R. K., Fatas, E., and Foddy, M. 2011.** "Global Social Identity and Global Cooperation." *Psychological Science* 22(6): 821–828.
- Buchan, N. R., Grimalda, G., Wilson, R., Brewer, M., Fatas, E., and Foddy, M. 2009.** "Globalization and Human Cooperation." *Proceedings of the National Academy of Sciences* 106(11): 4138–4142.
- Buchanan, A. 2020.** *Our Moral Fate: Evolution and the Escape from Tribalism*. Cambridge, MA: MIT Press.
- Buchanan, A. 2021.** "The Perpetual Struggle: How the Coevolution of Hierarchy and Resistance Drives the Evolution of Morality and Institutions." *Social Philosophy and Policy* 38(2): 232–260.
- Buchanan, A., and Powell, R. 2018.** *The Evolution of Moral Progress: A Biocultural Theory*. Oxford, UK: Oxford University Press.
- Buchholz, W., and Peters, W. 2005.** "A Rawlsian Approach to International Cooperation." *Kyklos* 58(1): 25–44.
- Buchholz, W., and Rübhelke, D. 2017.** *The Theory of Externalities and Public Goods: Essays in Memory of Richard C. Cornes*. Springer.
- Buchholz, W., and Rübhelke, D. 2019.** "International Environmental Problems." *Foundations of Environmental Economics*. Cham, Switzerland: Springer International Publishing.
- Buchholz, W., and Sandler, T. 2017.** "Successful Leadership in Global Public Good Provision: Incorporating Behavioural Approaches." *Environmental and Resource Economics* 67(3): 591–607.
- Buchholz, W., and Sandler, T. 2021.** "Global Public Goods: A Survey." *Journal of Economic Literature* 59(2): 488–545.
- Buchholz, W., Peters, W., and Ufert, A. 2018.** "International Environmental Agreements on Climate Protection: A Binary Choice Model with Heterogeneous Agents." *Journal of Economic Behavior & Organization* 154: 191–205.
- Buckley, P., Majumdar, R. 2018.** "The Services Powerhouse: Increasingly Vital to World Economic Growth." Deloitte Insights. <https://www2.deloitte.com/content/dam/Deloitte/my/Documents/risk/my-risk-sdg8-the-services-powerhouse-increasingly-vital-to-world-economic-growth.pdf>.
- Budish, E., Kettler, H., Kominers, S. D., Osland, E., Prendergast, C., and Torkelson, A. A. 2022.** "Distributing a Billion Vaccines: COVAX Successes, Challenges, and Opportunities." *Oxford Review of Economic Policy* 38(4): 941–974.
- Buggle, J. C. 2017.** "Irrigation, Collectivism and Long-Run Technological Divergence" *Cahiers de Recherches Economiques du Département d'économie* 17.06, Université de Lausanne, Faculté des HEC, Département d'économie.
- Buhaug, H., and Gleditsch, K. S. 2008.** "Contagion or Confusion? Why Conflicts Cluster in Space." *International Studies Quarterly* 52(2): 215–233.
- Bulkeley, H. 2005.** "Reconfiguring Environmental Governance: Towards a Politics of Scales and Networks." *Political Geography* 24(8): 875–902.
- Bulkeley, H., and Newell, P. 2023.** *Governing Climate Change*. Abingdon, UK: Routledge.
- Bullen, M., Heriot, G. S., and Jamrozik, E. 2023.** "Herd Immunity, Vaccination and Moral Obligation." *Journal of Medical Ethics* 49: 636–641.
- Bumann, S. 2021.** "What Are the Determinants of Public Support for Climate Policies? A Review of the Empirical Literature." *Review of Economics* 72(3): 213–228.
- Burch, S., Gupta, A., Inoue, C. Y. A., Kalfagianni, A., Persson, Å., Gerlak, A. K., Ishii, A., and others. 2019.** "New Directions in Earth System Governance Research." *Earth System Governance* 1: 100006.
- Burgess, M. G., Pielke, R., and Ritchie, J. 2022.** "Catastrophic Climate Risks Should Be Neither Understated nor Overstated." *Proceedings of the National Academy of Sciences* 119(42): e2214347119.
- Burgio, G., Gómez, S., and Arenas, A. 2023.** "Spreading Dynamics in Networks under Context-Dependent Behavior." *Physical Review E* 107(6): 064304.
- Burke, W. T. 1991.** "Anadromous Species and the New International Law of the Sea." *Ocean Development & International Law* 22(2): 95–131.
- Burkholder, B., Wadood, Z., Kassem, A. M., Ehrhardt, D., and Zomahoun, D. 2023.** "The Immediate Impact of the Covid-19 Pandemic on Polio Immunization and Surveillance Activities." *Vaccine* 41: A2–A11.
- Bursztyn, L., and Jensen, R. 2017.** "Social Image and Economic Behavior in the Field: Identifying, Understanding, and Shaping Social Pressure." *Annual Review of Economics* 9(1): 131–153.
- Bursztyn, L., and Yang, D. Y. 2022.** "Misperceptions About Others." *Annual Review of Economics* 14(1): 425–452.
- Bursztyn, L., Cappelen, A. W., Tungodden, B., Voen, A., and Yanagizawa-Drott, D. H. 2023.** "How Are Gender Norms Perceived?" Working Paper 31049, National Bureau of Economic Research, Cambridge, MA.
- Bursztyn, L., Egorov, G., and Fiorin, S. 2020.** "From Extreme to Mainstream: The Erosion of Social Norms." *American Economic Review* 110(11): 3522–3548.
- Bursztyn, L., González, A. L., and Yanagizawa-Drott, D. 2020.** "Misperceived Social Norms: Women Working Outside the Home in Saudi Arabia." *American Economic Review* 110(10): 2997–3029.
- Burton-Chellew, M. N. 2022.** "The Restart Effect in Social Dilemmas Shows Humans Are Self-Interested Not Altruistic." *Proceedings of the National Academy of Sciences* 119(49): e2210082119.
- Burton-Chellew, M. N., and West, S. A. 2021.** "Payoff-Based Learning Best Explains the Rate of Decline in Cooperation across 237 Public-Goods Games." *Nature Human Behaviour* 5(10): 1330–1338.
- Burton-Chellew, M. N., El Mouden, C., and West, S. A. 2016.** "Conditional Cooperation and Confusion in Public-Goods Experiments." *Proceedings of the National Academy of Sciences* 113(5): 1291–1296.
- Burton-Chellew, M. N., El Mouden, C., and West, S. A. 2017.** "Social Learning and the Demise of Costly Cooperation in Humans." *Proceedings of the Royal Society B: Biological Sciences* 284(1853): 20170067.
- Burton-Chellew, M. N., Nax, H. H., and West, S. A. 2015.** "Payoff-Based Learning Explains the Decline in Cooperation in Public Goods Games." *Proceedings of the Royal Society B: Biological Sciences* 282(1801): 20142678.
- Buyalskaya, A., Gallo, M., and Camerer, C. F. 2021.** "The Golden Age of Social Science." *Proceedings of the National Academy of Sciences* 118(5): e2002923118.
- Cable, J., Fauci, A., Dowling, W. E., Günther, S., Bente, D. A., Yadav, P. D., Madoff, L. C., and others. 2022.** "Lessons from the Pandemic: Responding to Emerging Zoonotic Viral Diseases—a Keystone Symposia Report." *Annals of the New York Academy of Sciences* 1518(1): 209–225.
- Caicedo, F. V., Dohmen, T., and Pendorfer, A. 2023.** "Religion and Cooperation across the Globe." Available at SSRN 4371971. SSRN.
- Caillon, S., Cullman, G., Verschuuren, B., and Sterling, E. J. 2017.** "Moving Beyond the Human–Nature Dichotomy through Biocultural Approaches Including Ecological Well-Being in Resilience Indicators." *Ecology and Society* 22(4).
- Cairney, P., Timonina, I., and Stephan, H. 2023.** "How Can Policy and Policymaking Foster Climate Justice? A Qualitative Systematic Review." *Open Research Europe* 3: 51.

- Callen, M., Weigel, J. L., and Yuchtman, N. 2023.** "Experiments About Institutions." Working Paper 31964, National Bureau of Economic Research, Cambridge, MA.
- Caluwaerts, D., Bernaerts, K., Kesberg, R., Smets, L., and Spruyt, B. 2023.** "Deliberation and Polarization: A Multi-Disciplinary Review." *Frontiers in Political Science* 5.
- Camarena, J. A., Galeano, L., Morano, L., Puig, J., Riera-Crichton, D., Vegh, C., Venturi, L., and Vuletin, G. 2022.** "Fooled by the Cycle: Permanent Versus Cyclical Improvements in Social Indicators." *Journal of International Money and Finance* 127: 102670.
- Camerer, C. F., Dreber, A., Forsell, E., Ho, T.-H., Huber, J., Johannesson, M., Kirchler, M., and others. 2016.** "Evaluating Replicability of Laboratory Experiments in Economics." *Science* 351(6280): 1433–1436.
- Camerer, C. F., Dreber, A., Holzmeister, F., Ho, T.-H., Huber, J., Johannesson, M., Kirchler, M., and others. 2018.** "Evaluating the Replicability of Social Science Experiments in Nature and Science between 2010 and 2015." *Nature Human Behaviour* 2(9): 637–644.
- Camerer, C. F., Ho, T.-H., and Chong, J. K. 2015.** "A Psychological Approach to Strategic Thinking in Games." *Current Opinion in Behavioral Sciences* 3: 157–162.
- Camerer, C., Babcock, L., Loewenstein, G., and Thaler, R. 1997.** "Labor Supply of New York City Cabdrivers: One Day at a Time." *The Quarterly Journal of Economics* 112(2): 407–441.
- Camerer, C., Loewenstein, G., and Prelec, D. 2005.** "Neuroeconomics: How Neuroscience Can Inform Economics." *Journal of Economic Literature* 43(1): 9–64.
- Campante, F., Depetris-Chauvin, E., and Durante, R. 2024.** "The Virus of Fear: The Political Impact of Ebola in the United States." *American Economic Journal: Applied Economics* 16(1): 480–509.
- Campos, E. J., Lien, D., and Pradhan, S. 1999.** "The Impact of Corruption on Investment: Predictability Matters." *World Development* 27(6): 1059–1067.
- Cann, H. W., and Raymond, L. 2018.** "Does Climate Denialism Still Matter? The Prevalence of Alternative Frames in Opposition to Climate Policy." *Environmental Politics* 27(3): 433–454.
- Caparrós, A., and Finus, M. 2020a.** "The Corona-Pandemic: A Game-Theoretic Perspective on Regional and Global Governance." *Environmental and Resource Economics* 76(4): 913–927.
- Caparrós, A., and Finus, M. 2020b.** "Public Good Agreements under the Weakest-Link Technology." *Journal of Public Economic Theory* 22(3): 555–582.
- Cappelen, A. W., Enke, B., and Tungodden, B. 2022.** "Moral Universalism: Global Evidence." Working Paper 30157, National Bureau of Economic Research, Cambridge, MA.
- Capraro, V., and Perc, M. 2021.** "Mathematical Foundations of Moral Preferences." *Journal of The Royal Society Interface* 18(175): 20200880.
- Capraro, V., Jagfeld, G., Klein, R., Mul, M., and de Pol, I. v. 2019.** "Increasing Altruistic and Cooperative Behaviour with Simple Moral Nudges." *Scientific Reports* 9(1): 11880.
- Carattini, S., Levin, S., and Tavoni, A. 2019.** "Cooperation in the Climate Commons." *Review of Environmental Economics and Policy* 13(2): 227–247.
- Card, D., Chang, S., Becker, C., Mendelsohn, J., Voigt, R., Boustan, L., Abramitzky, R., and Jurafsky, D. 2022.** "Computational Analysis of 140 Years of US Political Speeches Reveals More Positive but Increasingly Polarized Framing of Immigration." *Proceedings of the National Academy of Sciences* 119(31): e2120510119.
- Carleton, T., and Greenstone, M. 2022.** "A Guide to Updating the US Government's Social Cost of Carbon." *Review of Environmental Economics and Policy* 16(2): 196–218.
- Carleton, T., Jina, A., Delgado, M., Greenstone, M., Houser, T., Hsiang, S., Hultgren, A., and others. 2022.** "Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits." *The Quarterly Journal of Economics* 137(4): 2037–2105.
- Carlson, R. W., Bigman, Y. E., Gray, K., Ferguson, M. J., and Crockett, M. J. 2022.** "How Inferred Motives Shape Moral Judgements." *Nature Reviews Psychology* 1(8): 468–478.
- Carlson, R. W., Bigman, Y. E., Gray, K., Ferguson, M. J., and Crockett, M. J. 2022.** "How Inferred Motives Shape Moral Judgements." *Nature Reviews Psychology* 1(8): 468–478.
- Carlson, T. N., and Hill, S. J. 2022.** "Experimental Measurement of Misperception in Political Beliefs." *Journal of Experimental Political Science* 9(2): 241–254.
- Carlsson, F., and Johansson-Stenman, O. 2012.** "Behavioral Economics and Environmental Policy." *Annual Review of Resource Economics* 4(1): 75–99.
- Carlsson, F., Gravert, C., Johansson-Stenman, O., and Kurz, V. 2021.** "The Use of Green Nudges as an Environmental Policy Instrument." *Review of Environmental Economics and Policy* 15(2): 216–237.
- Carton, B., Mongardini, M. J., and Li, Y. 2018.** "A New Smartphone for Every Fifth Person on Earth: Quantifying the New Tech Cycle." Working Paper 2018/022, International Monetary Fund, Washington, DC.
- Carugati, F., and Levi, M. 2021.** *A Moral Political Economy: Present, Past, and Future*. Cambridge, UK: Cambridge University Press.
- Carvalho, J.-P., Bergeron, A., Henrich, J., Nun, N., and Weigel, J. 2023.** "Zero-Sum Thinking, the Evolution of Effort Suppressing Beliefs, and Economic Development." Working Paper 31663, National Bureau of Economic Research, Cambridge, MA.
- Carvalho, M., Dechezleprêtre, A., and Glachant, M. 2017.** "Understanding the Dynamics of Global Value Chains for Solar Photovoltaic Technologies." *Economic Research Working Paper* 40. World Intellectual Property Organization, Geneva.
- Casari, M., and Tagliapietra, C. 2018.** "Group Size in Social-Ecological Systems." *Proceedings of the National Academy of Sciences* 115(11): 2728–2733.
- Cashore, B., and Bernstein, S. 2023.** "Bringing the Environment Back In: Overcoming the Tragedy of the Diffusion of the Commons Metaphor." *Perspectives on Politics* 21(2): 478–501.
- Cason, T. N., and Mui, V.-L. 1998.** "Social Influence in the Sequential Dictator Game." *Journal of Mathematical Psychology* 42(2): 248–265.
- Cavalli-Sforza, L. L., and Feldman, M. W. 1981.** *Cultural Transmission and Evolution: A Quantitative Approach*. Princeton, NJ: Princeton University Press.
- Centola, D., and Baronchelli, A. 2015.** "The Spontaneous Emergence of Conventions: An Experimental Study of Cultural Evolution." *Proceedings of the National Academy of Sciences* 112(7): 1989–1994.
- Centola, D., Becker, J., Brackbill, D., and Baronchelli, A. 2018.** "Experimental Evidence for Tipping Points in Social Convention." *Science* 360(6393): 1116–1119.
- Cerra, V., Fatás, A., and Saxena, S. C. 2023.** "Hysteresis and Business Cycles." *Journal of Economic Literature* 61(1): 181–225.
- Cesarini, D., Dawes, C. T., Fowler, J. H., Johannesson, M., Lichtenstein, P., and Wallace, B. 2008.** "Heritability of Cooperative Behavior in the Trust Game." *Proceedings of the National Academy of Sciences* 105(10): 3721–3726.
- Cevik, S. 2023.** "Long Live Globalization: Geopolitical Shocks and International Trade." Working Paper 2023/225, International Monetary Fund, Washington, DC.
- Chan, N. W. 2019.** "Funding Global Environmental Public Goods through Multilateral Financial Mechanisms." *Environmental Resource Economics* 73(2): 515–531.
- Chancel, L., Piketty, T., Saez, E., and Zucman, G. 2022.** *World Inequality Report 2022*. Paris: World Inequality Lab.
- Chang, T. Y., Jacobson, M., Shah, M., Kopetsky, M., Pramanik, R., and Shah, S. B. 2023.** "Reminders, but Not Monetary Incentives, Increase Covid-19 Booster Uptake." *Proceedings of the National Academy of Sciences* 120(31): e2302725120.
- Chapman, J., Dean, M., Ortoleva, P., Snowberg, E., and Camerer, C. 2023.** "Willingness to Accept, Willingness to Pay, and Loss Aversion." National Bureau of Economic Research.
- Charité, J., Fisman, R., Kuziemko, I., and Zhang, K. 2022.** "Reference Points and Redistributive Preferences: Experimental Evidence." *Journal of Public Economics* 216: 104761.
- Charness, G., and Chen, Y. 2020.** "Social Identity, Group Behavior, and Teams." *Annual Review of Economics* 12(1): 691–713.
- Charness, G., and Rabin, M. 2002.** "Understanding Social Preferences with Simple Tests." *The Quarterly Journal of Economics* 117(3): 817–869.
- Charness, G., and Sutter, M. 2012.** "Groups Make Better Self-Interested Decisions." *Journal of Economic Perspectives* 26(3): 157–176.
- Chater, N., and Loewenstein, G. 2022.** "The I-Frame and the S-Frame: How Focusing on Individual-Level Solutions Has Led Behavioral Public Policy Astray." *Behavioral and Brain Sciences*: 1–60.
- Chaudhary, N., Salali, G. D., Thompson, J., Dyble, M., Page, A., Smith, D., Mace, R., and Migliano, A. B. 2015.** "Polygyny without Wealth: Popularity in Gift

- Games Predicts Polygyny in Bayaka Pygmies." *Royal Society open science* 2(5): 150054.
- Checkel, J. T. 1998.** "The Constructive Turn in International Relations Theory." *World Politics* 50(2): 324–348.
- Chen, C., and Zeckhauser, R. 2018.** "Collective Action in an Asymmetric World." *Journal of Public Economics* 158: 103–112.
- Chen, M. W., Mrkaic, M. M., and Nabar, M. M. S. 2019.** "The Global Economic Recovery 10 Years after the 2008 Financial Crisis." Working Paper No. 2019/083, International Monetary Fund, Washington, DC.
- Chepeliev, M., Osorio-Rodarte, I., and van der Mensbrugge, D. 2021.** "Distributional Impacts of Carbon Pricing Policies under the Paris Agreement: Inter and Intra-Regional Perspectives." *Energy Economics* 102: 105530.
- Chernyak-Hai, L., and Davidai, S. 2022.** "'Do Not Teach Them How to Fish': The Effect of Zero-Sum Beliefs on Help Giving." *Journal of Experimental Psychology: General*.
- Chetty, R. 2015.** "Behavioral Economics and Public Policy: A Pragmatic Perspective." *American Economic Review* 105(5): 1–33.
- Chetty, R., Friedman, J. N., and Saez, E. 2013.** "Using Differences in Knowledge across Neighborhoods to Uncover the Impacts of the Eitc on Earnings." *American Economic Review* 103(7): 2683–2721.
- Chinn, S., Hart, P. S., and Soroka, S. 2020.** "Politicization and Polarization in Climate Change News Content, 1985–2017." *Science Communication* 42(1): 112–129.
- Chinoy, S., Nunn, N., Sequeira, S., and Stantcheva, S. 2023.** "Zero-Sum Thinking and the Roots of US Political Divides." Working Paper 31688, National Bureau of Economic Research, Cambridge, MA.
- Choi, V. K., Shrestha, S., Pan, X., and Gelfand, M. J. 2022.** "When Danger Strikes: A Linguistic Tool for Tracking America's Collective Response to Threats." *Proceedings of the National Academy of Sciences* 119(4): e2113891119.
- Chowdhury, J. S., Wahab, H. A., Mohd Saad, M. R., Roy, P. K., Hamidi, M., and Ahmad, M. M. 2021.** "Ubuntu Philosophy: 'I Am Because We Are' – a Road to 'Individualism' to Global Solidarity." In Wahab, H. A., Chowdhury, J. S., Ah, S. H. B. a. B., and Mohd Saad, M. R., (eds.), *Handbook of Research on the Impact of Covid-19 on Marginalized Populations and Support for the Future*. Hershey, PA: IGI Global.
- Chowdhury, S. M., and Topolyan, I. 2016.** "The Attack-and-Defense Group Contests: Best Shot Versus Weak-link." *Economic Inquiry* 54(1): 548–557.
- Chuang, F., Manley, E., and Petersen, A. 2020.** "The Role of Worldviews in the Governance of Sustainable Mobility." *Proceedings of the National Academy of Sciences* 117(8): 4034–4042.
- Chudek, M., Brosseau-Liard, P., Birch, S., and Henrich, J. 2013.** "Culture-Gene Coevolutionary Theory and Children's Selective Social Learning." In Banaji, M. R. and Gelman, S. A., (eds.), *Navigating the Social World: What Infants, Children, and Other Species Can Teach Us*. Oxford University Press.
- Chudek, M., Heller, S., Birch, S., and Henrich, J. 2012.** "Prestige-Biased Cultural Learning: Bystander's Differential Attention to Potential Models Influences Children's Learning." *Evolution and Human Behavior* 33(1): 46–56.
- Cialdini, R. B., Kallgren, C. A., and Reno, R. R. 1991.** "A Focus Theory of Normative Conduct: A Theoretical Refinement and Reevaluation of the Role of Norms in Human Behavior." In Zanna, M. P., (ed.) *Advances in Experimental Social Psychology*. Cambridge, MA: Academic Press.
- Cianconi, P., Hanife, B., Grillo, F., Lesmana, C. B. J., and Janiri, L. 2023.** "Eco-Emotions and Psychoterratic Syndromes: Reshaping Mental Health Assessment under Climate Change." *The Yale Journal of Biology and Medicine* 96(2): 211.
- Claessens, S., Fischer, K., Chaudhuri, A., Sibley, C. G., and Atkinson, Q. D. 2020.** "The Dual Evolutionary Foundations of Political Ideology." *Nature Human Behaviour* 4(4): 336–345.
- Claessens, S., Sibley, C. G., Chaudhuri, A., and Atkinson, Q. D. 2023.** "Cooperative and Conformist Behavioural Preferences Predict the Dual Dimensions of Political Ideology." *Scientific Reports* 13(1): 4886.
- Clapp, J. 2021.** "The Problem with Growing Corporate Concentration and Power in the Global Food System." *Nature Food* 2(6): 404–408.
- Clapp, J. 2023.** "Concentration and Crises: Exploring the Deep Roots of Vulnerability in the Global Industrial Food System." *The Journal of Peasant Studies* 50(1): 1–25.
- Clapp, P. 2023.** "The Disproportionate Impact of the Covid-19 Pandemic on Women in the Workforce." [Webinar]. 14 February. U.S. Census Bureau and the Local Employment Dynamics Partnership. <https://www.census.gov/data/academy/webinars/2023/impact-of-the-covid-19-pandemic-on-women-in-the-workforce.html>.
- Clark, C. J., Connor, P., and Isch, C. 2023.** "Failing to Replicate Predicts Citation Declines in Psychology." *Proceedings of the National Academy of Sciences* 120(29): e2304862120.
- Clark, H., Cárdenas, M., Dybul, M., Kazatchkine, M., Liu, J., Miliiband, N., Nordström, A., Sudan, P., Zedillo, E., Obaid, T., McCarney, R., Radin, E., Eliaz, M. K., McNab, C., Legido-Quigley, H., Sirleaf, E. J. 2022.** "Transforming or Tinkering: The World Remains Unprepared for the Next Pandemic Threat." *The Lancet* 399(10340): 1995–1999.
- Clark, W. C., and Harley, A. G. 2020.** "Sustainability Science: Toward a Synthesis." *Annual Review of Environment and Resources* 45(1): 331–386.
- Clavin, P. 2013.** *Securing the World Economy: The Reinvention of the League of Nations, 1920-1946*. New York: Oxford University Press.
- Clayton, S., and Karazsia, B. T. 2020.** "Development and Validation of a Measure of Climate Change Anxiety." *Journal of Environmental Psychology* 69: 101434.
- Clement, V., Rigaud, K. K., De Sherbinin, A., Jones, B., Adamo, S., Schewe, J., Sadiq, N., and Shabhat, E. 2021.** *Groundswell Part 2: Acting on Internal Climate Migration*. Washington, DC: World Bank.
- Cliffe, S., Dwan, R., Wainaina, B., and Zamore, L. 2023.** "The Number of Countries with Coups D'etats and Other Constitutional Changes in Government Is Rising: How Should Donors Stay Engaged?" New York, NY: Center on International Cooperation, New York University.
- Clifton, J. 2022.** *Blind Spot: The Global Rise of Unhappiness and How Leaders Missed It*. Washington, DC: Gallup Press.
- Cohen, B., Cowie, A., Babiker, M., Leip, A., and Smith, P. 2021.** "Co-Benefits and Trade-Offs of Climate Change Mitigation Actions and the Sustainable Development Goals." *Sustainable Production and Consumption* 26: 805–813.
- Cohen, J. 1988.** *Statistical Power Analysis for the Behavioral Sciences*. New York: Routledge.
- Cohen, J. 2023.** "Polio Eradication Effort Struggles with End Game." *Science* 381(6664): 1271–1272.
- Cohn, A., Fehr, E., and Maréchal, M. A. 2014.** "Business Culture and Dishonesty in the Banking Industry." *Nature* 516(7529): 86–89.
- Cohn, A., Fehr, E., and Maréchal, M. A. 2019.** "Selective Participation May Undermine Replication Attempts." *Nature* 575(7782): E1–E2.
- Cohn, A., Gesche, T., and Maréchal, M. A. 2022.** "Honesty in the Digital Age." *Management Science* 68(2): 827–845.
- Cohn, A., Jessen, L. J., Klačnja, M., and Smeets, P. 2023.** "Wealthy Americans and Redistribution: The Role of Fairness Preferences." *Journal of Public Economics* 225: 104977.
- Cohn, A., Maréchal, M. A., Tannenbaum, D., and Zünd, C. L. 2019.** "Civic Honesty around the Globe." *Science* 365(6448): 70–73.
- Cointe, B., and Guillemot, H. Forthcoming.** "A History of the 1.5°C Target." *WIREs Climate Change*.
- Colgan, J. D., and Hinthorn, M. 2023.** "International Energy Politics in an Age of Climate Change." *Annual Review of Political Science* 26(1): 79–96.
- Colgan, J. D., and Keohane, R. O. 2017.** "The Liberal Order Is Rigged: Fix It Now or Watch It Wither." *Foreign Affairs* 96(3): 36–44.
- Colleran, H. 2016.** "The Cultural Evolution of Fertility Decline." *Philosophical Transactions of the Royal Society B: Biological Sciences* 371(1692): 20150152.
- Collins, A., Florin, M.-V., and Renn, O. 2020.** "Covid-19 Risk Governance: Drivers, Responses and Lessons to Be Learned." *Journal of Risk Research* 23(7–8): 1073–1082.
- Colnaghi, M., Santos, F. P., Van Lange, P. A. M., and Balliet, D. 2023.** "Adaptations to Infer Fitness Interdependence Promote the Evolution of Cooperation." *Proceedings of the National Academy of Sciences* 120(50): e2312242120.

- Conceição, P., and Kim, N. 2014.** "The Asymmetric Impact of Growth Fluctuation on Human Development: Evidence from Correlates of Growth Decelerations and Accelerations." *The Journal of Developing Areas* 48(3): 31–45.
- Conceição, P., and Mendoza, R. U. 2006.** "Identifying High-Return Investments." In Kaul, I. and Conceição, P., (eds.), *The New Public Finance: Responding to Global Challenges*. New York: Oxford University Press.
- Conceição, P., Kim, N., and Zhang, Y. 2010.** "Overview: Economic Crises and Human Development." *Estudios Económicos* 25(1): 37–62.
- Conceição, P., Mukherjee, S., and Nayyar, S. 2011.** "Impacts of the Economic Crisis on Human Development and the MDGs in Africa." *African Development Review* 23(4): 439–460.
- Connaughton, A., and Moncus, J. J. 2020.** "Around the World, People Who Trust Others Are More Supportive of International Cooperation." <https://www.pewresearch.org/short-reads/2020/12/15/around-the-world-people-who-trust-others-are-more-supportive-of-international-cooperation/>. Accessed 2 June 2023 2023.
- Conrad, R., and Lutter, R. 2019.** "Generic Competition and Drug Prices: New Evidence Linking Greater Generic Competition and Lower Genetic Drug Prices." US Food and Drug Administration, Center for Drug Evaluation and Research, Silver Spring, MD.
- Conradie, I., and Robeyns, I. 2013.** "Aspirations and Human Development Interventions." *Journal of Human Development and Capabilities* 14(4): 559–580.
- Constantino, S. M., and Weber, E. U. 2021.** "Decision-Making under the Deep Uncertainty of Climate Change: The Psychological and Political Agency of Narratives." *Current opinion in Psychology* 42: 151–159.
- Constantino, S. M., Sparkman, G., Kraft-Todd, G. T., Bicchieri, C., Centola, D., Shell-Duncan, B., Vogt, S., and Weber, E. U. 2022.** "Scaling up Change: A Critical Review and Practical Guide to Harnessing Social Norms for Climate Action." *Psychological Science in the Public Interest* 23(2): 50–97.
- Conti, P. 2021.** *Trauma: The Invisible Epidemic: How Trauma Works and How We Can Heal from It*. Boulder CO: Sounds True.
- Cookson, J. A., Fox, C., Gil-Bazo, J., Imbet, J. F., and Schiller, C. 2023.** "Social Media as a Bank Run Catalyst." <https://dx.doi.org/10.2139/ssrn.4422754>.
- Cooper, H., Gibbons-Neff, T., Schmitt, E., and Barnes, J. E. 2023.** "Troop Deaths and Injuries in Ukraine War near 500,000, U.S. Officials Say." *New York Times*, 18 August. <https://www.nytimes.com/2023/08/18/us/politics/ukraine-russia-war-casualties.html>.
- Copes, P. 1977.** "The Law of the Sea and Management of Anadromous Fish Stocks." *Ocean Development & International Law* 4(3): 233–259.
- Coppedge, M., Edgell, A. B., Knutsen, C. H., and Lindberg, S. I. 2022.** *Why Democracies Develop and Decline*. Cambridge, UK: Cambridge University Press.
- Coppedge, M., Gerring, J., Knutsen, C. H., Lindberg, S. I., Teorell, J., Alizada, N., Altman, D., and others. 2022.** V-Dem Dataset v12. Varieties of Democracy (V-Dem) Project.
- Corat, S. G., and Raimondo, E., 2011.** "Gender Equality: A Global Public Good." *The UNESCO Courier* 64(2): 37–38.
- Cornelli, G., Frost, J., and Mishra, S. 2023.** "Artificial Intelligence, Services Globalisation and Income Inequality." BIS Working Paper 1135, Bank for International Settlements, Basel, Switzerland.
- Cornes, R., and Sandler, T. 1996.** *The Theory of Externalities, Public Goods, and Club Goods*. Cambridge, UK: Cambridge University Press.
- Corradi-Dell'Acqua, C., Civali, C., Rumiati, R. I., and Fink, G. R. 2013.** "Disentangling Self- and Fairness-Related Neural Mechanisms Involved in the Ultimatum Game: An fMRI Study." *Social Cognitive and Affective Neuroscience* 8(4): 424–431.
- Corradi-Dell'Acqua, C., Tusche, A., Vuilleumier, P., and Singer, T. 2016.** "Cross-Modal Representations of First-Hand and Vicarious Pain, Disgust and Fairness in Insular and Cingulate Cortex." *Nature Communications* 7(1): 10904.
- Cortinovis, N., Crescenzi, R., and Van Oort, F. 2020.** "Multinational Enterprises, Industrial Relatedness and Employment in European Regions." *Journal of Economic Geography* 20(5): 1165–1205.
- Coulibaly, M., Silwé, K. S., and Logan, C. 2018.** "Taking Stock Citizen Priorities and Assessments-Three Years into the SDGs." Policy Paper 51, Afrobarometer, Accra.
- Coulibaly, S. K., W., Zeufack, A. G., and Mattoo, A., 2022.** *Africa in the New Trade Environment: Market Access in Troubled Times*. Washington, DC: World Bank.
- Council on Foreign Relations. 2023.** "Women's Participation in Peace Processes." Washington DC. <https://www.cfr.org/womens-participation-in-peace-processes/>. Accessed 15 February 2023.
- Cowell, F. 2003.** "Sticks and Carrots." Research Paper 68, London School of Economics, Suntory and Toyota International Centres for Economics and Related Disciplines, London.
- Cowls, J., Tsamados, A., Taddeo, M., and Floridi, L. 2021.** "The AI Gambit: Leveraging Artificial Intelligence to Combat Climate Change—Opportunities, Challenges, and Recommendations." *AI & Society* 38: 1–25.
- Coyle, D. 2023.** "Economic Progress and Adam Smith's Dilemma." *National Institute Economic Review* 265: 1–7.
- Crabtree, A. 2022.** "Looking Forward: Eco-Emotions, Planetary Pressures and Nature-Based Human Development." Background Paper for Human Development Report 2022/2021, United Nations Development Programme, Human Development Report Office, New York.
- Crawford, V. P. 2019.** "Experiments on Cognition, Communication, Coordination, and Cooperation in Relationships." *Annual Review of Economics* 11(1): 167–191.
- Crescenzi, R., and Harman, O. 2023.** *Harnessing Global Value Chains for Regional Development: How to Upgrade through Regional Policy, FDI and Trade*. Abingdon, UK: Taylor & Francis.
- Crescenzi, R., Dyèvre, A., and Neffke, F. 2022.** "Innovation Catalysts: How Multinationals Reshape the Global Geography of Innovation." *Economic Geography* 98(3): 199–227.
- Creutzig, F., Acemoglu, D., Bai, X., Edwards, P. N., Hintz, M. J., Kaack, L. H., Kilkis, S., and others. 2022.** "Digitalization and the Anthropocene." *Annual Review of Environment and Resources* 47: 479–509.
- Crisp, R. J., Hewstone, M., and Rubin, M. 2001.** "Does Multiple Categorization Reduce Intergroup Bias?" *Personality and Social Psychology Bulletin* 27(1): 76–89.
- Croasdale, K., Grailey, K., Jennings, N., Mole, J., and Lawrance, E. L. 2023.** "Planning for the Perfect Storm: Perceptions of Uk Mental Health Professionals on the Increasing Impacts of Climate Change on Their Service Users." *The Journal of Climate Change and Health* 13: 100253.
- Crona, B., Folke, C., and Galaz, V. 2021.** "The Anthropocene Reality of Financial Risk." *One Earth* 4(5): 618–628.
- Cukier, K., Mayer-Schönberger, V., and de Véricourt, F. 2022.** *Framers: Human Advantage in an Age of Technology and Turmoil*. London: Penguin.
- Curry, O. S., Mullins, D. A., and Whitehouse, H. 2019.** "Is It Good to Cooperate?: Testing the Theory of Morality-as-Cooperation in 60 Societies." *Current Anthropology* 60(1): 47–69.
- Cutler, J., and Campbell-Meiklejohn, D. 2019.** "A Comparative fMRI Meta-Analysis of Altruistic and Strategic Decisions to Give." *NeuroImage* 184: 227–241.
- d'Adda, G., Dufwenberg, M., Passarelli, F., and Tabetlini, G. 2020.** "Social Norms with Private Values: Theory and Experiments." *Games and Economic Behavior* 124: 288–304.
- Dahl, R. A. 1957.** "The Concept of Power." *Behavioral Science* 2(3): 201–215.
- Dal Bó, P., and Fréchette, G. R. 2018.** "On the Determinants of Cooperation in Infinitely Repeated Games: A Survey." *Journal of Economic Literature* 56(1): 60–114.
- Dalby, S. 2020.** *Anthropocene Geopolitics: Globalization, Security, Sustainability*. Ottawa: University of Ottawa Press.
- Daley, F., Newell, P., and Twena, M. 2022.** *Changing Our Ways: Behaviour Change and the Climate Crisis*. Cambridge: Cambridge University Press.
- Dallas, M. P., Ponte, S., and Sturgeon, T. J. 2019.** "Power in Global Value Chains." *Review of International Political Economy* 26(4): 666–694.
- Daly, M., and Macchia, L. 2023.** "Global Trends in Emotional Distress." *Proceedings of the National Academy of Sciences* 120(14): e2216207120.
- Dance, S. 2023.** "Earth Passed a Feared Global Warming Milestone Friday, at Least Briefly." *The Washington Post*, 19 November. <https://www.washingtonpost.com/climate-environment/2023/11/19/earth-passed-a-feared-global-warming-milestone-friday-at-least-briefly/>.

washingtonpost.com/climate-environment/2023/11/19/climate-change-2c-temperature-heat-record/.

Dang, H.-A. H., and Nguyen, C. V. 2021. "Gender Inequality During the Covid-19 Pandemic: Income, Expenditure, Savings, and Job Loss." *World Development* 140: 105296.

Dannenberg, A., and Barrett, S. 2018. "Cooperating to Avoid Catastrophe." *Nature Human Behaviour* 2(7): 435–437.

Dannenberg, A., and Gallier, C. 2020. "The Choice of Institutions to Solve Cooperation Problems: A Survey of Experimental Research." *Experimental Economics* 23(3): 716–749.

Dannenberg, A., Lumkowsky, M., Carlton, E. K., and Victor, D. G. 2023. "Naming and Shaming as a Strategy for Enforcing the Paris Agreement: The Role of Political Institutions and Public Concern." *Proceedings of the National Academy of Sciences* 120(40): e2305075120.

Darwin, J. 2007. *After Tamerlane: The Global History of Empire since 1405*. London: Allen Lane, Penguin Books.

Dasgupta, P., and David, P. A. 1994. "Toward a New Economics of Science." *Research Policy* 23(5): 487–521.

Dávalos, L. M., Austin, R. M., Balisi, M. A., Begay, R. L., Hofman, C. A., Kemp, M. E., Lund, J. R., and others. 2020. "Pandemics' Historical Role in Creating Inequality." *Science* 368(6497): 1322–1323.

Davidai, S., and Ongis, M. 2019. "The Politics of Zero-Sum Thinking: The Relationship between Political Ideology and the Belief That Life Is a Zero-Sum Game." *Science Advances* 5(12): eaay3761.

Davidai, S., and Tepper, S. J. 2023. "The Psychology of Zero-Sum Beliefs." *Nature Reviews Psychology*.

Davidson, M. R., Filatova, T., Peng, W., Verbeek, L., and Kucuksayacigil, F. 2024. "Simulating Institutional Heterogeneity in Sustainability Science." *Proceedings of the National Academy of Sciences* 121(8): e2215674121.

Davies, B., and Savulescu, J. 2019. "Solidarity and Responsibility in Health Care." *Public Health Ethics* 12(2): 133–144.

Davies, S., Pettersson, T., and Öberg, M. 2023. "Organized Violence 1989–2022, and the Return of Conflict between States?" *Journal of Peace Research* 60(4): 691–708.

Davis, J. W. 2023. "Better Than a Bet: Good Reasons for Behavioral and Rational Choice Assumptions in IR Theory." *European Journal of International Relations* 29(2): 476–500.

Davis, J. W., and McDermott, R. 2021. "The Past, Present, and Future of Behavioral IR." *International Organization* 75(1): 147–177.

De Dreu, C. K. W., and Gross, J. 2019. "Revisiting the Form and Function of Conflict: Neurobiological, Psychological, and Cultural Mechanisms for Attack and Defense within and between Groups." *Behavioral and Brain Sciences* 42: e116.

De Dreu, C. K. W., Fariña, A., Gross, J., and Romano, A. 2022. "Prosociality as a Foundation for Intergroup Conflict." *Current Opinion in Psychology* 44: 112–116.

De Dreu, C. K., and Nijstad, B. A. 2008. "Mental Set and Creative Thought in Social Conflict: Threat Rigidity Versus Motivated Focus." *Journal of Personality and Social Psychology* 95(3): 648.

De Loecker, J., and Eeckhout, J. 2018. "Global Market Power." NBER Working Paper 24768, National Bureau of Economic Research, Cambridge, MA.

De Loecker, J., Eeckhout, J., and Unger, G. 2020. "The Rise of Market Power and the Macroeconomic Implications." *The Quarterly Journal of Economics* 135(2): 561–644.

De Maio, J. L. 2010. "Is War Contagious? The Transnationalization of Conflict in Darfur." *African Studies Quarterly* 11(4): 25.

De Vries, C. E. 2023. "How Foundational Narratives Shape European Union Politics." *JCMS: Journal of Common Market Studies* 61(4): 867–881.

De Vries, C. E., and Hoffmann, I. 2019. *The Hopeful, the Fearful and the Furious: Polarization and the 2019 European Parliamentary Elections*. Gütersloh, Germany: Bertelsmann Stiftung.

De Vries, C. E., Hobolt, S. B., and Walter, S. 2021. "Politicizing International Cooperation: The Mass Public, Political Entrepreneurs, and Political Opportunity Structures." *International Organization* 75(2): 306–332.

Dean, M., and Ortoleva, P. 2019. "The Empirical Relationship between Nonstandard Economic Behaviors." *Proceedings of the National Academy of Sciences* 116(33): 16262–16267.

Dechezleprêtre, A., Fabre, A., Kruse, T., Planterose, B., Chico, A. S., and Stantcheva, S. 2022. "Fighting Climate Change: International Attitudes toward Climate Policies." Working Paper 30265, National Bureau of Economic Research, Cambridge, MA.

Decker, M. R., Wood, S. N., Thomas, H. L., Thiongo, M., Guiella, G., Fiacre, B., and others. 2022. "Violence against Women from Partners and Other Household Members during COVID-19 in Burkina Faso and Kenya." *BMC Public Health* 22(1): 1857.

Degroot, D. 2022. "Beyond Crisis and Collapse: Climate Change in Human History." Background Paper for Human Development Report 2021/2022, United Nations Development Programme, Human Development Report Office, New York.

Degroot, D., Anchukaitis, K. J., Tierney, J. E., Riede, F., Manica, A., Moesswilde, E., and Gauthier, N. 2022. "The History of Climate and Society: A Review of the Influence of Climate Change on the Human Past." *Environmental Research Letters* 17(10): 103001.

Degroot, D., Anchukaitis, K., Bauch, M., Burnham, J., Carnegy, F., Cui, J., de Luna, K., and others. 2021. "Towards a Rigorous Understanding of Societal Responses to Climate Change." *Nature* 591(7851): 539–550.

Deino, A. L., Behrensmeyer, A. K., Brooks, A. S., Yellen, J. E., Sharp, W. D., and Potts, R. 2018. "Chronology of the Acheulean to Middle Stone Age Transition in Eastern Africa." *Science* 360(6384): 95–98.

Deitelhoff, N. 2020. "What's in a Name? Contestation and Backlash against International Norms and Institutions." *The British Journal of Politics and International Relations* 22(4): 715–727.

Delhey, J., Boehnke, K., Dragolov, G., Ignácz, Z. S., Larsen, M., Lorenz, J., and Koch, M. 2018. "Social Cohesion and Its Correlates: A Comparison of Western and Asian Societies." *Comparative Sociology* 17(3–4): 426–455.

DellaVigna, S. 2009. "Psychology and Economics: Evidence from the Field." *Journal of Economic Literature* 47(2): 315–372.

DellaVigna, S., and Linos, E. 2022. "RCTs to Scale: Comprehensive Evidence from Two Nudge Units." *Econometrica* 90(1): 81–116.

DellaVigna, S., Kim, W., and Linos, E. 2022. "Bottle-necks for Evidence Adoption." National Bureau of Economic Research.

Dellmuth, L. M., and Tallberg, J. 2015. "The Social Legitimacy of International Organisations: Interest Representation, Institutional Performance, and Confidence Extrapolation in the United Nations." *Review of International Studies* 41(3): 451–475.

Dellmuth, L. M., and Tallberg, J. 2020. "Why National and International Legitimacy Beliefs Are Linked: Social Trust as an Antecedent Factor." *The Review of International Organizations* 15: 311–337.

Dellmuth, L. M., and Tallberg, J. 2021. "Elite Communication and the Popular Legitimacy of International Organizations." *British Journal of Political Science* 51(3): 1292–1313.

Dellmuth, L. M., Bender, F. A.-M., Jönsson, A. R., Rosvold, E. L., and von Uexkull, N. 2021. "Humanitarian Need Drives Multilateral Disaster Aid." *Proceedings of the National Academy of Sciences* 118(4): e2018293118.

DeMarrais, E., and Earle, T. 2017. "Collective Action Theory and the Dynamics of Complex Societies." *Annual Review of Anthropology* 46(1): 183–201.

Demeritt, A., and Hoff, K. 2018. "The Making of Behavioral Development Economics." *History of Political Economy* 50(S1): 303–322.

Demeritt, A., and Hoff, K. 2023. "Using Behavioral Economics to Reduce Poverty and Oppression." *Social Philosophy and Policy* 40(1): 185–209.

Deng, H.-M., Liang, Q.-M., Liu, L.-J., and Anadon, L. D. 2018. "Co-Benefits of Greenhouse Gas Mitigation: A Review and Classification by Type, Mitigation Sector, and Geography." *Environmental Research Letters* 12(12): 123001.

Desmet, K., Ortuño-Ortín, I., and Wacziarg, R. 2017. "Culture, Ethnicity, and Diversity." *American Economic Review* 107(9): 2479–2513.

Development Committee (Joint Ministerial Committee of the Boards of Governors of the Bank and the Fund on the Transfer of Real Resources to Developing Countries). 2023. "Statement by Mr. Mohamed Bin Hadi Al Hussain, DC Chair." DC/S/2023-0034, 12 April. https://www.mof.go.jp/english/policy/international_policy/imf/dc/20230412_1.pdf.

- Devetag, G., and Ortmann, A. 2007.** "When and Why? A Critical Survey on Coordination Failure in the Laboratory." *Experimental Economics* 10(3): 331–344.
- Dietz, T., and Whitley, C. T. 2018.** "Environmentalism, Norms, and Identity." *Proceedings of the National Academy of Sciences* 115(49): 12334–12336.
- Dijk, E. v., and Dreu, C. K. W. D. 2021.** "Experimental Games and Social Decision Making." *Annual Review of Psychology* 72(1): 415–438.
- DiMaggio, P. 1997.** "Culture and Cognition." *Annual Review of Sociology* 23(1): 263–287.
- DiMaggio, P., and Markus, H. R. 2010.** "Culture and Social Psychology: Converging Perspectives." *Social Psychology Quarterly* 73(4): 347–352.
- Dimant, E. 2024.** "Hate Trumps Love: The Impact of Political Polarization on Social Preferences." *Management Science* 70(1): 1–31.
- Dimant, E., van Kleef, G. A., and Shalvi, S. 2020.** "Requiem for a Nudge: Framing Effects in Nudging Honesty." *Journal of Economic Behavior & Organization* 172: 247–266.
- DiMasi, J. A., Florez, M. I., Stergiopoulos, S., Peña, Y., Smith, Z., Wilkinson, M., and Getz, K. A. 2020.** "Development Times and Approval Success Rates for Drugs to Treat Infectious Diseases." *Clinical Pharmacology and Therapeutics* 107(2): 324–332.
- Dinesen, P. T. 2011.** "Where You Come from or Where You Live? Examining the Cultural and Institutional Explanation of Generalized Trust Using Migration as a Natural Experiment." *European Sociological Review* 29(1): 114–128.
- Dix-Carneiro, R., Pessoa, J. P., Reyes-Heroles, R., and Traiberman, S. 2023.** "Globalization, Trade Imbalances, and Labor Market Adjustment." *The Quarterly Journal of Economics* 138(2): 1109–1171.
- Dixit, A. 2003.** "Clubs with Entrapment." *American Economic Review* 93(5): 1824–1829.
- Doğan, G., Glowacki, L., and Rusch, H. 2022.** "Are Strangers Just Enemies You Have Not yet Met? Group Homogeneity, Not Intergroup Relations, Shapes In-group Bias in Three Natural Groups." *Philosophical Transactions of the Royal Society B: Biological Sciences* 377(1851): 20210419.
- Dollar, D., and Kraay, A. 2003.** "Institutions, Trade, and Growth." *Journal of Monetary Economics* 50(1): 133–162.
- Dollar, D., and Kraay, A. 2004.** "Trade, Growth, and Poverty." *The Economic Journal* 114(493): F22–F49.
- Došák, N., and Prakash, A. 2022.** "Three Faces of Climate Justice." *Annual Review of Political Science* 25(1): 283–301.
- Dom, R., Custers, A., Davenport, S., and Prichard, W. 2022.** *Innovations in Tax Compliance: Building Trust, Navigating Politics, and Tailoring Reform.* World Bank Publications.
- Doney, S. C., Busch, D. S., Cooley, S. R., and Kroeker, K. J. 2020.** "The Impacts of Ocean Acidification on Marine Ecosystems and Reliant Human Communities." *Annual Review of Environment and Resources* 45: 83–112.
- Dooley, K., Holz, C., Kartha, S., Klinsky, S., Roberts, J. T., Shue, H., Winkler, H., and others. 2021.** "Ethical Choices Behind Quantifications of Fair Contributions under the Paris Agreement." *Nature Climate Change* 11(4): 300–305.
- Doosje, B., Ellemers, N., and Spears, R. 1995.** "Perceived Intragroup Variability as a Function of Group Status and Identification." *Journal of Experimental Social Psychology* 31(5): 410–436.
- Doran, R., Ogunbode, C. A., Böhm, G., and Gregersen, T. 2023.** "Exposure to and Learning from the IPCC Special Report on 1.5°C Global Warming, and Public Support for Climate Protests and Mitigation Policies." *NPJ Climate Action* 2(1): 11.
- Dorn, E., Hancock, B., Sarakatsannis, J., and Viruleg, E. 2021.** "Covid-19 and Education: The Lingering Effects of Unfinished Learning." McKinsey & Company, Seattle, WA.
- Doshi, R., Kelley, J. G., and Simmons, B. A. 2019.** "The Power of Ranking: The Ease of Doing Business Indicator and Global Regulatory Behavior." *International Organization* 73(3): 611–643.
- Dragolov, G., Ignácz, Z., Lorenz, J., Delhey, J., and Boehnke, K. 2013.** "Social Cohesion Radar: Measuring Common Ground: An International Comparison of Social Cohesion Methods Report." Gütersloh, Germany: Bertelsmann Stiftung.
- Druckman, J. N., and McGrath, M. C. 2019.** "The Evidence for Motivated Reasoning in Climate Change Preference Formation." *Nature Climate Change* 9(2): 111–119.
- Druckman, James N., Kang, S., Chu, J., N. Stagnaro, M., Voelkel, Jan G., Mernyk, Joseph S., Pink, Sophia L., and others. 2023.** "Correcting Misperceptions of out-Partisans Decreases American Legislators' Support for Undemocratic Practices." *Proceedings of the National Academy of Sciences* 120(23): e2301836120.
- Druedahl, L. C., Minssen, T., and Price, W. N. 2021.** "Collaboration in Times of Crisis: A Study on Covid-19 Vaccine R&D Partnerships." *Vaccine* 39(42): 6291–6295.
- Dube, G., and Casale, D. 2016.** "The Implementation of Informal Sector Taxation: Evidence from Selected African Countries." *Journal of Tax Research* 14(3): 601–623.
- Dube, O., MacArthur, S. J., and Shah, A. K. 2023.** "A Cognitive View of Policing." Working Paper 31651, National Bureau of Economic Research, Cambridge, MA.
- Duckworth, A. L., and Milkman, K. L. 2022.** "A Guide to Megastudies." *PNAS Nexus* 1(5).
- Duffy, B. 2018.** *The Perils of Perception: Why We're Wrong About Nearly Everything.* London: Atlantic Books.
- Dugoua, E., and Dumas, M. 2023.** "Global Coordination Challenges in the Transition to Clean Technology: Lessons from Automotive Innovation." Available at SSRN 4620155.
- Duijndam, S. J., Botzen, W. W., Hagedoorn, L. C., Bu-beck, P., Haer, T., Pham, M., and Aerts, J. C. 2023.** "Drivers of Migration Intentions in Coastal Vietnam under Increased Flood Risk from Sea Level Rise." *Climatic Change* 176(2): 12.
- Dulberg, Z., Dubey, R., Berwian, I. M., and Cohen, J. D. 2023.** "Having Multiple Selves Helps Learning Agents Explore and Adapt in Complex Changing Worlds." *Proceedings of the National Academy of Sciences* 120(28): e2221180120.
- Dunne, T., Kurki, M., and Smith, S. 2021.** *International Relations Theories: Discipline and Diversity.* New York: Oxford University Press.
- Dwenger, N., Kleven, H., Rasul, I., and Rincke, J. 2016.** "Extrinsic and Intrinsic Motivations for Tax Compliance: Evidence from a Field Experiment in Germany." *American Economic Journal: Economic Policy* 8(3): 203–232.
- Dyer, O. 2020.** "Covid-19: Trump Sought to Buy Vaccine Developer Exclusively for US, Say German Officials." *BMJ* 368: m1100.
- Easterly, W., Ritzen, J., and Woolcock, M. 2006.** "Social Cohesion, Institutions, and Growth." *Economics & Politics* 18(2): 103–120.
- Ebi, K. L., Capon, A., Berry, P., Broderick, C., de Dear, R., Havenith, G., Honda, Y., and others. 2021.** "Hot Weather and Heat Extremes: Health Risks." *The Lancet* 398(10301): 698–708.
- Ecker-Ehrhardt, M. 2012.** "Cosmopolitan Politicization: How Perceptions of Interdependence Foster Citizens' Expectations in International Institutions." *European Journal of International Relations* 18(3): 481–508.
- Ecker-Ehrhardt, M. 2014.** "Why Parties Politicize International Institutions: On Globalisation Backlash and Authority Contestation." *Review of International Political Economy* 21(6): 1275–1312.
- Ecker, S., Molina, G. G., Jensen, L., and Ortiz-Juarez, E. 2023.** "The Human Cost of Inaction: Poverty, Social Protection and Debt Servicing, 2020–2023." UNDP Global Policy Network Brief, United Nations Development Programme, New York.
- Edgeworth, M., Gibbard, P., Walker, M., Merritts, D., Finney, S., and Maslin, M. 2023.** "The Stratigraphic Basis of the Anthropocene Event." *Quaternary Science Advances* 11: 100088.
- Efferson, C. 2021a.** "Policy to Activate Cultural Change to Amplify Policy." *Proceedings of the National Academy of Sciences* 118(23): e2106306118.
- Efferson, C. 2021b.** "Policy to Activate Cultural Change to Amplify Policy." *Proceedings of the National Academy of Sciences* 118(23).
- Efferson, C. 2023.** "Agentic Processes in Cultural Evolution: Relevance to Anthropocene Sustainability." *Philosophical Transactions of the Royal Society B* 378.
- Efferson, C., Vogt, S., and Fehr, E. 2020.** "The Promise and the Peril of Using Social Influence to Reverse Harmful Traditions." *Nature Human Behaviour* 4(1): 55–68.
- Efferson, C., Vogt, S., and von Flüe, L. Forthcoming.** "Activating Cultural Evolution for Good When People Differ from Each Other." *Oxford Handbook of Cultural Evolution.* Oxford: Oxford University Press.

- Efferson, C., Vogt, S., Elhadi, A., Ahmed, H. E. F., and Fehr, E. 2015.** "Female Genital Cutting Is Not a Social Coordination Norm." *Science* 349(6255): 1446–1447.
- Egan, P. J., and Mullin, M. 2017.** "Climate Change: US Public Opinion." *Annual Review of Political Science* 20(1): 209–227.
- Ehret, S., Constantino, S. M., Weber, E. U., Efferson, C., and Vogt, S. 2022.** "Group Identities Can Undermine Social Tipping after Intervention." *Nature Human Behaviour* 6(12): 1669–1679.
- Eichengreen, B. J. 1992.** *Golden Fetters: The Gold Standard and the Great Depression, 1919–1939*. New York: Oxford University Press.
- EIN Presswire. 2023.** "Over 150 Million Actions Mobilized for the Sdgs: UN SDG Action Campaign Concludes Most Successful Global Week." 9 October. <https://www.einpresswire.com/article/660599863/over-150-million-actions-mobilized-for-the-sdgs-undg-action-campaign-concludes-most-successful-global-week-ever>.
- Eisner, L., Turner-Zwinkels, F., and Spini, D. 2021.** "The Impact of Laws on Norms Perceptions." *Personality and Social Psychology Bulletin* 47(7): 1071–1083.
- Ellemers, N., Spears, R., and Doosje, B. 2002.** "Self and Social Identity." *Annual Review of Psychology* 53(1): 161–186.
- Ellingsen, T., Östling, R., and Wengström, E. 2018.** "How Does Communication Affect Beliefs in One-Shot Games with Complete Information?" *Games and Economic Behavior* 107: 153–181.
- Ellis, E. C. 2024.** "The Anthropocene Condition: Evolving through Social–Ecological Transformations." *Philosophical Transactions of the Royal Society B: Biological Sciences* 379(1893): 20220255.
- Elster, J. 1989.** "Social Norms and Economic Theory." *Journal of Economic Perspectives* 3(4): 99–117.
- Elster, J. 1998.** "Emotions and Economic Theory." *Journal of Economic Literature* 36(1): 47–74.
- Elster, J. 2015a.** *Explaining Social Behavior: More Nuts and Bolts for the Social Sciences*. Cambridge, United Kingdom: Cambridge University Press.
- Elster, J. 2015b.** *Explaining Social Behavior: More Nuts and Bolts for the Social Sciences*. New York: Cambridge University Press.
- Elster, J. 2020.** *France before 1789: The Unraveling of an Absolutist Regime*. Princeton, NJ: Princeton University Press.
- Emanuel, E. J., Buchanan, A., Chan, S. Y., Fabre, C., Halliday, D., Heath, J., Herzog, L., and others. 2021.** "What Are the Obligations of Pharmaceutical Companies in a Global Health Emergency?" *The Lancet* 398(10304): 1015–1020.
- Emanuel, E. J., Persad, G., Kern, A., Buchanan, A., Fabre, C., Halliday, D., Heath, J., and others. 2020.** "An Ethical Framework for Global Vaccine Allocation." *Science* 369(6509): 1309–1312.
- Emara, A. M., and Mohamed, N. M. A. 2023.** "Global Economic Fluctuations and Human Development: How Is the Impact Transmitted in Egypt?" *Review of Economics and Political Science* 8(4): 250–270.
- Engel, J., Kokas, D., Lopez-Acevedo, G., and Maliszewska, M. 2021.** *The Distributional Impacts of Trade: Empirical Innovations, Analytical Tools, and Policy Responses*. Washington, DC: World Bank.
- Engelmann, J. B., Meyer, F., Ruff, C. C., and Fehr, E. 2019.** "The Neural Circuitry of Affect-Induced Distortions of Trust." *Science Advances* 5(3): eaau3413.
- Englander, G. 2019.** "Property Rights and the Protection of Global Marine Resources." *Nature Sustainability* 2(10): 981–987.
- Engler, P., Honjo, K., MacDonald, M., Piazza, R., and Sher, G. 2020.** "The Macroeconomic Effects of Global Migration." In *World Economic Outlook: The Great Lockdown*. Washington, DC: International Monetary Fund.
- Engström, P., and Holmlund, B. 2009.** "Tax Evasion and Self-Employment in a High-Tax Country: Evidence from Sweden." *Applied Economics* 41(19): 2419–2430.
- Enke, B. 2019.** "Kinship, Cooperation, and the Evolution of Moral Systems." *The Quarterly Journal of Economics* 134(2): 953–1019.
- Enke, B. 2020a.** "Moral Values and Voting." *Journal of Political Economy* 128(10): 3679–3729.
- Enke, B. 2020b.** "What You See Is All There Is." *The Quarterly Journal of Economics* 135(3): 1363–1398.
- Enke, B. 2023a.** "Market Exposure and Human Morality." *Nature Human Behaviour* 7(1): 134–141.
- Enke, B. 2023b.** "Moral Boundaries." Working Paper 31701, National Bureau of Economic Research, Cambridge, MA.
- Enke, B., and Graeber, T. 2023.** "Cognitive Uncertainty." *The Quarterly Journal of Economics* 138(4): 2021–2067.
- Enke, B., Fisman, R., Freitas, L. M., and Sun, S. 2023.** "Universalism and Political Representation: Evidence from the Field." Working Paper 31265, National Bureau of Economic Research, Cambridge, MA.
- Enke, B., Graeber, T., and Oprea, R. 2023.** "Confidence, Self-Selection, and Bias in the Aggregate." *American Economic Review* 113(7): 1933–1966.
- Enke, B., Polborn, M., and Wu, A. 2022.** "Values as Luxury Goods and Political Polarization." Working Paper 30001, National Bureau of Economic Research, Cambridge, MA.
- Ensminger, J., and Henrich, J. 2014.** *Experimenting with Social Norms: Fairness and Punishment in Cross-Cultural Perspective*. Russell Sage Foundation.
- Escande, P. 2023.** "At Davos, the End of Globalization Is on Everyone's Mind." *Le Monde*, 17 January. https://www.lemonde.fr/en/economy/article/2023/01/17/at-davos-the-end-of-globalization-is-on-everyone-s-mind_6011910_19.html.
- Espagne, E., Oman, W., Mercure, J.-F., Svartzman, R., Volz, U., Pollitt, H., Semieniuk, G., and Campiglio, E. 2023.** "Cross-Border Risks of a Global Economy in Mid-Transition." Working Paper 23/184, International Monetary Fund, Washington, DC.
- Esses, V. M. 2018.** "Immigration, Migration, and Culture." *Oxford Research Encyclopedia of Psychology*.
- Etheredge, H. R. 2021.** "Assessing Global Organ Donation Policies: Opt-in Vs Opt-Out." *Risk Management and Healthcare Policy*: 1985–1998.
- European Commission. 2023.** "Recovery Plan for Europe." https://commission.europa.eu/strategy-and-policy/recovery-plan-europe_en. Accessed 9 February 2024.
- Excler, J.-L., Saville, M., Berkley, S., and Kim, J. H. 2021.** "Vaccine Development for Emerging Infectious Diseases." *Nature Medicine* 27(4): 591–600.
- Excler, J.-L., Saville, M., Privor-Dumm, L., Gilbert, S., Hotez, P. J., Thompson, D., Abdool-Karim, S., and Kim, J. H. 2023.** "Factors, Enablers and Challenges for Covid-19 Vaccine Development." *BMJ Global Health* 8(6): e011879.
- Eys, M., Bruner, M. W., and Martin, L. J. 2019.** "The Dynamic Group Environment in Sport and Exercise." *Psychology of Sport and Exercise* 42: 40–47.
- Fairbrother, M. 2016.** "Trust and Public Support for Environmental Protection in Diverse National Contexts." *Sociological Science* 3: 359–382.
- Fairbrother, M., Johansson Sevä, I., and Kulin, J. 2019.** "Political Trust and the Relationship between Climate Change Beliefs and Support for Fossil Fuel Taxes: Evidence from a Survey of 23 European Countries." *Global Environmental Change* 59: 102003.
- Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., and Sunde, U. 2018.** "Global Evidence on Economic Preferences." *The Quarterly Journal of Economics* 133(4): 1645–1692.
- Falk, A., Becker, A., Dohmen, T., Huffman, D., and Sunde, U. 2023.** "The Preference Survey Module: A Validated Instrument for Measuring Risk, Time, and Social Preferences." *Management Science* 69(4): 1935–1950.
- Falkenberg, M., Galeazzi, A., Torricelli, M., Di Marco, N., Larosa, F., Sas, M., Mekacher, A., and others. 2022.** "Growing Polarization around Climate Change on Social Media." *Nature Climate Change* 12(12): 1114–1121.
- FAO (Food and Agriculture Organization of the United Nations). 2022.** *The State of World Fisheries and Aquaculture 2022: Towards Blue Transformation*. Rome, Italy: FAO.
- FAO (Food and Agriculture Organization), IFAD (International Fund for Agricultural Development), UNICEF (United Nations Children's Fund), WFP (World Food Programme) and WHO (World Health Organization). 2023.** *The State of Food Security and Nutrition in the World 2023. Urbanization, Agrifood Systems Transformation and Healthy Diets across the Rural–Urban Continuum*. Rome: FAO.
- Farooqui, A. 2023.** "Where Are Samsung Phones Made? It's Not Where You Think." <https://www.samsung.com/where-are-samsung-phones-made>. Accessed 13 Feb 2024.

- Fehr, D., Mollerstrom, J., and Perez-Truglia, R. 2022.** "Your Place in the World: Relative Income and Global Inequality." *American Economic Journal: Economic Policy* 14(4): 232–268.
- Fehr, E., and Charness, G. Forthcoming.** "Social Preferences: Fundamental Characteristics and Economic Consequences." *Journal of Economic Literature*.
- Fehr, E., and Fischbacher, U. 2003.** "The Nature of Human Altruism." *Nature* 425(6960): 785–791.
- Fehr, E., and Gächter, S. 2000.** "Fairness and Retaliation: The Economics of Reciprocity." *Journal of Economic Perspectives* 14(3): 159–181.
- Fehr, E., and Gächter, S. 2002.** "Altruistic Punishment in Humans." *Nature* 415(6868): 137–140.
- Fehr, E., and Schmidt, K. M. 1999.** "A Theory of Fairness, Competition, and Cooperation." *The Quarterly Journal of Economics* 114(3): 817–868.
- Fehr, E., and Schurtenberger, I. 2018.** "Normative Foundations of Human Cooperation." *Nature Human Behaviour* 2(7): 458–468.
- Feng, A., Li, H., and Wang, Y. 2023.** "We Are All in the Same Boat: Cross-Border Spillovers of Climate Shocks through International Trade and Supply Chain." <https://dx.doi.org/10.2139/ssrn.4433544>.
- Fenner, F. 1993.** "Smallpox: Emergence, Global Spread, and Eradication." *History and Philosophy of the Life Sciences* 15(3): 397–420.
- Fenner, F., Henderson, D. A., Arita, I., Ježek, Z., and Ladny, I. D. 1988.** *Smallpox and Its Eradication*. Geneva: World Health Organization.
- Ferber, M. A., and Nelson, J. A. 2009.** *Beyond Economic Man: Feminist Theory and Economics*. Chicago, IL: University of Chicago Press.
- Ferri, F., Irlenbusch, B., and Sutter, M. 2010.** "Efficiency Gains from Team-Based Coordination—Large-Scale Experimental Evidence." *American Economic Review* 100(4): 1892–1912.
- Fernbach, P. M., and Van Boven, L. 2022.** "False Polarization: Cognitive Mechanisms and Potential Solutions." *Current Opinion in Psychology* 43: 1–6.
- Fetzer, T. 2019.** "Did Austerity Cause Brexit?" *American Economic Review* 109(11): 3849–3886.
- Fiedler, S., Habibnia, H., Fahrenwaldt, A., and Rahal, R.-M. Forthcoming.** "Motivated Cognition in Cooperation." *Perspectives on Psychological Science*.
- Fikfak, V., Peat, D., and van der Zee, E. 2022.** "Bias in International Law." *German Law Journal* 23(3): 281–297.
- Fink, L. 2022.** "To Our Shareholders." Larry Fink's Chairman's Letter, 24 March. <https://www.blackrock.com/corporate/investor-relations/larry-fink-chairmans-letter>.
- Finnemore, M., and Sikkink, K. 2001.** "Taking Stock: The Constructivist Research Program in International Relations and Comparative Politics." *Annual Review of Political Science* 4(1): 391–416.
- Finus, M., and Rübhelke, D. T. G. 2013.** "Public Good Provision and Ancillary Benefits: The Case of Climate Agreements." *Environmental and Resource Economics* 56(2): 211–226.
- Finus, M., Cooper, P., and Almer, C. 2017.** "The Use of International Agreements in Transnational Environmental Protection." *Oxford Economic Papers* 69(2): 333–344.
- Fishkin, J., Siu, A., Diamond, L., and Bradburn, N. 2021.** "Is Deliberation an Antidote to Extreme Partisan Polarization? Reflections on 'America in One Room.'" *American Political Science Review* 115(4): 1464–1481.
- Fisman, R., Jakiela, P., Kariv, S., and Markovits, D. 2015.** "The Distributional Preferences of an Elite." *Science* 349(6254): aab0096.
- Fjeldstad, O.-H. 2006.** "Corruption in Tax Administration: Lessons from Institutional Reforms in Uganda." In Rose-Ackerman, S., (ed.) *International Handbook on the Economics of Corruption*. Cheltenham, UK/Northampton MA: Edward Elgar.
- Fjeldstad, O.-H., and Moore, M. 2008.** "Tax Reform and State Building in a Globalized World." In Braütigam, D., Fjeldstad, O.-H. and Moore, M., (eds.), *Taxation and State Building in Developing Countries*. Cambridge, UK: Cambridge University Press.
- Fjeldstad, O.-H., Schulz-Herzenberg, C., and Hoem Sjursen, I. 2012.** "People's Views of Taxation in Africa: A Review of Research on Determinants of Tax Compliance." CMI Working Paper. Bergen, Norway.
- Fleurbaey, M. 1995.** "Equality and Responsibility." *European Economic Review* 39(3): 683–689.
- Fleurbaey, M., Bouin, O., Salles-Djelic, M.-L., Kanbur, R., Nowotny, H., and Reis, E. 2018.** *A Manifesto for Social Progress: Ideas for a Better Society*. Cambridge, UK: Cambridge University Press.
- Fleurbaey, M., Kanbur, R., and Viney, B. 2021.** "Social Externalities and Economic Analysis." *Social Research: An International Quarterly* 88(1): 171–202.
- Flor, L. S., Friedman, J., Spencer, C. N., Cagney, J., Arieta, A., Herbert, M. E., Stein, C., and others. 2022.** "Quantifying the Effects of the Covid-19 Pandemic on Gender Equality on Health, Social, and Economic Indicators: A Comprehensive Review of Data from March, 2020, to September, 2021." *The Lancet* 399(10344): 2381–2397.
- Flores, A., Cole, J. C., Dickert, S., Eom, K., Jiga-Boy, G. M., Kogut, T., Loria, R., and others. 2022.** "Politicians Polarize and Experts Depolarize Public Support for Covid-19 Management Policies across Countries." *Proceedings of the National Academy of Sciences* 119(3): e2117543119.
- Foa, R. 2011.** "The Economic Rationale for Social Cohesion." Perspectives on Global Development, Organisation for Economic Co-operation and Development, Development Center, Paris.
- Folbre, N. 2008.** *Valuing Children: Rethinking the Economics of the Family*. Cambridge, MA: Harvard University Press.
- Folbre, N. 2012.** *For Love or Money: Care Provision in the United States*. New York: Russell Sage Foundation.
- Folbre, N., and Bittman, M. 2004.** *Family Time: The Social Organization of Care*. Milton Park, UK: Routledge.
- Folk, D., and Dunn, E. 2023.** "How Can People Become Happier? A Systematic Review of Preregistered Experiments." *Annual Review of Psychology* 75.
- Folke, C., Crona, B. E., Galaz, V., Gordon, L. J., Schultz, L., and Österblom, H. 2019.** "Collaborative Approaches to Biosphere Stewardship." In Mandle, L., Ouyang, Z., Salzman, J. E. and Daily, G., (eds.), *Green Growth That Works: Natural Capital Policy and Finance Mechanisms from around the World*. Washington, DC: Island Press/Center for Resource Economics.
- Folke, C., Polasky, S., Rockström, J., Galaz, V., Westley, F., Lamont, M., Scheffer, M., and others. 2021.** "Our Future in the Anthropocene Biosphere." *Ambio* 50(4): 834–869.
- Forti, V. B., C. P., Kuehr, R., and Bel, G. 2020.** *The Global E-Waste Monitor 2020 Quantities, Flows, and the Circular Economy Potential*. Bonn: United Nations University/United Nations Institute for Training and Research, Geneva: International Telecommunication Union and Rotterdam, Netherlands: International Solid Waste Association.
- Francois, P., Fujiwara, T., and van Ypersele, T. 2018.** "The Origins of Human Prosociality: Cultural Group Selection in the Workplace and the Laboratory." *Science Advances* 4(9): eaat2201.
- Frank, R. H. 1987.** "If Homo Economicus Could Choose His Own Utility Function, Would He Want One with a Conscience?" *The American Economic Review* 77(4): 593–604.
- Frank, R. H. 2021.** *Under the Influence: Putting Peer Pressure to Work*. Princeton, NJ: Princeton University Press.
- Frankel, J. A., and Romer, D. 1999.** "Does Trade Cause Growth?" *The American Economic Review* 89(3): 379–399.
- Frankel, J. A., and Romer, D. 2017.** "Does Trade Cause Growth?" In *Global Trade*. Milton Park, UK: Routledge.
- Frenk, J., Godal, T., Gómez-Dantés, O., and Store, J. G. 2022.** "A Reinvigorated Multilateralism in Health: Lessons and Innovations from the Covid-19 Pandemic." *The Lancet* 400(10363): 1565–1568.
- Fruttero, A., Muller, N., and Calvo-Gonzalez, O. 2021.** "The Power and Roots of Aspirations." Policy Research Working Paper WPS9729, World Bank, Washington, DC.
- Fujimoto, Y., and Ohtsuki, H. 2023.** "Evolutionary Stability of Cooperation in Indirect Reciprocity under Noisy and Private Assessment." *Proceedings of the National Academy of Sciences* 120(20): e2300544120.
- Fujita, M., Krugman, P. R., and Venables, A. 2001.** *The Spatial Economy: Cities, Regions, and International Trade*. Cambridge, MA: MIT Press.
- Fukuda-Parr, S. 2003.** "The Human Development Paradigm: Operationalizing Sen's Ideas on Capabilities." *Feminist Economics* 9(2–3): 301–317.
- Fukuyama, F. 1993.** *The End of History and the Last Man*. New York: The Free Press.
- Funke, M., Schularick, M., and Trebesch, C. 2016.** "Going to Extremes: Politics after Financial Crises, 1870–2014." *European Economic Review* 88: 227–260.

- Funke, M., Schularick, M., and Trebesch, C. 2023.** "Populist Leaders and the Economy." *American Economic Review* 113(12): 3249–3288.
- G20 (Group of 20). 2023a.** *Strengthening Multilateral Development Banks: The Triple Agenda Report of the G20 Independent Experts Group*. New Delhi, India.
- G20 (Group of 20). 2023b.** "New Delhi Leaders' Declaration." G20, New Delhi.
- Gabay, A. S., Radua, J., Kempton, M. J., and Mehta, M. A. 2014.** "The Ultimatum Game and the Brain: A Meta-Analysis of Neuroimaging Studies." *Neuroscience and Biobehavioral Reviews* 47: 549–558.
- Gächter, S., and Schulz, J. F. 2016.** "Intrinsic Honesty and the Prevalence of Rule Violations across Societies." *Nature* 531(7595): 496–499.
- Gächter, S., Kölle, F., and Quercia, S. 2017.** "Reciprocity and the Tragedies of Maintaining and Providing the Commons." *Nature Human Behaviour* 1(9): 650–656.
- Galaz, V. 2022.** "Global Environmental Governance in Times of Turbulence." *One Earth* 5(6): 582–585.
- Galaz, V., Centeno, M. A., Callahan, P. W., Causevic, A., Patterson, T., Brass, I., Baum, S., and others. 2021.** "Artificial Intelligence, Systemic Risks, and Sustainability." *Technology in Society* 67: 101741.
- Galor, O., Özak, Ö., and Sarid, A. 2018.** "Geographical Origins of Language Structures." Available at SSRN 3097220.
- Ganapati, S., and Wong, W. F. 2023.** "How Far Goods Travel: Global Transport and Supply Chains from 1965–2020." NBER Working Paper 31167, National Bureau of Economic Research, Cambridge MA.
- Gavrilets, S., and Richerson, P. J. 2017.** "Collective Action and the Evolution of Social Norm Internalization." *Proceedings of the National Academy of Sciences* 114(23): 6068–6073.
- Gebhard, C., Regitz-Zagrosek, V., Neuhauser, H. K., Morgan, R., and Klein, S. L. 2020.** "Impact of Sex and Gender on Covid-19 Outcomes in Europe." *Biology of Sex Differences* 11(1): 29.
- Gelfand, M. J. 2021.** "Cultural Evolutionary Mismatches in Response to Collective Threat." *Current Directions in Psychological Science* 30(5): 401–409.
- Gelfand, M. J., Caluori, N., Jackson, J. C., and Taylor, M. K. 2020.** "The Cultural Evolutionary Trade-Off of Ritualistic Synchrony." *Philosophical Transactions of the Royal Society B: Biological Sciences* 375(1805): 20190432.
- Gelfand, M. J., Gavrilets, S., and Nunn, N. 2024.** "Norm Dynamics: Interdisciplinary Perspectives on Social Norm Emergence, Persistence, and Change." *Annual Review of Psychology* 75(1): null.
- Gelfand, M. J., Jackson, J. C., Pan, X., Nau, D., Pieper, D., Denison, E., Dagher, M., and others. 2021.** "The Relationship between Cultural Tightness–Looseness and Covid-19 Cases and Deaths: A Global Analysis." *The Lancet Planetary Health* 5(3): e135–e144.
- Gelfand, M. J., Raver, J. L., Nishii, L., Leslie, L. M., Lun, J., Lim, B. C., Duan, L., and others. 2011.** "Differences between Tight and Loose Cultures: A 33-Nation Study." *Science* 332(6033): 1100–1104.
- Genicot, G., and Ray, D. 2017.** "Aspirations and Inequality." *Econometrica* 85(2): 489–519.
- Genicot, G., and Ray, D. 2020.** "Aspirations and Economic Behavior." *Annual Review of Economics* 12(1): 715–746.
- Gentile, E., Xing, Y., Rubínová, S., and Huang, S. 2021.** "Productivity Growth, Innovation, and Upgrading Along Global Value Chains." In *Global Value Chain Development Report 2021: Beyond Production*. Manila: Asian Development Bank; Beijing: Research Institute for Global Value Chains at the University of International Business and Economics; Geneva: World Trade Organization; Chiba, Japan: Institute of Developing Economies–Japan External Trade Organization; and Beijing: China Development Research Foundation.
- Georgieva, D. P., Loayza, N., and Mendez Ramos, F. 2018.** "Global Trade: Slowdown, Factors, and Policies." Research and Policy Brief 123899, World Bank, Washington, DC.
- Gerarden, T. D. 2023.** "Demanding Innovation: The Impact of Consumer Subsidies on Solar Panel Production Costs." *Management Science* 69(12): 7799–7820.
- Gertler, P., Heckman, J. J., Pinto, R., Chang, S. M., Grantham-McGregor, S., Vermeersch, C., Walker, S., and Wright, A. 2021.** "Effect of the Jamaica Early Childhood Stimulation Intervention on Labor Market Outcomes at Age 31." NBER Working Paper 29292, National Bureau of Economic Research, Cambridge, MA.
- Gervais, W. M., Henrich, J., McNamara, R. A., Norenzayan, A., Shariff, A. F., Slingerland, E., and Willard, A. K. 2016.** "The Cultural Evolution of Prosocial Religions." *Behavioral and Brain Sciences* 39: e1.
- Ghosh, A., Hwang, S. I. M., and Squires, M. 2023.** "Economic Consequences of Kinship: Evidence from U.S. Bans on Cousin Marriage." *The Quarterly Journal of Economics*.
- Gibbard, P. L., Bauer, A. M., Edgeworth, M., Rudiman, W. F., Gill, J. L., Merritts, D. J., Finney, S. C., and others. 2022b.** "A Practical Solution: The Anthropocene Is a Geological Event, Not a Formal Epoch." *Episodes Journal of International Geoscience* 45(4): 349–357.
- Gibbard, P., Walker, M., Bauer, A., Edgeworth, M., Edwards, L., Ellis, E., Finney, S., and others. 2022a.** "The Anthropocene as an Event, Not an Epoch." *Journal of Quaternary Science* 37(3): 395–399.
- Gifford, R. 2014.** "Environmental Psychology Matters." *Annual Review of Psychology* 65(1): 541–579.
- Gifford, R., and Comeau, L. A. 2011.** "Message Framing Influences Perceived Climate Change Competence, Engagement, and Behavioral Intentions." *Global Environmental Change* 21(4): 1301–1307.
- Gillingham, K., and Stock, J. H. 2018.** "The Cost of Reducing Greenhouse Gas Emissions." *Journal of Economic Perspectives* 32(4): 53–72.
- Giuliano, P., and Nunn, N. 2020.** "Understanding Cultural Persistence and Change." *The Review of Economic Studies* 88(4): 1541–1581.
- Gleeson, D., Townsend, B., Tenni, B. F., and Phillips, T. 2023.** "Global Inequities in Access to Covid-19 Health Products and Technologies: A Political Economy Analysis." *Health & Place*: 103051.
- Glennerster, R., and Jayachandran, S. 2023.** "Think Globally, Act Globally: Opportunities to Mitigate Greenhouse Gas Emissions in Low-and Middle-Income Countries." *Journal of Economic Perspectives* 37(3): 111–135.
- Glennerster, R., Snyder, C. M., and Tan, B. J. 2022.** "Calculating the Costs and Benefits of Advance Preparations for the Next Pandemic." Working Paper 30565, National Bureau of Economic Research, Cambridge, MA.
- Global Witness. 2023.** "Almost 2,000 Land and Environmental Defenders Killed between 2012 and 2022 for Protecting the Planet." Press Release, 13 September. <https://www.globalwitness.org/en/press-releases/almost-2000-land-and-environmental-defenders-killed-between-2012-and-2022-protecting-planet>.
- Gneezy, U., and Rustichini, A. 2000.** "A Fine Is a Price." *The Journal of Legal Studies* 29(1): 1–17.
- Gneezy, U., Meier, S., and Rey-Biel, P. 2011.** "When and Why Incentives (Don't) Work to Modify Behavior." *Journal of Economic Perspectives* 25(4): 191–210.
- GOC (Global Ocean Commission). 2014.** *From Decline to Recovery: A Rescue Package for the Global Ocean*. Oxford, UK: GOC.
- Göcke, M. 2002.** "Various Concepts of Hysteresis Applied in Economics." *Journal of Economic Surveys* 16(2): 167–188.
- Goeree, J. K., and Louis, P. 2021.** "M Equilibrium: A Theory of Beliefs and Choices in Games." *American Economic Review* 111(12): 4002–4045.
- Góes, C., and Bekkers, E. 2022.** *The Impact of Geopolitical Conflicts on Trade, Growth, and Innovation*. Geneva: World Trade Organization.
- Goffman, E. 1959.** *The Presentation of Self in Everyday Life*. Garden City, NY: Anchor Books.
- Goldberg, P. K. 2023.** *The Unequal Effects of Globalization*. Cambridge, MA: MIT Press.
- Goldberg, P. K., and Reed, T. 2023.** "Is the Global Economy Deglobalizing? And If So, Why? And What Is Next?" NBER Working Paper 31115, National Bureau of Economic Research, Cambridge, MA.
- Goldin, C. 2022.** "Understanding the Economic Impact of Covid-19 on Women." NBER Working Paper 29974, National Bureau of Economic Research, Cambridge, MA.
- Goldsmith, J. L., and Posner, E. A. 1999.** "A Theory of Customary International Law." *University of Chicago Law Review* 66(4): 1113–1177.
- González, J. L., and Ferencz, J. 2018.** "Digital Trade and Market Openness." OECD Trade Policy Papers. Paris: OECD Publishing.
- Goodin, R. E. 1995.** "Political Ideals and Political Practice." *British Journal of Political Science* 25(1): 37–56.
- Gopalan, S., Reddy, K., and Sasidharan, S. 2022.** "Does Digitalization Spur Global Value Chain

Participation? Firm-Level Evidence from Emerging Markets." *Information Economics and Policy* 59: 100972.

Gorman, B., and Seguin, C. 2020. "Who Supports Global Cooperation? Cooperative Internationalism at the Intersection of Social Class and Economic Development." *Sociological Science* 7: 570–598.

Gouglas, D., Christodoulou, M., and Hatchett, R. 2023. "The 100 Days Mission—2022 Global Pandemic Preparedness Summit." *Emerging Infectious Diseases* 29(3).

Gould, C. C. 2018. "Solidarity and the Problem of Structural Injustice in Healthcare." *Bioethics* 32(9): 541–552.

Gourdel, R., Monasterolo, I., and Gallagher, K. P. 2023. "Climate Transition Spillovers and Sovereign Risk: Evidence from Indonesia." <https://dx.doi.org/10.2139/ssrn.4387423>.

Goussebaïle, A., Bommier, A., Goerger, A., and Nicolai, J.-P. 2023. "Altruistic Foreign Aid and Climate Change Mitigation." *Environmental and Resource Economics* 84(1): 219–239.

Graeber, T., Roth, C., and Zimmermann, F. 2023. "Stories, Statistics, and Memory." CESifo Working Paper 10107, Center for Economic Studies and Institute for Economic Research, Munich, Germany.

Graham, C., and Pinto, S. 2019. "Unequal Hopes and Lives in the USA: Optimism, Race, Place, and Premature Mortality." *Journal of Population Economics* 32(2): 665–733.

Grandin, A., Guillou, L., Abdel Sater, R., Foucault, M., and Chevallier, C. 2022. "Socioeconomic Status, Time Preferences and Pro-Environmentalism." *Journal of Environmental Psychology* 79: 101720.

Granovetter, M. 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91(3): 481–510.

Gravert, C., and Shreedhar, G. 2022. "Effective Carbon Taxes Need Green Nudges." *Nature Climate Change* 12(12): 1073–1074.

Green, A., and Janmaat, J. 2011. *Regimes of Social Cohesion: Societies and the Crisis of Globalization*. London: Palgrave Macmillan.

Greif, A., and Mokyr, J. 2017. "Cognitive Rules, Institutions, and Economic Growth: Douglass North and Beyond." *Journal of Institutional Economics* 13(1): 25–52.

Griffith-Jones, S., and Ocampo, J. A. 2018. *The Future of National Development Banks*. Oxford, UK: Oxford University Press.

Griffith, D. M., Sharma, G., Holliday, C. S., Enyia, O. K., Valliere, M., Semlow, A. R., Stewart, E. C., and Blumenthal, R. S. 2020. "Men and Covid-19: A Biopsychosocial Approach to Understanding Sex Differences in Mortality and Recommendations for Practice and Policy Interventions." *Preventing Chronic Disease* 17: E63.

Grix, M., and Watene, K. 2022. "Communities and Climate Change: Why Practices and Practitioners Matter." *Ethics & International Affairs* 36(2): 215–230.

Gross, J., and De Dreu, C. K. W. 2019. "The Rise and Fall of Cooperation through Reputation and Group Polarization." *Nature Communications* 10(1): 776.

Gross, J., and Vostroknutov, A. 2022. "Why Do People Follow Social Norms?" *Current Opinion in Psychology* 44: 1–6.

Gross, J., Méder, Z. Z., De Dreu, C. K. W., Romano, A., Molenmaker, W. E., and Hoenig, L. C. 2023. "The Evolution of Universal Cooperation." *Science Advances* 9(7): eadd8289.

Gross, J., Veistola, S., De Dreu, C. K. W., and Van Dijk, E. 2020. "Self-Reliance Crowds out Group Cooperation and Increases Wealth Inequality." *Nature Communications* 11(1): 5161.

Grossman, G. M., and Helpman, E. 1991. "Quality Ladders and Product Cycles." *The Quarterly Journal of Economics* 106(2): 557–586.

Guerrero, A. M., Jones, N. A., Ross, H., Virah-Sawmy, M., and Biggs, D. 2021. "What Influences and Inhibits Reduction of Deforestation in the Soy Supply Chain? A Mental Model Perspective." *Environmental Science & Policy* 115: 125–132.

Guinote, A. 2017. "How Power Affects People: Activating, Wanting, and Goal Seeking." *Annual Review of Psychology* 68(1): 353–381.

Guiso, L., Helios, H., Morelli, M., and Sonno, T. Forthcoming. "Economic Insecurity and the Demand of Populism in Europe." *Economica*.

Guiso, L., Herrera, H., Morelli, M., and Sonno, T. 2019. "Global Crises and Populism: The Role of Eurozone Institutions." *Economic Policy* 34(97): 95–139.

Gulley, A. L. 2023. "China, the Democratic Republic of the Congo, and Artisanal Cobalt Mining from 2000 through 2020." *Proceedings of the National Academy of Sciences* 120(26): e2212037120.

Gur, T., Ayal, S., and Halperin, E. 2021. "A Bright Side of Sadness: The Depolarizing Role of Sadness in Intergroup Conflicts." *European Journal of Social Psychology* 51(1): 68–83.

Guriev, S., and Papaioannou, E. 2022. "The Political Economy of Populism." *Journal of Economic Literature* 60(3): 753–832.

Guriev, S., and Treisman, D. 2019. "Informational Autocrats." *Journal of Economic Perspectives* 33(4): 100–127.

Guriev, S., and Treisman, D. 2020. "A Theory of Informational Autocracy." *Journal of Public Economics* 186: 104158.

Gustafson, A., Rosenthal, S. A., Ballew, M. T., Goldberg, M. H., Bergquist, P., Kotcher, J. E., Maibach, E. W., and Leiserowitz, A. 2019. "The Development of Partisan Polarization over the Green New Deal." *Nature Climate Change* 9(12): 940–944.

Guterres, A. 2023a. "Opening Statement by the UN Secretary-General at the 78th UN General Assembly." 5 September, New York

Guterres, A. 2023b. "Secretary-General's remarks at Wreath-Laying Ceremony Commemorating the 62nd Anniversary of the Death of Former Secretary-General Dag Hammarskjöld." 13 September. <https://www.un.org/sg/en/content/sg/speeches/2023-09-13/secretary-generals-remarks-wreath-laying-ceremony>

commemorating-the-62nd-anniversary-of-the-death-of-former-secretary-general-dag-hammarskjöld (accessed 25 January 2024).

Guttman-Kenney, B., Adams, P. D., Hunt, S., Laibson, D., Stewart, N., and Leary, J. 2023. "The Semblance of Success in Nudging Consumers to Pay Down Credit Card Debt." Working Paper 31926, National Bureau of Economic Research, Cambridge, MA.

Guy, J., Shears, E., and Meckling, J. 2023. "National Models of Climate Governance among Major Emitters." *Nature Climate Change* 13(2): 189–195.

Gygli, S., Haelg, F., Potrafke, N., and Sturm, J.-E. 2019. "The KOF Globalisation Index—Revisited." *The Review of International Organizations* 14: 543–574.

Gyöngyösi, G., and Verner, E. 2022. "Financial Crisis, Creditor-Debtor Conflict, and Populism." *The Journal of Finance* 77(4): 2471–2523.

Hafner-Burton, E. M., Hughes, D. A., and Victor, D. G. 2013. "The Cognitive Revolution and the Political Psychology of Elite Decision Making." *Perspectives on Politics* 11(2): 368–386.

Hagan, J., and Hans, V. P. 2017. "Procedural Justice Theory and Public Policy: An Exchange." *Annual Review of Law and Social Science* 13(1): 1–3.

Hale, T. 2020. "Transnational Actors and Transnational Governance in Global Environmental Politics." *Annual Review of Political Science* 23(1): 203–220.

Halevy, N. 2017. "Preemptive Strikes: Fear, Hope, and Defensive Aggression." *Journal of Personality and Social Psychology* 112(2): 224.

Halevy, N. 2023. "Fear Can Promote Competition, Defensive Aggression, and Dominance Complementarity." *Behavioral and Brain Sciences* 46: e63.

Halevy, N., and Halali, E. 2015. "Selfish Third Parties Act as Peacemakers by Transforming Conflicts and Promoting Cooperation." *Proceedings of the National Academy of Sciences* 112(22): 6937–6942.

Halevy, N., Chou, E. Y., and Murnighan, J. K. 2012. "Mind Games: The Mental Representation of Conflict." *Journal of Personality and Social Psychology* 102(1): 132.

Halevy, N., Sagiv, L., Roccas, S., and Bornstein, G. 2006. "Perceiving Intergroup Conflict: From Game Models to Mental Templates." *Personality and Social Psychology Bulletin* 32(12): 1674–1689.

Hallsworth, M. 2023. "A Manifesto for Applying Behavioural Science." *Nature Human Behaviour* 7(3): 310–322.

Hallsworth, M., List, J. A., Metcalfe, R. D., and Vlaev, I. 2017. "The Behavioralist as Tax Collector: Using Natural Field Experiments to Enhance Tax Compliance." *Journal of Public Economics* 148: 14–31.

Hamamura, T., Li, L. M. W., and Chan, D. 2017. "The Association between Generalized Trust and Physical and Psychological Health across Societies." *Social Indicators Research* 134: 277–286.

Hamilton, L. C., Bell, E., Hartter, J., and Salerno, J. D. 2018. "A Change in the Wind? US Public Views on

- Renewable Energy and Climate Compared." *Energy, Sustainability and Society* 8(1): 11.
- Hammarskjöld, Dag. 1954.** "Address by Secretary-General Dag Hammarskjöld at University of California Convocation, Berkeley, California, Thursday, May 13, 1954, at 10:00 a.m. (Pacific Coast Time)." Press release SG/382. <https://ask.un.org/faq/14623>. Accessed 24 February 2024.
- Han, T. A. 2022.** "Institutional Incentives for the Evolution of Committed Cooperation: Ensuring Participation Is as Important as Enhancing Compliance." *Journal of The Royal Society Interface* 19(188): 20220036.
- Handley, C., and Mathew, S. 2020.** "Human Large-Scale Cooperation as a Product of Competition between Cultural Groups." *Nature Communications* 11(1): 702.
- Hanlon, M., Mills, L., and Slemrod, J. 2007.** "An Empirical Examination of Corporate Tax Noncompliance." In Auerbach, A. J., Hines, J. J. R. and Slemrod, J., (eds.), *Taxing Corporate Income in the 21st Century*. Cambridge: Cambridge University Press.
- Hannesson, R. 2011.** "Rights Based Fishing on the High Seas: Is It Possible?" *Marine Policy* 35(5): 667–674.
- Hanney, S. R., Wooding, S., Sussex, J., and Grant, J. 2020.** "From Covid-19 Research to Vaccine Application: Why Might It Take 17 Months Not 17 Years and What Are the Wider Lessons?" *Health Research Policy and Systems* 18(1): 61.
- Haq, M. u., and Streeten, P. 1995.** *The UN and the Bretton Woods Institutions: New Challenges for the Twenty-First Century*. London: Palgrave Macmillan.
- Hardin, G. 1968.** "The Tragedy of the Commons." *Science* 162(3859): 1243–1248.
- Harrington, B. 2016.** *Capital without Borders: Wealth Managers and the One Percent*. Cambridge, MA: Harvard University Press.
- Hassoun, N. 2020.** *Global Health Impact: Extending Access to Essential Medicines*. New York: Oxford University Press.
- Hassoun, N. 2021a.** "Against Vaccine Nationalism." *Journal of Medical Ethics* 47(11): 773–774.
- Hassoun, N. 2021b.** "Equity and Vaccine Allocation: Beyond Ethics in Prioritization to Equitable Production, Distribution and Consumption." Ethics and International Affairs Blog, 12 July. <https://www.ethicsandinternationalaffairs.org/online-exclusives/equity-and-vaccine-allocation-beyond-ethics-in-prioritization-to-equitable-production-distribution-and-consumption>.
- Hassoun, N. 2021c.** "Sufficiency and the Minimally Good Life." *Utilitas* 33(3): 321–336.
- Hassoun, N. 2022.** "Good Enough? The Minimally Good Life Account of the Basic Minimum." *Australasian Journal of Philosophy* 100(2): 330–341.
- Hassoun, N. Forthcoming.** *Good Enough? The Minimally Good Life Account of What We Owe to Others and What We Can Justifiably Demand*. New York, NY: Oxford University Press.
- Hassoun, N., Friedman, J., and Cosler, L. E. 2022.** "A Framework for Assessing the Impact of Disease Treatment." *Tropical Medicine & International Health* 27(2): 192–198.
- Hauser, O. P., Rand, D. G., Peysakhovich, A., and Nowak, M. A. 2014.** "Cooperating with the Future." *Nature* 511(7508): 220–223.
- Haushofer, J., and Salicath, D. 2023.** "The Psychology of Poverty: Where Do We Stand?"
- Haynes, B. F., Corey, L., Fernandes, P., Gilbert, P. B., Hotez, P. J., Rao, S., Santos, M. R., and others. 2020.** "Prospects for a Safe Covid-19 Vaccine." *Science Translational Medicine* 12(568): eabe0948.
- He, G., Pan, Y., Park, A., Sawada, Y., and Tan, E. S. 2023.** "Reducing Single-Use Cutlery with Green Nudges: Evidence from China's Food-Delivery Industry." *Science* 381(6662): eadd9884.
- He, Q., and Silliman, B. R. 2019.** "Climate Change, Human Impacts, and Coastal Ecosystems in the Anthropocene." *Current Biology* 29(19): R1021–R1035.
- Head, M. J., Steffen, W., Fagerlind, D., Waters, C. N., Poirier, C., Syvitski, J., Zalasiewicz, J. A., and others. 2022a.** "The Great Acceleration Is Real and Provides a Quantitative Basis for the Proposed Anthropocene Series/Epoch." *International Union of Geological Sciences* 45(4): 359–376.
- Head, M. J., Zalasiewicz, J. A., Waters, C. N., Turner, S. D., Williams, M., Barnosky, A. D., Steffen, W., and others. 2022b.** "The Proposed Anthropocene Epoch/ Series Is Underpinned by an Extensive Array of Mid-20th Century Stratigraphic Event Signals." *Journal of Quaternary Science* 37(7): 1181–1187.
- Heal, G., and Kunreuther, H. 2010.** "Social Reinforcement: Cascades, Entrapment, and Tipping." *American Economic Journal: Microeconomics* 2(1): 86–99.
- Hébert-Dufresne, L., Waring, T. M., St-Onge, G., Niles, M. T., Kati Corlew, L., Dube, M. P., Miller, S. J., Gotelli, N. J., and McGill, B. J. 2022.** "Source-Sink Behavioural Dynamics Limit Institutional Evolution in a Group-Structured Society." *Royal Society Open Science* 9(3): 211743.
- Hecht, C. A., Dweck, C. S., Murphy, M. C., Kroeper, K. M., and Yeager, D. S. 2023.** "Efficiently Exploring the Causal Role of Contextual Moderators in Behavioral Science." *Proceedings of the National Academy of Sciences* 120(1): e2216315120.
- Heinrich, T., Kobayashi, Y., and Lawson, E. 2021.** "Populism and Foreign Aid." *European Journal of International Relations* 27(4): 1042–1066.
- Helbing, D., and Yu, W. 2009.** "The Outbreak of Cooperation among Success-Driven Individuals under Noisy Conditions." *Proceedings of the National Academy of Sciences* 106(10): 3680–3685.
- Helferich, M., Thøgersen, J., and Bergquist, M. 2023.** "Direct and Mediated Impacts of Social Norms on Pro-Environmental Behavior." *Global Environmental Change* 80: 102680.
- Helleiner, E. 2021.** "The Return of National Self-Sufficiency? Excavating Autarkic Thought in a De-Globalizing Era." *International Studies Review* 23(3): 933–957.
- Henderson, D. A., and Klepac, P. 2013.** "Lessons from the Eradication of Smallpox: An Interview with D. A. Henderson." *Philosophical Transactions of the Royal Society B: Biological Sciences* 368(1623): 20130113.
- Henkel, L., Sprengholz, P., Korn, L., Betsch, C., and Böhm, R. 2023.** "The Association between Vaccination Status Identification and Societal Polarization." *Nature Human Behaviour* 7(2): 231–239.
- Henrich, J. 2000.** "Does Culture Matter in Economic Behavior? Ultimatum Game Bargaining among the Machiguenga of the Peruvian Amazon." *American Economic Review* 90(4): 973–979.
- Henrich, J. 2009.** "The Evolution of Costly Displays, Cooperation and Religion: Credibility Enhancing Displays and Their Implications for Cultural Evolution." *Evolution and Human Behavior* 30(4): 244–260.
- Henrich, J. 2016.** *The Secret of Our Success: How Culture Is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*. Princeton, NJ: Princeton University Press.
- Henrich, J. 2020.** *The WEIRDest People in the World: How the West Became Psychologically Peculiar and Particularly Prosperous*. New York: Farrar, Strauss, and Giroux.
- Henrich, J. 2023.** "How Culture Made Us Uniquely Human." *Zygon: Journal of Religion and Science* 58(4).
- Henrich, J., Alvard, M., Barr, A., Bowles, S., Boyd, R., Camerer, C., Ensminger, J., and others. 2005.** "Economic Man' in Cross-Cultural Perspective: Behavioral Experiments in 15 Small-Scale Societies." *Behavioral and Brain Sciences* 28(6): 795–815.
- Henrich, J., and Gil-White, F. J. 2001.** "The Evolution of Prestige: Freely Conferred Deference as a Mechanism for Enhancing the Benefits of Cultural Transmission." *Evolution and Human Behavior* 22(3): 165–196.
- Henrich, J., and Muthukrishna, M. 2021.** "The Origins and Psychology of Human Cooperation." *Annual Review of Psychology* 72(1): 207–240.
- Henrich, J., Bauer, M., Cassar, A., Chytilová, J., and Purzycki, B. G. 2019.** "War Increases Religiosity." *Nature Human Behaviour* 3(2): 129–135.
- Henrich, J., Blasi, D. E., Curtin, C. M., Davis, H. E., Hong, Z., Kelly, D., and Kroupin, I. 2022.** "A Cultural Species and Its Cognitive Phenotypes: Implications for Philosophy." *Review of Philosophy and Psychology*.
- Henrich, J., Boyd, R., and Richerson, P. J. 2012.** "The Puzzle of Monogamous Marriage." *Philosophical Transactions of the Royal Society B: Biological Sciences* 367(1589): 657–669.
- Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., and McElreath, R. 2001.** "In Search of Homo Economicus: Behavioral Experiments in 15 Small-Scale Societies." *American Economic Review* 91(2): 73–78.
- Henrich, J., Boyd, R., Derex, M., Kline, M. A., Mesoudi, A., Muthukrishna, M., Powell, A. T., Shennan, S. J., and Thomas, M. G. 2016.** "Understanding Cumulative Cultural Evolution." *Proceedings of the National Academy of Sciences* 113(44): E6724–E6725.
- Henrich, J., Chudek, M., and Boyd, R. 2015.** "The Big Man Mechanism: How Prestige Fosters Cooperation and Creates Prosocial Leaders." *Philosophical*

Transactions of the Royal Society B: Biological Sciences 370(1683): 20150013.

Henrich, J., Ensminger, J., McElreath, R., Barr, A., Barrett, C., Bolyanatz, A., Cardenas, J. C., and others. 2010. "Markets, Religion, Community Size, and the Evolution of Fairness and Punishment." *Science* 327(5972): 1480–1484.

Henrich, J., Heine, S. J., and Norenzayan, A. 2010a. "Beyond WEIRD: Towards a Broad-Based Behavioral Science." *Behavioral and Brain Sciences* 33(2–3): 111–135.

Henrich, J., Heine, S. J., and Norenzayan, A. 2010b. "Most People Are Not WEIRD." *Nature* 466(7302): 29–29.

Herreros, F. 2023. "The State and Trust." *Annual Review of Political Science* 26(1): 117–134.

Herrmann, B., Thöni, C., and Gächter, S. 2008. "Antisocial Punishment across Societies." *Science* 319(5868): 1362–1367.

Hertel-Fernandez, A., Mildenerger, M., and Stokes, L. C. 2019. "Legislative Staff and Representation in Congress." *American Political Science Review* 113(1): 1–18.

Hertel, T. 2004. "Assessing the Provision of International Trade as a Global Public Good." New York: United Nations Development Programme.

Heyes, C. 2023. "Rethinking Norm Psychology." *Perspectives on Psychological Science* 0(0): 1–27.

Hickman, C. 2024. "Eco-Anxiety in Children and Young People: A Rational Response, Irreconcilable Despair, or Both?" *The Psychoanalytic Study of the Child* 77(1): 356–368.

Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., and van Susteren, L. 2021. "Climate Anxiety in Children and Young People and Their Beliefs About Government Responses to Climate Change: A Global Survey." *The Lancet Planetary Health* 5(12): e863–e873.

Hirai, T. 2020. "The Impact of Trust on the Quality of Participation in Development: The Case of Ukraine." *The International Journal of Social Quality* 10(2): 72–92.

Hirschman, A. O. 1982. "Rival Interpretations of Market Society: Civilizing, Destructive, or Feeble?" *Journal of Economic Literature* 20(4): 1463–1484.

Hirshleifer, J. 1983. "From Weakest-Link to Best-Shot: The Voluntary Provision of Public Goods." *Public Choice* 41(3): 371–386.

Hirte, G., Lessmann, C., and Seidel, A. 2020. "International Trade, Geographic Heterogeneity and Inter-regional Inequality." *European Economic Review* 127: 103427.

Hobolt, S. B., Leeper, T. J., and Tilley, J. 2021. "Divided by the Vote: Affective Polarization in the Wake of the Brexit Referendum." *British Journal of Political Science* 51(4): 1476–1493.

Hoekman, B. M., Maskus, K. E., and Saggi, K. 2005. "Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options." *World Development* 33(10): 1587–1602.

Hoff, K., and Stiglitz, J. E. 2016. "Striving for Balance in Economics: Towards a Theory of the Social Determination of Behavior." *Journal of Economic Behavior & Organization* 126: 25–57.

Hoff, K., and Walsh, J. S. 2019. "The Third Function of Law Is to Transform Cultural Categories." Policy Research Working Paper 8954, World Bank, Washington, DC.

Hoffman, S. J., Baral, P., Rogers Van Katwyk, S., Sritharan, L., Hughsam, M., Randhawa, H., Lin, G., and others. 2022. "International Treaties Have Mostly Failed to Produce Their Intended Effects." *Proceedings of the National Academy of Sciences* 119(32): e2122854119.

Hogg, M. A. 2007. "Uncertainty–Identity Theory." *Advances in Experimental Social Psychology* 39: 69–126.

Holland, A., and Pazarbasioglu, C. 2024. "How to Ease Rising External Debt-Service Pressures in Low-Income Countries." <https://www.imf.org/en/Blogs/Articles/2024/01/24/how-to-ease-rising-external-debt-service-pressures-in-low-income-countries>.

Holloway, J., and Manwaring, R. 2023. "How Well Does 'Resilience' Apply to Democracy? A Systematic Review." *Contemporary Politics* 29(1): 68–92.

Hornsey, M. J., and Lewandowsky, S. 2022. "A Toolkit for Understanding and Addressing Climate Scepticism." *Nature Human Behaviour* 6(11): 1454–1464.

Hornsey, M. J., Harris, E. A., Bain, P. G., and Fielding, K. S. 2016. "Meta-Analyses of the Determinants and Outcomes of Belief in Climate Change." *Nature Climate Change* 6(6): 622–626.

Hornung, J. 2022. "Social Identities in Climate Action." *Climate Action* 1(1): 4.

Horton, R. M., de Sherbinin, A., Wrathall, D., and Oppenheimer, M. 2021. "Assessing Human Habitability and Migration." *Science* 372(6548): 1279–1283.

Horváth, B., Ivanov, A., and Peleah, M. 2012. "The Global Crisis and Human Development: A Study on Central and Eastern Europe and the CIS Region." *Journal of Human Development and Capabilities* 13(2): 197–225.

House, B. R. 2018. "How Do Social Norms Influence Prosocial Development?" *Current Opinion in Psychology* 20: 87–91.

House, B. R., Kanngiesser, P., Barrett, H. C., Broesch, T., Cebioglu, S., Crittenden, A. N., Erut, A., and others. 2020. "Universal Norm Psychology Leads to Societal Diversity in Prosocial Behaviour and Development." *Nature Human Behaviour* 4(1): 36–44.

Howard, P. H., and Hendrickson, M. 2020. "The State of Concentration in Global Food and Agriculture Industries." In Herren, H., Haerlin, B., and the IAASTD+10 Advisory Group, (eds.), *Transformation of Food Systems: The Making of a Paradigm Shift*. Bochum, Germany: The Foundation on Future Farming.

Howard, P. H., and Hendrickson, M. 2021. "Corporate Concentration in the US Food System Makes Food More Expensive and Less Accessible for Many Americans." <https://theconversation.com/corporate-concentration-in-the-us-food-system-makes-food>

more-expensive-and-less-accessible-for-many-americans-151193. Accessed 13 January 2024.

Howson, K., and Partridge, A. 2022. "Policy Brief: Digital Identification and Rights Realisation in South Africa." Research ICT Africa, Cape Town, South Africa.

Hoy, C., and Mager, F. 2021. "Why Are Relatively Poor People Not More Supportive of Redistribution? Evidence from a Randomized Survey Experiment across Ten Countries." *American Economic Journal: Economic Policy* 13(4): 299–328.

Hsieh, C.-T., Hurst, E., Jones, C. I., and Klenow, P. J. 2019. "The Allocation of Talent and U.S. Economic Growth." *Econometrica* 87(5): 1439–1474.

Hu, B., Guo, H., Zhou, P., and Shi, Z.-L. 2021. "Characteristics of SARS-CoV-2 and Covid-19." *Nature Reviews Microbiology* 19(3): 141–154.

Huambachano, M. A. 2019. "Indigenous Food Sovereignty." *New Zealand Journal of Ecology* 43(3): 1–6.

Huang, B., Cai, Y., Li, N., Li, K., Wang, Z., Li, L., Wu, L., and others. 2021. "Sex-Based Clinical and Immunological Differences in Covid-19." *BMC Infectious Diseases* 21(1): 647.

Huang, Y. 2022. "The Health Silk Road: How China Adapts the Belt and Road Initiative to the Covid-19 Pandemic." *American Journal of Public Health* 112(4): 567–569.

Huber, C., Dreber, A., Huber, J., Johannesson, M., Kirchler, M., Weitzel, U., Abellán, M., and others. 2023. "Competition and Moral Behavior: A Meta-Analysis of Forty-Five Crowd-Sourced Experimental Designs." *Proceedings of the National Academy of Sciences* 120(23): e2215572120.

Hudson, V. M., Caprioli, M., Bowen, D. L., and McDermott, R. 2023. *Sex and World Peace*. New York, NY: Columbia University Press.

Huettel, S. A., and Kranton, R. E. 2012. "Identity Economics and the Brain: Uncovering the Mechanisms of Social Conflict." *Philosophical Transactions of the Royal Society B: Biological Sciences* 367(1589): 680–691.

Hufe, P., Kanbur, R., and Peichl, A. 2022. "Measuring Unfair Inequality: Reconciling Equality of Opportunity and Freedom from Poverty." *The Review of Economic Studies* 89(6): 3345–3380.

Hughes, J. E., and Podolefsky, M. 2015. "Getting Green with Solar Subsidies: Evidence from the California Solar Initiative." *Journal of the Association of Environmental and Resource Economists* 2(2): 235–275.

Hughes, T. P., Anderson, K. D., Connolly, S. R., Heron, S. F., Kerry, J. T., Lough, J. M., Baird, A. H., and others. 2018. "Spatial and Temporal Patterns of Mass Bleaching of Corals in the Anthropocene." *Science* 359(6371): 80–83.

Hurd, I. 2022. "The Case against International Cooperation." *International Theory* 14(2): 263–284.

Hurrell, A. 2008. *On Global Order: Power, Values and the Constitution of International Society; Changing Global Orders*. Oxford, UK: Oxford University Press.

- Hurwicz, L. 1996.** "Institutions as Families of Game Forms." *The Japanese Economic Review* 47(2): 113–132.
- Hvidberg, K. B., Kreiner, C. T., and Stantcheva, S. 2023.** "Social Positions and Fairness Views on Inequality." *The Review of Economic Studies* 90(6): 3083–3118.
- Hyndle-Hussein, J. 2015.** "The Baltic States on the Conflict in Ukraine." OSW Commentary, Centre for Eastern Studies, Warsaw.
- Iacoviello, M., and Navarro, G. 2019.** "Foreign Effects of Higher US Interest Rates." *Journal of International Money and Finance* 95: 232–250.
- Ibrahim, S. S. 2006.** "From Individual to Collective Capabilities: The Capability Approach as a Conceptual Framework for Self-Help." *Journal of Human Development and Capabilities* 7(3): 397–416.
- Iddrisu, A. G., and Mohammed, J. I. 2019.** "Is Political Business Cycle an Enemy to Human Development? Empirical Evidence from Africa." *Economic and Political Studies* 7(3): 337–351.
- IEA (International Energy Agency). 2023a.** "Government Energy Spending Tracker." <https://www.iea.org/reports/government-energy-spending-tracker-2>.
- IEA (International Energy Agency). 2023b.** *Global EV Outlook 2023 Catching Up with Climate Ambitions*. Paris.
- IISS (International Institute for Strategic Studies). 2023.** *The Amed Conflict Survey 2023*. London: IISS.
- Ijzerman, H., Lewis, N. A., Przybylski, A. K., Weinstein, N., DeBruine, L., Ritchie, S. J., Vazire, S., and others. 2020.** "Use Caution When Applying Behavioural Science to Policy." *Nature Human Behaviour* 4(11): 1092–1094.
- Ikenberry, G. J. 2018.** "The End of Liberal International Order?" *International Affairs* 94(1): 7–23.
- ILO (International Labour Organization). 2023.** ILO-STAT database. <https://ilostat.ilo.org/data/>. Accessed 9 February 2024.
- Im, S., İriş, D., and Ko, H. 2022.** "Subjective Beliefs in International Agreements." *The Singapore Economic Review*. 1–31.
- IMF (International Monetary Fund). 2001.** "Global Trade Liberalization and the Developing Countries." Washington DC: IMF.
- IMF (International Monetary Fund). 2014.** *2014 Spillover Report*. Washington, DC: IMF.
- IMF (International Monetary Fund). 2017.** *State-Contingent Debt Instruments for Sovereigns*. Washington, DC: IMF.
- IMF (International Monetary Fund). 2021a.** "2021 General SDR Allocation." <https://www.imf.org/en/Topics/special-drawing-right/2021-SDR-Allocation>. Accessed 15 December 2023.
- IMF (International Monetary Fund). 2021b.** "IMF Managing Director Announces the US\$650 billion SDR Allocation Comes into Effect." Press release 21/248. <https://www.imf.org/en/News/Articles/2021/08/23/pr21248-imf-managing-director-announces-the-us-650-billion-sdr-allocation-comes-into-effect>. Accessed 15 December 2023.
- IMF (International Monetary Fund). 2021c.** *World Economic Outlook: Managing Divergent Recoveries*. Washington, DC: IMF.
- IMF (International Monetary Fund). 2023a.** "2023 Review of Resource Adequacy of the Poverty Reduction and Growth Trust, Resilience and Sustainability Trust, and Debt Relief Trusts." Policy Paper 2023/021, IMF, Washington, DC.
- IMF (International Monetary Fund). 2023b.** *2021 Special Drawing Rights Allocation—Ex-Post Assessment Report*. Washington, DC: International Monetary Fund.
- IMF (International Monetary Fund). 2023c.** "The High Cost of Global Economic Fragmentation." <https://www.imf.org/en/Blogs/Articles/2023/08/28/the-high-cost-of-global-economic-fragmentation>. Accessed 24 October 2023.
- IMF (International Monetary Fund). 2023d.** World Economic Outlook database. October 2023 Edition. Washington, DC. <https://www.imf.org/en/Publications/WEO/weo-database/2023/October>. Accessed 15 November 2023.
- Independent Panel for Pandemic Preparedness and Response. 2021.** *Covid-19: Make It the Last Pandemic*. Geneva: WHO.
- Independent Panel for Pandemic Preparedness and Response. 2022.** *Transforming or Tinkering? Inaction Lays the Groundwork for Another Pandemic*. Geneva: WHO.
- Ingersoll, K. A. 2016.** *Waves of Knowing: A Seascape Epistemology*. Durham, NC: Duke University Press.
- Inglehart, R. 2020.** *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*. Princeton, NJ: Princeton University Press.
- Inglehart, R., Haerper, C., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., and others. 2022.** "World Values Survey." Madrid: JD Systems Institute and Vienna: WVSA Secretariat.
- Institute for Economics and Peace 2023.** *Global Peace Index 2023: Measuring Peace in a Complex World*. Sydney, Australia: Institute for Economics and Peace.
- International Human Genome Sequencing Consortium. 2004.** "Finishing the Euchromatic Sequence of the Human Genome." *Nature* 431(7011): 931–945.
- IRC (International Rescue Committee). 2023a.** "World Refugee Day: 110 Million People Displaced around the World: Get the Facts." IRC, 13 June.
- IRC (International Rescue Committee). 2023b.** "The Top 10 Crises the World Can't Ignore in 2024." 13 December. <https://www.rescue.org/article/top-10-crises-world-cant-ignore-2024>.
- IOM (International Organization for Migration). 2022.** *The World Migration Report 2022*. Geneva: IOM.
- IPCC (Intergovernmental Panel on Climate Change). 2007.** "Climate Change 2007: The Physical Science Basis." In *Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK: Cambridge University Press.
- IPCC (Intergovernmental Panel on Climate Change). 2021a.** *Climate Change 2021: The Physical Science Basis—Summary for Policymakers*. Geneva: IPCC.
- IPCC (Intergovernmental Panel on Climate Change). 2021b.** "Climate Change Widespread, Rapid, and Intensifying: IPCC." <https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/>. Accessed 10 November 2023.
- IPCC (Intergovernmental Panel on Climate Change). 2022.** *Summary for Policymakers in Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva: IPCC.
- IPCC (Intergovernmental Panel on Climate Change). 2023.** *AR6 Synthesis Report: Climate Change 2023*. Geneva: IPCC.
- IRC (International Rescue Committee). 2023.** "World Refugee Day: 110 Million People Displaced around the World: Get the Facts." IRC, 13 June.
- Isler, O., Gächter, S., Maule, A. J., and Starmer, C. 2021.** "Contextualised Strong Reciprocity Explains Selfless Cooperation Despite Selfish Intentions and Weak Social Heuristics." *Scientific Reports* 11(1): 13868.
- ITU (International Telecommunication Union). 2022.** *Global Connectivity Report 2022*. Geneva: ITU.
- ITU (International Telecommunication Union). 2023.** "Facts and Figures 2023." ITU, Geneva.
- Iwasaki, M. 2023.** "Social Preferences and Well-Being: Theory and Evidence." *Humanities and Social Sciences Communications* 10(1): 342.
- Iyengar, S., Leikes, Y., Levendusky, M., Malhotra, N., and Westwood, S. J. 2019.** "The Origins and Consequences of Affective Polarization in the United States." *Annual Review of Political Science* 22: 129–146.
- Iyengar, S., Sood, G., and Leikes, Y. 2012.** "Affect, Not Ideology: A Social Identity Perspective on Polarization." *Public Opinion Quarterly* 76(3): 405–431.
- Jackson, D., and Köbis, N. 2018.** "Anti-Corruption through a Social Norms Lens." *U4 Issue 7*.
- Jackson, J. C., Gelfand, M., and Ember, C. R. 2020.** "A Global Analysis of Cultural Tightness in Non-Industrial Societies." *Proceedings of the Royal Society B: Biological Sciences* 287(1930): 20201036.
- Jackson, J. C., Gelfand, M., De, S., and Fox, A. 2019.** "The Loosening of American Culture over 200 Years Is Associated with a Creativity–Order Trade-Off." *Nature Human Behaviour* 3(3): 244–250.
- Jagers, S. C., Haring, N., Löfgren, Å., Sjöstedt, M., Alpizar, F., Brülde, B., Langlet, D., and others. 2020.** "On the Preconditions for Large-Scale Collective Action." *Ambio* 49: 1282–1296.
- Jakob, M., Afonias, S., Åhman, M., Antoci, A., Arens, M., Ascensão, F., van Asselt, H., and others. 2022.** "How Trade Policy Can Support the Climate Agenda." *Science* 376(6600): 1401–1403.

- Jayaraman, R., and Kanbur, R. 1999.** "International Public Goods and the Case for Foreign Aid." In Kaul, I., Grunberg, I., and Stern, M., (eds.), *Global Public Goods: International Cooperation in the 21st Century*. New York: Oxford University Press.
- Jensen, K., Call, J., and Tomasello, M. 2007.** "Chimpanzees Are Rational Maximizers in an Ultimatum Game." *Science* 318(5847): 107–109.
- Jeong, J., Franchett, E. E., Ramos de Oliveira, C. V., Rehmani, K., and Yousafzai, A. K. 2021.** "Parenting Interventions to Promote Early Child Development in the First Three Years of Life: A Global Systematic Review and Meta-Analysis." *PLoS Medicine* 18(5): e1003602.
- Jiang, S., Bottazzi, M. E., Du, L., Lustigman, S., Tseng, C.-T. K., Curti, E., Jones, K., Zhan, B., and Hotez, P. J. 2012.** "Roadmap to Developing a Recombinant Coronavirus S Protein Receptor-Binding Domain Vaccine for Severe Acute Respiratory Syndrome." *Expert Review of Vaccines* 11(12): 1405–1413.
- Johns Hopkins University. 2023.** "Covid-19 Dashboard." <https://gisanddata.maps.arcgis.com/apps/dashboards/bda7594740fd40299423467b48e9ecf6>. Accessed 9 February 2024.
- Johnson, K. 2019.** "A Year of Global Protest." *Foreign Policy*, 23 December.
- Jones, B., and Malcorra, S. 2020.** *Competing for Order: Confronting the Long Crisis of Multilateralism*. Washington, DC: The Brookings Institution.
- Jones, C. I. 1995.** "R&D–Based Models of Economic Growth." *Journal of Political Economy* 103(4): 759–784.
- Jones, C. I. 2019.** "Paul Romer: Ideas, Nonrivalry, and Endogenous Growth." *The Scandinavian Journal of Economics* 121(3): 859–883.
- Jones, C. I. 2020.** "The End of Economic Growth? Unintended Consequences of a Declining Population." Working Paper 26651, National Bureau of Economic Research, Cambridge, MA.
- Jones, C. I. 2022.** "The Past and Future of Economic Growth: A Semi-Endogenous Perspective." *Annual Review of Economics* 14(1): 125–152.
- Jones, C. I. 2023.** "Recipes and Economic Growth: A Combinatorial March Down an Exponential Tail." *Journal of Political Economy* 131(8): 1994–2031.
- Jones, R. 2019.** "Climate Change and Indigenous Health Promotion." *Global Health Promotion* 26(3_suppl): 73–81.
- Jordà, Ò., and Taylor, A. M. 2016.** "The Time for Austerity: Estimating the Average Treatment Effect of Fiscal Policy." *The Economic Journal* 126(590): 219–255.
- Jordan, J. J., and Kteily, N. S. 2023.** "How Reputation Does (and Does Not) Drive People to Punish without Looking." *Proceedings of the National Academy of Sciences* 120(28): e2302475120.
- Jørgensen, F. J., and Osmundsen, M. 2022.** "Correcting Citizens' Misperceptions About Non-Western Immigrants: Corrective Information, Interpretations, and Policy Opinions." *Journal of Experimental Political Science* 9(1): 64–73.
- Joshi, A., Prichard, W., and Heady, C. 2014.** "Taxing the Informal Economy: The Current State of Knowledge and Agendas for Future Research." *The Journal of Development Studies* 50(10): 1325–1347.
- Jost, J. T., Baldassarri, D. S., and Druckman, J. N. 2022.** "Cognitive–Motivational Mechanisms of Political Polarization in Social–Communicative Contexts." *Nature Reviews Psychology* 1(10): 560–576.
- Jost, J. T., Stern, C., Rule, N. O., and Sterling, J. 2017.** "The Politics of Fear: Is There an Ideological Asymmetry in Existential Motivation?" *Social Cognition* 35(4): 324–353.
- Judge, M., Fernando, J. W., and Begeny, C. T. 2022.** "Dietary Behaviour as a Form of Collective Action: A Social Identity Model of Vegan Activism." *Appetite* 168: 105730.
- Judge, M., Kashima, Y., Steg, L., and Dietz, T. 2023.** "Environmental Decision-Making in Times of Polarization." *Annual Review of Environment and Resources* 48(1): 477–503.
- Kaaronen, R. O., Mulder, M. B., and Waring, T. 2023.** "Applying Cultural Evolution to Address Climate and Environmental Challenges." *The Oxford Handbook of Cultural Evolution* (online edition). Oxford Academic. Accessed 12 February 2024.
- Kaasa, A., and Andriani, L. 2022.** "Determinants of Institutional Trust: The Role of Cultural Context." *Journal of Institutional Economics* 18(1): 45–65.
- Kaczorowski, J., and Del Grande, C. 2021.** "Beyond the Tip of the Iceberg: Direct and Indirect Effects of Covid-19." *The Lancet Digital Health* 3(4): e205–e206.
- Kahn, M. E., and Matsusaka, J. G. 1997.** "Demand for Environmental Goods: Evidence from Voting Patterns on California Initiatives." *The Journal of Law and Economics* 40(1): 137–174.
- Kahneman, D., and Tversky, A. 1979.** "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 47(2): 263–291.
- Kalkowska, D. A., Voorman, A., Pallansch, M. A., Wassiliak, S. G. F., Cochi, S. L., Badizadegan, K., and Thompson, K. M. 2023.** "The Impact of Disruptions Caused by the Covid-19 Pandemic on Global Polio Eradication." *Vaccine* 41: A12–A18.
- Kamin, S. B., Arteta, C., and Ruch, F. U. 2023.** "Financial Spillovers of Rising US Interest Rates." In *Global Economic Prospects, June 2023*. Washington, DC: World Bank.
- Kanbur, S. R., Sandler, T., and Morrison, K. M. 1999.** *The Future of Development Assistance: Common Pools and International Public Goods*. Washington, DC: Overseas Development Council.
- Kanem, N., Murray, C. J., and Horton, R. 2023.** "The Lancet Commission on 21st-Century Global Health Threats." *The Lancet* 401(10370): 10–11.
- Kanngiesser, P., Schäfer, M., Herrmann, E., Zeidler, H., Haun, D., and Tomasello, M. 2022.** "Children across Societies Enforce Conventional Norms but in Culturally Variable Ways." *Proceedings of the National Academy of Sciences* 119(1): e2112521118.
- Karabarounis, L. 2023.** "Perspectives on the Labor Share." NBER Working Paper 31854, National Bureau of Economic Research, Cambridge, MA.
- Karabarounis, L., and Neiman, B. 2013.** "The Global Decline of the Labor Share." *The Quarterly Journal of Economics* 129(1): 61–103.
- Karlsson, M., Alfredsson, E., and Westling, N. 2020.** "Climate Policy Co-Benefits: A Review." *Climate Policy* 20(3): 292–316.
- Katzenstein, P. J., Keohane, R. O., and Krasner, S. D. 1998.** "International Organization and the Study of World Politics." *International Organization* 52(4): 645–685.
- Kaul, I., and Conceição, P. 2006a.** *The New Public Finance: Responding to Global Challenges*. New York: Oxford University Press.
- Kaul, I., and Conceição, P. 2006b.** "Why Revisit Public Finance Today." In Kaul, I. and Conceição, P., (eds.), *The New Public Finance: Responding to Global Challenges*. New York: Oxford University Press.
- Kaul, I., Conceição, P., Le Goulven, K., and Mendoza, R. U. 2003.** *Providing Global Public Goods: Managing Globalization*. Oxford, UK: Oxford University Press.
- Kaul, I., Grunberg, I., and Stern, M. 1999.** *Global Public Goods: International Cooperation in the 21st Century*. New York: Oxford University Press.
- Kausel, E. E., and Connolly, T. 2014.** "Do People Have Accurate Beliefs About the Behavioral Consequences of Incidental Emotions? Evidence from Trust Games." *Journal of Economic Psychology* 42: 96–111.
- Kavlak, G., McNerney, J., and Trancik, J. E. 2018.** "Evaluating the Causes of Cost Reduction in Photovoltaic Modules." *Energy Policy* 123: 700–710.
- Kawachi, I., and Berkman, L. F. 2001.** "Social Ties and Mental Health." *Journal of Urban Health* 78: 458–467.
- Kawachi, I., and Kennedy, B. P. 1997.** "Socioeconomic Determinants of Health: Health and Social Cohesion: Why Care About Income Inequality?" *BMJ* 314(7086): 1037.
- Kawachi, I., Kennedy, B., Lochner, K., and Prothrow-Stith, D. 1997.** "Social Capital, Income Inequality, and Mortality." *American Journal of Public Health* 87 (9): 1491–1498.
- Kawakatsu, M., Lelkes, Y., Levin, S. A., and Tarnita, C. E. 2021.** "Interindividual Cooperation Mediated by Partisanship Complicates Madison's Cure for 'Mischief of Faction.'" *Proceedings of the National Academy of Sciences* 118(50): e2102148118.
- Keen, S., Lenton, T. M., Garrett, T. J., Rae, J. W. B., Hanley, B. P., and Grasselli, M. 2022.** "Estimates of Economic and Environmental Damages from Tipping Points Cannot Be Reconciled with the Scientific Literature." *Proceedings of the National Academy of Sciences* 119(21): e2117308119.
- Kelley, J. G., and Simmons, B. A. 2015.** "Politics by Number: Indicators as Social Pressure in International Relations." *American Journal of Political Science* 59(1): 55–70.

- Kemp, L., Xu, C., Depledge, J., Ebi, K. L., Gibbins, G., Kohler, T. A., Rockström, J., and others. 2022a. "Climate Endgame: Exploring Catastrophic Climate Change Scenarios." *Proceedings of the National Academy of Sciences* 119(34): e2108146119.
- Kemp, L., Xu, C., Depledge, J., Ebi, K. L., Gibbins, G., Kohler, T. A., Rockström, J., and others. 2022b. "Reply to Burgess Et Al: Catastrophic Climate Risks Are Neglected, Plausible, and Safe to Study." *Proceedings of the National Academy of Sciences* 119(42): e2214884119.
- Kendal, R. L., Boogert, N. J., Rendell, L., Laland, K. N., Webster, M., and Jones, P. L. 2018. "Social Learning Strategies: Bridge-Building between Fields." *Trends in Cognitive Sciences* 22(7): 651–665.
- Kendall, R. 2022. "Decomposing Coordination Failure in Stag Hunt Games." *Experimental Economics* 25(4): 1109–1145.
- Keohane, R. O. 1982. "The Demand for International Regimes." *International Organization* 36(2): 325–355.
- Keohane, R. O. 1984. *After Hegemony*. Princeton, NJ: Princeton University Press.
- Keohane, R. O. 2020. "Understanding Multilateral Institutions in Easy and Hard Times." *Annual Review of Political Science* 23(1): 1–18.
- Keohane, R. O., and Victor, D. G. 2016. "Cooperation and Discord in Global Climate Policy." *Nature Climate Change* 6(6): 570–575.
- Kertzer, J. D., Powers, K. E., Rathbun, B. C., and Iyer, R. 2014. "Moral Support: How Moral Values Shape Foreign Policy Attitudes." *The Journal of Politics* 76(3): 825–840.
- Keynejad, R. C. 2023. "Domestic Violence and Mental Health During Covid-19." *Progress in Neurology and Psychiatry* 27(1): 50–55.
- Keys, P. W., Galaz, V., Dyer, M., Matthews, N., Folke, C., Nyström, M., and Cornell, S. E. 2019a. "Anthropocene Risk." *Nature Sustainability* 2(8): 667–673.
- Keys, P. W., Porkka, M., Wang-Erlandsson, L., Fetzer, I., Gleeson, T., and Gordon, L. J. 2019b. "Invisible Water Security: Moisture Recycling and Water Resilience." *Water Security* 8: 100046.
- Keys, P. W., van der Ent, R. J., Gordon, L. J., Hoff, H., Nikoli, R., and Savenije, H. H. G. 2012. "Analyzing Precipitation Sheds to Understand the Vulnerability of Rainfall Dependent Regions." *Biogeosciences* 9(2): 733–746.
- Keys, P. W., Wang-Erlandsson, L., Gordon, L. J., Galaz, V., and Ebbesson, J. 2017. "Approaching Moisture Recycling Governance." *Global Environmental Change* 45: 15–23.
- Kharpal, A. 2023. "Global Smartphone Market to Hit Decade Low in 2023 but Apple Could Take Top Spot, Research Shows." <https://www.cnbc.com/2023/08/17/global-smartphone-market-to-hit-decade-low-apple-could-take-top-spot.html>. Accessed 5 September 2023.
- Kifle, M. E., Aychiluhm, S. B., and Anbesu, E. W. 2024. "Global Prevalence of Intimate Partner Violence during the COVID-19 Pandemic among Women: Systematic Review and Meta-Analysis." *BMC Women's Health* 24(1): 1–14.
- Kim, J. H., Hotez, P., Batista, C., Ergonul, O., Figueroa, J. P., Gilbert, S., Gursel, M., and others. 2021. "Operation Warp Speed: Implications for Global Vaccine Security." *The Lancet Global Health* 9(7): e1017–e1021.
- Kim, K., Askin, N., and Evans, J. A. 2024. "Disrupted Routines Anticipate Musical Exploration." *Proceedings of the National Academy of Sciences* 121(6): e2306549121.
- Kim, N., and Conceição, P. 2010. "The Economic Crisis, Violent Conflict, and Human Development." *International Journal of Peace Studies* 15(1): 29–43.
- Kindleberger, C. P. 1986. "International Public Goods without International Government." *The American Economic Review* 76(1): 1–13.
- King, K. 2006. "Compensating Countries for the Provision of Global Public Services." In Kaul, I. and Conceição, P., (eds.), *The New Public Finance: Responding to Global Challenges*. New York: Oxford University Press.
- Kingzette, J., Druckman, J. N., Klar, S., Krupnikov, Y., Levendusky, M., and Ryan, J. B. 2021. "How Affective Polarization Undermines Support for Democratic Norms." *Public Opinion Quarterly* 85(2): 663–677.
- Kinnunen, P., Guillaume, J. H. A., Taka, M., D'Odorico, P., Siebert, S., Puma, M. J., Jalava, M., and Kummu, M. 2020. "Local Food Crop Production Can Fulfill Demand for Less Than One-Third of the Population." *Nature Food* 1(4): 229–237.
- Kinnvall, C., and Kisić Merino, P. 2023. "Deglobalization and the Political Psychology of White Supremacy." *Theory & Psychology* 33(2): 227–248.
- Kirchler, E., Hoelzl, E., and Wahl, I. 2008. "Enforced Versus Voluntary Tax Compliance: The 'Slippery Slope' Framework." *Journal of Economic Psychology* 29(2): 210–225.
- Kirshner, J. 2022. *An Unwritten Future: Realism and Uncertainty in World Politics*. Princeton, NJ: Princeton University Press.
- Kiszewski, A. E., Cleary, E. G., Jackson, M. J., and Ledley, F. D. 2021. "NIH Funding for Vaccine Readiness before the Covid-19 Pandemic." *Vaccine* 39(17): 2458–2466.
- Kleven, H. J., Knudsen, M. B., Kreiner, C. T., Pedersen, S., and Saez, E. 2011. "Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark." *Econometrica* 79(3): 651–692.
- Klienberg, E., Araos, M., and Koslov, L. 2020. "Sociology and the Climate Crisis." *Annual Review of Sociology* 46: 649–669.
- Knopf, D. A., and Alpert, P. A. 2023. "Atmospheric Ice Nucleation." *Nature Reviews Physics* 5(4): 203–217.
- Knuth, D. E. 1972. "Ancient Babylonian Algorithms." *Communications of the Association for Computing Machinery* 15(7): 671–677.
- Köbis, N., Jackson, D., and Carter, D. I. 2020. "Recent Approaches to the Study of Social Norms and Corruption." In Mungiu-Pippidi, A. and Heywood, P. M., (eds.), *A Research Agenda for Studies of Corruption*. Edward Elgar.
- Koczan, Z., Peri, G., Pinat, M., and Rozhkov, D. 2021. "The Impact of International Migration on Inclusive Growth: A Review." IMF Working Paper 2021/088, International Monetary Fund, Washington, DC.
- Kogler, C., and Kirchler, E. 2020. "Taxpayers' Subjective Concepts of Taxes, Tax Evasion, and Tax Avoidance." In Van Brederode, R. F., (ed.) *Ethics and Taxation*. Singapore: Springer Singapore.
- Kogler, C., Muehlbacher, S., and Kirchler, E. 2015. "Testing the 'Slippery Slope Framework' among Self-Employed Taxpayers." *Economics of Governance* 16(2): 125–142.
- Koliev, F., Page, D., and Tallberg, J. 2022. "The Domestic Impact of International Shaming: Evidence from Climate Change and Human Rights." *Public Opinion Quarterly* 86(3): 748–761.
- Komatsu, H., Rappleye, J., and Silova, I. 2022. "Social Mindfulness for Global Environmental Sustainability?" *Proceedings of the National Academy of Sciences* 119(4): e2118710118.
- Korbmacher, M., Azevedo, F., Pennington, C. R., Hartmann, H., Pownall, M., Schmidt, K., Elsherif, M., and others. 2023. "The Replication Crisis Has Led to Positive Structural, Procedural, and Community Changes." *Communications Psychology* 1(1): 3.
- Korn, L., Böhm, R., Meier, N. W., and Betsch, C. 2020. "Vaccination as a Social Contract." *Proceedings of the National Academy of Sciences* 117(26): 14890–14899.
- Kosfeld, M., and Rustagi, D. 2015. "Leader Punishment and Cooperation in Groups: Experimental Field Evidence from Commons Management in Ethiopia." *American Economic Review* 105(2): 747–783.
- Kosse, F., Deckers, T., Pinger, P., Schildberg-Hörisch, H., and Falk, A. 2020. "The Formation of Prosociality: Causal Evidence on the Role of Social Environment." *Journal of Political Economy* 128(2): 434–467.
- Kotchen, M. J., Rising, J. A., and Wagner, G. 2023. "The Costs of 'Costless' Climate Mitigation." *Science* 382(6674): 1001–1003.
- Kotzé, L. 2019. "A Global Environmental Constitution for the Anthropocene?" *Transnational Environmental Law* 8(1): 11–33.
- Kotzé, L. J., and Kim, R. E. 2022. "Towards Planetary Nexus Governance in the Anthropocene: An Earth System Law Perspective." *Global Policy* 13(S3): 86–97.
- Kouamé, W. A. K. 2021. "Trust to Pay? Tax Morale and Trust in Africa." *The Journal of Development Studies* 57(7): 1086–1105.
- Kraft-Todd, G. T., Bollinger, B., Gillingham, K., Lamp, S., and Rand, D. G. 2018. "Credibility-Enhancing Displays Promote the Provision of Non-Normative Public Goods." *Nature* 563(7730): 245–248.
- Kränge, O., Kaltborn, B. P., and Hultman, M. 2021. "'Don't Confuse Me with Facts'—How Right Wing Populism Affects Trust in Agencies Advocating Anthropogenic Climate Change as a Reality." *Humanities and Social Sciences Communications* 8(1): 255.

- Kranton, R., Pease, M., Sanders, S., and Huettel, S. 2020.** “Deconstructing Bias in Social Preferences Reveals Groupy and Not-Groupy Behavior.” *Proceedings of the National Academy of Sciences* 117(35): 21185–21193.
- Krasner, S. D. 1991.** “Global Communications and National Power: Life on the Pareto Frontier.” *World Politics* 43(3): 336–366.
- Krasner, S. D. 1999.** *Sovereignty: Organized Hypocrisy*. Princeton, NJ: Princeton University Press.
- Krause, J., Krause, W., and Bränfors, P. 2018.** “Women’s Participation in Peace Negotiations and the Durability of Peace.” *International Interactions* 44(6): 985–1016.
- Kremer, M. 2006.** “Global Public Goods in Communicable Disease Control.” Paper commissioned by the Secretariat of the International Task Force on Global Public Goods, Stockholm.
- Kremer, M., and Leino, J. 2004.** “Regional Public Goods and Health in Latin America.” In Estevadeordal, A., Frantz, B., and Nguyen, T.R. (eds.), *Regional Public Goods: From Theory to Practice*. Washington, DC: Inter-American Development Bank and Asian Development Bank.
- Kremer, M., Levin, J., and Snyder, C. M. 2020.** “Advance Market Commitments: Insights from Theory and Experience.” *AEA Papers and Proceedings* 110: 269–273.
- Kremer, M., Rao, G., and Schilbach, F. 2019.** “Behavioral Development Economics.” In Bernheim, B. D., Dellavigna, S. and Laibson, D., (eds.), *Handbook of Behavioral Economics: Applications and Foundations* 1. North-Holland.
- Kreps, S. E., and Kriner, D. L. 2020.** “Model Uncertainty, Political Contestation, and Public Trust in Science: Evidence from the Covid-19 Pandemic.” *Science Advances* 6(43): eabd4563.
- Krishnarajan, S. 2023.** “Rationalizing Democracy: The Perceptual Bias and (Un)Democratic Behavior.” *American Political Science Review* 117(2): 474–496.
- Kugler, T., Kausel, E. E., and Kocher, M. G. 2012.** “Are Groups More Rational Than Individuals? A Review of Interactive Decision Making in Groups.” *WIREs Cognitive Science* 3(4): 471–482.
- Kumar, A., Blum, J., Le, T. T., Havelange, N., Magini, D., and Yoon, I.-K. 2022.** “The mRNA Vaccine Development Landscape for Infectious Diseases.” *National Reviews Drug Discovery* 21(5): 333–334.
- Kuran, T. 1997.** *Private Truths, Public Lies: The Social Consequences of Preference Falsification*. Cambridge, MA: Harvard University Press.
- Kurlantzick, J. 2022.** *The Revival of Military Rule in South and Southeast Asia: Dangers to the Region’s Democratic Future*. Washington, DC: Council on Foreign Relations.
- Kvam, P. D., Alaukik, A., Mims, C. E., Martemyanova, A., and Baldwin, M. 2022.** “Rational Inference Strategies and the Genesis of Polarization and Extremism.” *Scientific Reports* 12(1): 7344.
- Kyle, M. K., Ridley, D. B., and Zhang, S. 2017.** “Strategic Interaction among Governments in the Provision of a Global Public Good.” *Journal of Public Economics* 156: 185–199.
- La Ferrara, E. 2019.** “Presidential Address: Aspirations, Social Norms, and Development.” *Journal of the European Economic Association* 17(6): 1687–1722.
- Lacroix, K., Carman, J. P., Goldberg, M. H., Gustafson, A., Rosenthal, S. A., and Leiserowitz, A. 2022.** “Does Personal Climate Change Mitigation Behavior Influence Collective Behavior? Experimental Evidence of No Spillover in the United States.” *Energy Research & Social Science* 94: 102875.
- Lake, M., and Reynolds, H. 2008.** *Drawing the Global Colour Line: White Men’s Countries and the Question of Racial Equality*. Melbourne, Australia: Melbourne University Publishing.
- Laland, K. N. 2017.** *Darwin’s Unfinished Symphony: How Culture Made the Human Mind*. Princeton, NJ: Princeton University Press.
- Lalani, H. S., Nagar, S., Sarpatwari, A., Barenie, R. E., Avorn, J., Rome, B. N., and Kesselheim, A. S. 2023.** “US Public Investment in Development of mRNA Covid-19 Vaccines: Retrospective Cohort Study.” *BMJ* 380: e073747.
- Lamont, M. 2019.** “From ‘Having’ to ‘Being’: Self-Worth and the Current Crisis of American Society.” *The British Journal of Sociology* 70(3): 660–707.
- Lamont, M. 2023.** *Seeing Others: How Recognition Works and How It Can Heal a Divided World*. New York: Simon & Schuster.
- Lamont, M., Adler, L., Park, B. Y., and Xiang, X. 2017.** “Bridging Cultural Sociology and Cognitive Psychology in Three Contemporary Research Programmes.” *Nature Human Behaviour* 1(12): 866–872.
- Lampert, A., Sulitzeanu-Kenan, R., Vanhuysse, P., and Tepe, M. 2022.** “A Game Theoretic Approach Identifies Conditions That Foster Vaccine-Rich to Vaccine-Poor Country Donation of Surplus Vaccines.” *Communications Medicine* 2(1): 107.
- Lane, P. R., and Milesi-Ferretti, G. M. 2018.** “The External Wealth of Nations Revisited: International Financial Integration in the Aftermath of the Global Financial Crisis.” *IMF Economic Review* 66: 189–222.
- Lang, M., Purzycki, B. G., Apicella, C. L., Atkinson, Q. D., Bolyanatz, A., Cohen, E., Handley, C., and others. 2019.** “Moralizing Gods, Impartiality and Religious Parochialism across 15 Societies.” *Proceedings of the Royal Society B: Biological Sciences* 286(1898): 20190202.
- Lau, V. I., Dhanoa, S., Cheema, H., Lewis, K., Geeraert, P., Lu, D., Merrick, B., and others. 2022.** “Non-Covid Outcomes Associated with the Coronavirus Disease-2019 (Covid-19) Pandemic Effects Study (COPES): A Systematic Review and Meta-Analysis.” *PLoS ONE* 17(6): e0269871.
- Lawson, D. W., and Gibson, M. Forthcoming.** “Evolutionary Approaches to Population Health: Insights on Polygynous Marriage, ‘Child Marriage’ and Female Genital Cutting.” In Burger, O., Lee, R. and Sear, R., (eds.), *Human Evolutionary Demography*. Open Book Publishers.
- Laxminarayan, R., Reif, J., and Malani, A. 2014.** “Incentives for Reporting Disease Outbreaks.” *PLoS One* 9(3): e90290.
- Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M. J., and others. 2018.** “The Science of Fake News.” *Science* 359(6380): 1094–1096.
- Le, T. T., Andreadakis, Z., Kumar, A., Román, R. G., Tollefsen, S., Saville, M., and Mayhew, S. 2020.** “The Covid-19 Vaccine Development Landscape.” *Nature Reviews Drug Discovery* 19(5): 305–306. <https://www.nature.com/articles/d41573-020-00073-5>. Accessed 2 February 2024.
- Leach, M., MacGregor, H., Ripoll, S., Scoones, I., and Wilkinson, A. 2022.** “Rethinking Disease Preparedness: Incerititude and the Politics of Knowledge.” *Critical Public Health* 32(1): 82–96.
- League of Nations. 1939.** “The Development of International Co-Operation in Economic and Social Affairs.” Report of the Special Committee. League of Nations, Geneva.
- Leamer, E. E. 1995.** “The Heckscher-Ohlin Model in Theory and Practice.” *Princeton Studies in International Economics* 77, Princeton University, Princeton, NJ.
- Lear, J. 2006.** *Radical Hope: Ethics in the Face of Cultural Devastation*. Cambridge, MA: Harvard University Press.
- Leblang, D., and Peters, M. E. 2022.** “Immigration and Globalization (and Deglobalization).” *Annual Review of Political Science* 25: 377–399.
- Lee, J. 2020.** “Mental Health Effects of School Closures During Covid-19.” *The Lancet Child & Adolescent Health* 4(6): 421.
- Lee, J. J., and Haupt, J. P. 2021.** “Scientific Globalism During a Global Crisis: Research Collaboration and Open Access Publications on Covid-19.” *Higher Education* 81: 949–966.
- Lee, S. E., Greene, S. A., Burns, C. C., Tallis, G., Wassilak, S. G., and Bolu, O. 2023.** “Progress toward Polio-myelitis Eradication—Worldwide, January 2021–March 2023.” *Morbidity and Mortality Weekly Report* 72(19): 517.
- Leeks, A., West, S. A., and Ghoul, M. 2021.** “The Evolution of Cheating in Viruses.” *Nature Communications* 12(1): 6928.
- Lees, J., Colaizzi, G., Goldberg, M. H., and Constantino, S. M. 2023.** “Misperceptions of Support for Climate Policy Represent Multiple Phenomena Predicted by Different Factors across Intergroup Boundaries.” OSF Preprints.
- Legros, S., and Cislighi, B. 2020.** “Mapping the Social-Norms Literature: An Overview of Reviews.” *Perspectives on Psychological Science* 15(1): 62–80.
- Lehman, C., Loberg, S., Wilson, M., and Gorham, E. 2021.** “Ecology of the Anthropocene Signals Hope for Consciously Managing the Planetary Ecosystem.” *Proceedings of the National Academy of Sciences* 118(28): e2024150118.

- Leininger, J., Burchi, F., Fiedler, C., Mross, K., Nowack, D., von Schiller, A., Sommer, C., Strupat, C., and Ziaja, S. 2021. "Social Cohesion: A New Definition and a Proposal for Its Measurement in Africa." Discussion Paper 31/2021, German Development Institute, Bonn, Germany.
- Leininger, J., von Schiller, A., Sommer, C., Burchi, F., Fiedler, C., Mross, K., Nowack, D., and Strupat, C. 2023. "IDOS' Concept of Social Cohesion." <https://www.socialcohesion.info/concepts/concept/idos-social-cohesion-concept>. Accessed 13 February 2024.
- Leite, T. H., and Ferreira, C. R. 2023. "Cyclicity of Social Indicators: An Analysis of Variance Based on Aggregate Methods for Brazil and Its Regions." *Observatorio De La Economia Latino American* 21(6): 5470–5491.
- Leikes, Y. 2016. "Mass Polarization: Manifestations and Measurements." *Public Opinion Quarterly* 80(S1): 392–410.
- Leikes, Y., Malka, A., and Soto, C. J. 2019. "Are Cultural and Economic Conservatism Positively Correlated? A Large-Scale Cross-National Test." *British Journal of Political Science* 49(3): 1045–1069.
- Lenton, T. M. 2013. "Environmental Tipping Points." *Annual Review of Environment and Resources* 38(1): 1–29.
- Lenton, T. M., and Williams, H. T. P. 2013. "On the Origin of Planetary-Scale Tipping Points." *Trends in Ecology & Evolution* 28(7): 380–382.
- Lenton, T. M., Boulton, C. A., and Scheffer, M. 2022. "Resilience of Countries to Covid-19 Correlated with Trust." *Scientific Reports* 12(1): 75.
- Lenton, T. M., Held, H., Kriegler, E., Hall, J. W., Lucht, W., Rahmstorf, S., and Schellnhuber, H. J. 2008. "Tipping Elements in the Earth's Climate System." *Proceedings of the National Academy of Sciences* 105(6): 1786–1793.
- Lenton, T. M., Xu, C., Abrams, J. F., Ghadiali, A., Lori-ani, S., Sakschewski, B., Zimm, C., and others. 2023. "Quantifying the Human Cost of Global Warming." *Nature Sustainability* 6: 1237–1247.
- Leong, Y. C., Chen, J., Willer, R., and Zaki, J. 2020. "Conservative and Liberal Attitudes Drive Polarized Neural Responses to Political Content." *Proceedings of the National Academy of Sciences* 117(44): 27731–27739.
- Lergetporer, P., Angerer, S., Glätzle-Rützler, D., and Sutter, M. 2014. "Third-Party Punishment Increases Cooperation in Children through (Misaligned) Expectations and Conditional Cooperation." *Proceedings of the National Academy of Sciences* 111(19): 6916–6921.
- Lerner, J. S., and Keltner, D. 2001. "Fear, Anger, and Risk." *Journal of Personality and Social Psychology* 81(1): 146–159.
- Leßmann, O. 2022. "Collectivity and the Capability Approach: Survey and Discussion." *Review of Social Economy* 80(4): 461–490.
- Levi, M. 1988. *Of Rule and Revenue*. Oakland, CA: University of California Press.
- Levi, M. 1999. "Death and Taxes: Extractive Equality and the Development of Democratic Institutions." *Democracy's Value*: 112–131.
- Levi, M. 2022. "The Power of Beliefs." *Annual Review of Political Science* 25(1): 1–19.
- Levi, M., Sacks, A., and Tyler, T. 2009. "Conceptualizing Legitimacy, Measuring Legitimizing Beliefs." *American Behavioral Scientist* 53(3): 354–375.
- Levin, S. A., Milner, H. V., and Perrings, C. 2021. "The Dynamics of Political Polarization." *Proceedings of the National Academy of Sciences* 118(50): e2116950118.
- Levin, S. A., and Weber, E. U. Forthcoming. "Polarization and the Psychology of Collectives." *Perspectives on Psychological Science*.
- Levy, N. 2022. *Bad Beliefs: Why They Happen to Good People*. Oxford, UK: Oxford University Press.
- Li, W., Leng, Z., Yi, J., and Zhong, S. 2023. "A Multifaceted Poverty Reduction Program Has Economic and Behavioral Consequences." *Proceedings of the National Academy of Sciences* 120(10): e2219078120.
- Li, Y., Hu, J., Ruff, C. C., and Zhou, X. 2022. "Neurocomputational Evidence That Conflicting Prosocial Motives Guide Distributive Justice." *Proceedings of the National Academy of Sciences* 119(49): e2209078119.
- Liang, D., Guo, H., Nativi, S., Kulmala, M., Shirazi, Z., Chen, F., Kalonji, G., and others. 2023. "A Future for Digital Public Goods for Monitoring SDG Indicators." *Scientific Data* 10(1): 875.
- Lianos, I., Smichowski, B. C., Lindeboom, J., and Lombardi, C. 2022. "Power in the Food Value Chain: Theory and Metrics." In Ivanov, A., Davis, D. and Lianos, I., (eds.), *Global Food Value Chains and Competition Law*. Cambridge, UK: Cambridge University Press.
- Libecap, G. D. 2014. "Addressing Global Environmental Externalities: Transaction Costs Considerations." *Journal of Economic Literature* 52(2): 424–479.
- Lieder, F., and Griffiths, T. L. 2020. "Resource-Rational Analysis: Understanding Human Cognition as the Optimal Use of Limited Computational Resources." *Behavioral and Brain Sciences* 43: e1.
- Lindbeck, A., Nyberg, S., and Weibull, J. W. 1999. "Social Norms and Economic Incentives in the Welfare State." *The Quarterly Journal of Economics* 114(1): 1–35.
- Linós, E. 2023. *Translating Behavioral Economics Evidence into Policy and Practice*. Washington, D.C.: National Academies of Sciences, Engineering, and Medicine.
- Litovsky, Y., Loewenstein, G., Horn, S., and Olivola, C. Y. 2022. "Loss Aversion, the Endowment Effect, and Gain-Loss Framing Shape Preferences for Noninstrumental Information." *Proceedings of the National Academy of Sciences* 119(34): e2202700119.
- Liu, J., Hull, V., Luo, J., Yang, W., Liu, W., Viña, A., Vogt, C., and others. 2015. "Multiple Telecouplings and Their Complex Interrelationships." *Ecology and Society* 20(3).
- Liu, Y., Li, S., Lin, W., Li, W., Yan, X., Wang, X., Pan, X., Rutledge, R. B., and Ma, Y. 2019. "Oxytocin Modulates Social Value Representations in the Amygdala." *Nature Neuroscience* 22(4): 633–641.
- Lloyd's Register Foundation and Gallup 2022. *World Risk Poll 2021: A Resilient World? Understanding Vulnerability in a Changing Climate*. London: Lloyd's Register Foundation. https://wrp.lrfoundation.org.uk/LRF_2021_report2-resilience_online_version.pdf (accessed 1 December 2023).
- Loomis, E. S. 1968. *The Pythagorean Proposition*. Washington, DC: National Council of Teachers of Mathematics.
- Lowes, S. 2022. "Kinship Structure and the Family: Evidence from the Matrilineal Belt." Working Paper 30509, National Bureau of Economic Research, Cambridge, MA.
- Lukaszewski, A. W., Gurven, M., von Rueden, C. R., and Schmitt, D. P. 2017. "What Explains Personality Covariation? A Test of the Socioecological Complexity Hypothesis." *Social Psychological and Personality Science* 8(8): 943–952.
- Lund, S., Manyika, J., Woetzel, J., Barribal, E., and Krishnan, M. 2020. "Risk, Resilience, and Rebalancing in Global Value Chains." McKinsey Global Institute.
- Luskin, R. C., Sood, G., Fishkin, J. S., and Hahn, K. S. 2022. "Deliberative Distortions? Homogenization, Polarization, and Domination in Small Group Discussions." *British Journal of Political Science* 52(3): 1205–1225.
- Luttmer, E. F. P., and Singhal, M. 2014. "Tax Morale." *Journal of Economic Perspectives* 28(4): 149–168.
- Lybbert, T. J., and Wydick, B. 2018. "Poverty, Aspirations, and the Economics of Hope." *Economic Development and Cultural Change* 66(4): 709–753.
- Mace, G. M., Reyers, B., Alkemade, R., Biggs, R., Chapin, F. S., Cornell, S. E., Díaz, S., and others. 2014. "Approaches to Defining a Planetary Boundary for Biodiversity." *Global Environmental Change* 28: 289–297.
- MacGregor, H., Leach, M., Akello, G., Sao Babawo, L., Baluku, M., Desclaux, A., Grant, C., and others. 2022. "Negotiating Intersecting Precarities: Covid-19, Pandemic Preparedness and Response in Africa." *Medical Anthropology* 41(1): 19–33.
- MacKuen, M., Wolak, J., Keele, L., and Marcus, G. E. 2010. "Civic Engagements: Resolute Partisanship or Reflective Deliberation." *American Journal of Political Science* 54(2): 440–458.
- MacQueen, N. 2014. *The United Nations since 1945: Peacekeeping and the Cold War*. London: Taylor and Francis.
- Malhi, Y. 2017. "The Concept of the Anthropocene." *Annual Review of Environment and Resources* 42(1): 77–104.
- Malinzi, J., Juma, V. O., Madubueze, C. E., Mwaonaji, J., Nkem, G. N., Mwakilama, E., Mupedza, T. V., and others. 2023. "Covid-19 Transmission Dynamics and the Impact of Vaccination: Modelling, Analysis and Simulations." *Royal Society Open Science* 10(7): 221656.
- Mantel, H. 2009. *Wolf Hall*. New York, NY: Henry Holt and Co.

- Maor, E. 2019.** *The Pythagorean Theorem: A 4,000-Year History*. Princeton, NJ: Princeton University Press.
- Margalit, Y. 2012.** "Lost in Globalization: International Economic Integration and the Sources of Popular Discontent." *International Studies Quarterly* 56(3): 484–500.
- Marin, F. R., Zanon, A. J., Monzon, J. P., Andrade, J. F., Silva, E. H. F. M., Richter, G. L., Antolin, L. A. S., and others. 2022.** "Protecting the Amazon Forest and Reducing Global Warming Via Agricultural Intensification." *Nature Sustainability* 5(12): 1018–1026.
- Marion Suiseeya, K. R., Elhard, D. K., and Paul, C. J. 2021.** "Toward a Relational Approach in Global Climate Governance: Exploring the Role of Trust." *Wiley Interdisciplinary Reviews: Climate Change* 12(4): e712.
- Marquardt, J. 2017.** "Conceptualizing Power in Multi-Level Climate Governance." *Journal of Cleaner Production* 154: 167–175.
- Marshall, M. G., T. Gurr. 2020.** "Polity 5: Political Regime Characteristics and Transitions, 1800-2018 (Dataset Users' Manual)."
- Martin-Gutierrez, S., Losada, J. C., and Benito, R. M. 2023.** "Multipolar Social Systems: Measuring Polarization Beyond Dichotomous Contexts." *Chaos, Solitons & Fractals* 169: 113244.
- Martin-López, B., Felipe-Lucía, M. R., Bennett, E. M., Norström, A., Peterson, G., Plieninger, T., Hicks, C. C., and others. 2019.** "A Novel Telecoupling Framework to Assess Social Relations across Spatial Scales for Ecosystem Services Research." *Journal of Environmental Management* 241: 251–263.
- Martiniello, M. 2022.** "Researching Arts, Culture, Migration and Change: A Multi (Trans) Disciplinary Challenge for International Migration Studies." *Comparative Migration Studies* 10(1): 1–11.
- Mason, L. 2015.** "'I Disrespectfully Agree': The Differential Effects of Partisan Sorting on Social and Issue Polarization." *American Journal of Political Science* 59(1): 128–145.
- Mastroianni, A. M., and Dana, J. 2022.** "Widespread Misperceptions of Long-Term Attitude Change." *Proceedings of the National Academy of Sciences* 119(11): e2107260119.
- Matheson, A. W., N., Gray, R., Uia, T., Lindberg, K., Iruzun Lopez, M., Walton, M., Shanthakumar, M., Cumming, J., Firestone, R., and Ellison-Loschmann, L. 2022.** "Community-up System Change for Health and Wellbeing: Healthy Families NZ Summative Evaluation Report 2022." Te Whatu Ora—Health New Zealand, Wellington.
- Matheson, A., Watene, K., Vujnovich, G., and Mackey, T. 2020.** "Collective Impact: Shining the Light on Community Post Covid-19." *The Spinoff*, 27 August. <https://thespinoff.co.nz/partner/27-08-2020/collective-impact-shining-the-light-on-community-post-covid-19>.
- Matina, S.-G. 2020.** "E.U. Adopts Groundbreaking Stimulus to Fight Coronavirus Recession." *NY Times*, 20 July. <https://www.nytimes.com/2020/07/20/world/europe/eu-stimulus-coronavirus.html>.
- Mattes, R., and Moreno, A. 2018.** "Social and Political Trust in Developing Countries: Sub-Saharan Africa and Latin America." In Uslaner, E. M., (ed.), *The Oxford Handbook of Social and Political Trust*. Oxford, UK: Oxford University Press.
- Maxson Jones, K., Ankeny, R. A., and Cook-Deegan, R. 2018.** "The Bermuda Triangle: The Pragmatics, Policies, and Principles for Data Sharing in the History of the Human Genome Project." *Journal of the History of Biology* 51(4): 693–805.
- Mayer, A. P., and Smith, E. K. 2023.** "Multidimensional Partisanship Shapes Climate Policy Support and Behaviours." *Nature Climate Change* 13(1): 32–39.
- Mažar, N., and Soman, D. 2022.** *Behavioral Science in the Wild*. Toronto: University of Toronto Press.
- Mazrui, A. 2008.** Democracy in Crisis in Postcolonial Africa: In Search of Checks and Balances. . *The Role of the Political Opposition for Democracy in Sub-Saharan Africa*. Teleborg Castle, Växjö University, Växjö, Sweden.
- McAdams, D., McDade, K. K., Ogbuoi, O., Johnson, M., Dixit, S., and Yamey, G. 2020.** "Incentivising Wealthy Nations to Participate in the Covid-19 Vaccine Global Access Facility (COVAX): A Game Theory Perspective." *BMJ Global Health* 5(11): e003627.
- McBride, J., and Siripurapu, A. 2022.** "What's Next for the WTO?" *Council on Foreign Relations Backgrounder*, 10 June. <https://www.cfr.org/backgrounder/whats-next-wto>.
- McCarthy, F. M., Patterson, R. T., Head, M. J., Riddick, N. L., Cumming, B. F., Hamilton, P. B., Pisaric, M. F., and others. 2023.** "The Varved Succession of Crawford Lake, Milton, Ontario, Canada as a Candidate Global Boundary Stratotype Section and Point for the Anthropocene Series." *The Anthropocene Review* 10(1): 146–176.
- McConnell, C., Margalit, Y., Malhotra, N., and Levendusky, M. 2018.** "The Economic Consequences of Partisanship in a Polarized Era." *American Journal of Political Science* 62(1): 5–18.
- McCoy, J., and Somer, M. 2019.** "Toward a Theory of Pernicious Polarization and How It Harms Democracies: Comparative Evidence and Possible Remedies." *The Annals of the American Academy of Political and Social Science* 681(1): 234–271.
- McCoy, J., Rahman, T., and Somer, M. 2018.** "Polarization and the Global Crisis of Democracy: Common Patterns, Dynamics, and Pernicious Consequences for Democratic Polities." *American Behavioral Scientist* 62(1): 16–42.
- McEvoy, D. M., and Cherry, T. L. 2016.** "The Prospects for Paris: Behavioral Insights into Unconditional Cooperation on Climate Change." *Palgrave Communications* 2(1): 16056.
- McIver, L., Woodward, A., Davies, S., Tibwe, T., and Iddings, S. 2014.** "Assessment of the Health Impacts of Climate Change in Kiribati." *International Journal of Environmental Research and Public Health* 11(5): 5224–5240.
- McLeman, R., Wrathall, D., Gilmore, E., Thornton, P., Adams, H., and Gemenne, F. 2021.** "Conceptual Framing to Link Climate Risk Assessments and Climate-Migration Scholarship." *Climatic Change* 165: 1–7.
- McNamara, R. A., and Henrich, J. 2017.** "Kin and In-Group Psychology Both Influence Cooperative Coordination in Yasawa, Fiji." *Evolution and Human Behavior* 38(2): 197–207.
- McNeil Jr., D. G. 2020.** "How Can We Achieve Herd Immunity? Experts Are Quietly Upping the Number." *The New York Times*, 27 December 2020. <https://www.nytimes.com/2020/12/24/health/herd-immunity-covid-coronavirus.html>.
- Meckling, J., and Karplus, V. J. 2023.** "Political Strategies for Climate and Environmental Solutions." *Nature Sustainability* 6: 742–751.
- Meckling, J., Lipsky, P. Y., Finnegan, J. J., and Metz, F. 2022.** "Why Nations Lead or Lag in Energy Transitions." *Science* 378(6615): 31–33.
- Medina, L. F. 2013.** "The Analytical Foundations of Collective Action Theory: A Survey of Some Recent Developments." *Annual Review of Political Science* 16(1): 259–283.
- Medvedev, D., Davenport, D., Talhelm, T., and Li, Y. 2024.** "The Motivating Effect of Monetary over Psychological Incentives Is Stronger in WEIRD Cultures." *Nature Human Behaviour* 1–15.
- Melin, Thomas. 2023.** "War and Conflict Often Lead to High Inflation." University of Gothenburg, 30 March. <https://www.gu.se/en/news/war-and-conflict-often-lead-to-high-inflation>. Accessed 13 February 2024.
- Melis, A. P., and Raihani, N. J. 2023.** "The Cognitive Challenges of Cooperation in Human and Nonhuman Animals." *Nature Reviews Psychology*: 523–536.
- Mendoza, R. U. 2023.** "Rebalancing Vs Decoupling: China–US Economic Ties and the Global Economy." *The Diplomat*, 10 February.
- Mengel, F., and Weidenholzer, E. 2022.** "Preferences for Redistribution." *Journal of Economic Surveys* n/a(n/a): 1–18.
- Mertens, S., Herberz, M., Hahnel, U. J. J., and Brosch, T. 2022a.** "The Effectiveness of Nudging: A Meta-Analysis of Choice Architecture Interventions across Behavioral Domains." *Proceedings of the National Academy of Sciences* 119(1): e2107346118.
- Mertens, S., Herberz, M., Hahnel, U. J. J., and Brosch, T. 2022b.** "Reply to Maier et al., Szaszi et al., and Bakdash and Marusich: The Present and Future of Choice Architecture Research." *Proceedings of the National Academy of Sciences* 119(31): e2202928119.
- Merz, J. J., Barnard, P., Rees, W. E., Smith, D., Maroni, M., Rhodes, C. J., Dederer, J. H., and others. 2023.** "World Scientists' Warning: The Behavioural Crisis Driving Ecological Overshoot." *Science Progress* 106(3): 00368504231201372.
- Mesoudi, A., Chang, L., Dall, S. R. X., and Thornton, A. 2016.** "The Evolution of Individual and Cultural Variation in Social Learning." *Trends in Ecology & Evolution* 31(3): 215–225.
- Metcalfe, G. E., and Stock, J. H. 2020.** The Macroeconomic Impact of Europe's Carbon Taxes. NBER Working Paper 27488, National Bureau of Economic Research, Cambridge, MA.

- Meyer, J. W. 2010.** "World Society, Institutional Theories, and the Actor." *Annual Review of Sociology* 36(1): 1–20.
- Mian, A., Sufi, A., and Trebbi, F. 2014.** "Resolving Debt Overhang: Political Constraints in the Aftermath of Financial Crises." *American Economic Journal: Macroeconomics* 6(2): 1–28.
- Micah, A. E., Bhangdia, K., Cogswell, I. E., Lasher, D., Lidral-Porter, B., Maddison, E. R., Nguyen, T. N. N., and others. 2023.** "Global Investments in Pandemic Preparedness and Covid-19: Development Assistance and Domestic Spending on Health between 1990 and 2026." *The Lancet Global Health* 11(3): e385–e413.
- Michaelsen, M. 2020.** "The Digital Transnational Repression Toolkit, and Its Silencing Effects: Special Report 2020 Perspectives on 'Everyday' Transnational Repression in an Age of Globalization." Washington DC: Freedom House
- Micheletti, A. J. C., Brandl, E., and Mace, R. 2022.** "What Is Cultural Evolution Anyway?" *Behavioral Ecology* 33(4): 667–669.
- Mildenberger, M., and Tingley, D. 2019.** "Beliefs About Climate Beliefs: The Importance of Second-Order Opinions for Climate Politics." *British Journal of Political Science* 49(4): 1279–1307.
- Milkman, K. L., Patel, M. S., Gandhi, L., Graci, H. N., Gromet, D. M., Ho, H., Kay, J. S., and others. 2021.** "A Megastudy of Text-Based Nudges Encouraging Patients to Get Vaccinated at an Upcoming Doctor's Appointment." *Proceedings of the National Academy of Sciences* 118(20): e2101165118.
- Miller, D. T., and McFarland, C. 1987.** "Pluralistic Ignorance: When Similarity Is Interpreted as Dissimilarity." *Journal of Personality and Social Psychology* 53(2): 298.
- Miller, S. 2020.** "Generic Drugs: A Treatment for High-Cost Health Care." *Missouri Medicine* 117(1): 12–13.
- Mitchell, R. B. 1994.** "Regime Design Matters: Intentional Oil Pollution and Treaty Compliance." *International Organization* 48(3): 425–458.
- Mitchell, R. B., Andonova, L. B., Axelrod, M., Balsiger, J., Bernauer, T., Green, J. F., Hollway, J., Kim, R. E., and Morin, J.-F. 2020.** "What We Know (and Could Know) About International Environmental Agreements." *Global Environmental Politics* 20(1): 103–121.
- Mlaba, K., Banjo, F., and Lowery, T. 2023.** "Shocking Photos of Extreme Weather around the World in 2023 So Far." <https://www.globalcitizen.org/en/content/photos-extreme-weather-events-2023-climate-change>.
- Mokyr, J. 2013.** "Cultural Entrepreneurs and the Origins of Modern Economic Growth." *Scandinavian Economic History Review* 61(1): 1–33.
- Mokyr, J. 2016.** "A Culture of Growth." *A Culture of Growth*. Princeton, NJ: Princeton University Press.
- Molina, G. G., and Jensen, L. 2023.** "Building Blocks out of the Crisis: The UN's SDG Stimulus Plan." UNDP Global Policy Network Brief, United Nations Development Programme, New York.
- Molina, G., Ortiz, E., Reyes, A., and Garcia, P. 2014.** "Human Development Outliers: Progress That Is Resilient to Shocks." Human Development Research Paper, United Nations Development Programme, Human Development Report Office, New York.
- Mondliwa, P., Roberts, S., and Ponte, S. 2021.** "Competition and Power in Global Value Chains." *Competition & Change* 25(3–4): 328–349.
- Monterrosa, E. C., Frongillo, E. A., Drewnowski, A., de Pee, S., and Vandevijvere, S. 2020.** "Sociocultural Influences on Food Choices and Implications for Sustainable Healthy Diets." *Food and Nutrition Bulletin* 41(2_suppl): 59S–73S.
- Moon, S., Alonso Ruiz, A., and Vieira, M. 2021.** "Averting Future Vaccine Injustice." *New England Journal of Medicine* 385(3): 193–196.
- Moon, S., Jambert, E., Childs, M., and von Schoen-Angerer, T. 2011.** "A Win-Win Solution? A Critical Analysis of Tiered Pricing to Improve Access to Medicines in Developing Countries." *Globalization and Health* 7(1): 39.
- Moore, M. 2023.** "Tax Obsessions: Taxpayer Registration and the 'Informal Sector' in Sub-Saharan Africa." *Development Policy Review* 41(1): e12649.
- Moore-Berg, S. L., Parelman, J. M., Lelkes, Y., and Falk, E. B. 2020.** "Neural Polarization and Routes to Depolarization." *Proceedings of the National Academy of Sciences* 117(46): 28552–28554.
- Moravcsik, A. 1997.** "Taking Preferences Seriously: A Liberal Theory of International Politics." *International Organization* 51(4): 513–553.
- Morehouse, K. N., Maddox, K., and Banaji, M. R. 2023.** "All Human Social Groups Are Human, but Some Are More Human Than Others: A Comprehensive Investigation of the Implicit Association of 'Human' to US Racial/Ethnic Groups." *Proceedings of the National Academy of Sciences* 120(22): e2300995120.
- Morens, D. M., Folkers, G. K., and Fauci, A. S. 2022.** "The Concept of Classical Herd Immunity May Not Apply to Covid-19." *The Journal of Infectious Diseases* 226(2): 195–198.
- Morin, O., Jacquet, P. O., Vaesen, K., and Acerbi, A. 2021.** "Social Information Use and Social Information Waste." *Philosophical Transactions of the Royal Society B: Biological Sciences* 376(1828): 20200052.
- Moscona, J., Nunn, N., and Robinson, J. A. 2017.** "Keeping It in the Family: Lineage Organization and the Scope of Trust in Sub-Saharan Africa." *American Economic Review* 107(5): 565–571.
- Moscona, J., Nunn, N., and Robinson, J. A. 2020.** "Segmentary Lineage Organization and Conflict in Sub-Saharan Africa." *Econometrica* 88(5): 1999–2036.
- Moya, C. 2016.** "Mechanisms of Collective Action in Transitioning Economies: A Case Study from the Peruvian Altiplano." *American Journal of Physical Anthropology* 2016: 235–235.
- Moyer, J. D., Bohl, D., Hanna, T., Mapes, B. R., and Rafa, M. 2019.** "Assessing the Impact of War on Development in Yemen." Sana'a: United Nations Development Programme.
- Msemburi, W., Karlinsky, A., Knutson, V., Aleshin-Guendel, S., Chatterji, S., and Wakefield, J. 2023.** "The WHO Estimates of Excess Mortality Associated with the Covid-19 Pandemic." *Nature* 613(7942): 130–137.
- Murdoch, J. C., Sandler, T., and Sargent, K. 1997.** "A Tale of Two Collectives: Sulphur Versus Nitrogen Oxides Emission Reduction in Europe." *Economica* 64(254): 281–301.
- Murdock, E. G. 2018.** "Storied with Land: 'Transitional Justice' on Indigenous Lands." *Journal of Global Ethics* 14(2): 232–239.
- Muriuki, J., Hudson, D., Fuad, S., March, R. J., and Lacombe, D. J. 2023.** "Spillover Effect of Violent Conflicts on Food Insecurity in Sub-Saharan Africa." *Food Policy* 115: 102417.
- Muthukrishna, M., and Henrich, J. 2019.** "A Problem in Theory." *Nature Human Behaviour* 3(3): 221–229.
- Muthukrishna, M., and Schaller, M. 2020.** "Are Collectivistic Cultures More Prone to Rapid Transformation? Computational Models of Cross-Cultural Differences, Social Network Structure, Dynamic Social Influence, and Cultural Change." *Personality and Social Psychology Review* 24(2): 103–120.
- Mutz, D. C. 2018.** "Status Threat, Not Economic Hardship, Explains the 2016 Presidential Vote." *Proceedings of the National Academy of Sciences* 115(19): E4330–E4339.
- Myers, N. 1992.** *The Primary Source: Tropical Forests & Our Future*. New York: WW Norton & Company, Inc.
- Naoi, M. 2020.** "Survey Experiments in International Political Economy: What We (Don't) Know About the Backlash against Globalization." *Annual Review of Political Science* 23(1): 333–356.
- Narula, R., and Pineli, A. 2019.** "Improving the Developmental Impact of Multinational Enterprises: Policy and Research Challenges." *Journal of Industrial and Business Economics* 46: 1–24.
- NASA (US National Aeronautics and Space Administration) Earth Observatory. 2023.** "Tracking Canada's Extreme 2023 Fire Season." NASA Earth Observatory, 24 October. <https://earthobservatory.nasa.gov/images/151985/tracking-canadas-extreme-2023-fire-season>.
- NASA (US National Aeronautics and Space Administration). 2023.** "NASA Announces Summer 2023 Hottest on Record." Press Release, 14 September. <https://www.nasa.gov/press-release/nasa-announces-summer-2023-hottest-on-record>.
- National Academy of Medicine. 2022.** *Transforming Human Health: Celebrating 50 Years of Discovery and Progress*. Washington, DC: The National Academies Press.
- Negev, M., Zea-Reyes, L., Caputo, L., Weinmayr, G., Potter, C., and Nazelle, A. d. 2022.** "Barriers and Enablers for Integrating Public Health Cobenefits in Urban Climate Policy." *Annual Review of Public Health* 43(1): 255–270.
- Neill, R., Neel, A. H., Cardona, C., Bishai, D., Gupta, S., Mohan, D., Jain, N., Basu, S., and Closser, S. 2023.** "Everyday Capabilities Were a Path to Resilience During Covid-19: A Case Study of Five Countries." *Health Policy and Planning* 38(2): 192–204.

- Nelson, L. D., Simmons, J., and Simonsohn, U. 2018.** "Psychology's Renaissance." *Annual Review of Psychology* 69(1): 511–534.
- Nemet, G. F. 2019.** *How Solar Energy Became Cheap: A Model for Low-Carbon Innovation*. Abingdon, UK: Routledge.
- Newell, J. P., Goldstein, B., and Foster, A. 2019.** "A 40-Year Review of Food–Energy–Water Nexus Literature and Its Application to the Urban Scale." *Environmental Research Letters* 14(7): 073003.
- Newell, P., and Simms, A. 2020.** "Towards a Fossil Fuel Non-Proliferation Treaty." *Climate Policy* 20(8): 1043–1054.
- Nichols, M. 2021.** "An Epidemic" of Coups, U.N. Chief Laments, Urging Security Council to Act." *Reuters*, 26 October. <https://www.reuters.com/world/an-epidemic-coups-un-chief-laments-urging-security-council-act-2021-10-26/>. Accessed 16 November 2023.
- Nikiforakis, N. 2008.** "Punishment and Counter-Punishment in Public Good Games: Can We Really Govern Ourselves?" *Journal of Public Economics* 92(1): 91–112.
- Nisbet, C., Lestrat, K. E., and Vatanparast, H. 2022.** "Food Security Interventions among Refugees around the Globe: A Scoping Review." *Nutrients* 14(3): 522.
- Nitsch, F. J., Lüpken, L. M., Lüschow, N., and Kalenscher, T. 2022.** "On the Reliability of Individual Economic Rationality Measurements." *Proceedings of the National Academy of Sciences* 119(31): e2202070119.
- NOAA (US National Oceanic and Atmospheric Administration) National Centers for Environmental Information 2023.** "Monthly Global Climate Report for July 2023."
- Nolan, B., Richiardi, M. G., and Valenzuela, L. 2019.** "The Drivers of Income Inequality in Rich Countries." *Journal of Economic Surveys* 33(4): 1285–1324.
- Nordhaus, W. 2015.** "Climate Clubs: Overcoming Free-Riding in International Climate Policy." *American Economic Review* 105(4): 1339–1370.
- Nordhaus, W. 2020.** "The Climate Club: How to Fix a Failing Global Effort." *Foreign Affairs* 99: 10–17.
- Nordhaus, W. 2021.** "Dynamic Climate Clubs: On the Effectiveness of Incentives in Global Climate Agreements." *Proceedings of the National Academy of Sciences* 118(45): e2109988118.
- Norris, P. Forthcoming.** "Things Fall Apart, the Center Cannot Hold: Fractionalized and Polarized Party Systems in Western Democracies." *European Political Science*.
- Norris, P., and Inglehart, R. 2011.** *Sacred and Secular: Religion and Politics Worldwide*. Cambridge, UK: Cambridge University Press.
- Norris, P., and Inglehart, R. 2019.** *Cultural Backlash: Trump, Brexit, and Authoritarian Populism*. Cambridge, UK: Cambridge University Press.
- North, D. C. 1990.** *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Nosek, B. A., Hardwicke, T. E., Moshontz, H., Allard, A., Corker, K. S., Dreber, A., Fidler, F., and others. 2022.** "Replicability, Robustness, and Reproducibility in Psychological Science." *Annual Review of Psychology* 73(1): 719–748.
- Noury, A., and Roland, G. 2020.** "Identity Politics and Populism in Europe." *Annual Review of Political Science* 23: 421–439.
- Nunn, N. 2008.** "The Long-Term Effects of Africa's Slave Trades." *The Quarterly Journal of Economics* 123(1): 139–176.
- Nunn, N. 2009.** "The Importance of History for Economic Development." *Annual Review of Economics* 1(1): 65–92.
- Nunn, N. 2020.** "The Historical Roots of Economic Development." *Science* 367(6485).
- Nunn, N. 2022.** "On the Dynamics of Human Behavior: The Past, Present, and Future of Culture, Conflict, and Cooperation." *AEA Papers and Proceedings* 112: 15–37.
- Nunn, N., and Wantchekon, L. 2011.** "The Slave Trade and the Origins of Mistrust in Africa." *American Economic Review* 101(7): 3221–3252.
- Nunn, N., Qian, N., and Wen, J. 2023.** "Trust and Democracy: Political Stability in Times of Economic Crisis." Working Paper.
- Nussbaum, M. C. 2013.** *Political Emotions*. Cambridge, MA: Harvard University Press.
- Nyborg, K., Anderies, J. M., Dannenberg, A., Lindahl, T., Schill, C., Schlüter, M., Adger, W. N., and others. 2016.** "Social Norms as Solutions." *Science* 354(6308): 42–43.
- Nye Jr, J. S. 2001.** "Globalization's Democratic Deficit: How to Make International Institutions More Accountable." *Foreign Affairs* 80: 2.
- Nyhan, B. 2020.** "Facts and Myths About Misperceptions." *Journal of Economic Perspectives* 34(3): 220–236.
- Nyhan, B. 2021.** "Why the Backfire Effect Does Not Explain the Durability of Political Misperceptions." *Proceedings of the National Academy of Sciences* 118(15): e1912440117.
- Nyhan, B., Porter, E., and Wood, T. J. 2022.** "Time and Skeptical Opinion Content Erode the Effects of Science Coverage on Climate Beliefs and Attitudes." *Proceedings of the National Academy of Sciences* 119(26): e2122069119.
- O'Madagain, C., and Tomasello, M. 2022.** "Shared Intentionality, Reason-Giving and the Evolution of Human Culture." *Philosophical Transactions of the Royal Society B: Biological Sciences* 377(1843): 20200320.
- Oatis, J. 2023.** "Maui Fires: What to Know About Hawaii's Deadliest Disaster, Damage and Death Toll." *Reuters*, 21 August. <https://www.reuters.com/world/us/how-did-hawaii-wildfires-start-what-know-about-maui-big-island-blazes-2023-08-11/>.
- Obaidi, M., Anjum, G., Bierwaczonek, K., Dovidio, J. F., Ozer, S., and Kunst, J. R. 2023.** "Cultural Threat Perceptions Predict Violent Extremism Via Need for Cognitive Closure." *Proceedings of the National Academy of Sciences* 120(20): e2213874120.
- Obermeier, A. M., and Rustad, S. A. 2023.** "Conflict Trends: A Global Overview, 1946–2022." PRIO Paper, Peace Research Institute Oslo, Oslo.
- Obradovich, N., Özak, Ö., Martín, I., Ortuño-Ortín, I., Awad, E., Cebrián, M., Cuevas, R., and others. 2022.** "Expanding the Measurement of Culture with a Sample of Two Billion Humans." *Journal of The Royal Society Interface* 19(190): 20220085.
- OCHA (United Nations Office for the Coordination of Humanitarian Affairs). 2023.** *Global Humanitarian Overview 2024*. New York: OCHA.
- Oeberst, A., and Imhoff, R. 2023.** "Toward Parsimony in Bias Research: A Proposed Common Framework of Belief-Consistent Information Processing for a Set of Biases." *Perspectives on Psychological Science*: 17456916221148147.
- OECD (Organisation for Economic Co-operation and Development). 2023.** *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*. Paris: OECD Publishing.
- OECD (Organisation for Economic Co-operation and Development). 2017.** *OECD Guidelines on Measuring Trust*. Paris: OECD.
- OECD (Organisation for Economic Co-operation and Development). 2018.** *Concentration in Seed Markets Potential Effects and Policy Responses*. Paris: OECD Publishing.
- OECD (Organisation for Economic Co-operation and Development). 2019.** *Tax Morale: What Drives People and Businesses to Pay Tax?* Paris: OECD.
- OECD (Organisation for Economic Co-operation and Development). 2021.** *Using Trade to Fight Covid-19: Manufacturing and Distributing Vaccines*. Paris: OECD.
- OECD (Organisation for Economic Co-operation and Development). 2022.** *Climate Finance Provided and Mobilised by Developed Countries in 2016-2020 Insights from Disaggregated Analysis*. Paris: OECD Publishing.
- OECD (Organisation for Economic Co-operation and Development). 2024a.** "Economic Impact Assessment of the Global Minimum Tax: Summary." OECD, Paris.
- OECD (Organisation for Economic Co-operation and Development). 2024b.** "Global Forum on Transparency and Exchange of Information for Tax Purposes." OECD, Paris.
- Oehl, B., Schaffer, L. M., and Bernauer, T. 2017.** "How to Measure Public Demand for Policies When There Is No Appropriate Survey Data?" *Journal of Public Policy* 37(2): 173–204.
- Ohtsuki, H., and Iwasa, Y. 2006.** "The Leading Eight: Social Norms That Can Maintain Cooperation by Indirect Reciprocity." *Journal of Theoretical Biology* 239(4): 435–444.
- Olaberria, E. R., Carmen 2022.** "The Reversal Problem: Development Going Backwards." Let's Talk Development [Blog], 15 April.

<https://blogs.worldbank.org/developmenttalk/reversal-problem-development-going-backwards>.

Olitky, N. H., and Cosgrove, S. B. 2023. "Cutting Our Losses: The Effects of a Loss-Aversion Strategy On student Learning Gains." *The Journal of Economic Education* 54(1): 1–16.

Oliver, P. E. 1993. "Formal Models of Collective Action." *Annual Review of Sociology* 19(1): 271–300.

Olson, M. 1971. *The Logic of Collective Action: Public Goods and the Theory of Groups, with a New Preface and Appendix*. Cambridge, MA: Harvard University Press.

Olson, M. 2012. "The Logic of Collective Action [1965]." *Contemporary Sociological Theory* 124.

Onu, D. 2016. "Measuring Tax Compliance Attitudes: What Surveys Can Tell Us About Tax Compliance Behaviour." *Advances in Taxation*. Leeds, UK: Emerald Group Publishing Limited.

OPHI (Oxford Poverty and Human Development Initiative) and UNDP (United Nations Development Programme) 2023. *2023 Global Multidimensional Poverty Index (MPI): Unstacking Global Poverty: Data for High Impact Action*. Oxford, UK: OPHI and New York: UNDP.

Ord, T. 2020. *The Precipice: Existential Risk and the Future of Humanity*. New York: Hachette Books.

Oreskes, N. 2015. "The Fact of Uncertainty, the Uncertainty of Facts and the Cultural Resonance of Doubt." *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 373(2055): 20140455.

Oreskes, N. 2019. *Why Trust Science*. Princeton, NJ: Princeton University Press.

Oreskes, N., and Conway, E. M. 2011. *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*. New York, NY: Bloomsbury Press.

Osborne, D., Costello, T. H., Duckitt, J., and Sibley, C. G. 2023. "The Psychological Causes and Societal Consequences of Authoritarianism." *Nature Reviews Psychology* 2(4): 220–232.

Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, UK: Cambridge University Press.

Ostrom, E. 1998. "A Behavioral Approach to the Rational Choice Theory of Collective Action: Presidential Address, American Political Science Association, 1997." *American Political Science Review* 92(1): 1–22.

Ostrom, E. 2000. "Collective Action and the Evolution of Social Norms." *Journal of Economic Perspectives* 14(3): 137–158.

Ostrom, E. 2007. "A Diagnostic Approach for Going Beyond Panaceas." *Proceedings of the National Academy of Sciences* 104(39): 15181–15187.

Ostrom, E. 2009a. "A Polycentric Approach for Coping with Climate Change." Available at SSRN 1934353.

Ostrom, E. 2009b. *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.

Ostrom, E., Burger, J., Field, C. B., Norgaard, R. B., and Policansky, D. 1999. "Revisiting the Commons: Local Lessons, Global Challenges." *Science* 284(5412): 278–282.

Otto, I. M., Donges, J. F., Cremades, R., Bhowmik, A., Hewitt, R. J., Lucht, W., Rockström, J., and others. 2020. "Social Tipping Dynamics for Stabilizing Earth's Climate by 2050." *Proceedings of the National Academy of Sciences* 117(5): 2354–2365.

Otto, I. M., Wiedermann, M., Cremades, R., Donges, J. F., Auer, C., and Lucht, W. 2020. "Human Agency in the Anthropocene." *Ecological Economics* 167: 106463.

Overy, R. 2021. *Blood and Ruins: The Great Imperial War, 1931–1945*. London: Penguin.

Pachauri, S., Pelz, S., Bertram, C., Kreibiehl, S., Rao, N. D., Sokona, Y., and Riahi, K. 2022. "Fairness Considerations in Global Mitigation Investments." *Science* 378(6624): 1057–1059.

Pachauri, S., Pelz, S., Bertram, C., Rao, N. D., and Riahi, K. 2023. "Response to Comment on 'Fairness Considerations in Global Mitigation Investments.'" *Science* 380(6646): eadh1463.

Pacheco, P. 2012. "Soybean and Oil Palm Expansion in South America: A Review of Main Trends and Implications of Soybean Production." CIFOR Working Paper 90, Center for International Forestry Research, Bogor, Indonesia.

Palazzo, M., and Vollero, A. 2022. "A Systematic Literature Review of Food Sustainable Supply Chain Management (Fsscm): Building Blocks and Research Trends." *The TQM Journal* 34(7): 54–72.

Papada, E., Altman, D., Angiolillo, F., Gastaldi, L., Köhler, T., Lundstedt, M., Natsika, N., and others. 2023. *Defiance in the Face of Autocratization. Democracy Report 2023*. Gothenburg, Sweden: V-Dem Institute.

Parajuly, K., Kuehr, R., Awasthi, A. K., Fitzpatrick, C., Lepawsky, J., Smith, E., Widmer, R., and Zeng, X. 2019. *Future E-Waste Scenarios*. Bonn, Germany: United Nations University Vice Rectorate–Sustainable Cycles Programme; and Osaka, Japan: United Nations Environment Programme–International Environmental Technology Centre.

Pascual, U., Balvanera, P., Anderson, C. B., Chaplin-Kramer, R., Christie, M., González-Jiménez, D., Martin, A., and others. 2023. "Diverse Values of Nature for Sustainability." *Nature* 620(7975): 813–823.

Patel, K., Robertson, E., Kwong, A. S., Griffith, G. J., Willan, K., Green, M. J., Di Gessa, G., and others. 2022. "Psychological Distress before and During the Covid-19 Pandemic among Adults in the United Kingdom Based on Coordinated Analyses of 11 Longitudinal Studies." *JAMA Network Open* 5(4): e227629–e227629.

Pattberg, P., and Stripple, J. 2008. "Beyond the Public and Private Divide: Remapping Transnational Climate Governance in the 21st Century." *International Environmental Agreements: Politics, Law and Economics* 8: 367–388.

Patterson, J., Wyborn, C., Westman, L., Brisbois, M. C., Milkoreit, M., and Jayaram, D. 2021. "The Political

Effects of Emergency Frames in Sustainability." *Nature Sustainability* 4(10): 841–850.

Pearson, A. R., Schuldt, J. P., Romero-Canyas, R., Ballew, M. T., and Larson-Konar, D. 2018. "Diverse Segments of the US Public Underestimate the Environmental Concerns of Minority and Low-Income Americans." *Proceedings of the National Academy of Sciences* 115(49): 12429–12434.

Pecetta, S., Nandi, A., Weller, C., Harris, V., Fletcher, H., Berlanda Scorza, F., Pizzo, M., and others. 2023. "Vaccines for a Sustainable Planet." *Science Translational Medicine* 15(685): eadf1093.

Pecetta, S., Tortorice, D., Scorza, F. B., Pizzo, M., Dougan, G., Hatchett, R., Black, S., Bloom, D. E., and Rappuoli, R. 2022. "The Trillion Dollar Vaccine Gap." *Science Translational Medicine* 14(638): eabn4342.

Pelenc, J., Bazile, D., and Ceruti, C. 2015. "Collective Capability and Collective Agency for Sustainability: A Case Study." *Ecological Economics* 118: 226–239.

Pellowe, K. E., Meacham, M., Peterson, G. D., and Lade, S. J. 2023. "Global Analysis of Reef Ecosystem Services Reveals Synergies, Trade-Offs and Bundles." *Ecosystem Services* 63: 101545.

Peng, W., Iyer, G., Bosetti, V., Chaturvedi, V., Edmonds, J., Fawcett, A. A., Hallegatte, S., and others. 2021. "Climate Policy Models Need to Get Real About People—Here's How." *Nature* 594(7862): 174–176.

Pereira, M. M. 2021. "Understanding and Reducing Biases in Elite Beliefs About the Electorate." *American Political Science Review* 115(4): 1308–1324.

Perrings, C., Hechter, M., and Mamada, R. 2021. "National Polarization and International Agreements." *Proceedings of the National Academy of Sciences* 118(50): e2102145118.

Persky, J. 1995. "The Ethology of Homo Economicus." *Journal of Economic Perspectives* 9(2): 221–231.

Persson, Å., and Bennich, T. 2023. *Global Sustainable Development Report 2023*. New York: United Nations.

Pew Research Center. 2014. *Political Polarization in the American Public*. Washington, DC: Pew Research Center.

Pfattheicher, S., Petersen, M. B., and Böhm, R. 2022. "Information About Herd Immunity through Vaccination and Empathy Promote Covid-19 Vaccination Intentions." *Health Psychology* 41(2): 85–93.

Pierotti, R. S. 2013. "Increasing Rejection of Intimate Partner Violence: Evidence of Global Cultural Diffusion." *American Sociological Review* 78(2): 240–265.

Pilkington, V., Keestra, S. M., and Hill, A. 2022. "Global Covid-19 Vaccine Inequity: Failures in the First Year of Distribution and Potential Solutions for the Future." *Frontiers in Public Health* 10: 821117.

Pilling, D., and Schipani, A. 2023. "War in Tigray May Have Killed 600,000 People, Peace Mediator Says." *Financial Times*, 15 January. <https://www.ft.com/content/2f385e95-0899-403a-9e3b-ed8c24adf4e7>.

- Piotrowski, J., Różycka-Tran, J., Baran, T., and Żemojtel-Piotrowska, M. 2019.** “Zero-Sum Thinking as Mediator of the Relationship of National Attitudes with (Un)Willingness to Host Refugees in Own Country.” *International Journal of Psychology* 54(6): 722–730.
- Piquero, A. R., Jennings, W. G., Jemison, E., Kaukinen, C., and Knaul, F. M. 2021.** “Domestic Violence during the COVID-19 Pandemic—Evidence from a Systematic Review and Meta-Analysis.” *Journal of Criminal Justice* 74: 101806.
- Pittel, K., and Rübbecke, D. T. G. 2008.** “Climate Policy and Ancillary Benefits: A Survey and Integration into the Modelling of International Negotiations on Climate Change.” *Ecological Economics* 68(1): 210–220.
- Poast, P. 2023.** When So Many ‘Frozen Conflicts’ Go Hot, It’s Not Just Coincidence. *World Politics Review*.
- Pollan, M. 2002.** *The Botany of Desire: A Plant’s-Eye View of the World*. Random house trade paperbacks.
- Pouliot, V., and Thérien, J.-P. 2023.** *Global Policy-making*. Cambridge, UK: Cambridge University Press.
- Powell, J. A. 2022.** “Overcoming Toxic Polarization: Lessons in Effective Bridging.” *Law & Inequality* 40: 247.
- Powers, K. E., Kertzer, J. D., Brooks, D. J., and Brooks, S. G. 2022.** “What’s Fair in International Politics? Equity, Equality, and Foreign Policy Attitudes.” *Journal of Conflict Resolution* 66(2): 217–245.
- Powers, S. T., Perret, C., and Currie, T. E. 2023.** “Playing the Political Game: The Coevolution of Institutions with Group Size and Political Inequality.” *Philosophical Transactions of the Royal Society B: Biological Sciences* 378(1883): 20220303.
- Powers, S. T., van Schaik, C. P., and Lehmann, L. 2016.** “How Institutions Shaped the Last Major Evolutionary Transition to Large-Scale Human Societies.” *Philosophical Transactions of the Royal Society B: Biological Sciences* 371(1687): 20150098.
- Prados de la Escosura, L. 2022.** *Human Development and the Path to Freedom: 1870 to the Present*. Cambridge, UK: Cambridge University Press.
- Prentice, D. A., and Miller, D. T. 1993.** “Pluralistic Ignorance and Alcohol Use on Campus: Some Consequences of Misperceiving the Social Norm.” *Journal of Personality and Social Psychology* 64(2): 243.
- Prichard, W. 2015.** *Taxation, Responsiveness and Accountability in Sub-Saharan Africa*. Cambridge, UK: Cambridge University Press.
- Prichard, W. 2022.** “Unpacking ‘Tax Morale’: Distinguishing between Conditional and Unconditional Views of Tax Compliance.” Working Paper, International Centre for Tax and Development, Brighton, UK.
- Prichard, W., Custers, A. L., Dom, R., Davenport, S. R., and Roscitt, M. A. 2019.** “Innovations in Tax Compliance: Conceptual Framework.” Policy Research Working Paper 9032, World Bank, Washington, DC.
- Prinzing, F. 1916.** *Epidemics Resulting from Wars*. London: H. Milford.
- Pujolar, G., Oliver-Anglès, A., Vargas, I., and Vázquez, M.-L. 2022.** “Changes in Access to Health Services During the Covid-19 Pandemic: A Scoping Review.” *International Journal of Environmental Research and Public Health* 19(3): 1749.
- Purzycki, B. G., Apicella, C., Atkinson, Q. D., Cohen, E., McNamara, R. A., Willard, A. K., Xygalatas, D., Nozzenayan, A., and Henrich, J. 2016.** “Moralistic Gods, Supernatural Punishment and the Expansion of Human Sociality.” *Nature* 530(7590): 327–330.
- Rahman, T. 2023.** “Poverty, Agency, and Development.” *Social Philosophy and Policy* 40(1): 9–35.
- Rahwan, Z., Yoeli, E., and Fasolo, B. 2019.** “Heterogeneity in Banker Culture and Its Influence on Dishonesty.” *Nature* 575(7782): 345–349.
- Rajapaksa, D., Gifford, R., Torgler, B., Garcia-Valiñas, M., Athukorala, W., Managi, S., and Wilson, C. 2019.** “Do Monetary and Non-Monetary Incentives Influence Environmental Attitudes and Behavior? Evidence from an Experimental Analysis.” *Resources, Conservation and Recycling* 149: 168–176.
- Rakow, T., Cheung, N. Y., and Restelli, C. 2020.** “Losing My Loss Aversion: The Effects of Current and Past Environment on the Relative Sensitivity to Losses and Gains.” *Psychonomic Bulletin & Review* 27(6): 1333–1340.
- Rand, D. G. 2016.** “Cooperation, Fast and Slow: Meta-Analytic Evidence for a Theory of Social Heuristics and Self-Interested Deliberation.” *Psychological Science* 27(9): 1192–1206.
- Rand, D. G., and Nowak, M. A. 2013.** “Human Cooperation.” *Trends in Cognitive Sciences* 17(8): 413–425.
- Rand, D. G., Dreber, A., Ellingsen, T., Fudenberg, D., and Nowak, M. A. 2009.** “Positive Interactions Promote Public Cooperation.” *Science* 325(5945): 1272–1275.
- Rao, L.-L., Han, R., Ren, X.-P., Bai, X.-W., Zheng, R., Liu, H., Wang, Z.-J., and others. 2011.** “Disadvantage and Prosocial Behavior: The Effects of the Wenchuan Earthquake.” *Evolution and Human Behavior* 32(1): 63–69.
- Rao, R. 2022.** “Smashing Success: Humanity Has Diverted an Asteroid for the First Time.” *Nature*.
- Rasmussen, A., and Reher, S. 2023.** “(In)equality in Interest Group Involvement and the Legitimacy of Policy Making.” *British Journal of Political Science* 53(1): 45–64.
- Rathbun, B. C. 2011.** “Before Hegemony: Generalized Trust and the Creation and Design of International Security Organizations.” *International Organization* 65(2): 243–273.
- Rauschmayer, F., Polzin, C., Mock, M., and Omann, I. 2018.** “Examining Collective Action through the Capability Approach: The Example of Community Currencies.” *Journal of Human Development and Capabilities* 19(3): 345–364.
- Ravens-Sieberer, U., Devine, J., Napp, A.-K., Kaman, A., Saftig, L., Gilbert, M., Reiß, F., and others. 2023.** “Three Years into the Pandemic: Results of the Longitudinal German Copsy Study on Youth Mental Health and Health-Related Quality of Life.” *Frontiers in Public Health* 11: 1129073.
- Rawls, J. 1993.** *The Law of Peoples*. Cambridge, MA: Harvard University Press.
- Reck, D., and Seibold, A. 2023.** “The Welfare Economics of Reference Dependence.” Working Paper 31381, National Bureau of Economic Research, Cambridge, MA.
- Redvers, N., Celidwen, Y., Schultz, C., Horn, O., Githaiga, C., Vera, M., Perdrisat, M., and others. 2022.** “The Determinants of Planetary Health: An Indigenous Consensus Perspective.” *The Lancet Planetary Health* 6(2): e156–e163.
- Regan, P. M. 2002.** “Third-Party Interventions and the Duration of Intrastate Conflicts.” *Journal of Conflict Resolution* 46(1): 55–73.
- Reimann, L., Vafeidis, A. T., and Honsel, L. E. 2023.** “Population Development as a Driver of Coastal Risk: Current Trends and Future Pathways.” *Cambridge Prisms: Coastal Futures* 1: e14.
- Reinsberg, B., and Westerwinter, O. 2021.** “The Global Governance of International Development: Documenting the Rise of Multi-Stakeholder Partnerships and Identifying Underlying Theoretical Explanations.” *The Review of International Organizations* 16(1): 59–94.
- Reyes, G., and Gasparini, L. 2022.** “Are Fairness Perceptions Shaped by Income Inequality? Evidence from Latin America.” *The Journal of Economic Inequality* 20(4): 893–913.
- Rhoads, S. A., Cutler, J., and Marsh, A. A. 2021.** “A Feature-Based Network Analysis and fMRI Meta-Analysis Reveal Three Distinct Types of Prosocial Decisions.” *Social Cognitive and Affective Neuroscience* 16(12): 1214–1233.
- Rhoads, S. A., O’Connell, K., Berluti, K., Ploe, M. L., Elizabeth, H. S., Amormino, P., Li, J. L., and others. 2023a.** “Neural Responses Underlying Extraordinary Altruists’ Generosity for Socially Distant Others.” *PNAS Nexus* 2(7).
- Rhoads, S. A., Vekaria, K. M., O’Connell, K., Elizabeth, H. S., Rand, D. G., Kozak Williams, M. N., and Marsh, A. A. 2023b.** “Unselfish Traits and Social Decision-Making Patterns Characterize Six Populations of Real-World Extraordinary Altruists.” *Nature Communications* 14(1): 1807.
- Richardson, M., Hamlin, I., Elliott, L. R., and White, M. P. 2022.** “Country-Level Factors in a Failing Relationship with Nature: Nature Connectedness as a Key Metric for a Sustainable Future.” *Ambio* 51(11): 2201–2213.
- Richerson, P. J., Boyd, R. T., and Efferson, C. 2024.** “Agentic Processes in Cultural Evolution: Relevance to Anthropocene Sustainability.” *Philosophical Transactions of the Royal Society B: Biological Sciences* 379(1893): 20220252.
- Richerson, P., Baldini, R., Bell, A. V., Demps, K., Frost, K., Hillis, V., Mathew, S., and others. 2016.** “Cultural Group Selection Plays an Essential Role in Explaining Human Cooperation: A Sketch of the Evidence.” *Behavioral and Brain Sciences* 39.
- Richter, F. 2023.** “Charted: Where Does the US Lithium Battery Supply Come From?” <https://www.weforum.org/agenda/2023/03/charted-where-does-the-us-lithium-battery-supply-come-from/>. Accessed 5 August 2023.

- Rigaud, K. K., De Sherbinin, A., Jones, B., Bergmann, J., Clement, V., Ober, K., Schewe, J., and others. 2018. "Groundswell. Preparing for Internal Climate Migration." World Bank, Washington DC.
- Ring, P., Schütt, C. A., and Snower, D. J. 2023. "Care and Anger Motives in Social Dilemmas." *Theory and Decision* 95(2): 273–308.
- Ringsmuth, A. K., Otto, I. M., van den Hurk, B., Lahn, G., Reyer, C. P. O., Carter, T. R., Magnuszewski, P., and others. 2022. "Lessons from Covid-19 for Managing Transboundary Climate Risks and Building Resilience." *Climate Risk Management* 35: 100395.
- Rinscheid, A., Pianta, S., and Weber, E. U. 2021. "What Shapes Public Support for Climate Change Mitigation Policies? The Role of Descriptive Social Norms and Elite Cues." *Behavioural Public Policy* 5(4): 503–527.
- Roberts, G., Raihani, N., Bshary, R., Manrique, H. M., Farina, A., Samu, F., and Barclay, P. 2021. "The Benefits of Being Seen to Help Others: Indirect Reciprocity and Reputation-Based Partner Choice." *Philosophical Transactions of the Royal Society B: Biological Sciences* 376(1838): 20200290.
- Robertson, R. E., Green, J., Ruck, D. J., Ognyanova, K., Wilson, C., and Lazer, D. 2023. "Users Choose to Engage with More Partisan News Than They Are Exposed to on Google Search." *Nature*.
- Rockström, J., Beringer, T., Hole, D., Griscom, B., Mascia, M. B., Folke, C., and Creutzig, F. 2021. "Opinion: We Need Biosphere Stewardship That Protects Carbon Sinks and Builds Resilience." *Proceedings of the National Academy of Sciences* 118(38): e2115218118.
- Rockström, J., Gupta, J., Lenton, T. M., Qin, D., Lade, S. J., Abrams, J. F., Jacobson, L., and others. 2021. "Identifying a Safe and Just Corridor for People and the Planet." *Earth's Future* 9(4): e2020EF001866.
- Rockström, J., Gupta, J., Qin, D., Lade, S. J., Abrams, J. F., Andersen, L. S., Armstrong McKay, D. I., and others. 2023. "Safe and Just Earth System Boundaries." *Nature* 619: 102–111.
- Rockström, J., Kotzé, L., Milutinović, S., Biermann, F., Brovkin, V., Donges, J., Ebbesson, J., and others. 2024. "The Planetary Commons: A New Paradigm for Safeguarding Earth-Regulating Systems in the Anthropocene." *Proceedings of the National Academy of Sciences* 121(5): e2301531121.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E. F., Lenton, T. M., and others. 2009. "A Safe Operating Space for Humanity." *Nature* 461(7263): 472–475.
- Rode, J., and Weber, A. 2016. "Does Localized Imitation Drive Technology Adoption? A Case Study on Rooftop Photovoltaic Systems in Germany." *Journal of Environmental Economics and Management* 78: 38–48.
- Rodríguez-Pose, A. 2012. "Trade and Regional Inequality." *Economic Geography* 88(2): 109–136.
- Rodríguez-Pose, A. 2018. "The Revenge of the Places That Don't Matter (and What to Do About It)." *Cambridge Journal of Regions, Economy and Society* 11(1): 189–209.
- Rodríguez-Pose, A. 2022. "The Rise of Populism and the Revenge of the Places That Don't Matter." In Velasco, A., and Bucelli, I., (eds.), *Populism: Origins and Alternative Policy Responses*. London: LSE Press.
- Rodríguez-Pose, A., Terrero-Davila, J., and Lee, N. 2023. "Left-Behind Vs. Unequal Places: Interpersonal Inequality, Economic Decline, and the Rise of Populism in the US and Europe." *Journal of Economic Geography* 23: 951–977.
- Rodrik, D. 2011. *The Globalization Paradox: Democracy and the Future of the World Economy*. New York: WW Norton & Company.
- Rodrik, D. 2018. "Populism and the Economics of Globalization." *Journal of International Business Policy* 1: 12–33.
- Rodrik, D. 2021. "Why Does Globalization Fuel Populism? Economics, Culture, and the Rise of Right-Wing Populism." *Annual Review of Economics* 13: 133–170.
- Rodrik, D. 2023. "Lecture: The Future of Globalization: The Good, the Bad, and the Ugly." <https://www.youtube.com/watch?v=icBSxc7XeC0&t=1604s>. Accessed 20 August 2023.
- Rodrik, D., Subramanian, A., and Trebbi, F. 2004. "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development." *Journal of Economic Growth* 9(2): 131–165.
- Roemer, J. E. 2019. *How We Cooperate: A Theory of Kantian Optimization*. Yale: Yale University Press.
- Rogers, K., and Mandavili, A. 2020. "Trump Administration Signals Formal Withdrawal from WHO." *The New York Times*, 8 July.
- Rojek-Giffin, M., Lebreton, M., Daunizeau, J., Fariña, A., Gross, J., and De Dreu, C. K. W. 2023. "Learning Rules of Engagement for Social Exchange within and between Groups." *Proceedings of the National Academy of Sciences* 120(19): e2218443120.
- Röllicke, L. 2023. "Polarisation, Identity and Affect - Conceptualising Affective Polarisation in Multi-Party Systems." *Electoral Studies* 85: 102655.
- Romano, A., Balliet, D., Yamagishi, T., and Liu, J. H. 2017. "Parochial Trust and Cooperation across 17 Societies." *Proceedings of the National Academy of Sciences* 114(48): 12702–12707.
- Romano, A., Sutter, M., Liu, J. H., and Balliet, D. 2021a. "Political Ideology, Cooperation and National Parochialism across 42 Nations." *Philosophical Transactions of the Royal Society B: Biological Sciences* 376(1822): 20200146.
- Romano, A., Sutter, M., Liu, J. H., Yamagishi, T., and Balliet, D. 2021b. "National Parochialism Is Ubiquitous across 42 Nations around the World." *Nature Communications* 12(1): 4456.
- Romer, P. 1993. "Idea Gaps and Object Gaps in Economic Development." *Journal of Monetary Economics* 32(3): 543–573.
- Romer, P. M. 1986. "Increasing Returns and Long-Run Growth." *Journal of Political Economy* 94(5): 1002–1037.
- Romer, P. M. 1990. "Endogenous Technological Change." *Journal of Political Economy* 98(5, Part 2): S71–S102.
- Romer, P. M. 1994. "The Origins of Endogenous Growth." *Journal of Economic Perspectives* 8(1): 3–22.
- Rommel, T., and Walter, S. 2018. "The Electoral Consequences of Offshoring: How the Globalization of Production Shapes Party Preferences." *Comparative Political Studies* 51(5): 621–658.
- Rosenwald, M. S. 2021. "History's Deadliest Pandemics, from Ancient Rome to Modern America." *The Washington Post*, 3 October. <https://www.washingtonpost.com/graphics/2020/local/retropolis/coronavirus-deadliest-pandemics/>. Accessed 9 February 2024.
- Roser, M., and Ritchie, H. 2023. "HIV/AIDS." Our World in Data. <https://ourworldindata.org/hiv-aids>.
- Rossi, G., Dingemane, M., Floyd, S., Baranova, J., Blythe, J., Kendrick, K. H., Zinken, J., and Enfield, N. J. 2023. "Shared Cross-Cultural Principles Underlie Human Prosocial Behavior at the Smallest Scale." *Scientific Reports* 13(1): 6057.
- Roth, J., and Mazzotta, A. 2015. "Adaptation and Validation of a German Multidimensional and Multicomponent Measure of Social Identification." *Social Psychology* 46: 277–290.
- Rovenskaya, E., Gomez Echeverri, L., and Patil, P. 2023. "Human Development, Sustainability, and Agency." International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Rowntree, O. 2019. *The Mobile Gender Gap Report 2019*. London: GSMA.
- Roy, E. A. 2019. "One Day We'll Disappear: Tuvalu's Sinking Islands." *The Guardian*, 16 May. <https://www.theguardian.com/global-development/2019/may/16/one-day-disappear-tuvalu-sinking-islands-rising-sea-climate-change>.
- Różycka-Tran, J., Alessandri, G., Jurek, P., and Olech, M. 2018. "A Test of Construct Isomorphism of the Belief in a Zero-Sum Game Scale: A Multilevel 43-Nation Study." *PLoS One* 13(9): e0203196.
- Ruggeri, K., and Panin, A., and Vdovic, M., and Veckalov, B., and Abdul-Salaam, N., and Achterberg, J., and Akil, C., and others. 2022. "The Globalizability of Temporal Discounting." *Nature Human Behaviour* 6(10): 1386–1397.
- Ruggie, J. G. 1992. "Multilateralism: The Anatomy of an Institution." *International Organization* 46(3): 561–598.
- Ruggie, J. G. 1998. "What Makes the World Hang Together? Neo-Utilitarianism and the Social Constructivist Challenge." *International Organization* 52(4): 855–885.
- Rustagi, D., Engel, S., and Kosfeld, M. 2010. "Conditional Cooperation and Costly Monitoring Explain Success in Forest Commons Management." *Science* 330(6006): 961–965.
- Saad-Roy, C. M., and Traulsen, A. 2023. "Dynamics in a Behavioral–Epidemiological Model for Individual Adherence to a Nonpharmaceutical Intervention." *Proceedings of the National Academy of Sciences* 120(44): e2311584120.

- Saak, A. E., and Hennessy, D. A. 2018.** "A Model of Reporting and Controlling Outbreaks by Public Health Agencies." *Economic Theory* 66(1): 21–64.
- Sachs, J. D., Karim, S. S. A., Aknin, L., Allen, J., Brosbøl, K., Colombo, F., Barron, G. C., and others. 2022.** "The Lancet Commission on Lessons for the Future from the Covid-19 Pandemic." *The Lancet* 400(10359): 1224–1280.
- Sacks, A. 2012.** "Can Donors and Non-State Actors Undermine Citizens' Legitimizing Beliefs?" Policy Research Working Paper 6158. World Bank, Washington, DC.
- Saez, E. 2010.** "Do Taxpayers Bunch at Kink Points?" *American Economic Journal: Economic Policy* 2(3): 180–212.
- Sala-i-Martin, X. 2007.** "Economic Integration, Growth, and Poverty." Integration and Trade Policy Issues Paper, July 2007, Inter-American Development Bank, Integration and Trade Sector, Washington, DC.
- Salali, G. D., Juda, M., and Henrich, J. 2015.** "Transmission and Development of Costly Punishment in Children." *Evolution and Human Behavior* 36(2): 86–94.
- Sampat, B. N., and Shadlen, K. C. 2021.** "The Covid-19 Innovation System." *Health Affairs* 40(3): 400–409.
- Sandler, T. 1997.** *Global Challenges: An Approach to Environmental, Political, and Economic Problems*. Cambridge, UK: Cambridge University Press.
- Sandler, T. 1998.** "Global and Regional Public Goods: A Prognosis for Collective Action." *Fiscal Studies* 19(3): 221–247.
- Sandler, T. 2015.** "Collective Action: Fifty Years Later." *Public Choice* 164(3): 195–216.
- Sandler, T. 2016.** "Strategic Aspects of Difficult Global Challenges." *Global Policy* 7: 33–44.
- Sandler, T. 2017.** "Environmental Cooperation: Contrasting International Environmental Agreements." *Oxford Economic Papers* 69(2): 345–364.
- Sandler, T. 2020.** "Covid-19 and Collective Action." *Peace Economics, Peace Science and Public Policy* 26(3).
- Sandler, T. 2023.** "Covid-19 Activities: Publicness and Strategic Concerns." *Games* 14(1): 7.
- Sandler, T., and Arce M., D. G. 2002.** "A Conceptual Framework for Understanding Global and Transnational Public Goods for Health." *Fiscal Studies* 23(2): 195–222.
- Sanfey, A. G., Rilling, J. K., Aronson, J. A., Nystrom, L. E., and Cohen, J. D. 2003.** "The Neural Basis of Economic Decision-Making in the Ultimatum Game." *Science* 300(5626): 1755–1758.
- Sanogo, T. 2019.** "Does Fiscal Decentralization Enhance Citizens' Access to Public Services and Reduce Poverty? Evidence from Côte D'Ivoire Municipalities in a Conflict Setting." *World Development* 113: 204–221.
- Santomauro, D. F., Herrera, A. M. M., Shadid, J., Zheng, P., Ashbaugh, C., Pigott, D. M., Abbafati, C., and others. 2021.** "Global Prevalence and Burden of Depressive and Anxiety Disorders in 204 Countries and Territories in 2020 Due to the Covid-19 Pandemic." *The Lancet* 398(10312): 1700–1712.
- Santos, F. P., Lelkes, Y., and Levin, S. A. 2021.** "Link Recommendation Algorithms and Dynamics of Polarization in Online Social Networks." *Proceedings of the National Academy of Sciences* 118(50): e2102141118.
- Satici, B., Saricali, M., Satici, S. A., and Griffiths, M. D. 2020.** "Intolerance of Uncertainty and Mental Well-being: Serial Mediation by Rumination and Fear of Covid-19." *International Journal of Mental Health and Addiction*.
- Sauer, H., Blunden, C., Eriksen, C., and Rehren, P. 2021.** "Moral Progress: Recent Developments." *Philosophy Compass* 16(10): e12769.
- Saville, M., Cramer, J. P., Downham, M., Hacker, A., Lurie, N., Van der Veken, L., Whelan, M., and Hatchett, R. 2022.** "Delivering Pandemic Vaccines in 100 Days—What Will It Take?" *New England Journal of Medicine* 387(2): e3.
- Saxena, A., Atuire, C., Banda, A., Baker, B., Chiwa, E., Fleurbaey, M., Herlitz, A., and others. 2022.** "Pandemic Preparedness and Response: Key Provisions for a New Treaty." Binghamton, NY.
- Schady, N., Holla, A., Sabarwal, S., Silva, J., and Chang, A. 2023.** *Collapse and Recovery: How the Covid-19 Pandemic Eroded Human Capital and What to Do About It*. Washington, DC: World Bank.
- Schaeffer, K. 2020.** "Key Facts About Women's Suffrage around the World, a Century after U.S. Ratified 19th Amendment." Pew Research Center. <https://www.pewresearch.org/short-reads/2020/10/05/key-facts-about-womens-suffrage-around-the-world-a-century-after-u-s-ratified-19th-amendment/>.
- Schäfer, M., Haun, D. B. M., and Tomasello, M. 2015.** "Fair Is Not Fair Everywhere." *Psychological Science* 26(8): 1252–1260.
- Scheffer, M., Borsboom, D., Nieuwenhuis, S., and Westley, F. 2022.** "Belief Traps: Tackling the Inertia of Harmful Beliefs." *Proceedings of the National Academy of Sciences* 119(32): e2203149119.
- Scheidel, A., Fernández-Llamazares, Á., Bara, A. H., Del Bene, D., David-Chavez, D. M., Fanari, E., Garba, I., and others. 2023.** "Global Impacts of Extractive and Industrial Development Projects on Indigenous Peoples' Lifeways, Lands, and Rights." *Science Advances* 9(23): eade9557.
- Schelber, N. 2023.** "Harvard Scholar Who Studies Honesty Is Accused of Fabricating Findings." *New York Times*, June 24.
- Schell, J. 1982.** *The Fate of the Earth; the Abolition; the Unconquerable World*. New York: Library of America.
- Schelling, T. C. 1965.** "Strategic Analysis and Social Problems." *Social Problems* 12(4): 367–379.
- Schelling, T. C. 1978.** *Micromotives and Macrobehavior*. New York: W. W. Norton & Company.
- Schilke, O., Reimann, M., and Cook, K. S. 2021.** "Trust in Social Relations." *Annual Review of Sociology* 47(1): 239–259.
- Schill, C., and Rocha, J. C. 2023.** "Sustaining Local Commons in the Face of Uncertain Ecological Thresholds: Evidence from a Framed Field Experiment with Colombian Small-Scale Fishers." *Ecological Economics* 207: 107695.
- Schill, C., Anderies, J. M., Lindahl, T., Folke, C., Polasky, S., Cárdenas, J. C., Crépin, A.-S., and others. 2019.** "A More Dynamic Understanding of Human Behaviour for the Anthropocene." *Nature Sustainability* 2(12): 1075–1082.
- Schiller, L., Bailey, M., Jacquet, J., and Sala, E. 2018.** "High Seas Fisheries Play a Negligible Role in Addressing Global Food Security." *Science Advances* 4(8): eaat8351.
- Schimmelpfennig, R., and Muthukrishna, M. 2023.** "Cultural Evolutionary Behavioural Science in Public Policy." *Behavioural Public Policy*: 1–31.
- Schimmelpfennig, R., Razek, L., Schnell, E., and Muthukrishna, M. 2022.** "Paradox of Diversity in the Collective Brain." *Philosophical Transactions of the Royal Society B: Biological Sciences* 377(1843): 20200316.
- Schlüter, M., Baeza, A., Dressler, G., Frank, K., Groeneveld, J., Jager, W., Janssen, M. A., and others. 2017.** "A Framework for Mapping and Comparing Behavioural Theories in Models of Social-Ecological Systems." *Ecological Economics* 131: 21–35.
- Schneider, C. J. 2018.** "The Domestic Politics of International Cooperation." *Oxford Research Encyclopedia of Politics*. Oxford, UK: Oxford University Press.
- Schraeder, P. J. 2000.** *African Politics and Society: A Mosaic in Transformation*. Belmont, CA: Thomson/Wadsworth.
- Schulz, J. F. 2022.** "Kin Networks and Institutional Development." *The Economic Journal* 132(647): 2578–2613.
- Schulz, J. F., Bahrami-Rad, D., Beauchamp, J. P., and Henrich, J. 2019.** "The Church, Intensive Kinship, and Global Psychological Variation." *Science* 366(6466).
- Schwandt, H., and Von Wachter, T. 2020.** "Socio-economic Decline and Death: Midlife Impacts of Graduating in a Recession." NBER Working Paper w26638, National Bureau of Economic Research, Cambridge, MA.
- Schwerhoff, G. 2016.** "The Economics of Leadership in Climate Change Mitigation." *Climate Policy* 16(2): 196–214.
- Schwetz, T. A., and Fauci, A. S. 2019.** "The Extended Impact of Human Immunodeficiency Virus/AIDS Research." *The Journal of Infectious Diseases* 219(1): 6–9.
- Scoones, I., Stirling, A., Abrol, D., Atela, J., Charli-Joseph, L., Eakin, H., Ely, A., and others. 2020.** "Transformations to Sustainability: Combining Structural, Systemic and Enabling Approaches." *Current Opinion in Environmental Sustainability* 42: 65–75.
- Semieniuk, G., Ghosh, J., and Folbre, N. 2023.** "Technical Comment on 'Fairness Considerations in Global Mitigation Investments.'" *Science* 380(6646): eadg5893.
- Sen, A. 1973.** "Behaviour and the Concept of Preference." *Economica* 40(159): 241–259.

- Sen, A. 1977.** "Rational Fools: A Critique of the Behavioral Foundations of Economic Theory." *Philosophy & Public Affairs* 6(4): 317–344.
- Sen, A. 1985.** "Well-Being, Agency and Freedom: The Dewey Lectures 1984." *The Journal of Philosophy* 82(4): 169–221.
- Sen, A. 1991.** *On Ethics and Economics*. New York: Wiley.
- Sen, A. 1997.** "Maximization and the Act of Choice." *Econometrica* 65(4): 745–779.
- Sen, A. 1999.** *Development as Freedom*. New York, NY: Anchor Books.
- Sen, A. 2005.** *The Argumentative Indian: Writings on Indian History, Culture and Identity*. New York: Picador/Farrar, Straus and Giroux.
- Sen, A. 2006.** *Identity and Violence: The Illusion of Destiny*. New York: W. W. Norton & Company.
- Sen, A. 2008.** "Why and How Is Health a Human Right?" *The Lancet* 372(9655): 2010.
- Sen, A. 2009a.** "The Fog of Identity." *Politics, Philosophy & Economics* 8(3): 285–288.
- Sen, A. 2009b.** *The Idea of Justice*. Cambridge, MA: Harvard University Press.
- Sen, A. 2013.** "The Ends and Means of Sustainability." *Journal of Human Development and Capabilities* 14(1): 6–20.
- Sen, A. 2016.** "The Ends and Means of Sustainability." In Lessmann, O., and Rauschmayer, F., (eds.), *The Capability Approach and Sustainability*. New York: Routledge.
- Sénit, C.-A. 2020.** "Leaving No One Behind? The Influence of Civil Society Participation on the Sustainable Development Goals." *Environment and Planning C: Politics and Space* 38(4): 693–712.
- Seong, J. W., Birshan, M., Woetzel, L., Lamanna, C., Condon, J., and Devesa, T. 2024.** "Geopolitics and the Geometry of Global Trade." McKinsey Global Institute.
- Seong, J., White, O., Woetzel, J., Smit, S., Devesa, T., Birshan, M., and Samandari, H. 2022.** "Global Flows: The Ties That Bind in an Interconnected World." McKinsey Global Institute Discussion Paper (November).
- Settersten, R. A. 2018.** "Nine Ways That Social Relationships Matter for the Life Course." In Alwin, D., Felmler, D., and Kreager, D., (eds.), *Social Networks and the Life Course*. Frontiers in Sociology and Social Research, vol 2. Cham, Switzerland: Springer.
- Seyoum, B. 2021.** "State Fragility and Human Development: A Study with Special Emphasis on Social Cohesion." *International Journal of Social Economics* 48(1): 39–61.
- Shafir, E. 2013.** *The Behavioral Foundations of Public Policy*. Princeton, NJ: Princeton University Press.
- Shanmugaratnam, T., Summers, L., Okonjo-Iweala, N., Botin, A., El-Erian, M., Frenkel, J., Grynspan, R., and others. 2021.** "A Global Deal for our Pandemic Age." *Report of the G20 High Level Independent Panel*.
- Sheffer, L., John Loewen, P., Walgrave, S., Bailer, S., Breunig, C., Helfer, L., Pilet, J.-B., Varone, F., and Vliegenthart, R. 2023.** "How Do Politicians Bargain? Evidence from Ultimatum Games with Legislators in Five Countries." *American Political Science Review*: 1–19.
- Shenai, N., End, N., Koosakul, J., and Said, A. 2023.** *The Financial Cost of Using Special Drawing Rights*. Washington, D.C.: International Monetary Fund.
- Shi, L., Romić, I., Ma, Y., Wang, Z., Podobnik, B., Stanley, H. E., Holme, P., and Jusup, M. 2020.** "Freedom of Choice Adds Value to Public Goods." *Proceedings of the National Academy of Sciences* 117(30): 17516–17521.
- Shidore, S. 2023.** "The Return of the Global South." *Foreign Affairs*, 31 August.
- Shiffman, J., and Shawar, Y. R. 2022.** "Framing and the Formation of Global Health Priorities." *The Lancet* 399(10339): 1977–1990.
- Shiller, R. J. 2006.** "Managing Risks to National Economies: The Role of Macro Markets." In Kaul, I., and Conceição, P., (eds.), *The New Public Finance: Responding to Global Challenges*. New York: Oxford University Press.
- Shiller, R. J. 2017.** "Narrative Economics." *American Economic Review* 107(4): 967–1004.
- Shiller, R., Joy, M., Ostry, J. D., and Benford, J. 2018.** *Sovereign GDP-Linked Bonds: Rationale and Design*. Paris and London: CEPR Press.
- Shun, K.-I., and Wong, D. B. 2004.** *Confucian Ethics: A Comparative Study of Self, Autonomy, and Community*. Cambridge, UK: Cambridge University Press.
- Sibert, J., Senina, I., Lehodey, P., and Hampton, J. 2012.** "Shifting from Marine Reserves to Maritime Zoning for Conservation of Pacific Bigeye Tuna *Thunnus Obesus*." *Proceedings of the National Academy of Sciences* 109(44): 18221–18225.
- Siegrist, M., and Bearth, A. 2021.** "Worldviews, Trust, and Risk Perceptions Shape Public Acceptance of Covid-19 Public Health Measures." *Proceedings of the National Academy of Sciences* 118(24): e2100411118.
- Simmons, J. P., Nelson, L. D., and Simonsohn, U. 2011.** "False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant." *Psychological Science* 22(11): 1359–1366.
- Sinding Bentzen, J. 2019.** "Acts of God? Religiosity and Natural Disasters across Subnational World Districts." *The Economic Journal* 129(622): 2295–2321.
- Sinnott-Armstrong, W., and McKee, P. 2022.** "Certain Prosocial Motives Limit Redistribution Aimed at Equality." *Proceedings of the National Academy of Sciences* 119(51): e2219059119.
- SIPRI (Stockholm International Peace Research Institute). 2023.** *Trends in World Military Expenditure 2022*. Stockholm: SIPRI.
- Sirleaf, E. J., and Clark, H. 2021.** "Report of the Independent Panel for Pandemic Preparedness and Response: Making Covid-19 the Last Pandemic." *The Lancet* 398(10295): 101–103.
- Sklair, L. 2020.** "Globalization and the Challenge of the Anthropocene." In Rossi, I., (ed.), *Challenges of Globalization and Prospects for an Inter-Civilizational World Order*. Cham, Switzerland: Springer International Publishing.
- Slaughter, A.-M. 2004.** *A New World Order*. Princeton, NJ: Princeton University Press.
- Slemrod, J. 2004.** "The Economics of Corporate Tax Selfishness." *National Tax Journal* 57(4): 877–899.
- Slemrod, J. 2019.** "Tax Compliance and Enforcement." *Journal of Economic Literature* 57(2): 904–954.
- Smerdon, D., Offerman, T., and Gneezy, U. 2020.** "'Everybody's Doing It': On the Persistence of Bad Social Norms." *Experimental Economics* 23(2): 392–420.
- Smith, R., Woodward, D., Acharya, A., Beaglehole, R., and Drager, N. 2004.** "Communicable Disease Control: A 'Global Public Good' Perspective." *Health Policy and Planning* 19(5): 271–278.
- Snyder, C. R. 1995.** "Conceptualizing, Measuring, and Nurturing Hope." *Journal of Counseling & Development* 73(3): 355–360.
- Snyder, C. R. 2000.** *Handbook of Hope: Theory, Measures, and Applications*. San Diego, CA: Academic Press.
- Sommer, C. 2019.** *Social Cohesion and Economic Development: Unpacking the Relationship*. Briefing Paper 16/2019, German Development Institute, Bonn, Germany.
- Song, X.-P., Hansen, M. C., Potapov, P., Adusei, B., Pickering, J., Adami, M., Lima, A., and others. 2021.** "Massive Soybean Expansion in South America since 2000 and Implications for Conservation." *Nature Sustainability* 4(9): 784–792.
- Sonntag, D. 2010.** *AIDS and Aid: A Public Good Approach*. Springer Science & Business Media.
- Soontjens, K. 2023.** "Voters Don't Care Too Much About Policy: How Politicians Conceive of Voting Motives." *Research & Politics* 10(2): 20531680231176180.
- Spadaro, G., Graf, C., Jin, S., Arai, S., Inoue, Y., Lieberman, E., Rinderu, M. I., and others. 2022.** "Cross-Cultural Variation in Cooperation: A Meta-Analysis." *Journal of Personality and Social Psychology* 123(5): 1024–1088.
- Sparkman, G., Geiger, N., and Weber, E. U. 2022.** "Americans Experience a False Social Reality by Underestimating Popular Climate Policy Support by Nearly Half." *Nature Communications* 13(1): 4779.
- Sparkman, G., Howe, L., and Walton, G. 2021.** "How Social Norms Are Often a Barrier to Addressing Climate Change but Can Be Part of the Solution." *Behavioural Public Policy* 5(4): 528–555.
- Spilker, G., Nguyen, Q., Koubi, V., and Böhmelt, T. 2020.** "Attitudes of Urban Residents Towards Environmental Migration in Kenya and Vietnam." *Nature Climate Change* 10(7): 622–627.
- Sprengholz, P., Henkel, L., Betsch, C., and Böhm, R. 2023a.** "Understanding Climate Polarization: Identification with and Discrimination between Climate Policy Opinion Groups." PsyArXiv Preprint.

- Sprengholz, P., Henkel, L., Böhm, R., and Betsch, C. 2023b.** "Historical Narratives About the Covid-19 Pandemic Are Motivationally Biased." *Nature* 623(7987): 588–593.
- Standing Committee on Fisheries and Oceans. 2002.** *Foreign Overfishing: Its Impacts and Solutions*. Ottawa: House of Commons of Canada.
- Stanford, P. K. 2017.** "Bending toward Justice." *Philosophy of Science* 84(2): 369–376.
- Stanford, P. K. 2018.** "The Difference between Ice Cream and Nazis: Moral Externalization and the Evolution of Human Cooperation." *Behavioral and Brain Sciences* 41: e95.
- Stango, V., and Zinman, J. 2022.** "We Are All Behavioural, More, or Less: A Taxonomy of Consumer Decision-Making." *The Review of Economic Studies* 90(3): 1470–1498.
- Stanley, S. K., Hogg, T. L., Leviston, Z., and Walker, I. 2021.** "From Anger to Action: Differential Impacts of Eco-Anxiety, Eco-Depression, and Eco-Anger on Climate Action and Wellbeing." *The Journal of Climate Change and Health* 1: 100003.
- Stantcheva, S., Alesina, A., and Miano, A. 2019.** "Immigration and Redistribution." Working Paper 24733, National Bureau of Economic Research, Cambridge, MA.
- Staples, A. 2006.** *The Birth of Development How the World Bank, Food Agricultural Organization, and the World Health Organization Changed the World, 1945–1965* Kent, OH: Kent University Press.
- Statista. 2023.** "Number of Smartphone Mobile Network Subscriptions Worldwide from 2016 to 2022, with Forecasts from 2023 to 2028." <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>. Accessed 5 September 2023.
- Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O., and Ludwig, C. 2015.** "The Trajectory of the Anthropocene: The Great Acceleration." *The Anthropocene Review* 2(1): 81–98.
- Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., and others. 2015.** "Planetary Boundaries: Guiding Human Development on a Changing Planet." *Science* 347(6223).
- Steffen, W., Rockström, J., Richardson, K., Lenton, T. M., Folke, C., Liverman, D., Summerhayes, C. P., and others. 2018.** "Trajectories of the Earth System in the Anthropocene." *Proceedings of the National Academy of Sciences* 115(33): 8252–8259.
- Steg, L. 2023.** "Psychology of Climate Change." *Annual Review of Psychology* 74(1): 391–421.
- Stenner, P., and Andreouli, E. 2023.** "Revisiting Psychology and Deglobalisation: The Case of Brexit." *Theory & Psychology* 33(2): 209–226.
- Sterelny, K. 2019.** "Evolutionary Foundations for a Theory of Moral Progress?" *Analyse & Kritik* 41(2): 205–216.
- Stets, J. E., and Serpe, R. T. 2013.** "Identity Theory." In Delamater, J. and Ward, A., (eds.), *Handbook of Social Psychology*. Dordrecht, Netherlands: Springer.
- Stewart, A. J., and Raihani, N. 2023.** "Group Reciprocity and the Evolution of Stereotyping." *Proceedings of the Royal Society B: Biological Sciences* 290(1991): 20221834.
- Stewart, A. J., McCarty, N., and Bryson, J. J. 2020.** "Polarization under Rising Inequality and Economic Decline." *Science Advances* 6(50).
- Stewart, A. J., Plotkin, J. B., and McCarty, N. 2021.** "Inequality, Identity, and Partisanship: How Redistribution Can Stem the Tide of Mass Polarization." *PNAS* 118(e2102140118).
- Stewart, F., Holdstock, D., and Jarquin, A. 2002.** "Root Causes of Violent Conflict in Developing Countries: Commentary: Conflict—from Causes to Prevention?" *BMJ* 324(7333): 342–345.
- Stiglitz Commission. 2009.** "Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System." United Nations, New York.
- Stiglitz, J. 1998.** "Distinguished Lecture on Economics in Government: The Private Uses of Public Interests: Incentives and Institutions." *Journal of Economic Perspectives* 12(2): 3–22.
- Stiglitz, J. E. 1995.** *The Theory of International Public Goods and the Architecture of International Organizations*. Department for Economic and Social Information and Policy Analysis.
- Stiglitz, J. E. 1996.** "Some Lessons from the East Asian Miracle." *The World Bank Research Observer* 11(2): 151–177.
- Stiglitz, J. E. 1999.** "Knowledge as a Global Public Good." In Kaul, I., (ed.), *Global Public Goods: International Cooperation in the 21st Century*. New York: Oxford Academic.
- Stiglitz, J. E. 2002.** *Globalization and Its Discontents*. New York: W. W. Norton & Company.
- Stiglitz, J. E. 2007.** *Making Globalization Work*. New York: W. W. Norton & Company.
- Stiglitz, J. E. 2015.** "Overcoming the Copenhagen Failure with Flexible Commitments." *Economics of Energy & Environmental Policy* 4(2): 29–36.
- Stiglitz, J. E. 2021.** "The Proper Role of Government in the Market Economy: The Case of the Post-Covid Recovery." *Journal of Government and Economics* 1: 100004.
- Stiglitz, J. E., and Greenwald, B. 2014.** *Creating a Learning Society*. New York: Columbia University Press.
- Stiglitz, J. E., and Kaldor, M. 2013.** *The Quest for Security: Protection without Protectionism and the Challenge of Global Governance*. New York: Columbia University Press.
- Stiglitz, J. E., and Kosenko, A. 2024a.** "The Economics of Information in a World of Disinformation: A Survey Part 1: Indirect Communication." Working Paper 32049, National Bureau of Economic Research, Cambridge, MA.
- Stiglitz, J. E., and Kosenko, A. 2024b.** "The Economics of Information in a World of Disinformation: A Survey Part 2: Direct Communication." Working Paper 32050, National Bureau of Economic Research, Cambridge, MA.
- Stiglitz, J., and Stern, N. 2017.** *Report of the High-Level Commission on Carbon Prices*. Washington, DC: World Bank.
- Stirling, A. 2015.** "Emancipating Transformations: From Controlling 'the Transition' to Culturing Plural Radical Progress 1." *The Politics of Green Transformations*. Routledge.
- Stoddard, I., Anderson, K., Capstick, S., Carton, W., Depledge, J., Facer, K., Gough, C., and others. 2021.** "Three Decades of Climate Mitigation: Why Haven't We Bent the Global Emissions Curve?" *Annual Review of Environment and Resources* 46(1): 653–689.
- Stone, D., and Moloney, K. 2019.** *The Oxford Handbook of Global Policy and Transnational Administration*. Oxford, UK: Oxford University Press.
- Stone, D., and Schmider, A. 2023.** "Expert Knowledge for Global Pandemic Policy: A Chorus of Evidence or a Clutter of Global Commissions?" *Policy and Society*. pua022.
- Stone, L. 2015.** "Quantitative Analysis of Women's Participation in Peace Processes." In O'Reilly, M., Súilleabháin, A. Ó., and Paffenholz, T., (eds.), *Reimagining Peacemaking: Women's Roles in Peace Processes*. New York: International Peace Institute.
- Strandberg, K., Himmelroos, S., and Grönlund, K. 2019.** "Do Discussions in Like-Minded Groups Necessarily Lead to More Extreme Opinions? Deliberative Democracy and Group Polarization." *International Political Science Review* 40(1): 41–57.
- Stray, B., Lamb, A., Kaushik, A., Vovrosh, J., Rodgers, A., Winch, J., Hayati, F., and others. 2022.** "Quantum Sensing for Gravity Cartography." *Nature* 602(7898): 590–594.
- Sturgeon, T. J. 2008.** "From Commodity Chains to Value Chains: Interdisciplinary Theory Building in an Age of Globalization." In Bair, J., (ed.), *Frontiers of Commodity Chain Research*. Redwood City, CA: Stanford University Press.
- Sturgeon, T. J., and Kawakami, M. 2010.** *Global Value Chains in the Electronics Industry: Was the Crisis a Window of Opportunity for Developing Countries?* Washington, DC: World Bank.
- Sunstein, C. R. 2022.** "The Distributional Effects of Nudges." *Nature Human Behaviour* 6(1): 9–10.
- Supran, G., and Oreskes, N. 2021.** "Rhetoric and Frame Analysis of Exxonmobil's Climate Change Communications." *One Earth* 4(5): 696–719.
- Suzman, M. 2023.** "The Roots of the Global South's New Resentment: How Rich Countries' Selfish Pandemic Responses Stoked Distrust." *Foreign Affairs*.
- Swidler, A. 1986.** "Culture in Action: Symbols and Strategies." *American Sociological Review* 51(2): 273–286.
- Swindle, J. 2023.** "Pathways of Global Cultural Diffusion: Mass Media and People's Moral Declarations About Men's Violence against Women." *American Sociological Review* 88(4): 742–779.
- Sytsma, T. 2020.** "RCEP Forms the World's Largest Trading Bloc. What Does This Mean for Global Trade?" <https://www.rand.org/pubs/commentary/2020/12/>

recep-forms-the-worlds-largest-trading-bloc-what-does.html. Accessed 11 November 2023.

Szaszi, B., Higney, A., Charlton, A., Gelman, A., Ziano, I., Aczel, B., Goldstein, D. G., Yeager, D. S., and Tipton, E. 2022. "No Reason to Expect Large and Consistent Effects of Nudge Interventions." *Proceedings of the National Academy of Sciences* 119(31): e2200732119.

Szaszi, B., Palinkas, A., Palfi, B., Szollosi, A., and Aczel, B. 2018. "A Systematic Scoping Review of the Choice Architecture Movement: Toward Understanding When and Why Nudges Work." *Journal of Behavioral Decision Making* 31(3): 355–366.

Szekely, A., Lipari, F., Antonioni, A., Paolucci, M., Sánchez, A., Tummolini, L., and Andrighetto, G. 2021. "Evidence from a Long-Term Experiment That Collective Risks Change Social Norms and Promote Cooperation." *Nature Communications* 12(1): 5452.

Tabassum, N., and Nayak, B. S. 2021. "Gender Stereotypes and Their Impact on Women's Career Progressions from a Managerial Perspective." *IIM Kozhikode Society & Management Review* 10(2): 192–208.

Taberna, A., Filatova, T., Hadjimichael, A., and Noll, B. 2023. "Uncertainty in Boundedly Rational Household Adaptation to Environmental Shocks." *Proceedings of the National Academy of Sciences* 120(44): e2215675120.

Tajfel, H., and Turner, J. C. 2001. "An Integrative Theory of Intergroup Conflict." In Hogg, M. and Abrams, D., (eds.), *Intergroup Relations: Key Readings*.

Tajfel, H., Turner, J. C., Austin, W. G., and Worchel, S. 1979. "An Integrative Theory of Intergroup Conflict." In Austin, W. G. and Worchel, S., (eds.), *Psychology of Intergroup Relations*. Brooks/Cole Publishers.

Talhelm, T. 2020. "Emerging Evidence of Cultural Differences Linked to Rice Versus Wheat Agriculture." *Current Opinion in Psychology* 32: 81–88.

Tannenbaum, D., Maréchal, M. A., and Cohn, A. 2023. "A Closer Look at Civic Honesty in Collectivist Cultures." *Proceedings of the National Academy of Sciences* 120(49): e2313586120.

te Wierik, S. A., Cammeraat, E. L. H., Gupta, J., and Artzy-Randrup, Y. A. 2021. "Reviewing the Impact of Land Use and Land-Use Change on Moisture Recycling and Precipitation Patterns." *Water Resources Research* 57(7): e2020WR029234.

Teaiwa, K. 2021. "Artist Statement." *Journal of Human Rights and the Environment* 12(1): 100–102.

Thaler, R. H. 2018. "From Cashews to Nudges: The Evolution of Behavioral Economics." *American Economic Review* 108(6): 1265–1287.

Thaler, R. H., and Sunstein, C. R. 2003. "Libertarian Paternalism." *American Economic Review* 93(2): 175–179.

Thielmann, I., Spadaro, G., and Balliet, D. 2020. "Personality and Prosocial Behavior: A Theoretical Framework and Meta-Analysis." *Psychological Bulletin* 146(1): 30.

Thomas, C. C., and Markus, H. R. 2023. "Enculturating the Science of International Development: Beyond

the WEIRD Independent Paradigm." *Journal of Cross-Cultural Psychology* 54(2): 195–214.

Thomas, C. C., Otis, N. G., Abraham, J. R., Markus, H. R., and Walton, G. M. 2020. "Toward a Science of Delivering Aid with Dignity: Experimental Evidence and Local Forecasts from Kenya." *Proceedings of the National Academy of Sciences* 117(27): 15546–15553.

Thompson, A. Forthcoming. *Humanitarianism on Trial. How a Global System of Aid, Development and Human Rights Emerged through the End of Empire*. Oxford, UK: Oxford University Press.

Thompson, K. M. 2022. "Polio Eradication: What Kind of World Do We Want?" *The Lancet Infectious Diseases* 22(2): 161–163.

Thompson, K. M., and Kalkowska, D. A. 2021. "An Updated Economic Analysis of the Global Polio Eradication Initiative." *Risk Analysis* 41(2): 393–406.

Thompson, K. M., and Tebbens, R. J. D. 2007. "Eradication Versus Control for Poliomyelitis: An Economic Analysis." *The Lancet* 369(9570): 1363–1371.

Thompson, K. M., Kalkowska, D. A., and Badzadegan, K. 2022. "Health Economic Analysis of Vaccine Options for the Polio Eradication Endgame: 2022–2036." *Expert Review of Vaccines* 21(11): 1667–1674.

Tierney, J. E., Pausata, F. S. R., and deMenocal, P. B. 2017. "Rainfall Regimes of the Green Sahara." *Science Advances* 3(1): e1601503.

Tierney, J. E., Poulsen, C. J., Montañez, I. P., Bhattacharya, T., Feng, R., Ford, H. L., Hönisch, B., and others. 2020a. "Past Climates Inform Our Future." *Science* 370(6517).

Tierney, J. E., Zhu, J., King, J., Malevich, S. B., Hakim, G. J., and Poulsen, C. J. 2020b. "Glacial Cooling and Climate Sensitivity Revisited." *Nature* 584(7822): 569–573.

Tilman, A. R., Dixit, A. K., and Levin, S. A. 2019. "Localized Prosocial Preferences, Public Goods, and Common-Pool Resources." *Proceedings of the National Academy of Sciences* 116(12): 5305–5310.

Tingley, D., and Tomz, M. 2022. "The Effects of Naming and Shaming on Public Support for Compliance with International Agreements: An Experimental Analysis of the Paris Agreement." *International Organization* 76(2): 445–468.

Toivonen, H. 2022. "Themes of Climate Change Agency: A Qualitative Study on How People Construct Agency in Relation to Climate Change." *Humanities and Social Sciences Communications* 9(1): 102.

Tokita, C. K., Guess, A. M., and Tarnita, C. E. 2021. "Polarized Information Ecosystems Can Reorganize Social Networks Via Information Cascades." *Proceedings of the National Academy of Sciences* 118(50): e2102147118.

Tomasello, M. 1999. *The Cultural Origins of Human Cognition*. Cambridge, MA: Harvard university press.

Tomasello, M. 2022. *The Evolution of Agency*. Cambridge, MA: MIT Press.

Tomasello, M., and Vaish, A. 2013. "Origins of Human Cooperation and Morality." *Annual Review of Psychology* 64(1): 231–255.

Tomasello, M., Behne, T., Call, J., Carpenter, M., and Moll, H. 2005. "Understanding and Sharing Intentions: The Origins of Cultural Cognition." *Behavioral and Brain Sciences* 28(5): 675–691.

Tomasello, M., Melis, A. P., Tennie, C., Wyman, E., and Herrmann, E. 2012. "Two Key Steps in the Evolution of Human Cooperation: The Interdependence Hypothesis." *Current Anthropology* 53(6): 673–692.

Tooze, A. 2023. "Global Austerity, Chilean Cybernetics & the Santiago Boys, CPR's Battle Goes on & the Art Market Hits a Wall." <https://adamtooze.substack.com/p/global-austerity-chilean-cybernetics>. Accessed 3 August 2023.

Torcal, M., and Thomson, Z. A. 2023. "Social Trust and Affective Polarization in Spain (2014–19)." *Electoral Studies* 81: 102582.

Torgler, B., and Schneider, F. 2007. "Shadow Economy, Tax Morale, Governance and Institutional Quality: A Panel Analysis."

Törnberg, P. 2022. "How Digital Media Drive Affective Polarization through Partisan Sorting." *Proceedings of the National Academy of Sciences* 119(42): e2207159119.

Torres, L. 2021. "A Civil or Uncivil Civil Society?" Research Paper, New York University Center on International Cooperation, Pathfinders for Peaceful, Just and Inclusive Societies, New York.

Tørsløv, T., Wier, L., and Zucman, G. 2022. "The Missing Profits of Nations." *Review of Economic Studies* 90(3): 1499–1534.

Towse, A., Chalkidou, K., Firth, I., Kettler, H., and Silverman, R. 2021. "How Should the World Pay for a Coronavirus Disease (Covid-19) Vaccine?" *Value in Health* 24(5): 625–631.

Travers, H., Walsh, J., Vogt, S., Clements, T., and Milner-Gulland, E. J. 2021. "Delivering Behavioural Change at Scale: What Conservation Can Learn from Other Fields." *Biological Conservation* 257: 109092.

Trubowitz, P., and Burgoon, B. 2023. *Geopolitics and Democracy: The Western Liberal Order from Foundation to Fracture*. Oxford, UK: Oxford University Press.

Tucker, P. 2022. *Global Discord: Values and Power in a Fractured World Order*. Princeton, NJ: Princeton University Press.

Turchin, P. 2009. "A Theory for Formation of Large Empires." *Journal of Global History* 4(2): 191–217.

Turchin, P. 2013. "The Puzzle of Human Ultrasociality: How Did Large-Scale Complex Societies Evolve." In Richerson, P. and Christiansen, M. H., (eds.), *Cultural Evolution: Society, Technology, Language, and Religion*. Cambridge, MA: MIT Press.

Turchin, P. 2015. *Ultrasociety: How 10,000 Years of War Made Humans the Greatest Cooperators on Earth*. Chaplin, CT: Beresta Books

Tverskoi, D., Guido, A., Andrighetto, G., Sánchez, A., and Gavrillets, S. 2023. "Disentangling Material, Social, and Cognitive Determinants of Human Behavior and Beliefs." *Humanities and Social Sciences Communications* 10(1): 236.

Tversky, A., and Kahneman, D. 1992. "Advances in Prospect Theory: Cumulative Representation of Uncertainty." *Journal of Risk and Uncertainty* 5(4): 297–323.

Tyler, T. R. 2023. "Whither Legitimacy? Legal Authority in the Twenty-First Century." *Annual Review of Law and Social Science* 19(1): 1–17.

UCMP (University of California Museum of Paleontology). 2023. "Understanding Global Change – Phosphorus." <https://ugc.berkeley.edu/background-content/phosphorus/>. Accessed 10 November 2023.

Ulph, A., Pintassilgo, P., and Finus, M. 2019. "Uncertainty, Learning and International Environmental Agreements: The Role of Risk Aversion." *Environmental and Resource Economics* 73(4): 1165–1196.

Ulyssea, G. 2020. "Informality: Causes and Consequences for Development." *Annual Review of Economics* 12(1): 525–546.

Ulyssea, G., Bobba, M., and Gadenne, L. 2023. "Informality." *VoxDevLit* 6(1).

UN (United Nations) and World Bank 2018. *Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict*. New York: UN and Washington, DC: World Bank.

UN (United Nations). 2021. "Rapid Spread of Small Arms, Light Weapons Still Threatening World Peace, Exacerbating Plight of Civilians in Conflict Zones, Disarmament Chief Tells Security Council." SC/14656. UN, New York.

UN (United Nations). 2022. *The Sustainable Development Goals Report*. New York: UN.

UN (United Nations). 2023a. *United Nations Secretary-General's SDG Stimulus to Deliver Agenda 2030*. New York: UN.

UN (United Nations). 2023b. "Valuing What Counts: Framework to Progress Beyond Gross Domestic Product." Our Common Agenda Policy Brief 4. New York: UN.

UN (United Nations). 2023c. *The Sustainable Development Goals Report*. New York: UN.

UN (United Nations). 2023d. "Warning over Half of World Is Being Left Behind, Secretary-General Urges Greater Action to End Extreme Poverty, at Sustainable Development Goals Progress Report Launch." Press Release, 25 April. <https://press.un.org/en/2023/sgsm21776.doc.htm>.

UN Global Crisis Response Group 2023. *A World of Debt: A Growing Burden to Global Prosperity*. New York: United Nations.

UN Women (United Nations Entity for Gender Equality and the Empowerment of Women). 2015. *Preventing Conflict Transforming Justice Securing the Peace: A Global Study on the Implementation of United Nations Security Council Resolution 1325*. New York: UN Women.

UN Women (United Nations Entity for Gender Equality and the Empowerment of Women). 2021. *Measuring the Shadow Pandemic: Violence against Women During Covid-19*. New York: UN Women.

UN-Habitat (United Nations Human Settlements Programme). 2022. *World Cities Report 2022 Envisaging the Future of Cities*. Nairobi: UN-Habitat.

UNCTAD (United Nations Conference on Trade and Development). 2022. *Global Trade Update*. Geneva.

UNCTAD (United Nations Conference on Trade and Development). 2023. *Trade and Development Report 2023 Growth, Debt, and Climate: Realigning the Global Financial Architecture*. New York: UNCTAD.

Underhill-Sem, Y. J. 2011. "Feminist Political Ecology." In Vusvanathan, N. D., and Nisonoff, L. (ed.), *The Women, Gender and Development Reader*. London: Zed Books.

UNDESA (United Nations Department of Economic and Social Affairs). 2022. *World Population Prospects: The 2022 Revision*. New York. <https://population.un.org/wpp/>. Accessed 1 August 2023.

UNDESA (United Nations Department of Economic and Social Affairs). 2023. *World Economic Situation and Prospects 2023*. <https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-2023/>. Accessed 15 November 2023.

UNDESA (United Nations Department of Economic and Social Affairs). n.d. "Indigenous People: Culture." <https://www.un.org/development/desa/indigenouspeoples/mandated-areas/culture.html>.

UNDP (United Nations Development Programme) and Climate Impact Lab. 2022. "Human Climate Horizons." https://horizons.hdr.undp.org/#/news/empowering_people. Accessed 26 October 2023.

UNDP (United Nations Development Programme) and ESCWA (United Nations Economic and Social Commission for Western Asia). 2023. "Gaza War: Expected Socioeconomic Impacts on the State of Palestine - Preliminary Estimations until 5 November." https://www.undp.org/sites/g/files/zskgke326/files/2023-11/2301926e-policybrief-gazawar-escwa-undp-english-4pm_1.pdf.

UNDP (United Nations Development Programme). 2009. *Human Development Report 2009: Overcoming Barriers: Human Mobility and Development*. New York: UNDP.

UNDP (United Nations Development Programme). 2019. *Human Development Report 2019. Beyond Income, Beyond Averages, Beyond Today: Inequalities in Human Development in the 21st Century*. New York: UNDP.

UNDP (United Nations Development Programme). 2020a. *Covid-19 and Human Development: Assessing the Crisis, Envisioning the Recovery*. New York: UNDP.

UNDP (United Nations Development Programme). 2020b. *Human Development Report 2020. The Next Frontier: Human Development and the Anthropocene*. New York: UNDP.

UNDP (United Nations Development Programme). 2022a. *Human Development Report 2021/2022. Uncertain Times, Unsettled Lives: Shaping Our Future in a World in Transformation*. New York: UNDP.

UNDP (United Nations Development Programme). 2022b. *New Threats to Human Security in the*

Anthropocene: Demanding Greater Solidarity. New York: UNDP.

UNDP (United Nations Development Programme). 2023a. *2023 Gender Social Norms Index. Breaking Down Gender Biases: Shifting Social Norms Towards Gender Equality*. New York: UNDP.

UNDP (United Nations Development Programme). 2023b. *Soldiers and Citizens: Military Coups and the Need for Democratic Renewal in Africa*. New York: UNDP.

UNDP (United Nations Development Programme). 2023c. *Digital Public Goods for the SDGs: Emerging Insights on Sustainability, Replicability & Partnerships*. New York: UNDP.

UNDP (United Nations Development Programme). 2024. *Human Climate Horizons*. <https://horizons.hdr.undp.org/>.

UNESCO (United Nations Educational Scientific and Cultural Organization). 2023. "Scientific Research Cooperation: Why Collaborate in Science? Benefits and Examples." <https://www.unesco.org/en/scientific-research-cooperation-why-collaborate-science-benefits-and-examples>. Accessed 20 August 2023.

UNESCO (United Nations Educational Scientific and Cultural Organization). 2022. *Journalism Is a Public Good: World Trends in Freedom of Expression and Media Development, Global Report 2021/2022*. Paris: UNESCO.

UNESCO (United Nations Educational, Scientific and Cultural Organization) Institute for Statistics. 2023. *UIS Developer Portal, Bulk Data Download Service*. <https://apiportal.uis.unesco.org/bdds>. Accessed 19 September 2023.

UNHCR (Office of the United Nations High Commissioner for Refugees). 2023a. "2023: A Moment of Truth for Global Displacement." <https://www.unhcr.org/spotlight/2023/01/2023-a-moment-of-truth-for-global-displacement/>.

UNHCR (Office of the United Nations High Commissioner for Refugees). 2023b. *2023 Global Compact on Refugees: Indicator Report*. Geneva: UNHCR.

UNHCR (Office of the United Nations High Commissioner for Refugees). 2023c. *Refugee Data Finder*. <https://www.unhcr.org/refugee-statistics/download/>.

UNICEF (United Nations Children's Fund). 2021. *The State of the World's Children 2021: On My Mind: Promoting, Protecting and Caring for Children's Mental Health*. New York: UNICEF.

United Nations Secretary-General. 2023. "Note to Correspondents – on a United Nations Framework Convention on International Tax Cooperation." 30 November. <https://www.un.org/sg/en/content/sg/note-correspondents/2023-11-30/note-correspondents-%E2%80%93-united-nations-framework-convention-international-tax-cooperation>.

United Nations Statistics Division. 2023. *National Accounts Main Aggregates Database*. <http://unstats.un.org/unsd/snaama>. Accessed 15 November 2023.

Uppsala Conflict Data Program. 2023.

- Ürge-Vorsatz, D., Herrero, S. T., Dubash, N. K., and Lecocq, F. 2014.** "Measuring the Co-Benefits of Climate Change Mitigation." *Annual Review of Environment and Resources* 39(1): 549–582.
- USA for UNHCR. 2023.** "Rohingya Refugee Crisis Explained." <https://www.unrefugees.org/news/rohingya-refugee-crisis-explained/>. Accessed 5 November 2023.
- Usher, A. D. 2020.** "WHO Launches Crowdfund for Covid-19 Response." *The Lancet* 395(10229): 1024.
- Usher, A. D. 2021.** "A Beautiful Idea: How COVAX Has Fallen Short." *The Lancet* 397(10292): 2322–2325.
- Uslaner, E. M. 1999.** "Democracy and Social Capital." In Warren, M. E., (ed.) *Democracy and Trust*. Cambridge, UK: Cambridge University Press.
- Uslaner, E. M. 2008.** "Where You Stand Depends Upon Where Your Grandparents Sat: The Inheritability of Generalized Trust." *Public Opinion Quarterly* 72(4): 725–740.
- Uslaner, E. M. 2019.** "The Historical Roots of Well-Being and Social Cohesion." UNDP Human Development Report Background Paper, UNDP-HDRO, New York.
- Vaidyanathan, G. 2024.** "A Giant Fund for Climate Disasters Will Soon Open. Who Should Be Paid First?" *Nature*, 29 January. <https://www.nature.com/articles/d41586-024-00149-x>.
- Van Aaken, A. 2018.** "Behavioral Aspects of the International Law of Global Public Goods and Common Pool Resources." *American Journal of International Law* 112(1): 67–79.
- Van Aaken, A., and Broude, T. 2020.** "The Psychology of International Law: An Introduction." *European Journal of International Law* 30(4): 1225–1236.
- Van Bavel, J. J., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., Crockett, M. J., and others. 2020.** "Using Social and Behavioural Science to Support Covid-19 Pandemic Response." *Nature Human Behaviour*: 1–12.
- Van Bavel, J. J., Pärnamets, P., Reinero, D. A., Packer, D., Pärnamets, P., Reinero, D., and Packer, D. 2022.** "How Neurons, Norms, and Institutions Shape Group Cooperation." *Advances in Experimental Social Psychology* 66: 59–105.
- Van Bavel, J. J., Pretus, C., Rathje, S., Pärnamets, P., Vlasceanu, M., and Knowles, E. D. Forthcoming.** "The Costs of Polarizing a Pandemic: Antecedents, Consequences, and Lessons." *Perspectives on Psychological Science*: 17456916231190395.
- Van den Boogaard, V., Prichard, W., and Jibao, S. 2018.** "Informal Taxation in Sierra Leone: Magnitudes, Perceptions and Implications." *African Affairs* 118(471): 259–284.
- van der Does, T., Galesic, M., Dunivin, Z. O., and Smaldino, P. E. 2022.** "Strategic Identity Signaling in Heterogeneous Networks." *Proceedings of the National Academy of Sciences* 119(10): e2117898119.
- Van der Zee, E., Fikfak, V., and Peat, D. 2021.** "Introduction to the Symposium on Limitations of the Behavioral Turn in International Law." *AJIL Unbound* 115: 237–241.
- Van Doesum, N. J., Murphy, R. O., Gallucci, M., Aharonov-Majar, E., Athenstaedt, U., Au, W. T., Bai, L., and others. 2021.** "Social Mindfulness and Prosociality Vary across the Globe." *Proceedings of the National Academy of Sciences* 118(35): e2023846118.
- Van Doesum, N. J., Murphy, R. O., Gallucci, M., Aharonov-Majar, E., Athenstaedt, U., Au, W. T., Bai, L., and others. 2022.** "Reply to Komatsu et al.: From Local Social Mindfulness to Global Sustainability Efforts?" *Proceedings of the National Academy of Sciences* 119(4): e2119303118.
- Van Lange, P. A. M., and Rand, D. G. 2022.** "Human Cooperation and the Crises of Climate Change, Covid-19, and Misinformation." *Annual Review of Psychology* 73(1): 379–402.
- Van Long, N. 2020.** "A Dynamic Game with Interaction between Kantian Players and Nashian Players." In Pineau, P.-O., Sigué, S. and Taboubi, S., (eds.), *Games in Management Science*. Springer.
- van Prooijen, J.-W. 2021.** "The Psychology of Political Polarization: An Introduction." In *The Psychology of Political Polarization*. New York: Routledge.
- van Prooijen, J.-W., Krouwel, A. P. M., Boiten, M., and Eendebak, L. 2015.** "Fear among the Extremes: How Political Ideology Predicts Negative Emotions and Outgroup Derogation." *Personality and Social Psychology Bulletin* 41(4): 485–497.
- Van Roekel, H., Giurge, L. M., Schott, C., and Tummers, L. 2023.** "Nudges Can Be Both Autonomy-Preserving and Effective: Evidence from a Survey and Quasi-Field Experiment." *Behavioural Public Policy*: 1–24.
- Van Zomeren, M., Postmes, T., and Spears, R. 2008.** "Toward an Integrative Social Identity Model of Collective Action: A Quantitative Research Synthesis of Three Socio-Psychological Perspectives." *Psychological Bulletin* 134(4): 504.
- Vasconcelos, V. V., Constantino, S. M., Dannenberg, A., Lumkowsky, M., Weber, E., and Levin, S. 2021.** "Segregation and Clustering of Preferences Erode Socially Beneficial Coordination." *Proceedings of the National Academy of Sciences* 118(50): e2102153118.
- Vlasceanu, M., and Doell, K. C., and Bak-Coleman, J. B., and Todorova, B., and Berkebile-Weinberg, M. M., and Grayson, S. J., Patel, Y., and others. 2024.** "Addressing Climate Change with Behavioral Science: A Global Intervention Tournament in 63 Countries." *Science Advances* 10(6): eadj5778.
- Vicary, S., and Sandler, T. 2002.** "Weakest-Link Public Goods: Giving in-Kind or Transferring Money." *European Economic Review* 46(8): 1501–1520.
- Victor, D. G., Lumkowsky, M., and Dannenberg, A. 2022.** "Determining the Credibility of Commitments in International Climate Policy." *Nature Climate Change* 12(9): 793–800.
- Vitousek, P. M., Aber, J. D., Howarth, R. W., Likens, G. E., Matson, P. A., Schindler, D. W., Schlesinger, W. H., and Tilman, D. G. 1997.** "Human Alteration of the Global Nitrogen Cycle: Sources and Consequences." *Ecological Applications* 7(3): 737–750.
- Vivalt, E. 2020.** "How Much Can We Generalize from Impact Evaluations?" *Journal of the European Economic Association* 18(6): 3045–3089.
- Vlasceanu, M., Doell, K., Bak-Coleman, J., and Van Bavel, J. J. 2023.** "Addressing Climate Change with Behavioral Science: A Global Intervention Tournament in 63 Countries." *Science Advances* 10(06).
- Vogt, S., Mohammed Zaid, N. A., El Fadil Ahmed, H., Fehr, E., and Efferson, C. 2016.** "Changing Cultural Attitudes Towards Female Genital Cutting." *Nature* 538(7626): 506–509.
- von Flüe, L., Efferson, C., and Vogt, S. 2024.** "Green Preferences Sustain Greenwashing: Challenges in the Cultural Transition to a Sustainable Future." *Philosophical Transactions of the Royal Society B: Biological Sciences* 379(1893): 20220268.
- Voors, M. J., Nillesen, E. E. M., Verwimp, P., Bulte, E. H., Lensink, R., and Van Soest, D. P. 2012.** "Violent Conflict and Behavior: A Field Experiment in Burundi." *American Economic Review* 102(2): 941–964.
- Vu, L., Soraperra, I., Leib, M., van der Weele, J., and Shalvi, S. 2023.** "Ignorance by Choice: A Meta-Analytic Review of the Underlying Motives of Willful Ignorance and Its Consequences." *Psychological Bulletin* 149(9–10): 611.
- Wagner, C. E., Prentice, J. A., Saad-Roy, C. M., Yang, L., Grenfell, B. T., Levin, S. A., and Laxminarayan, R. 2020.** "Economic and Behavioral Influencers of Vaccination and Antimicrobial Use." *Frontiers in Public Health* 8: 975.
- Wagner, M. 2021.** "Affective Polarization in Multiparty Systems." *Electoral Studies* 69: 102199.
- Waichman, I., Requate, T., Karde, M., and Miliński, M. 2021.** "Challenging Conventional Wisdom: Experimental Evidence on Heterogeneity and Coordination in Avoiding a Collective Catastrophic Event." *Journal of Environmental Economics and Management* 109: 102502.
- Walgrave, S., Jansen, A., Sevenans, J., Soontjens, K., Pilet, J.-B., Brack, N., Varone, F., and others. 2023.** "Inaccurate Politicians: Elected Representatives' Estimations of Public Opinion in Four Countries." *The Journal of Politics* 85(1): 209–222.
- Wallach, O. 2021.** "The World's Tech Giants, Compared to the Size of Economies." <https://www.visualcapitalist.com/the-tech-giants-worth-compared-economies-countries/>. Accessed 5 November 2023.
- Walter, S. 2021a.** "Brexit Domino? The Political Contagion Effects of Voter-Endorsed Withdrawals from International Institutions." *Comparative Political Studies* 54(13): 2382–2415.
- Walter, S. 2021b.** "The Backlash against Globalization." *Annual Review of Political Science* 24: 421–442.
- Wang, H., Paulson, K. R., Pease, S. A., Watson, S., Comfort, H., Zheng, P., Aravkin, A. Y., and others. 2022.** "Estimating Excess Mortality Due to the Covid-19 Pandemic: A Systematic Analysis of Covid-19-Related Mortality, 2020–21." *The Lancet* 399(10334): 1513–1536.
- Wang, Y., Ge, J., Zhang, H., Wang, H., and Xie, X. 2020.** "Altruistic Behaviors Relieve Physical Pain." *Proceedings of the National Academy of Sciences* 117(2): 950–958.

- Waring, T. M., Goff, S. H., and Smaldino, P. E. 2017.** "The Coevolution of Economic Institutions and Sustainable Consumption Via Cultural Group Selection." *Ecological Economics* 131: 524–532.
- Waring, T. M., Kline, M. A., Brooks, J. S., Goff, S. H., Gowdy, J., Janssen, M. A., Smaldino, P. E., and Jacques, J. 2015.** "A Multilevel Evolutionary Framework for Sustainability Analysis." *Ecology and Society* 20(2).
- Waring, T. M., Wood, Z. T., and Szathmáry, E. 2024.** "Characteristic Processes of Human Evolution Caused the Anthropocene and May Obstruct Its Global Solutions." *Philosophical Transactions of the Royal Society B: Biological Sciences* 379(1893): 20220259.
- Warr, P. G. 1983.** "The Private Provision of a Public Good Is Independent of the Distribution of Income." *Economics Letters* 13(2): 207–211.
- Watene, K., and Merino, R. 2018.** "Indigenous Peoples: Self-Determination, Decolonization, and Indigenous Philosophies." In Drydyk, J., and Keleher, L., (eds.), *Routledge Handbook of Development Ethics*. Milton Park, UK: Routledge.
- Waters, C. N., Head, M. J., Zalasiewicz, J., McCarthy, F. M. G., Wing, S. L., Haff, P. K., Williams, M., and others. 2023.** "Response to Merritts et al. (2023): The Anthropocene Is Complex. Defining It Is Not." *Earth-Science Reviews* 238: 104335.
- Watson, O. J., Barnsley, G., Toor, J., Hogan, A. B., Winkskill, P., and Ghani, A. C. 2022.** "Global Impact of the First Year of Covid-19 Vaccination: A Mathematical Modelling Study." *The Lancet Infectious Diseases* 22(9): 1293–1302.
- Watts, J., Greenhill, S. J., Atkinson, Q. D., Currie, T. E., Bulbulia, J., and Gray, R. D. 2015.** "Broad Supernatural Punishment but Not Moralizing High Gods Precede the Evolution of Political Complexity in Austronesia." *Proceedings of the Royal Society B: Biological Sciences* 282(1804): 20142556.
- Weber, M. 2016.** "Economy and Society." *Democracy: A Reader*. New York: Columbia University Press.
- Webster, S. W., and Albertson, B. 2022.** "Emotion and Politics: Noncognitive Psychological Biases in Public Opinion." *Annual Review of Political Science* 25(1): 401–418.
- WEF (World Economic Forum). 2022.** "5 Ways the Covid-19 Pandemic Has Changed the Supply Chain." <https://www.weforum.org/agenda/2022/01/5-ways-the-covid-19-pandemic-has-changed-the-supply-chain/>. Accessed 5 August 2023.
- WEF (World Economic Forum). 2023a.** *A Global Rewiring: Redefining Global Value Chains for the Future*. Geneva: WEF.
- WEF (World Economic Forum). 2023b.** "What's the Difference between 'Friendshoring' and Other Global Trade Buzzwords?" <https://www.weforum.org/agenda/2023/02/friendshoring-global-trade-buzzwords/>. Accessed 23 October 2023.
- WEF (World Economic Forum). 2023c.** *The Global Risks Report 2023: 18th Edition: Insight Report*. Geneva: World Economic Forum.
- Weible, C. M., Nohrstedt, D., Cairney, P., Carter, D. P., Crow, D. A., Durnová, A. P., Heikkilä, T., and others. 2020.** "Covid-19 and the Policy Sciences: Initial Reactions and Perspectives." *Policy Sciences* 53(2): 225–241.
- Weiss, C. M., Ran, S., and Halperin, E. 2023.** "Educating for Inclusion: Diversity Education Programs Can Reduce Prejudice toward Outgroups in Israel." *Proceedings of the National Academy of Sciences* 120(16): e2218621120.
- Wellcome Trust. 2022.** Covid-19 Vaccines: The Factors That Enabled Unprecedented Timelines for Clinical Development and Regulatory Authorisation.
- Welsch, H. 2022.** "Do Social Norms Trump Rational Choice in Voluntary Climate Change Mitigation? Multi-Country Evidence of Social Tipping Points." *Ecological Economics* 200: 107509.
- Wendt, A. 1992.** "Anarchy Is What States Make of It: The Social Construction of Power Politics." *International Organization* 46(2): 391–425.
- Wenzel, M. 2005.** "Misperceptions of Social Norms About Tax Compliance: From Theory to Intervention." *Journal of Economic Psychology* 26(6): 862–883.
- West, S. A., and Ghoul, M. 2019.** "Conflict within Cooperation." *Current Biology* 29(11): R425–R426.
- West, S. A., Cooper, G. A., Ghoul, M. B., and Griffin, A. S. 2021.** "Ten Recent Insights for Our Understanding of Cooperation." *Nature Ecology & Evolution* 5(4): 419–430.
- West, S. A., Gardner, A., Shuker, D. M., Reynolds, T., Burton-Chellow, M., Sykes, E. M., Guinnee, M. A., and Griffin, A. S. 2006.** "Cooperation and the Scale of Competition in Humans." *Current Biology* 16(11): 1103–1106.
- West, S. A., Griffin, A. S., and Gardner, A. 2007a.** "Evolutionary Explanations for Cooperation." *Current Biology* 17(16): R661–R672.
- West, S. A., Griffin, A. S., and Gardner, A. 2007b.** "Social Semantics: Altruism, Cooperation, Mutualism, Strong Reciprocity and Group Selection." *Journal of Evolutionary Biology* 20(2): 415–432.
- Westra, E., Fitzpatrick, S., Brosnan, S. F., Gruber, T., Hobaiter, C., Hopper, L. M., Kelly, D., and others. Forthcoming.** "In Search of Animal Normativity: A Framework for Studying Social Norms in Non-Human Animals." *Biological Reviews*.
- White, C. J. M., Kelly, J. M., Shariff, A. F., and Norenzayan, A. 2019.** "Supernatural Norm Enforcement: Thinking About Karma and God Reduces Selfishness among Believers." *Journal of Experimental Social Psychology* 84: 103797.
- White, C. J. M., Muthukrishna, M., and Norenzayan, A. 2021.** "Cultural Similarity among Coreligionists within and between Countries." *Proceedings of the National Academy of Sciences* 118(37): e2109650118.
- White, C., and Costello, C. 2014.** "Close the High Seas to Fishing?" *PLOS Biology* 12(3): e1001826.
- White, J. 2023.** *In the Long Run: The Future as a Political Idea*. London: Profile Books.
- White, O., Woetzel, J., Smit, S., Seong, J., and Devesa, T. 2023.** "The Complication of Concentration in Global Trade." McKinsey Global Institute, 12 January.
- White, S. C., and Jha, S. 2023.** "Exploring the Relation in Relational Wellbeing." *Social Sciences* 12(11): 600.
- Whitehouse, H. 2018.** "Dying for the Group: Towards a General Theory of Extreme Self-Sacrifice." *Behavioral and Brain Sciences* 41: e192.
- Whitehouse, H., and Lanman, J. A. 2014.** "The Ties That Bind Us: Ritual, Fusion, and Identification." *Current Anthropology* 55(6): 674–695.
- WHO (World Health Organization). 2019.** "Two Out of Three Wild Poliovirus Strains Eradicated." 24 October. <https://www.who.int/news-room/feature-stories/detail/two-out-of-three-wild-poliovirus-strains-eradicated>. Accessed 15 December 2023.
- WHO (World Health Organization). 2020.** "Coronavirus Disease (COVID-19): Herd Immunity, Lockdowns and COVID-19." Q&A, updated 31 December. <https://www.who.int/news-room/questions-and-answers/item/herd-immunity-lockdowns-and-covid-19>. Accessed 15 December 2023.
- WHO (World Health Organization). 2021a.** The Global Health Observatory. Geneva: WHO. <https://www.who.int/data/gho>.
- WHO (World Health Organization). 2021b.** "Solidarity Call to Action." Geneva: WHO.
- WHO (World Health Organization). 2021c.** "World Health Assembly Agrees to Launch Process to Develop Historic Global Accord on Pandemic Prevention, Preparedness and Response." News release, 1 December. <https://www.who.int/news/item/01-12-2021-world-health-assembly-agrees-to-launch-process-to-develop-historic-global-accord-on-pandemic-prevention-preparedness-and-response>. Accessed 15 December 2023.
- WHO (World Health Organization). 2022a.** *COVAX Calls for Urgent Action to Close Vaccine Equity Gap*. Geneva: WHO.
- WHO (World Health Organization). 2022b.** "Mental Health and Covid-19: Early Evidence of the Pandemic's Impact." Scientific Brief, 2 March. Geneva: WHO.
- WHO (World Health Organization). 2023.** *Criteria for the Certification of Dracunculiasis Eradication, 2023 Update*. Geneva.
- Whyte, K. C., C. J., 2016.** "Ethics of Caring in Environmental Ethics: Indigenous and Feminist Philosophies." In Gardiner, S., and Thompson, A., (eds.), *The Oxford Handbook of Environmental Ethics*. Oxford, UK: Oxford University Press.
- Wiest, S. L., Raymond, L., and Clawson, R. A. 2015.** "Framing, Partisan Predispositions, and Public Opinion on Climate Change." *Global Environmental Change* 31: 187–198.
- Wildavsky, A. 1987.** "Choosing Preferences by Constructing Institutions: A Cultural Theory of Preference Formation." *American Political Science Review* 81(1): 3–21.
- Wildavsky, A., Dake, K., and Darwin, C. 2001.** "Theories of Risk Perception: Who Fears What and Why." In Gerrard, S., and others (eds.), *Environmental Risk Planning And Management*. Northampton, MA: Edward Elgar Pub.

- Wilkinson, A., MacGregor, H., Scoones, I., Schmidt-Sane, M., Leach, M., Taylor, P., Ripoll, S., and others. 2023.** Pandemic Preparedness for the Real World: Why We Must Invest in Equitable, Ethical and Effective Approaches to Help Prepare for the Next Pandemic. Brighton, UK: Institute for Development Studies.
- Wilkinson, A., Parker, M., Martineau, F., and Leach, M. 2017.** "Engaging 'Communities': Anthropological Insights from the West African Ebola Epidemic." *Philosophical Transactions of the Royal Society B: Biological Sciences* 372(1721): 20160305.
- Williams, G. J., Graham, N. A., Jouffray, J. B., Norström, A. V., Nyström, M., Gove, J. M., Heenan, A., and Wedding, L. M. 2019.** "Coral Reef Ecology in the Anthropocene." *Functional Ecology* 33(6): 1014–1022.
- Williamson, A., Forman, R., Azzopardi-Muscat, N., Battista, R., Colombo, F., Glassman, A., Marimont, J. F., and others. 2022.** "Effective Post-Pandemic Governance Must Focus on Shared Challenges." *The Lancet* 399(10340): 1999–2001.
- Wilson, D. S. 2019.** *This View of Life: Completing the Darwinian Revolution*. New York, NY: Knopf Doubleday.
- Wilson, D. S., Madhavan, G., Gelfand, M. J., Hayes, S. C., Atkins, P. W. B., and Colwell, R. R. 2023.** "Multi-level Cultural Evolution: From New Theory to Practical Applications." *Proceedings of the National Academy of Sciences* 120(16): e221822120.
- Winkelmann, R., Donges, J. F., Smith, E. K., Milkoreit, M., Eder, C., Heitzig, J., Katsanidou, A., and others. 2022.** "Social Tipping Processes Towards Climate Action: A Conceptual Framework." *Ecological Economics* 192: 107242.
- Winkler, M. 2021.** "Do Disasters Affect the Tightness of Social Norms." Job Market Paper. Harvard University, Cambridge, MA.
- Winters, L. A., McCulloch, N., and McKay, A. 2004.** "Trade Liberalization and Poverty: The Evidence So Far." *Journal of Economic Literature* 42(1): 72–115.
- WIPO (World Intellectual Property Organization). 2017.** "Chapter 4 Smartphones: What's Inside the Box?" In *World Intellectual Property Report 2017 – Intangible Capital in Global Value Chains*. Geneva: WIPO.
- Wolf, M. 2023.** *The Crisis of Democratic Capitalism*. London, UK: Penguin.
- Wolf, M. 2024.** The Story Remains One of Integration. *The Financial Times Special Report*, 19 January.
- Woolcock, M., and Narayan, D. 2000.** "Social Capital: Implications for Development Theory, Research, and Policy." *The World Bank Research Observer* 15(2): 225–249.
- Woolley, O., and Harrington, C. 2022.** "Law and Governance in the Anthropocene." *Global Policy* 13(S3): 5–10.
- World Bank. 2017.** *The Sunken Billions Revisited: Progress and Challenges in Global Marine Fisheries*. Washington, DC: World Bank.
- World Bank. 2018a.** *Global Investment Competitiveness Report 2017/2018: Foreign Investor Perspectives and Policy Implications*. Washington, D.C.: The World Bank.
- World Bank. 2018b.** *Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict*. Washington, DC: World Bank.
- World Bank. 2022.** *Poverty and Shared Prosperity 2022: Correcting Course*. Washington DC: World Bank.
- World Bank. 2023.** World Development Indicators database. Washington, DC. <http://data.worldbank.org>. Accessed 7 November 2023.
- Wouters, O. J., Shadlen, K. C., Salcher-Konrad, M., Pollard, A. J., Larson, H. J., Teerawattananon, Y., and Jit, M. 2021.** "Challenges in Ensuring Global Access to Covid-19 Vaccines: Production, Affordability, Allocation, and Deployment." *The Lancet* 397(10278): 1023–1034.
- WTO (World Trade Organization). 2023.** *Global Trade Outlook and Statistics*. Geneva: WTO.
- Wu, F., Zhao, S., Yu, B., Chen, Y.-M., Wang, W., Song, Z.-G., Hu, Y., and others. 2020.** "A New Coronavirus Associated with Human Respiratory Disease in China." *Nature* 579(7798): 265–269.
- Wu, G. S. T., and Wan, W. T. S. 2023.** "What Drives the Cross-Border Spillover of Climate Transition Risks? Evidence from Global Stock Markets." *International Review of Economics & Finance* 85: 432–447.
- Wu, J. S.-T., Hauert, C., Kremen, C., and Zhao, J. 2022.** "A Framework on Polarization, Cognitive Inflexibility, and Rigid Cognitive Specialization." *Frontiers in Psychology* 13: 1386.
- Wu, Q., Ke, L., Wang, J., Pavelsky, T. M., Allen, G. H., Sheng, Y., Duan, X., and others. 2023.** "Satellites Reveal Hotspots of Global River Extent Change." *Nature Communications* 14(1): 1587.
- Wullenkord, M. C., Tröger, J., Hamann, K. R. S., Loy, L. S., and Reese, G. 2021.** "Anxiety and Climate Change: A Validation of the Climate Anxiety Scale in a German-Speaking Quota Sample and an Investigation of Psychological Correlates." *Climatic Change* 168(3): 20.
- Xing, Y., Gentile, E., and Dollar, D. 2021.** *Global Value Chain Development Report 2021: Beyond Production*. Manila: Asian Development Bank; Beijing: Research Institute for Global Value Chains at the University of International Business and Economics; Geneva: World Trade Organization; Chiba, Japan: Institute of Developing Economies–Japan External Trade Organization; and Beijing: China Development Research Foundation.
- Xu, C., Kohler, T. A., Lenton, T. M., Svenning, J.-C., and Scheffer, M. 2020.** "Future of the Human Climate Niche." *Proceedings of the National Academy of Sciences* 117(21): 11350–11355.
- Xu, X., Metsälampi, S., Kirchner, M., Kotakorpi, K., Matthews, P. H., and Miettinen, T. 2023.** "Which Income Comparisons Matter to People, and How? Evidence from a Large Field Experiment." Working Paper 2023-05, Faculty of Economics and Statistics, Universität Innsbruck.
- Xygalatas, D., Mitkidis, P., Fischer, R., Reddish, P., Skewes, J., Geertz, A. W., Roepstorff, A., and Bulbulia, J. 2013.** "Extreme Rituals Promote Prosociality." *Psychological Science* 24(8): 1602–1605.
- Yagan, D. 2019.** "Employment Hysteresis from the Great Recession." *Journal of Political Economy* 127(5): 2505–2558.
- Yamagishi, T., and Yamagishi, M. 1994.** "Trust and Commitment in the United States and Japan." *Motivation and Emotion* 18(2): 129–166.
- Yang, H., Meng, K. C., and Suh, S. 2023.** "Spatial Distributions of Stranded Fossil Asset Costs and Benefits from Climate Change Mitigation." *Environmental Research Communications* 5(6): 061001.
- Yang, Q., Zhang, W., Liu, S., Gong, W., Han, Y., Lu, J., Jiang, D., and others. 2023.** "Unraveling Controversies over Civic Honesty Measurement: An Extended Field Replication in China." *Proceedings of the National Academy of Sciences* 120(29): e2213824120.
- Yap, M., and Watene, K. Forthcoming.** "The Inclusion of Culture in the Sustainable Development Goals: Some Learnings from Gender and Wellbeing in Australia and Aotearoa New Zealand." In Dunhanty, A. B., S., (ed.), *Gender and Development: A 21st Century Renewal in Australia and the Pacific*. Routledge.
- Yap, M., and Yu, E. 2019.** "The Yawuru Way." *Routledge Handbook of Indigenous Wellbeing*, London: Routledge.
- Yarkoni, T. 2022.** "The Generalizability Crisis." *Behavioral and Brain Sciences* 45: e1.
- Yeager, D. S., Krosnick, J. A., Visser, P. S., Holbrook, A. L., and Tahk, A. M. 2019.** "Moderation of Classic Social Psychological Effects by Demographics in the U.S. Adult Population: New Opportunities for Theoretical Advancement." *Journal of Personality and Social Psychology* 117(6): e84–e99.
- Yıldız, E., and Yüksel, U. 2022.** "Understanding the Limitations of Behavioralism: Lessons from the Field of Maritime Delimitation." *German Law Journal* 23(3): 413–430.
- Yonzan, N., Gerszon Mahler, D., and Lakner, C. 2023.** "Poverty Is Back to Pre-Covid Levels Globally, but Not for Low-Income Countries." Data Blog, 3 October. <https://blogs.worldbank.org/opendata/poverty-back-pre-covid-levels-globally-not-low-income-countries>. Accessed 5 November 2023.
- Youngflesh, C., Montgomery, G. A., Saracco, J. F., Miller, D. A. W., Guralnick, R. P., Hurlbert, A. H., Siegel, R. B., LaFrance, R., and Tingley, M. W. 2023.** "Demographic Consequences of Phenological Asynchrony for North American Songbirds." *Proceedings of the National Academy of Sciences* 120(28): e2221961120.
- Youyou, W., Yang, Y., and Uzzi, B. 2023.** "A Discipline-Wide Investigation of the Replicability of Psychology Papers over the Past Two Decades." *Proceedings of the National Academy of Sciences* 120(6): e2208863120.
- Yudkin, D., Hawkins, S., and Dixon, T. 2019.** "The Perception Gap: How False Impressions Are Pulling Americans Apart." New York: More in Common.
- Zafra-Calvo, N., Balvanera, P., Pascual, U., Merçon, J., Martín-López, B., van Noordwijk, M., Mwampamba, T. H., and others. 2020.** "Plural Valuation of Nature for Equity and Sustainability: Insights from the Global South." *Global Environmental Change* 63: 102115.

- Zedillo, E., Thiam, T., Amoako, K., Andersson, G.-B., Bergsten, C. F., Dervis, K., El-Ashry, M. T., and others. 2006.** *Meeting Global Challenges: International Cooperation in the National Interest*. Report of the International Task Force on Global Public Goods.
- Zeif, D., and Yechiam, E. 2022.** "Loss Aversion (Simply) Does Not Materialize for Smaller Losses." *Judgment and Decision Making* 17(5): 1015–1042.
- Zeng, T. C., Aw, A. J., and Feldman, M. W. 2018.** "Cultural Hitchhiking and Competition between Patrilineal Kin Groups Explain the Post-Neolithic Y-Chromosome Bottleneck." *Nature Communications* 9(1): 2077.
- Zhang, R. J., Liu, J. H., Lee, M., Lin, M.-h., Xie, T., Chen, S. X., Leung, A. K.-y., and others. 2024.** "Continuities and Discontinuities in the Cultural Evolution of Global Consciousness." *Philosophical Transactions of the Royal Society B: Biological Sciences* 379(1893): 20220263.
- Zhang, W., Sun, Y., Liu, S., Zhou, X., Yang, Q., and Zhang, Q. 2023.** "Reply to Tannenbaum et al.: Constructive Dialogue Advancing Research on Civic Honesty." *Proceedings of the National Academy of Sciences* 120(49): e2316228120.
- Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J., Zhao, X., and others. 2020.** "A Novel Coronavirus from Patients with Pneumonia in China, 2019." *New England Journal of Medicine* 382(8): 727–733.
- Zhvanko, L., and Gatrell, P. 2017.** "Europe on the Move: Refugees in the Era of the Great War." In *Europe on the Move*. Manchester, UK: Manchester University Press.
- Ziedan, E., Simon, K. I., and Wing, C. 2022.** "Mortality Effects of Healthcare Supply Shocks: Evidence Using Linked Deaths and Electronic Health Records." NBER Working Paper 30553, National Bureau of Economic Research, Cambridge, MA.
- Zieger, R. H. 1969.** *Republicans and Labor, 1919-1929*. Lexington, KY: University of Kentucky Press.
- Ziegler, M. S., Song, J., and Trancik, J. E. 2021.** "Determinants of Lithium-Ion Battery Technology Cost Decline." *Energy & Environmental Science* 14(12): 6074–6098.
- Ziervogel, G., Cowen, A., and Ziniades, J. 2016.** "Moving from Adaptive to Transformative Capacity: Building Foundations for Inclusive, Thriving, and Regenerative Urban Settlements." *Sustainability: Science, Practice and Policy* 8(9): 955.
- Zimmermann, F. 2020.** "The Dynamics of Motivated Beliefs." *American Economic Review* 110(2): 337–361.
- Zürn, M., Binder, M., and Ecker-Ehrhardt, M. 2012.** "International Authority and Its Politicization." *International Theory* 4(1): 69–106.
- Zwaan, R. A., Etz, A., Lucas, R. E., and Donnellan, M. B. 2018.** "Making Replication Mainstream." *Behavioral and Brain Sciences* 41: e120.

Statistical annex

Statistical annex

READERS GUIDE **269**

HUMAN DEVELOPMENT COMPOSITE INDICES

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Readers guide

The tables provide an overview of key aspects of human development. The seven tables contain the family of composite human development indices and their components estimated by the Human Development Report Office (HDRO). The sixth table, on multidimensional poverty, is produced in partnership with the Oxford Poverty and Human Development Initiative.

Tables 1–7 are part of the 2023/2024 Human Development Report. The full set of seven statistical tables is available for download at <https://hdr.undp.org/en/human-development-report-2023-24>. Unless otherwise noted, tables use data available to the HDRO as of 31 October 2023. All indices and indicators, along with technical notes on the calculation of composite indices and additional source information, are available at <https://hdr.undp.org/data-center>.

Countries and territories are ranked by 2022 Human Development Index (HDI) value. Robustness and reliability analysis has shown that for most countries differences in HDI are not statistically significant at the fourth decimal place. For this reason countries with the same HDI value at three decimal places are listed with tied ranks.

Sources and definitions

Unless otherwise noted, the HDRO uses data from international data agencies with the mandate, resources and expertise to collect national data on specific indicators.

Definitions of indicators and sources for original data components are given at the end of each table, with full source details in *Statistical references*.

Methodology updates

The 2023/2024 Report retains all the composite indices from the family of human development

indices—the HDI, the Inequality-adjusted Human Development Index (IHDI), the Gender Development Index (GDI), the Gender Inequality Index (GII), the Multidimensional Poverty Index (MPI) and the Planetary pressures-adjusted Human Development Index (PHDI). The methodology used to compute the indices is the same as the one used in the 2021/2022 Human Development Report. For details, see *Technical notes 1–6* at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf.

Comparisons over time and across editions

Because national and international agencies continually improve their data series, the data—including the HDI values and ranks—presented in this report are not comparable to those published in earlier editions. For HDI comparability across years and countries, see table 2, which presents trends using consistent data, or <https://hdr.undp.org/data-center>, which presents interpolated consistent data.

Discrepancies between national and international estimates

National and international data can differ because international agencies harmonize national data using a consistent methodology and occasionally produce estimates of missing data to allow comparability across countries. In other cases international agencies might not have access to the most recent national data. When HDRO becomes aware of discrepancies, it brings them to the attention of national and international data authorities.

Country groupings and aggregates

The tables present weighted aggregates for several country groupings. In general, an aggregate is shown

only when data are available for at least half the countries and represent at least two-thirds of the population in that grouping. Aggregates for each grouping cover only the countries for which data are available.

Human development classification

HDI classifications are based on HDI fixed cutoff points, which are derived from the quartiles of distributions of the component indicators. The cutoff points are HDI of less than 0.550 for low human development, 0.550–0.699 for medium human development, 0.700–0.799 for high human development and 0.800 or greater for very high human development.

Regional groupings

Regional groupings are based on United Nations Development Programme regional classifications. Least Developed Countries and Small Island Developing States are defined according to UN classifications (see <https://www.un.org/ohrlls/>).

Developing countries

The aggregates for developing countries are based on information from all developing countries that are included in a regional grouping.

Organisation for Economic Co-operation and Development

Of the 38 Organisation for Economic Co-operation and Development members, 33 are considered developed countries and 5 (Costa Rica, Chile, Colombia, Mexico and Türkiye) are considered developing

countries. Aggregates refer to all countries from the group for which data are available.

Country notes

Data for China do not include Hong Kong Special Administrative Region of China, Macao Special Administrative Region of China or Taiwan Province of China.

As of 2 May 2016, Czechia is the short name to be used for the Czech Republic.

As of 1 June 2018, the Kingdom of Eswatini is the name of the country formerly known as Swaziland.

As of 14 February 2019, the Republic of North Macedonia (short form: North Macedonia) is the name of the country formerly known as the former Yugoslav Republic of Macedonia.

As of 1 June 2022, Türkiye is the name of the country formerly known as Turkey.

Symbols

A dash between two years, as in 2010–2022, indicates that the data are from the most recent year available during the period specified. Growth rates are usually average annual rates of growth between the first and last years of the period shown.

The following symbols are used in the tables:

..	Not available
o or o.o	Nil or negligible
—	Not applicable

Statistical acknowledgements

The Report's composite indices and other statistical resources draw on a wide variety of the most respected international data providers in their specialized fields. HDRO is particularly grateful to Eurostat; the Global Carbon Project; ICF Macro; the International Labour Organization; the International Monetary

Fund; the Inter-Parliamentary Union; the Luxembourg Income Study; the Organisation for Economic Co-operation and Development; the Socio-Economic Database for Latin America and the Caribbean; the United Nations Children’s Fund; the United Nations Department of Economic and Social Affairs; the United Nations Educational, Scientific and Cultural Organization Institute for Statistics; the United Nations Environment Programme; the United Nations Statistics Division; the World Bank; and the World Inequality Database. The international education database maintained by Robert Barro (Harvard University) and Jong-Wha Lee (Korea University) was another invaluable source for the calculation of the Report’s indices.

Statistical tables

The seven tables relate to the six composite human development indices and their components. Since the 2010 Human Development Report, four composite human development indices—the HDI, the IHDI, the GII and the MPI for developing countries—have been calculated. The 2014 Report introduced the GDI, which compares the HDI calculated separately for women and men. The 2020 Report introduced the PHDI, which adjusts the HDI for the excessive human pressure on the planet.

For indicators that are global Sustainable Development Goals indicators or can be used in monitoring progress towards specific goals, the table headers include the relevant goals and targets.

Table 1, Human Development Index and its components, ranks countries by 2022 HDI value and details the values of the three HDI components: longevity, education (with two indicators) and income per capita. The table also presents the difference in rankings by HDI value and gross national income per capita, as well as the rank on the 2021 HDI, calculated using the most recently revised historical data available in 2023.

Table 2, Human Development Index trends, 1990–2022, provides a time series of HDI values allowing 2022 HDI values to be compared with those for previous years. The table uses the most recently revised historical data available in 2023 and the same methodology applied to compute 2022 HDI values. The table also includes the change in HDI rank over the last seven years and the average annual HDI growth rate across four time intervals: 1990–2000, 2000–2010, 2010–2022 and 1990–2022.

Table 3, Inequality-adjusted Human Development Index, contains two related measures of inequality—the IHDI and the overall loss in HDI due to inequality. The IHDI looks beyond the average achievements of a country in longevity, education and income to show how these achievements are distributed among its residents. The IHDI value can be interpreted as the level of human development when inequality is accounted for. The relative difference between IHDI and HDI values is the loss due to inequality in distribution of the HDI within the country. The table presents the coefficient of human inequality, which is the unweighted average of inequalities in the three dimensions. In addition, the table shows each country’s difference in rank on the HDI and the IHDI. A negative value means that taking inequality into account lowers a country’s rank on the HDI. The table also presents the income shares of the poorest 40 percent, the richest 10 percent and the richest 1 percent of the population, as well as the Gini coefficient.

Table 4, Gender Development Index, measures disparities on the HDI by gender. The table contains HDI values estimated separately for women and men, the ratio of which is the GDI value. The closer the ratio is to 1, the smaller the gap between women and men. Values for the three HDI components—longevity, education (with two indicators) and income per capita—are also presented by gender. The table includes five country groupings by absolute deviation from gender parity in HDI values.

Table 5, Gender Inequality Index, presents a composite measure of gender inequality using three dimensions: reproductive health, empowerment and the labour market. The reproductive health indicators are maternal mortality ratio and adolescent birth rate. The empowerment indicators are the percentage of parliamentary seats held by women and the percentage of population with at least some secondary education by gender. The labour market indicator is participation in the labour force by gender. A low GII value indicates low inequality between women and men, and vice-versa.

Table 6, Multidimensional Poverty Index, captures the multiple deprivations that people in developing countries face in their health, education and standard of living. The MPI shows both the incidence of nonincome multidimensional poverty (a headcount of those in multidimensional poverty) and its intensity (the average deprivation score experienced by multidimensionally poor people). Based on deprivation score thresholds, people are classified as multidimensionally poor, in severe multidimensional

poverty or vulnerable to multidimensional poverty. The table includes the contribution of deprivation in each dimension to overall multidimensional poverty. It also presents measures of income poverty—population living below the national poverty line and population living on less than \$2.15 in purchasing power parity terms per day.

Table 7, Planetary pressures-adjusted Human Development Index, adjusts the HDI for planetary pressures in the Anthropocene to reflect a concern for intergenerational inequality, similar to the Inequality-adjusted HDI adjustment, which is motivated by a concern for intragenerational inequality. The PHDI value can be interpreted as the level of human development adjusted by carbon dioxide emissions per person (production-based) and material footprint per capita to account for the excessive human pressure on the planet. The table presents the relative difference between PHDI and HDI values as well as each country's difference in rank on the HDI and the PHDI. A negative value means that taking planetary pressures into account lowers a country's rank on the HDI.

Human development composite indices

TABLE 1

Human Development Index and its components

HDI RANK	Human Development Index (HDI)	SDG 3	SDG 4.3	SDG 4.4	SDG 8.5	GNI per capita rank minus HDI rank	HDI rank	
	Value	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Gross national income (GNI) per capita			
	2022	(years)	(years)	(years)	(2017 PPP \$)			
		2022	2022 ^a	2022 ^a	2022	2022 ^b	2021	
Very high human development								
1	Switzerland	0.967	84.3	16.6	13.9 ^c	69,433	6	1
2	Norway	0.966	83.4	18.6 ^d	13.1 ^c	69,190	6	2
3	Iceland	0.959	82.8	19.1 ^d	13.8	54,688	16	4
4	Hong Kong, China (SAR)	0.956	84.3	17.8	12.3	62,486	6	3
5	Denmark	0.952	81.9	18.8 ^d	13.0	62,019	6	8
5	Sweden	0.952	83.5	19.0 ^d	12.7 ^c	56,996	10	5
7	Germany	0.950	81.0	17.3	14.3	55,340	11	7
7	Ireland	0.950	82.7	19.1 ^d	11.7 ^c	87,468 ^e	-3	9
9	Singapore	0.949	84.1	16.9	11.9	88,761 ^e	-6	10
10	Australia	0.946	83.6	21.1 ^d	12.7	49,257	14	5
10	Netherlands	0.946	82.5	18.6 ^d	12.6	57,278	4	11
12	Belgium	0.942	82.3	18.9 ^d	12.5 ^c	53,644	9	13
12	Finland	0.942	82.4	19.2 ^d	12.9 ^c	49,522	11	11
12	Liechtenstein	0.942	84.7	15.5	12.4 ^f	146,673 ^{g,h}	-11	14
15	United Kingdom	0.940	82.2	17.6	13.4	46,624	13	17
16	New Zealand	0.939	83.0	19.7 ^d	12.9	43,665	16	14
17	United Arab Emirates	0.937	79.2	17.2	12.8	74,104	-11	17
18	Canada	0.935	82.8	16.0	13.9 ^c	48,444	8	16
19	Korea (Republic of)	0.929	84.0	16.5	12.6 ^c	46,026	10	20
20	Luxembourg	0.927	82.6	14.2	13.0 ^h	78,554 ^e	-15	19
20	United States	0.927	78.2	16.4	13.6	65,565	-11	21
22	Austria	0.926	82.4	16.4	12.3 ^c	56,530	-5	22
22	Slovenia	0.926	82.1	17.4	12.9 ^c	41,587	13	24
24	Japan	0.920	84.8	15.5	12.7	43,644	9	22
25	Israel	0.915	82.6	15.0	13.4 ^c	43,588	9	26
25	Malta	0.915	83.7	15.9	12.2	44,464	5	25
27	Spain	0.911	83.9	17.8	10.6	40,043	10	28
28	France	0.910	83.2	16.0	11.7 ^c	47,379	-1	27
29	Cyprus	0.907	81.9	16.2	12.4	40,137	7	29
30	Italy	0.906	84.1	16.7	10.7	44,284	1	30
31	Estonia	0.899	79.2	15.9	13.5	37,152	9	32
32	Czechia	0.895	78.1	16.3	12.9 ^c	39,945	6	31
33	Greece	0.893	80.6	20.0 ^d	11.4	31,382	20	33
34	Bahrain	0.888	79.2	16.3	11.0	48,731	-9	34
35	Andorra	0.884	83.6	12.8	11.6	54,233 ⁱ	-15	43
36	Poland	0.881	77.0	15.9	13.2	35,151	7	35
37	Latvia	0.879	75.9	16.6	13.3 ^c	32,083	13	39
37	Lithuania	0.879	74.3	16.4	13.5	38,131	2	36
39	Croatia	0.878	79.2	15.6	12.3 ^c	34,324	5	37
40	Qatar	0.875	81.6	13.3	10.1 ^c	95,944 ^e	-38	41
40	Saudi Arabia	0.875	77.9	15.2 ^j	11.3	50,620	-18	37
42	Portugal	0.874	82.2	16.8	9.6	35,315	0	39
43	San Marino	0.867	83.4	12.4	10.5 ^k	57,687 ^l	-30	44
44	Chile	0.860	79.5	16.8	11.1 ^c	24,431	15	42
45	Slovakia	0.855	75.3	14.7	13.0 ^c	32,171	4	45
45	Türkiye	0.855	78.5	19.7 ^d	8.8 ^c	32,834	2	48
47	Hungary	0.851	75.0	15.1	12.2	34,196	-2	46
48	Argentina	0.849	76.1	19.0 ^d	11.1	22,048	17	47
49	Kuwait	0.847	80.3	15.7 ^c	7.4 ^c	56,729	-33	50
50	Montenegro	0.844	76.8	15.1	12.6 ^c	22,513	12	49
51	Saint Kitts and Nevis	0.838	72.0	18.4 ^{dm}	10.8 ⁿ	28,442	3	51
52	Uruguay	0.830	78.0	17.4	9.1 ^c	22,207	12	56
53	Romania	0.827	74.1	14.5	11.4 ^c	31,641	-1	52
54	Antigua and Barbuda	0.826	79.2	15.5 ^c	10.5 ⁱ	18,784	18	54
55	Brunei Darussalam	0.823	74.6	13.7	9.2	59,246	-43	53
56	Russian Federation	0.821	70.1	15.7 ^c	12.4	26,992	1	55
57	Bahamas	0.820	74.4	11.9 ^k	12.7 ^c	32,535	-9	67
57	Panama	0.820	76.8	13.2 ^c	10.7 ^c	32,029	-6	57
59	Oman	0.819	73.9	13.0	11.9	32,967	-13	58
60	Georgia	0.814	71.6	16.7	12.7	15,952	19	59
60	Trinidad and Tobago	0.814	74.7	14.1 ^o	11.7 ^c	22,473	3	60
62	Barbados	0.809	77.7	16.5 ^c	9.9 ^p	14,810	24	63

Continued -

TABLE 1

HDI RANK	Human Development Index (HDI)	SDG 3	SDG 4.3	SDG 4.4	SDG 8.5	GNI per capita rank minus HDI rank	HDI rank	
	Value	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Gross national income (GNI) per capita			
	(2022)	(years)	(years)	(years)	(2017 PPP \$)			
	2022	2022	2022 ^a	2022 ^a	2022	2022 ^a	2021	
63	Malaysia	0.807	76.3	12.9	10.7 ^c	27,295	-7	68
64	Costa Rica	0.806	77.3	16.1 ^c	8.8	20,248	2	60
65	Serbia	0.805	74.1	14.5	11.5 ^c	19,494	3	60
66	Thailand	0.803	79.7	15.6	8.8 ^c	16,887	10	69
67	Kazakhstan	0.802	69.5	14.8	12.4 ^c	22,587	-6	65
67	Seychelles	0.802	71.7	13.9	11.2	28,386	-12	71
69	Belarus	0.801	73.2	14.0	12.2 ^c	18,425	5	65
High human development								
70	Bulgaria	0.799	71.5	13.9	11.4	25,921	-12	70
71	Palau	0.797	65.4	17.2 ^k	13.0 ^k	19,344 ^l	-2	64
72	Mauritius	0.796	74.0	14.6	10.0 ^p	23,252	-12	72
73	Grenada	0.793	75.3	16.6 ^c	9.9 ^l	13,593	18	73
74	Albania	0.789	76.8	14.5	10.1 ^p	15,293	7	74
75	China	0.788	78.6	15.2 ^c	8.1 ^c	18,025	0	74
76	Armenia	0.786	73.4	14.4	11.3	15,388	4	79
77	Mexico	0.781	74.8	14.5	9.2	19,138	-7	83
78	Iran (Islamic Republic of)	0.780	74.6	14.1	10.7 ^c	14,770	10	77
78	Sri Lanka	0.780	76.6	13.6 ^c	11.2	11,899	24	76
80	Bosnia and Herzegovina	0.779	75.3	13.3	10.5	16,571	-3	77
81	Saint Vincent and the Grenadines	0.772	69.0	16.3 ^c	11.0 ^k	14,049	9	80
82	Dominican Republic	0.766	74.2	13.6	9.2 ^c	18,653	-9	84
83	Ecuador	0.765	77.9	14.9	9.0	10,693	25	90
83	North Macedonia	0.765	73.9	13.0	10.2	16,396	-5	82
85	Cuba	0.764	78.2	14.5	10.5 ^c	7,953 ^q	40	92
86	Moldova (Republic of)	0.763	68.6	14.9	11.8 ^c	12,964	8	81
87	Maldives	0.762	80.8	12.2 ^c	7.8 ^c	18,847	-16	88
87	Peru	0.762	73.4	14.8 ^c	10.0 ^c	11,916	14	86
89	Azerbaijan	0.760	73.5	12.7	10.6 ^c	15,018	-7	95
89	Brazil	0.760	73.4	15.6	8.3 ^c	14,616	0	84
91	Colombia	0.758	73.7	14.4	8.9	15,014	-8	89
92	Libya	0.746	72.2	14.0 ^j	7.8 ^c	19,752	-25	90
93	Algeria	0.745	77.1	15.5	7.0 ^c	10,978	13	93
94	Turkmenistan	0.744	69.4	13.2	11.1 ^c	12,860 ^l	1	93
95	Guyana	0.742	66.0	13.0 ^o	8.6 ^p	35,783	-54	105
96	Mongolia	0.741	72.7	14.5 ^c	9.4	10,351	15	99
97	Dominica	0.740	73.0	13.6 ^c	9.2 ^l	12,468	-1	97
98	Tonga	0.739	71.3	16.3	10.9 ^p	6,360 ^l	34	95
99	Jordan	0.736	74.2	12.6 ^c	10.4	9,295	15	98
100	Ukraine	0.734	68.6	13.3	11.1 ^p	11,416	3	86
101	Tunisia	0.732	74.3	14.6 ^c	8.0 ^c	10,297	11	101
102	Marshall Islands	0.731	65.1	16.4	12.8 ^k	6,855	28	101
102	Paraguay	0.731	70.5	13.9 ^s	8.9	13,161	-9	99
104	Fiji	0.729	68.3	13.8	10.4	11,234	0	110
105	Egypt	0.728	70.2	12.9	9.8 ^c	12,361	-8	103
106	Uzbekistan	0.727	71.7	12.0	11.9	8,056	16	105
107	Viet Nam	0.726	74.6	13.1 ^l	8.5 ^c	10,814	0	108
108	Saint Lucia	0.725	71.3	12.7	8.6 ^c	14,778	-21	109
109	Lebanon	0.723	74.4	12.1 ^u	8.6 ^k	12,313 ^y	-11	104
110	South Africa	0.717	61.5	14.3	11.6	13,186	-18	105
111	Palestine, State of	0.716	73.4	13.2	9.9	6,936	18	110
112	Indonesia	0.713	68.3	14.0 ^c	8.6	12,046	-12	113
113	Philippines	0.710	72.2	12.8	9.0 ^c	9,059	5	118
114	Botswana	0.708	65.9	11.4	10.4	14,842	-29	124
115	Jamaica	0.706	70.6	12.5 ^c	9.2 ^c	9,695	-2	114
116	Samoa	0.702	72.6	12.4	11.4 ^c	4,970	25	112
117	Kyrgyzstan	0.701	70.5	13.0	12.0 ^c	4,782	28	116
118	Belize	0.700	71.0	12.4	8.8	9,242	-3	115
Medium human development								
119	Venezuela (Bolivarian Republic of)	0.699	71.1	13.5 ^k	9.6 ^k	6,184 ^w	14	120
120	Bolivia (Plurinational State of)	0.698	64.9	15.0	9.8	7,988	3	119
120	Morocco	0.698	75.0	14.6	6.1	7,955	4	122
122	Nauru	0.696	64.0	12.6 ^c	9.2 ^l	14,939	-38	117
123	Gabon	0.693	65.7	12.4 ^c	9.6	11,194	-18	123

Continued -

TABLE 1

HDI RANK	Human Development Index (HDI)	SDG 3	SDG 4.3	SDG 4.4	SDG 8.5	GNI per capita rank minus HDI rank	HDI rank	
	Value	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Gross national income (GNI) per capita			
	2022	(years)	(years)	(years)	(2017 PPP \$)			
	2022	2022	2022 ^a	2022 ^a	2022	2022 ^b	2021	
124	Suriname	0.690	70.3	11.0	8.4 ^c	12,310	-25	121
125	Bhutan	0.681	72.2	13.1 ^c	5.8 ^c	10,625 ^d	-15	125
126	Tajikistan	0.679	71.3	10.9 ^c	11.3 ^a	4,807	18	125
127	El Salvador	0.674	71.5	11.9 ^b	7.2	8,886	-7	127
128	Iraq	0.673	71.3	12.2 ^d	6.8 ^a	9,092	-11	128
129	Bangladesh	0.670	73.7	11.9	7.4	6,511	2	130
130	Nicaragua	0.669	74.6	12.6 ^a	7.3	5,427	4	129
131	Cabo Verde	0.661	74.7	11.5 ^c	6.1 ^k	7,601	-4	132
132	Tuvalu	0.653	64.9	12.1 ^c	10.6 ^c	4,754	15	131
133	Equatorial Guinea	0.650	61.2	12.1 ^d	8.3 ^j	10,663	-24	133
134	India	0.644	67.7	12.6	6.6	6,951	-6	135
135	Micronesia (Federated States of)	0.634	70.9	12.6 ^d	7.3 ^j	3,709	18	134
136	Guatemala	0.629	68.7	10.8 ^c	5.7 ^c	8,996	-17	136
137	Kiribati	0.628	67.7	11.8	9.1 ^k	3,440	21	137
138	Honduras	0.624	70.7	10.0 ^b	7.3 ^c	5,272	2	138
139	Lao People's Democratic Republic	0.620	69.0	10.2	5.9 ^p	7,745	-13	140
140	Vanuatu	0.614	70.5	11.8 ^c	7.2 ^j	3,244	21	141
141	Sao Tome and Principe	0.613	68.8	12.7 ^o	5.9 ^c	4,054	8	143
142	Eswatini (Kingdom of)	0.610	56.4	14.9 ^c	5.7	8,392	-21	142
142	Namibia	0.610	58.1	11.8 ^a	7.2 ^p	9,200	-26	139
144	Myanmar	0.608	67.3	12.1 ^c	6.5 ^p	4,038	6	145
145	Ghana	0.602	63.9	11.6	6.4 ^p	5,380	-10	144
146	Kenya	0.601	62.1	11.4 ^a	7.7	4,808	-3	147
146	Nepal	0.601	70.5	12.6	4.5 ^c	4,026	5	149
148	Cambodia	0.600	69.9	11.6 ^a	5.2	4,291	0	147
149	Congo	0.593	63.1	12.4 ^c	8.3 ^p	2,903	14	146
150	Angola	0.591	61.9	12.2	5.8 ^a	5,328	-11	150
151	Cameroon	0.587	61.0	13.4 ^c	6.5 ^p	3,681	3	152
152	Comoros	0.586	63.7	13.0 ^c	6.2 ^r	3,261	8	151
153	Zambia	0.569	61.8	11.0 ^v	7.3 ^p	3,157	9	154
154	Papua New Guinea	0.568	66.0	11.1 ^a	4.9 ^p	3,710	-2	155
155	Timor-Leste	0.566	69.1	13.2 ^a	6.0 ^a	1,629	24	153
156	Solomon Islands	0.562	70.7	10.3 ^c	5.9 ^j	2,273	14	155
157	Syrian Arab Republic	0.557	72.3	7.4 ^a	5.7 ^k	3,594 ^z	-2	157
158	Haiti	0.552	63.7	11.1 ^d	5.6 ^p	2,802	6	158
159	Uganda	0.550	63.6	11.5 ^a	6.2 ^c	2,241	12	160
159	Zimbabwe	0.550	59.4	11.0 ^c	8.8 ^c	2,079	15	159
Low human development								
161	Nigeria	0.548	53.6	10.5	7.6	4,755	-15	162
161	Rwanda	0.548	67.1	11.4	4.9	2,317	8	163
163	Togo	0.547	61.6	13.0 ^c	5.6 ^c	2,214	9	160
164	Mauritania	0.540	64.7	8.1	4.8 ^p	5,344	-26	164
164	Pakistan	0.540	66.4	7.9 ^c	4.4 ^c	5,374	-27	165
166	Côte d'Ivoire	0.534	58.9	10.1	4.2 ^p	5,376	-30	166
167	Tanzania (United Republic of)	0.532	66.8	8.6	5.6 ^c	2,578	-1	167
168	Lesotho	0.521	53.0	11.1 ^c	7.5 ^c	2,709	-3	168
169	Senegal	0.517	67.9	9.1	2.9 ^c	3,464	-12	170
170	Sudan	0.516	65.6	8.5 ^c	3.9	3,515	-14	169
171	Djibouti	0.515	62.9	8.0 ^c	3.9 ^a	4,875	-29	170
172	Malawi	0.508	62.9	11.5 ^c	5.2	1,432	10	172
173	Benin	0.504	60.0	10.3	3.1 ^p	3,406	-14	173
174	Gambia	0.495	62.9	9.0 ^a	4.5	2,090	-1	174
175	Eritrea	0.493	66.6	7.3 ^c	5.1 ^j	1,957 ^z	2	174
176	Ethiopia	0.492	65.6	9.9 ^c	2.4 ^c	2,369	-8	176
177	Liberia	0.487	61.1	10.5	5.3 ^p	1,330	8	177
177	Madagascar	0.487	65.2	9.2 ^c	4.6	1,464	4	177
179	Guinea-Bissau	0.483	59.9	10.5 ^o	3.7	1,880	-1	179
180	Congo (Democratic Republic of the)	0.481	59.7	9.6 ^c	7.2 ^p	1,080	9	180
181	Guinea	0.471	59.0	10.2 ^c	2.4 ^c	2,404	-14	182
182	Afghanistan	0.462	62.9	10.7 ^c	2.5	1,335 ^z	2	181
183	Mozambique	0.461	59.6	10.7 ^c	3.9	1,219	4	183
184	Sierra Leone	0.458	60.4	9.0 ^o	3.5 ^c	1,613	-4	184
185	Burkina Faso	0.438	59.8	8.1	2.3 ^c	2,037	-9	185

Continued -

TABLE 1

	Human Development Index (HDI)	SDG 3	SDG 4.3	SDG 4.4	SDG 8.5	GNI per capita rank minus HDI rank	HDI rank
	Value	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Gross national income (GNI) per capita		
	2022	(years)	(years)	(years)	(2017 PPP \$)		
HDI RANK	2022	2022	2022 ^a	2022 ^a	2022	2022 ^a	2021
186 Yemen	0.424	63.7	7.9 ^k	2.8 ^f	1,106 ^l	2	186
187 Burundi	0.420	62.0	10.0 ^c	3.3 ^c	712	5	187
188 Mali	0.410	59.4	7.0 ^c	1.6	2,044	-13	188
189 Chad	0.394	53.0	8.2 ^c	2.3 ^c	1,389	-6	189
189 Niger	0.394	62.1	7.2 ^c	1.3 ^p	1,283	-3	190
191 Central African Republic	0.387	54.5	7.3 ^c	4.0 ^q	869	0	191
192 South Sudan	0.381	55.6	5.6 ^c	5.7 ^{ab}	691 ^l	1	192
193 Somalia	0.380	56.1	7.6 ^j	1.9	1,072	-3	..
Other countries or territories							
Korea (Democratic People's Rep. of)	..	73.6	..	..	..	..	..
Monaco	..	86.9 ^{ab}	18.7 ^{cd}	..	..	..	..
Human development groups							
Very high human development	0.902	79.3	16.6	12.3	44,958	-	-
High human development	0.764	75.2	14.5	8.6	15,484	-	-
Medium human development	0.640	68.0	12.3	6.7	6,444	-	-
Low human development	0.517	61.6	9.3	4.7	3,186	-	-
Developing countries	0.694	70.5	12.5	7.6	11,125	-	-
Regions							
Arab States	0.704	71.3	11.9	7.8	14,391	-	-
East Asia and the Pacific	0.766	76.2	14.5	8.2	16,138	-	-
Europe and Central Asia	0.802	73.6	15.5	10.6	19,763	-	-
Latin America and the Caribbean	0.763	73.7	14.8	9.0	15,109	-	-
South Asia	0.641	68.4	11.9	6.6	6,972	-	-
Sub-Saharan Africa	0.549	60.6	10.3	6.0	3,666	-	-
Least developed countries	0.542	64.9	10.1	5.0	3,006	-	-
Small island developing states	0.730	71.6	12.6	8.6	16,379	-	-
Organisation for Economic Co-operation and Development	0.906	80.1	16.6	12.2	46,318	-	-
World	0.739	72.0	13.0	8.7	17,254	-	-

TABLE 1

Notes		Definitions	
a	Data refer to 2022 or the most recent year available.	z	HDRO estimate based on data from UNDESA (2023), United Nations Statistics Division (2023) and World Bank (2023).
b	Based on countries for which a Human Development Index value is calculated.	aa	Refers to 2008 based on UNESCO Institute for Statistics (2023).
c	Updated by HDRO based on data from UNESCO Institute for Statistics (2023).	ab	In calculating the HDI value, life expectancy is capped at 85 years.
d	In calculating the HDI value, expected years of schooling is capped at 18 years.		
e	In calculating the HDI value, GNI per capita is capped at \$75,000.		
f	Updated by HDRO using the mean years of schooling trend of Austria and data from UNESCO Institute for Statistics (2023).		
g	Estimated using the purchasing power parity (PPP) rate and projected growth rate of Switzerland.		
h	Updated by HDRO based on data from OECD (2023) and UNESCO Institute for Statistics (2023).		
i	Estimated using the PPP rate of Spain.		
j	Based on HDRO estimates using cross-country regression.		
k	Updated by HDRO based on data from UNESCO Institute for Statistics (2023) and estimates using cross-country regression.		
l	HDRO estimate based on data from IMF (2023), United Nations Statistics Division (2023) and World Bank (2023).		
m	Refers to 2015 based on UNESCO Institute for Statistics (2023).		
n	Refers to 2015 based on HDRO estimates using cross-country regression.		
o	Updated by HDRO based on data from UNESCO Institute for Statistics (2023) and United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys for various years.		
p	Updated by HDRO based on data from Barro and Lee (2018) and UNESCO Institute for Statistics (2023).		
q	HDRO estimate based on cross-country regression and the projected growth rate from UNDESA (2023) and United Nations Statistics Division (2023).		
r	Updated by HDRO based on data from Barro and Lee (2018) and estimates using cross-country regression.		
s	Updated by HDRO based on data from CEDLAS and World Bank (2023) and UNESCO Institute for Statistics (2023).		
t	Updated by HDRO based on data from UNICEF Multiple Indicator Cluster Surveys for various years.		
u	Updated by HDRO based on data from UNICEF Multiple Indicator Cluster Surveys for various years and estimates using cross-country regression.		
v	HDRO estimate based on data from IMF (2023) and World Bank (2023).		
w	IMF 2023.		
x	Updated by HDRO based on data from ICF Macro Demographic and Health Surveys for various years and UNESCO Institute for Statistics (2023).		
y	Updated by HDRO based on data from ICF Macro Demographic and Health Surveys for various years.		

Definitions	
Human Development Index (HDI):	A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See <i>Technical note 1</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the HDI is calculated.
Life expectancy at birth:	Number of years a newborn infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth stay the same throughout the infant's life.
Expected years of schooling:	Number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child's life.
Mean years of schooling:	Average number of years of education received by people ages 25 and older, converted from education attainment levels using official durations of each level.
Gross national income (GNI) per capita:	Aggregate income of an economy generated by its production and its ownership of factors of production, less the incomes paid for the use of factors of production owned by the rest of the world, converted to international dollars using PPP rates, divided by midyear population.
GNI per capita rank minus HDI rank:	Difference in ranking by GNI per capita and by HDI value. A negative value means that the country is better ranked by GNI than by HDI value.
HDI rank for 2021:	Ranking by HDI value for 2021, calculated using the same most recently revised data available in 2023 that were used to calculate HDI values for 2021.

Main data sources	
Columns 1 and 7:	HDRO calculations based on data from Barro and Lee (2018), IMF (2023), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).
Column 2:	UNDESA 2022.
Column 3:	CEDLAS and World Bank 2023, ICF Macro Demographic and Health Surveys, UNESCO Institute for Statistics 2023 and UNICEF Multiple Indicator Cluster Surveys.
Column 4:	Barro and Lee 2018, ICF Macro Demographic and Health Surveys, OECD 2023, UNESCO Institute for Statistics 2023 and UNICEF Multiple Indicator Cluster Surveys.
Column 5:	IMF 2023, UNDESA 2023, United Nations Statistics Division 2023 and World Bank 2023.
Column 6:	Calculated based on data in columns 1 and 5.

TABLE 2

Human Development Index trends, 1990–2022

HDI RANK	Human Development Index (HDI)								Change in HDI rank	Average annual HDI growth				
	Value									(%)				
	1990	2000	2010	2015	2019	2020	2021	2022	2015-2022*	1990-2000	2000-2010	2010-2022	1990-2022	
Very high human development														
1	Switzerland	0.850	0.885	0.940	0.952	0.960	0.957	0.965	0.967	0	0.40	0.60	0.24	0.40
2	Norway	0.845	0.914	0.938	0.952	0.961	0.963	0.964	0.966	-1	0.79	0.26	0.25	0.42
3	Iceland	0.834	0.895	0.927	0.948	0.958	0.955	0.957	0.959	0	0.71	0.35	0.28	0.44
4	Hong Kong, China (SAR)	0.739	0.831	0.914	0.936	0.953	0.955	0.959	0.956	2	1.18	0.96	0.38	0.81
5	Denmark	0.839	0.890	0.913	0.936	0.946	0.946	0.947	0.952	1	0.59	0.26	0.35	0.40
5	Sweden	0.808	0.903	0.910	0.937	0.947	0.944	0.949	0.952	0	1.12	0.08	0.38	0.51
7	Germany	0.828	0.890	0.929	0.941	0.951	0.948	0.948	0.950	-3	0.72	0.43	0.19	0.43
7	Ireland	0.743	0.851	0.908	0.924	0.942	0.945	0.946	0.950	8	1.37	0.65	0.38	0.77
9	Singapore	0.780	0.863	0.921	0.935	0.945	0.942	0.942	0.949	-1	1.02	0.65	0.25	0.61
10	Australia	0.864	0.896	0.924	0.933	0.941	0.948	0.949	0.946	-1	0.36	0.31	0.20	0.28
10	Netherlands	0.847	0.892	0.917	0.932	0.941	0.938	0.941	0.946	1	0.52	0.28	0.26	0.35
12	Belgium	0.814	0.884	0.913	0.924	0.936	0.930	0.938	0.942	3	0.83	0.32	0.26	0.46
12	Finland	0.811	0.887	0.912	0.930	0.939	0.939	0.941	0.942	0	0.90	0.28	0.27	0.47
12	Liechtenstein	..	0.871	0.916	0.926	0.940	0.933	0.936	0.942	2	..	0.51	0.23	..
15	United Kingdom	0.804	0.863	0.913	0.923	0.933	0.920	0.931	0.940	3	0.71	0.56	0.24	0.49
16	New Zealand	0.812	0.894	0.924	0.933	0.937	0.935	0.936	0.939	-7	0.97	0.33	0.13	0.46
17	United Arab Emirates	0.717	0.790	0.828	0.860	0.933	0.930	0.931	0.937	19	0.97	0.47	1.04	0.84
18	Canada	0.861	0.890	0.911	0.927	0.932	0.928	0.934	0.935	-5	0.33	0.23	0.22	0.26
19	Korea (Republic of)	0.731	0.824	0.890	0.908	0.922	0.922	0.926	0.929	3	1.20	0.77	0.36	0.75
20	Luxembourg	0.793	0.864	0.912	0.914	0.925	0.921	0.927	0.927	-1	0.86	0.54	0.14	0.49
20	United States	0.875	0.894	0.916	0.924	0.933	0.923	0.921	0.927	-5	0.22	0.24	0.10	0.18
22	Austria	0.823	0.870	0.903	0.910	0.920	0.916	0.920	0.926	-1	0.56	0.37	0.21	0.37
22	Slovenia	..	0.823	0.890	0.903	0.918	0.910	0.916	0.926	1	..	0.79	0.33	..
24	Japan	0.846	0.883	0.903	0.913	0.918	0.917	0.920	0.920	-4	0.43	0.22	0.16	0.26
25	Israel	0.781	0.835	0.887	0.899	0.909	0.906	0.911	0.915	-1	0.67	0.61	0.26	0.50
25	Malta	0.726	0.779	0.862	0.887	0.905	0.901	0.912	0.915	3	0.71	1.02	0.50	0.73
27	Spain	0.762	0.828	0.868	0.889	0.904	0.894	0.904	0.911	0	0.83	0.47	0.40	0.56
28	France	0.790	0.844	0.880	0.893	0.905	0.900	0.906	0.910	-3	0.66	0.42	0.28	0.44
29	Cyprus	0.733	0.797	0.859	0.874	0.901	0.900	0.901	0.907	3	0.84	0.75	0.45	0.67
30	Italy	0.780	0.842	0.880	0.881	0.899	0.892	0.899	0.906	0	0.77	0.44	0.24	0.47
31	Estonia	0.741	0.798	0.864	0.883	0.893	0.891	0.890	0.899	-2	0.74	0.80	0.33	0.61
32	Czechia	0.748	0.810	0.872	0.891	0.896	0.891	0.891	0.895	-6	0.80	0.74	0.22	0.56
33	Greece	0.762	0.818	0.874	0.881	0.890	0.887	0.887	0.893	-3	0.71	0.66	0.18	0.50
34	Bahrain	0.733	0.775	0.807	0.859	0.888	0.884	0.884	0.888	3	0.56	0.41	0.80	0.60
35	Andorra	..	0.815	0.863	0.856	0.865	0.843	0.855	0.884	3	..	0.57	0.20	..
36	Poland	0.715	0.794	0.845	0.869	0.880	0.874	0.876	0.881	-2	1.05	0.62	0.35	0.65
37	Latvia	0.732	0.761	0.827	0.853	0.873	0.873	0.865	0.879	2	0.39	0.84	0.51	0.57
37	Lithuania	0.740	0.769	0.846	0.865	0.886	0.880	0.875	0.879	-2	0.39	0.96	0.32	0.54
39	Croatia	..	0.764	0.824	0.844	0.866	0.860	0.867	0.878	6	..	0.76	0.53	..
40	Qatar	0.764	0.793	0.829	0.852	0.869	0.863	0.864	0.875	0	0.37	0.44	0.45	0.42
40	Saudi Arabia	0.699	0.746	0.805	0.840	0.862	0.861	0.867	0.875	6	0.65	0.76	0.70	0.70
42	Portugal	0.703	0.793	0.831	0.850	0.864	0.861	0.865	0.874	0	1.21	0.47	0.42	0.68
43	San Marino	0.841	0.875	0.901	0.872	0.861	0.844	0.853	0.867	-10	0.40	0.29	-0.32	0.10
44	Chile	0.705	0.763	0.813	0.846	0.859	0.849	0.856	0.860	0	0.79	0.64	0.47	0.62
45	Slovakia	..	0.761	0.841	0.852	0.863	0.860	0.852	0.855	-5	..	1.00	0.14	..
45	Türkiye	0.598	0.669	0.750	0.821	0.842	0.835	0.841	0.855	9	1.13	1.15	1.10	1.12
47	Hungary	0.721	0.773	0.829	0.839	0.854	0.849	0.846	0.851	0	0.70	0.70	0.22	0.52
48	Argentina	0.724	0.780	0.834	0.850	0.853	0.841	0.844	0.849	-6	0.75	0.67	0.15	0.50
49	Kuwait	0.698	0.780	0.811	0.829	0.838	0.826	0.836	0.847	0	1.12	0.39	0.36	0.61
50	Montenegro	..	..	0.806	0.827	0.841	0.832	0.840	0.844	1	..	..	0.38	..
51	Saint Kitts and Nevis	..	..	0.790	0.829	0.838	0.832	0.832	0.838	-2	..	..	0.49	..
52	Uruguay	0.702	0.754	0.785	0.807	0.818	0.820	0.814	0.830	8	0.72	0.40	0.47	0.52
53	Romania	0.709	0.721	0.813	0.813	0.834	0.828	0.825	0.827	3	0.17	1.21	0.14	0.48
54	Antigua and Barbuda	..	..	0.808	0.818	0.831	0.820	0.819	0.826	1	..	..	0.18	..
55	Brunei Darussalam	0.779	0.789	0.825	0.832	0.827	0.827	0.824	0.823	-7	0.13	0.45	-0.02	0.17
56	Russian Federation	0.741	0.733	0.797	0.823	0.839	0.826	0.818	0.821	-3	-0.11	0.84	0.25	0.32
57	Bahamas	0.760	0.788	0.800	0.807	0.802	0.798	0.799	0.820	3	0.36	0.15	0.21	0.24
57	Panama	0.672	0.722	0.775	0.802	0.820	0.809	0.813	0.820	5	0.72	0.71	0.47	0.62
59	Oman	..	0.702	0.798	0.824	0.841	0.823	0.810	0.819	-7	..	1.29	0.22	..
60	Georgia	..	0.694	0.763	0.798	0.816	0.807	0.809	0.814	4	..	0.95	0.54	..
60	Trinidad and Tobago	0.656	0.708	0.785	0.812	0.813	0.815	0.804	0.814	-3	0.77	1.04	0.30	0.68
62	Barbados	0.728	0.760	0.792	0.798	0.806	0.803	0.803	0.809	2	0.43	0.41	0.18	0.33

Continued -

TABLE 2

HDI RANK	Human Development Index (HDI)								Change in HDI rank	Average annual HDI growth				
	Value									(%)				
	1990	2000	2010	2015	2019	2020	2021	2022		2015-2022*	1990-2000	2000-2010	2010-2022	1990-2022
63	Malaysia	0.649	0.726	0.768	0.792	0.805	0.802	0.798	0.807	6	1.13	0.56	0.41	0.68
64	Costa Rica	0.659	0.709	0.769	0.792	0.811	0.811	0.804	0.806	5	0.73	0.82	0.39	0.63
65	Serbia	..	0.689	0.768	0.794	0.812	0.806	0.804	0.805	3	..	1.09	0.39	..
66	Thailand	0.581	0.663	0.743	0.789	0.801	0.800	0.797	0.803	6	1.33	1.15	0.65	1.02
67	Kazakhstan	0.672	0.680	0.766	0.799	0.810	0.806	0.801	0.802	-4	0.12	1.20	0.38	0.55
67	Seychelles	..	0.755	0.774	0.797	0.808	0.799	0.795	0.802	-1	..	0.25	0.30	..
69	Belarus	..	0.708	0.790	0.809	0.810	0.800	0.801	0.801	-11	..	1.10	0.12	..
High human development														
70	Bulgaria	0.698	0.723	0.790	0.809	0.813	0.802	0.796	0.799	-12	0.35	0.89	0.09	0.42
71	Palau	..	0.747	0.775	0.782	0.792	0.794	0.802	0.797	3	..	0.37	0.23	..
72	Mauritius	0.620	0.682	0.755	0.791	0.806	0.792	0.790	0.796	-1	0.96	1.02	0.44	0.78
73	Grenada	..	..	0.779	0.786	0.790	0.786	0.788	0.793	0	..	..	0.15	..
74	Albania	0.649	0.678	0.766	0.797	0.800	0.784	0.785	0.789	-8	0.44	1.23	0.25	0.61
75	China	0.482	0.586	0.698	0.741	0.775	0.781	0.785	0.788	18	1.97	1.76	1.02	1.55
76	Armenia	0.658	0.656	0.739	0.769	0.789	0.769	0.774	0.786	2	-0.03	1.20	0.52	0.56
77	Mexico	0.666	0.709	0.747	0.769	0.781	0.757	0.757	0.781	1	0.63	0.52	0.37	0.50
78	Iran (Islamic Republic of)	0.613	0.692	0.756	0.782	0.785	0.779	0.776	0.780	-4	1.22	0.89	0.26	0.76
78	Sri Lanka	0.641	0.689	0.735	0.760	0.775	0.777	0.783	0.780	6	0.72	0.65	0.50	0.62
80	Bosnia and Herzegovina	..	0.656	0.718	0.757	0.780	0.776	0.776	0.779	7	..	0.91	0.68	..
81	Saint Vincent and the Grenadines	..	0.691	0.756	0.777	0.789	0.785	0.773	0.772	-5	..	0.90	0.17	..
82	Dominican Republic	0.579	0.646	0.707	0.739	0.765	0.760	0.756	0.766	12	1.10	0.91	0.67	0.88
83	Ecuador	0.645	0.684	0.736	0.764	0.758	0.734	0.746	0.765	-1	0.59	0.74	0.32	0.53
83	North Macedonia	..	0.676	0.746	0.777	0.787	0.766	0.764	0.765	-7	..	0.99	0.21	..
85	Cuba	0.684	0.694	0.779	0.765	0.766	0.759	0.742	0.764	-4	0.15	1.16	-0.16	0.35
86	Moldova (Republic of)	0.688	0.655	0.716	0.749	0.773	0.765	0.767	0.763	5	-0.49	0.89	0.53	0.32
87	Maldives	..	0.635	0.692	0.728	0.753	0.737	0.753	0.762	13	..	0.86	0.81	..
87	Peru	0.620	0.675	0.725	0.758	0.774	0.758	0.755	0.762	-2	0.85	0.72	0.42	0.65
89	Azerbaijan	..	0.635	0.733	0.751	0.762	0.722	0.738	0.760	1	..	1.45	0.30	..
89	Brazil	0.620	0.668	0.722	0.752	0.764	0.758	0.756	0.760	0	0.75	0.78	0.43	0.64
91	Colombia	0.614	0.672	0.732	0.758	0.768	0.756	0.752	0.758	-6	0.91	0.86	0.29	0.66
92	Libya	0.724	0.746	0.774	0.749	0.756	0.737	0.746	0.746	-1	0.30	0.37	-0.31	0.09
93	Algeria	0.593	0.652	0.721	0.736	0.742	0.730	0.740	0.745	5	0.95	1.01	0.27	0.72
94	Turkmenistan	..	..	0.699	0.725	0.732	0.731	0.740	0.744	7	..	..	0.52	..
95	Guyana	0.496	0.570	0.650	0.686	0.711	0.727	0.721	0.742	27	1.40	1.32	1.11	1.27
96	Mongolia	0.579	0.595	0.700	0.739	0.749	0.740	0.730	0.741	-2	0.27	1.64	0.48	0.77
97	Dominica	..	0.721	0.735	0.719	0.745	0.738	0.737	0.740	8	..	0.19	0.06	..
98	Tonga	0.640	0.679	0.709	0.723	0.740	0.742	0.738	0.739	5	0.59	0.43	0.35	0.45
99	Jordan	0.622	0.681	0.727	0.738	0.744	0.740	0.736	0.736	-3	0.91	0.66	0.10	0.53
100	Ukraine	0.731	0.698	0.766	0.764	0.774	0.762	0.755	0.734	-18	-0.46	0.93	-0.35	0.01
101	Tunisia	0.566	0.651	0.713	0.724	0.740	0.734	0.729	0.732	1	1.41	0.91	0.22	0.81
102	Marshall Islands	..	..	..	0.688	0.722	0.727	0.729	0.731	17	..	..	..	..
102	Paraguay	0.604	0.656	0.700	0.738	0.746	0.742	0.730	0.731	-6	0.83	0.65	0.36	0.60
104	Fiji	0.630	0.669	0.699	0.716	0.730	0.722	0.715	0.729	2	0.60	0.44	0.35	0.46
105	Egypt	0.567	0.629	0.667	0.695	0.724	0.729	0.726	0.728	11	1.04	0.59	0.73	0.78
106	Uzbekistan	..	0.603	0.675	0.701	0.725	0.716	0.721	0.727	6	..	1.13	0.62	..
107	Viet Nam	0.492	0.599	0.676	0.697	0.717	0.726	0.718	0.726	7	1.99	1.22	0.60	1.22
108	Saint Lucia	0.666	0.692	0.731	0.736	0.733	0.724	0.717	0.725	-10	0.38	0.55	-0.07	0.27
109	Lebanon	..	..	0.749	0.756	0.760	0.742	0.725	0.723	-21	..	..	-0.29	..
110	South Africa	0.635	0.633	0.675	0.721	0.741	0.722	0.721	0.717	-6	-0.03	0.64	0.50	0.38
111	Palestine, State of	..	..	0.688	0.710	0.739	0.715	0.715	0.716	-2	..	..	0.33	..
112	Indonesia	0.526	0.597	0.667	0.698	0.718	0.712	0.707	0.713	1	1.27	1.11	0.56	0.96
113	Philippines	0.598	0.635	0.673	0.696	0.714	0.705	0.692	0.710	2	0.60	0.58	0.45	0.54
114	Botswana	0.587	0.581	0.652	0.688	0.703	0.701	0.680	0.708	5	-0.10	1.16	0.69	0.59
115	Jamaica	0.664	0.657	0.711	0.712	0.712	0.707	0.704	0.706	-7	-0.11	0.79	-0.06	0.19
116	Samoa	..	0.672	0.704	0.710	0.712	0.712	0.708	0.702	-7	..	0.47	-0.02	..
117	Kyrgyzstan	0.637	0.617	0.661	0.689	0.699	0.691	0.696	0.701	1	-0.32	0.69	0.49	0.30
118	Belize	0.609	0.657	0.720	0.714	0.718	0.705	0.698	0.700	-11	0.76	0.92	-0.23	0.44
Medium human development														
119	Venezuela (Bolivarian Republic of)	0.657	0.699	0.759	0.766	0.720	0.691	0.690	0.699	-39	0.62	0.83	-0.68	0.19
120	Bolivia (Plurinational State of)	0.546	0.625	0.661	0.688	0.715	0.691	0.691	0.698	-1	1.36	0.56	0.45	0.77
120	Morocco	0.448	0.525	0.604	0.656	0.684	0.683	0.688	0.698	5	1.60	1.41	1.21	1.40
122	Nauru	..	..	0.559	0.642	0.680	0.689	0.693	0.696	9	..	..	1.84	..
123	Gabon	0.599	0.626	0.656	0.692	0.702	0.704	0.687	0.693	-6	0.44	0.47	0.46	0.46

Continued -

TABLE 2

HDI RANK	Human Development Index (HDI)								Change in HDI rank	Average annual HDI growth				
	Value									($\%$)				
	1990	2000	2010	2015	2019	2020	2021	2022	2015-2022*	1990-2000	2000-2010	2010-2022	1990-2022	
124	Suriname	..	..	0.696	0.707	0.710	0.702	0.689	0.690	-13	..	..	-0.07	..
125	Bhutan	..	..	0.582	0.625	0.668	0.675	0.677	0.681	10	..	..	1.32	..
126	Tajikistan	0.616	0.548	0.631	0.651	0.668	0.656	0.677	0.679	2	-1.16	1.42	0.61	0.30
127	El Salvador	0.519	0.609	0.657	0.663	0.676	0.666	0.669	0.674	-4	1.61	0.76	0.21	0.82
128	Iraq	0.497	0.583	0.629	0.656	0.678	0.661	0.667	0.673	-3	1.61	0.76	0.57	0.95
129	Bangladesh	0.399	0.491	0.558	0.604	0.646	0.657	0.662	0.670	12	2.10	1.29	1.54	1.63
130	Nicaragua	0.487	0.563	0.611	0.644	0.661	0.652	0.665	0.669	0	1.46	0.82	0.76	1.00
131	Cabo Verde	..	0.590	0.649	0.658	0.667	0.649	0.650	0.661	-7	..	0.96	0.15	..
132	Tuvalu	0.564	0.599	0.623	0.656	0.654	0.655	0.653	0.653	-7	0.60	0.39	0.39	0.46
133	Equatorial Guinea	..	0.511	0.609	0.648	0.653	0.650	0.647	0.650	-4	..	1.77	0.54	..
134	India	0.434	0.490	0.572	0.619	0.638	0.638	0.633	0.644	4	1.22	1.56	0.99	1.24
135	Micronesia (Federated States of)	..	0.637	0.644	0.642	0.640	0.636	0.634	0.634	-4	..	0.11	-0.13	..
136	Guatemala	0.490	0.551	0.613	0.629	0.645	0.638	0.630	0.629	-3	1.18	1.07	0.21	0.78
137	Kiribati	..	0.547	0.584	0.625	0.636	0.629	0.627	0.628	-2	..	0.66	0.61	..
138	Honduras	0.513	0.553	0.596	0.610	0.629	0.621	0.620	0.624	1	0.75	0.75	0.38	0.61
139	Lao People's Democratic Republic	0.408	0.473	0.557	0.604	0.617	0.616	0.615	0.620	2	1.49	1.65	0.90	1.32
140	Vanuatu	..	..	0.578	0.592	0.614	0.612	0.614	0.614	4	..	..	0.50	..
141	Sao Tome and Principe	0.480	0.498	0.553	0.595	0.608	0.609	0.609	0.613	2	0.37	1.05	0.86	0.77
142	Eswatini (Kingdom of)	0.546	0.465	0.498	0.577	0.623	0.622	0.612	0.610	5	-1.59	0.69	1.70	0.35
142	Namibia	0.595	0.549	0.584	0.627	0.638	0.634	0.616	0.610	-8	-0.80	0.62	0.36	0.08
144	Myanmar	0.333	0.407	0.506	0.557	0.608	0.615	0.599	0.608	10	2.03	2.20	1.54	1.90
145	Ghana	0.445	0.500	0.571	0.586	0.599	0.601	0.600	0.602	1	1.17	1.34	0.44	0.95
146	Kenya	0.480	0.487	0.545	0.575	0.604	0.599	0.596	0.601	2	0.14	1.13	0.82	0.71
146	Nepal	0.395	0.461	0.543	0.568	0.598	0.593	0.591	0.601	3	1.56	1.65	0.85	1.32
148	Cambodia	0.379	0.431	0.542	0.564	0.596	0.596	0.596	0.600	2	1.29	2.32	0.85	1.45
149	Congo	0.541	0.509	0.581	0.610	0.596	0.598	0.598	0.593	-10	-0.61	1.33	0.17	0.29
150	Angola	..	0.380	0.516	0.591	0.597	0.594	0.590	0.591	-5	..	3.11	1.14	..
151	Cameroon	0.440	0.426	0.515	0.562	0.586	0.585	0.581	0.587	1	-0.32	1.92	1.10	0.90
152	Comoros	..	0.458	0.524	0.556	0.584	0.588	0.585	0.586	3	..	1.36	0.94	..
153	Zambia	0.417	0.418	0.528	0.563	0.574	0.569	0.565	0.569	-2	0.02	2.36	0.63	0.98
154	Papua New Guinea	0.394	0.456	0.497	0.540	0.562	0.567	0.564	0.568	5	1.47	0.86	1.12	1.15
155	Timor-Leste	..	0.495	0.639	0.621	0.627	0.633	0.574	0.566	-18	..	2.59	-1.01	..
156	Solomon Islands	..	0.488	0.553	0.562	0.568	0.566	0.564	0.562	-4	..	1.26	0.13	..
157	Syrian Arab Republic	0.563	0.587	0.661	0.552	0.564	0.561	0.558	0.557	-1	0.42	1.19	-1.42	-0.03
158	Haiti	0.441	0.485	0.449	0.549	0.559	0.557	0.551	0.552	-1	0.96	-0.77	1.74	0.70
159	Uganda	0.329	0.392	0.500	0.525	0.544	0.545	0.545	0.550	2	1.77	2.46	0.80	1.62
159	Zimbabwe	0.479	0.426	0.481	0.544	0.560	0.554	0.549	0.550	-1	-1.17	1.22	1.12	0.43
Low human development														
161	Nigeria	..	..	0.488	0.520	0.537	0.539	0.542	0.548	2	..	..	0.97	..
161	Rwanda	0.320	0.328	0.485	0.509	0.531	0.535	0.539	0.548	5	0.25	3.99	1.02	1.70
163	Togo	0.399	0.436	0.469	0.510	0.536	0.540	0.545	0.547	2	0.89	0.73	1.29	0.99
164	Mauritania	0.397	0.461	0.508	0.536	0.552	0.539	0.538	0.540	-4	1.51	0.98	0.51	0.97
164	Pakistan	0.394	0.434	0.496	0.525	0.537	0.536	0.537	0.540	-3	0.97	1.34	0.71	0.99
166	Côte d'Ivoire	0.425	0.454	0.470	0.501	0.529	0.530	0.530	0.534	4	0.66	0.35	1.07	0.72
167	Tanzania (United Republic of)	0.366	0.396	0.493	0.507	0.533	0.535	0.529	0.532	2	0.79	2.22	0.64	1.18
168	Lesotho	0.479	0.456	0.470	0.508	0.528	0.530	0.522	0.521	0	-0.49	0.30	0.86	0.26
169	Senegal	0.371	0.388	0.470	0.501	0.514	0.514	0.512	0.517	1	0.45	1.94	0.80	1.04
170	Sudan	0.322	0.420	0.489	0.514	0.521	0.518	0.516	0.516	-6	2.69	1.53	0.45	1.48
171	Djibouti	..	0.330	0.422	0.473	0.508	0.512	0.512	0.515	4	..	2.49	1.67	..
172	Malawi	0.299	0.378	0.461	0.498	0.514	0.512	0.509	0.508	1	2.37	2.00	0.81	1.67
173	Benin	0.350	0.412	0.481	0.509	0.506	0.501	0.502	0.504	-7	1.64	1.56	0.39	1.15
174	Gambia	0.323	0.392	0.449	0.467	0.492	0.492	0.490	0.495	5	1.95	1.37	0.82	1.34
175	Eritrea	..	..	0.458	0.473	0.487	0.490	0.490	0.493	0	..	..	0.62	..
176	Ethiopia	..	0.286	0.409	0.455	0.485	0.489	0.489	0.492	5	..	3.64	1.55	..
177	Liberia	..	0.434	0.460	0.472	0.485	0.483	0.484	0.487	0	..	0.58	0.48	..
177	Madagascar	..	0.438	0.488	0.499	0.498	0.486	0.484	0.487	-5	..	1.09	-0.02	..
179	Guinea-Bissau	..	..	0.441	0.470	0.488	0.482	0.482	0.483	-1	..	..	0.76	..
180	Congo (Democratic Republic of the)	0.377	0.376	0.424	0.457	0.476	0.477	0.475	0.481	0	-0.03	1.21	1.06	0.76
181	Guinea	0.270	0.345	0.415	0.449	0.470	0.471	0.467	0.471	2	2.48	1.86	1.06	1.75
182	Afghanistan	0.284	0.340	0.449	0.479	0.492	0.488	0.473	0.462	-8	1.82	2.82	0.24	1.53
183	Mozambique	0.239	0.303	0.407	0.445	0.465	0.467	0.459	0.461	1	2.40	2.99	1.04	2.07
184	Sierra Leone	0.314	0.319	0.416	0.438	0.457	0.453	0.456	0.458	1	0.16	2.69	0.80	1.19
185	Burkina Faso	..	0.296	0.372	0.413	0.446	0.446	0.445	0.438	2	..	2.31	1.37	..

Continued -

TABLE 2

HDI RANK	Human Development Index (HDI)								Change in HDI rank	Average annual HDI growth			
	Value									(%)			
	1990	2000	2010	2015	2019	2020	2021	2022		2015-2022 ^a	1990-2000	2000-2010	2010-2022
186 Yemen	0.357	0.434	0.496	0.455	0.430	0.430	0.425	0.424	-5	1.97	1.34	-1.30	0.54
187 Burundi	0.285	0.298	0.404	0.420	0.423	0.419	0.419	0.420	-1	0.45	3.09	0.32	1.22
188 Mali	0.236	0.315	0.406	0.409	0.421	0.407	0.408	0.410	0	2.93	2.57	0.08	1.74
189 Chad	..	0.292	0.364	0.388	0.398	0.396	0.393	0.394	0	..	2.23	0.66	..
189 Niger	0.212	0.260	0.336	0.367	0.390	0.391	0.389	0.394	2	2.06	2.60	1.34	1.96
191 Central African Republic	0.333	0.319	0.357	0.367	0.391	0.389	0.387	0.387	0	-0.43	1.13	0.67	0.47
192 South Sudan	..	..	0.406	0.381	0.391	0.386	0.381	0.381	-2	..	..	-0.53	..
193 Somalia	..	..	..	..	..	..	..	0.380	..	..	..	..	..
Other countries or territories													
Korea (Democratic People's Rep. of)	..	..	..	..	..	..	..	..	..	..	..	..	..
Monaco	..	..	..	..	..	..	..	..	..	..	..	..	..
Human development groups													
Very high human development	0.785	0.828	0.870	0.889	0.901	0.895	0.896	0.902	-	0.53	0.50	0.30	0.44
High human development	0.560	0.626	0.703	0.736	0.760	0.759	0.760	0.764	-	1.12	1.17	0.70	0.98
Medium human development	0.443	0.497	0.574	0.615	0.635	0.634	0.630	0.640	-	1.16	1.45	0.91	1.16
Low human development	0.354 ^b	0.398	0.473	0.501	0.516	0.515	0.515	0.517	-	1.18	1.74	0.74	1.19
Developing countries	0.513	0.569	0.639	0.672	0.691	0.689	0.688	0.694	-	1.04	1.17	0.69	0.95
Regions													
Arab States	0.550	0.615	0.672	0.691	0.709	0.704	0.704	0.704	-	1.12	0.89	0.39	0.77
East Asia and the Pacific	0.507	0.594	0.689	0.728	0.757	0.760	0.761	0.766	-	1.60	1.49	0.89	1.30
Europe and Central Asia	0.663	0.680	0.746	0.782	0.802	0.792	0.797	0.802	-	0.25	0.93	0.61	0.60
Latin America and the Caribbean	0.637	0.686	0.735	0.758	0.768	0.755	0.754	0.763	-	0.74	0.69	0.31	0.57
South Asia	0.444	0.500	0.574	0.616	0.635	0.635	0.631	0.641	-	1.19	1.39	0.92	1.15
Sub-Saharan Africa	0.404 ^b	0.429	0.502	0.533	0.549	0.547	0.546	0.549	-	0.60	1.58	0.75	0.96
Least developed countries	0.354	0.408	0.487	0.518	0.540	0.542	0.540	0.542	-	1.43	1.79	0.90	1.34
Small island developing states	0.605	0.650	0.694	0.721	0.731	0.727	0.722	0.730	-	0.72	0.66	0.42	0.59
Organisation for Economic Co-operation and Development	0.796	0.842	0.878	0.894	0.905	0.897	0.899	0.906	-	0.56	0.42	0.26	0.41
World	0.601	0.645	0.698	0.724	0.739	0.736	0.735	0.739	-	0.71	0.79	0.48	0.65

Notes

For HDI values that are comparable across years and countries, use this table or the interpolated data at <http://hdr.undp.org/en/data>, which present trends using consistent data.

a A positive value indicates an improvement in rank.

b Value reported with relaxed aggregation rule. For details, see *Reader's guide*.

Definitions

Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See *Technical note 1* at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the HDI is calculated.

Average annual HDI growth: A smoothed annualized growth of the HDI in a given period, calculated as the annual compound growth rate.

Main data sources

Columns 1–8: HDRO calculations based on data from Barro and Lee (2018), IMF (2023), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

Column 9: Calculated based on data in columns 4 and 8.

Columns 10–13: Calculated based on data in columns 1, 2, 3 and 8.

TABLE 3

Inequality-adjusted Human Development Index

HDI RANK	Human Development Index (HDI)	Inequality-adjusted HDI (IHDI)				Coefficient of human inequality	Inequality in life expectancy (%)	Inequality-adjusted life expectancy index	Inequality in education ^a	Inequality-adjusted education index	Inequality in income ^a	Inequality-adjusted income index	SDG 10.1			Gini coefficient
		Value	Value	Overall loss (%)	Difference from HDI rank ^b								Income shares held by (%)			
													Poorest 40 percent	Richest 10 percent	Richest 1 percent	
2022	2022	2022	2022	2022	2022 ^c	2022	2022 ^c	2022	2022 ^c	2022	2010-2022 ^c	2010-2022 ^c	2021	2010-2022 ^c		
Very high human development																
1	Switzerland	0.967	0.891	7.9	-3	7.6	3.0	0.959	2.0	0.906	17.7	0.814	19.9	25.8	9.9	33.1
2	Norway	0.966	0.903	6.5	0	6.3	2.4	0.951	2.3	0.914	14.3	0.847	22.9	22.4	8.9	27.7
3	Iceland	0.959	0.910	5.1	2	5.0	2.2	0.945	2.2	0.938	10.7	0.851	23.9	22.1	9.3	26.1
4	Hong Kong, China (SAR)	0.956	0.840	12.1	-17	11.7	2.2	0.968	8.7	0.829	24.1	0.738	..	..	17.9	..
5	Denmark	0.952	0.898	5.7	2	5.6	3.1	0.923	2.6	0.908	11.0	0.864	23.4	22.9	13.4	27.5
5	Sweden	0.952	0.878	7.8	-5	7.6	2.5	0.953	3.4	0.891	16.9	0.796	22.0	22.4	11.7	28.9
7	Germany	0.950	0.881	7.3	-2	7.1	3.3	0.907	3.8	0.921	14.3	0.817	20.9	25.2	13.3	31.7
7	Ireland	0.950	0.886	6.7	2	6.6	2.8	0.938	2.9	0.862	14.0	0.860	22.3	23.8	12.2	29.2
9	Singapore	0.949	0.825	13.1	-17	12.5	2.3	0.964	9.4	0.785	25.9	0.741	..	..	10.3	..
10	Australia	0.946	0.860	9.1	-4	8.8	3.3	0.946	4.7	0.880	18.5	0.763	19.5	26.6	9.9	34.3
10	Netherlands	0.946	0.885	6.4	3	6.4	3.1	0.931	4.7	0.877	11.4	0.850	23.8	21.6	6.9	26.0
12	Belgium	0.942	0.878	6.8	2	6.7	3.2	0.927	5.7	0.865	11.3	0.842	23.9	21.4	8.6	26.0
12	Finland	0.942	0.886	5.9	7	5.8	2.6	0.934	2.1	0.911	12.8	0.818	23.5	22.6	11.8	27.1
12	Liechtenstein	0.942	..	..	..	..	4.5	0.950	..	..	..	..	..	..	..	..
15	United Kingdom	0.940	0.865	8.0	2	7.8	3.5	0.923	3.3	0.906	16.7	0.773	20.0	25.0	12.7	32.6
16	New Zealand	0.939	0.856	8.8	-2	8.7	3.8	0.932	4.1	0.894	18.1	0.752	..	..	11.9	..
17	United Arab Emirates	0.937	0.859	8.3	1	8.2	4.4	0.871	9.8	0.815	10.4	0.894	23.0	20.0	15.3	26.0
18	Canada	0.935	0.864	7.6	4	7.4	4.0	0.928	2.3	0.885	16.0	0.785	20.4	24.4	13.9	31.7
19	Korea (Republic of)	0.929	0.841	9.5	-2	9.3	2.6	0.959	8.8	0.801	16.4	0.774	20.5	24.0	11.7	31.4
20	Luxembourg	0.927	0.839	9.5	-3	9.2	3.2	0.932	8.1	0.759	16.4	0.836	19.4	25.0	12.1	33.4
20	United States	0.927	0.823	11.2	-8	10.7	5.6	0.845	2.6	0.885	23.9	0.745	16.6	30.1	19.0	39.8
22	Austria	0.926	0.859	7.2	6	7.0	2.9	0.932	2.6	0.842	15.6	0.808	21.4	23.1	10.7	29.8
22	Slovenia	0.926	0.882	4.8	13	4.7	2.1	0.935	2.0	0.895	10.0	0.820	25.1	20.5	8.4	24.0
24	Japan	0.920	0.844	8.3	4	8.1	2.6	0.972	4.5	0.813	17.1	0.761	20.5	26.4	12.9	32.9
25	Israel	0.915	0.808	11.7	-7	11.1	3.1	0.933	6.3	0.811	24.0	0.698	16.1	27.6	16.0	38.6
25	Malta	0.915	0.837	8.5	1	8.3	4.2	0.939	5.2	0.804	15.5	0.778	21.0	25.1	10.7	31.4
27	Spain	0.911	0.796	12.6	-12	12.3	2.6	0.957	15.0	0.721	19.2	0.732	18.1	25.0	11.4	34.9
28	France	0.910	0.820	9.9	-1	9.8	3.6	0.937	7.8	0.769	17.9	0.764	21.2	24.5	9.0	30.7
29	Cyprus	0.907	0.827	8.8	3	8.7	2.5	0.928	8.7	0.791	14.8	0.771	21.3	26.3	8.9	31.7
30	Italy	0.906	0.802	11.5	-4	11.1	2.6	0.960	10.0	0.739	20.8	0.729	18.4	26.1	12.2	35.2
31	Estonia	0.899	0.835	7.1	6	6.9	3.2	0.881	1.9	0.877	15.7	0.754	21.1	23.5	16.3	30.7
32	Czechia	0.895	0.848	5.3	13	5.1	3.1	0.867	1.2	0.874	11.1	0.804	24.2	22.5	10.6	26.2
33	Greece	0.893	0.801	10.3	-3	10.2	3.5	0.900	10.3	0.789	16.8	0.722	19.2	25.2	10.0	33.6
34	Bahrain	0.888	..	..	..	..	4.4	0.871	8.8	0.749	..	..	..	..	24.3	..
35	Andorra	0.884	0.810	8.4	3	8.3	4.8	0.931	5.6	0.701	14.4	0.814	..	..	..	..
36	Poland	0.881	0.797	9.5	-3	9.3	3.9	0.843	4.2	0.845	19.8	0.710	22.3	23.1	15.2	28.8
37	Latvia	0.879	0.802	8.8	2	8.3	4.2	0.824	1.8	0.888	19.0	0.706	18.6	27.5	8.6	35.7
37	Lithuania	0.879	0.795	9.6	-4	9.1	4.2	0.801	2.9	0.879	20.4	0.715	19.0	28.5	12.5	36.0
39	Croatia	0.878	0.817	6.9	8	6.9	3.3	0.882	3.9	0.810	13.5	0.763	21.3	22.3	9.3	29.5
40	Qatar	0.875	..	..	..	..	4.0	0.909	11.2	0.627	..	..	..	..	22.4	..
40	Saudi Arabia	0.875	..	..	..	..	5.1	0.845	12.6	0.698	..	..	..	..	21.0	..
42	Portugal	0.874	0.774	11.4	-2	11.3	3.0	0.929	12.5	0.688	18.4	0.724	19.3	26.9	9.4	34.7
43	San Marino	0.867	..	..	..	..	2.5	0.951	5.6	0.657	..	..	..	..	..	..
44	Chile	0.860	0.704	18.1	-17	16.6	5.0	0.870	7.1	0.776	37.7	0.517	15.0	35.8	22.9	44.9
45	Slovakia	0.855	0.808	5.5	9	5.5	4.7	0.811	1.8	0.827	10.0	0.785	24.9	18.8	7.2	23.2
45	Türkiye	0.855	0.717	16.1	-13	15.6	6.0	0.846	11.9	0.700	28.9	0.622	15.5	31.6	18.8	41.9
47	Hungary	0.851	0.800	6.0	6	6.0	3.9	0.813	2.7	0.805	11.3	0.781	21.5	23.3	11.1	29.7
48	Argentina	0.849	0.747	12.0	0	11.7	7.3	0.800	5.3	0.825	22.6	0.631	15.0	30.8	15.1	42.0
49	Kuwait	0.847	..	..	..	..	5.0	0.880	22.1	0.533	..	..	..	..	19.0	..
50	Montenegro	0.844	0.756	10.4	3	10.1	2.5	0.853	7.8	0.774	19.9	0.655	16.8	26.0	8.6	36.8
51	Saint Kitts and Nevis	0.838	..	..	..	..	7.5	0.740	..	..	..	..	..	..	..	..
52	Uruguay	0.830	0.720	13.3	-7	12.8	5.9	0.839	7.3	0.726	25.1	0.611	15.9	30.8	13.4	40.8
53	Romania	0.827	0.739	10.6	0	10.4	4.9	0.792	5.4	0.740	20.9	0.688	17.9	24.2	14.5	34.6
54	Antigua and Barbuda	0.826	..	..	..	..	4.8	0.867	..	..	..	..	..	..	..	..
55	Brunei Darussalam	0.823	0.727	11.7	-2	11.5	7.6	0.776	14.9	0.585	12.1	0.847	..	..	12.4	..
56	Russian Federation	0.821	0.747	9.0	5	8.7	5.5	0.729	2.0	0.831	18.7	0.688	19.1	29.0	23.8	36.0
57	Bahamas	0.820	0.663	19.1	-16	17.8	8.9	0.762	6.9	0.703	37.6	0.546	..	..	19.6	..

Continued -

TABLE 3

HDI RANK	Human Development Index (HDI)	SDG 10.1										Income shares held by			Gini coefficient		
		Inequality-adjusted HDI (IHDI)				Coefficient of human inequality	Inequality in life expectancy	Inequality-adjusted life expectancy index	Inequality in education ^a	Inequality-adjusted education index	Inequality in income ^a	Inequality-adjusted income index	Income shares held by (%)				
		Value	Value	Overall loss (%)	Difference from rank ^b								2022	2022 ^c		2022	2022 ^d	2022	2022^{e}	2022	2010-2022^{f}	2010-2022^{g}	2021	2010-2022^{h}
						Poorest 40 percent	Richest 10 percent	Richest 1 percent									
57	Panama	0.820	0.647	21.1	-20	19.9	10.7	0.781	10.2	0.650	38.9	0.533	11.6	39.4	19.6	50.9	
59	Oman	0.819	0.721	12.0	1	11.5	6.6	0.775	4.3	0.724	23.7	0.668	..	..	19.1	..
60	Georgia	0.814	0.728	10.6	4	10.3	6.7	0.741	2.7	0.864	21.4	0.602	19.1	26.2	18.5	34.2	
60	Trinidad and Tobago	0.814	..	..	..	..	11.1	0.749	9.7	0.707	..	..	..	..	19.6	..
62	Barbados	0.809	0.617	23.7	-27	20.8	7.8	0.818	5.5	0.745	49.0	0.385	..	..	..	..
63	Malaysia	0.807	0.692	14.3	-5	13.8	5.4	0.819	11.4	0.636	24.8	0.638	15.7	31.2	20.1	41.2	
64	Costa Rica	0.806	0.656	18.6	-12	17.6	6.0	0.829	11.1	0.658	35.6	0.517	13.1	35.7	17.7	47.2	
65	Serbia	0.805	0.740	8.1	11	7.9	4.1	0.799	6.2	0.737	13.5	0.689	19.0	27.1	15.5	35.0	
66	Thailand	0.803	0.681	15.2	-4	14.9	7.1	0.853	16.0	0.611	21.7	0.607	19.1	27.3	23.0	35.1	
67	Kazakhstan	0.802	0.734	8.5	11	8.3	7.0	0.708	3.2	0.800	14.7	0.698	23.3	23.4	10.6	27.8	
67	Seychelles	0.802	0.715	10.8	4	10.8	9.1	0.723	6.7	0.709	16.6	0.712	19.6	23.9	20.6	32.1	
69	Belarus	0.801	0.750	6.4	18	6.2	3.3	0.792	2.8	0.774	12.7	0.688	24.8	20.7	8.7	24.4	
High human development																	
70	Bulgaria	0.799	0.703	12.0	4	11.6	5.3	0.751	5.8	0.721	23.7	0.640	17.0	32.6	16.6	40.5	
71	Palau	0.797	0.633	20.6	-11	18.9	12.6	0.610	3.1	0.885	40.9	0.470	..	..	..	..
72	Mauritius	0.796	0.625	21.5	-15	21.0	10.0	0.748	21.7	0.579	31.4	0.564	18.8	29.9	15.9	36.8	
73	Grenada	0.793	..	..	..	..	9.2	0.773	..	..	..	..	..	..	..	..
74	Albania	0.789	0.687	12.9	4	12.8	6.4	0.819	12.3	0.649	19.7	0.610	21.6	22.8	9.2	29.4	
75	China	0.788	0.662	16.0	-1	15.3	5.4	0.853	10.3	0.622	30.3	0.547	18.2	29.4	15.7	37.1	
76	Armenia	0.786	0.721	8.3	16	8.1	6.3	0.769	2.9	0.755	15.1	0.646	23.2	23.6	19.0	27.9	
77	Mexico	0.781	0.641	17.9	-4	17.5	9.2	0.766	15.0	0.604	28.4	0.568	14.3	35.5	26.8	45.4	
78	Iran (Islamic Republic of)	0.780	0.584	25.1	-24	24.3	8.3	0.770	37.1	0.472	27.5	0.547	16.3	31.7	18.1	40.9	
78	Sri Lanka	0.780	0.630	19.2	-7	18.0	5.3	0.825	12.0	0.663	36.6	0.458	18.5	30.8	14.8	37.7	
80	Bosnia and Herzegovina	0.779	0.667	14.4	6	13.8	4.0	0.817	10.9	0.641	26.5	0.567	19.8	25.1	9.4	33.0	
81	Saint Vincent and the Grenadines	0.772	..	..	..	..	9.5	0.682	6.1	0.768	..	..	..	..	..	..
82	Dominican Republic	0.766	0.627	18.1	-6	18.1	16.6	0.695	14.6	0.582	22.9	0.609	17.5	30.2	28.6	38.5	
83	Ecuador	0.765	0.630	17.6	-3	17.1	8.9	0.812	11.8	0.628	30.6	0.490	13.8	34.3	16.9	45.5	
83	North Macedonia	0.765	0.679	11.2	10	11.1	4.4	0.793	8.4	0.643	20.5	0.613	18.1	22.9	7.7	33.5	
85	Cuba	0.764	..	..	..	..	4.5	0.854	9.1	0.685	..	..	..	..	15.1	..
86	Moldova (Republic of)	0.763	0.698	8.5	16	8.4	9.0	0.681	2.7	0.787	13.6	0.635	24.3	22.1	11.3	25.7	
87	Maldives	0.762	0.597	21.7	-11	20.9	4.8	0.891	29.3	0.422	28.6	0.565	22.1	23.3	35.6	29.3	
87	Peru	0.762	0.607	20.3	-7	19.8	8.5	0.752	20.4	0.593	30.6	0.501	16.3	30.6	28.1	40.2	
89	Azerbaijan	0.760	0.707	7.0	22	6.9	11.4	0.729	3.6	0.680	5.7	0.714	..	..	15.9	..
89	Brazil	0.760	0.577	24.1	-18	22.4	9.6	0.743	13.9	0.610	43.7	0.424	10.8	41.5	22.2	52.9	
91	Colombia	0.758	0.568	25.1	-18	23.5	9.3	0.749	17.2	0.577	44.0	0.424	11.5	40.2	17.8	51.5	
92	Libya	0.746	..	..	..	..	7.8	0.739	..	..	..	..	..	..	13.5	..
93	Algeria	0.745	0.588	21.1	-8	20.5	11.4	0.778	33.3	0.442	16.8	0.590	23.1	22.9	9.9	27.6	
94	Turkmenistan	0.744	..	..	..	..	19.2	0.614	2.9	0.717	..	..	..	..	18.4	..
95	Guyana	0.742	..	..	..	..	16.2	0.593	10.4	0.582	..	..	..	..	19.6	..
96	Mongolia	0.741	0.645	13.0	11	12.9	7.5	0.749	11.9	0.632	19.2	0.566	20.2	25.7	14.8	32.7	
97	Dominica	0.740	..	..	..	..	8.9	0.742	..	..	..	..	..	..	..	..
98	Tonga	0.739	0.654	11.5	14	11.2	8.4	0.722	4.3	0.780	20.7	0.497	20.0	26.8	..	33.5	
99	Jordan	0.736	0.615	16.4	2	16.3	9.3	0.757	15.4	0.591	24.1	0.520	20.3	27.5	17.1	33.7	
100	Ukraine	0.734	0.676	7.9	21	7.9	6.8	0.697	3.6	0.714	13.3	0.621	24.3	21.8	13.6	25.6	
101	Tunisia	0.732	0.574	21.6	-11	21.1	9.8	0.753	30.7	0.465	22.9	0.540	20.1	25.6	10.9	32.8	
102	Marshall Islands	0.731	0.620	15.2	7	14.9	17.6	0.573	4.8	0.840	22.5	0.495	18.9	27.5	..	35.5	
102	Paraguay	0.731	0.582	20.4	-8	19.6	11.9	0.684	12.4	0.597	34.6	0.482	14.5	35.4	19.6	45.1	
104	Fiji	0.729	0.632	13.3	14	13.2	12.5	0.650	8.6	0.667	18.5	0.581	21.3	24.2	..	30.7	
105	Egypt	0.728	0.561	22.9	-9	22.1	10.7	0.689	36.9	0.433	18.7	0.592	21.8	27.5	18.1	31.9	
106	Uzbekistan	0.727	..	..	..	..	9.0	0.723	1.8	0.717	..	..	..	..	17.4	..
107	Viet Nam	0.726	0.607	16.4	8	16.3	12.6	0.734	15.3	0.546	21.1	0.559	18.1	28.5	16.4	36.8	
108	Saint Lucia	0.725	0.539	25.7	-11	24.6	9.3	0.716	25.2	0.478	39.2	0.459	11.0	38.6	..	51.2	
109	Lebanon	0.723	..	..	..	..	5.8	0.789	..	..	20.2	0.580	20.6	24.8	20.5	31.8
110	South Africa	0.717	0.462	35.6	-23	32.2	19.5	0.514	17.3	0.648	59.9	0.295	7.2	50.5	19.3	63.0	
111	Palestine, State of	0.716	0.587	18.0	3	17.3	10.3	0.738	10.2	0.626	31.4	0.439	19.2	25.2	17.4	33.7	
112	Indonesia	0.713	0.588	17.5	6	17.3	12.8	0.648	15.5	0.569	23.6	0.553	18.3	30.7	14.8	37.9	
113	Philippines	0.710	0.590	16.9	8	16.7	14.5	0.687	12.0	0.575	23.6	0.520	16.9	32.5	19.6	40.7	
114	Botswana	0.708	0.488	31.1	-12	30.1	21.6	0.554	23.3	0.510	45.5	0.412	10.9	41.5	22.7	53.3	

Continued -

TABLE 3

HDI RANK	SDG 10.1															
	Human Development Index (HDI)	Inequality-adjusted HDI (IHD)			Coefficient of human inequality	Inequality in life expectancy	Inequality-adjusted life expectancy index	Inequality in education ^a	Inequality-adjusted education index	Inequality in income ^a	Inequality-adjusted income index	Income shares held by			Gini coefficient	
	Value	Value	Overall loss (%)	Difference from HDI rank ^b	Value	Value	Value	Value	Value	Value	Value	Income shares held by (%)			Value	
												Poorest 40 percent	Richest 10 percent	Richest 1 percent		
2022	2022	2022	2022	2022	2022 ^c	2022 ^c	2022 ^c	2022 ^c	2022 ^c	2022	2010-2022 ^e	2010-2022 ^e	2021	2010-2022 ^e		
115	Jamaica	0.706	0.584	17.3	5	16.3	8.8	0.710	6.3	0.613	33.7	0.458	..	..	19.6	..
116	Samoa	0.702	0.602	14.2	14	13.9	11.0	0.720	7.0	0.673	23.7	0.450	17.9	31.3	..	38.7
117	Kyrgyzstan	0.701	0.634	9.6	27	9.4	9.4	0.703	3.4	0.734	15.3	0.495	22.5	24.0	15.6	29.0
118	Belize	0.700	..	..	..	..	9.1	0.713	14.8	0.545	..	..	..	..	19.6	..
Medium human development																
119	Venezuela (Bolivarian Republic of)	0.699	0.600	14.2	15	14.0	12.0	0.692	8.7	0.636	21.1	0.491	..	..	19.0	..
120	Bolivia (Plurinational State of)	0.698	0.560	19.8	2	19.7	17.2	0.573	15.0	0.633	26.9	0.484	15.7	30.3	19.6	40.9
120	Morocco	0.698	0.508	27.2	-5	26.1	10.5	0.757	41.9	0.353	25.9	0.490	17.4	31.9	15.1	39.5
122	Nauru	0.696	..	..	..	..	13.4	0.586	..	..	18.5	0.617	20.5	25.4	..	32.4
123	Gabon	0.693	0.526	24.1	-1	24.0	19.8	0.564	20.6	0.527	31.4	0.489	16.8	27.7	11.0	38.0
124	Suriname	0.690	..	..	..	..	11.5	0.685	18.4	0.477	..	..	..	..	19.6	..
125	Bhutan	0.681	0.465	31.7	-10	30.3	14.0	0.691	48.2	0.289	28.6	0.503	22.3	22.7	18.1	28.5
126	Tajikistan	0.679	0.585	13.8	14	13.7	15.0	0.670	6.0	0.637	19.9	0.468	19.4	26.4	12.1	34.0
127	El Salvador	0.674	0.548	18.7	6	18.4	9.2	0.719	22.6	0.440	23.3	0.520	16.6	28.7	13.7	38.8
128	Iraq	0.673	0.519	22.9	2	22.6	12.6	0.690	29.7	0.398	25.5	0.508	21.9	23.7	20.1	29.5
129	Bangladesh	0.670	0.470	29.9	-4	29.1	14.1	0.709	37.3	0.362	35.9	0.404	21.2	26.0	11.6	31.8
130	Nicaragua	0.669	0.507	24.2	2	23.6	9.6	0.759	25.8	0.439	35.3	0.390	14.3	37.2	19.6	46.2
131	Cabo Verde	0.661	0.471	28.7	-1	27.2	8.8	0.768	27.4	0.380	45.4	0.357	15.4	32.3	13.9	42.4
132	Tuvalu	0.653	0.545	16.5	10	16.2	14.2	0.592	9.2	0.628	25.1	0.437	17.4	30.8	..	39.1
133	Equatorial Guinea	0.650	..	..	..	..	29.1	0.450	..	..	..	..	..	..	17.4	..
134	India	0.644	0.444	31.1	-6	30.5	17.3	0.607	36.9	0.359	37.4	0.401	20.0	27.8	21.7	34.2
135	Micronesia (Federated States of)	0.634	..	..	..	..	13.4	0.679	..	..	25.8	0.405	16.2	29.7	..	40.1
136	Guatemala	0.629	0.453	28.0	-4	27.4	14.3	0.642	35.0	0.317	32.8	0.457	13.1	38.1	19.6	48.3
137	Kiribati	0.628	0.528	15.9	11	15.8	22.3	0.570	9.6	0.571	15.5	0.451	23.0	22.9	..	27.8
138	Honduras	0.624	0.480	23.1	6	22.3	9.7	0.705	21.6	0.408	35.6	0.386	11.6	34.6	19.6	48.2
139	Lao People's Democratic Republic	0.620	0.466	24.8	3	24.7	19.4	0.608	31.3	0.331	23.6	0.502	17.8	31.2	17.1	38.8
140	Vanuatu	0.614	..	..	..	..	13.4	0.673	..	..	19.1	0.425	19.9	24.7	..	32.3
141	Sao Tome and Principe	0.613	0.459	25.1	1	23.9	10.7	0.670	18.7	0.446	42.4	0.322	16.8	32.9	9.0	40.7
142	Eswatini (Kingdom of)	0.610	0.372	39.0	-11	36.3	24.4	0.423	24.1	0.460	60.5	0.264	10.5	42.7	19.3	54.6
142	Namibia	0.610	0.399	34.6	-6	32.9	20.8	0.464	25.0	0.426	53.0	0.321	8.6	47.3	21.6	59.1
144	Myanmar	0.608	0.475	21.9	10	21.7	20.8	0.576	26.9	0.404	17.6	0.461	21.9	25.5	26.5	30.7
145	Ghana	0.602	0.378	37.2	-5	36.2	22.5	0.524	35.1	0.348	51.0	0.295	14.3	32.2	15.2	43.5
146	Kenya	0.601	0.438	27.1	3	26.5	20.1	0.517	19.7	0.460	39.6	0.353	18.2	31.8	15.2	38.7
146	Nepal	0.601	0.424	29.5	1	28.7	14.3	0.665	39.8	0.301	31.9	0.380	20.4	26.4	9.7	32.8
148	Cambodia	0.600	0.438	27.0	5	26.4	15.3	0.650	28.1	0.355	35.8	0.364	..	..	26.8	..
149	Congo	0.593	0.385	35.1	0	33.1	23.3	0.508	20.9	0.490	55.1	0.228	12.4	37.9	20.5	48.9
150	Angola	0.591	0.344	41.8	-12	40.2	28.3	0.462	34.2	0.351	58.1	0.252	11.5	39.6	26.0	51.3
151	Cameroon	0.587	0.362	38.3	-6	37.3	27.4	0.457	31.7	0.403	52.9	0.257	13.0	35.0	15.9	46.6
152	Comoros	0.586	0.334	43.0	-14	41.9	25.6	0.500	47.6	0.298	52.4	0.250	13.6	33.7	14.2	45.3
153	Zambia	0.569	0.344	39.5	-9	36.0	24.1	0.488	20.4	0.437	63.4	0.191	9.4	43.5	23.2	55.9
154	Papua New Guinea	0.568	0.407	28.3	8	28.0	21.0	0.558	35.7	0.305	27.2	0.398	15.1 ^f	31.0 ^f	18.1	41.9 ^f
155	Timor-Leste	0.566	0.407	28.1	9	26.7	19.3	0.609	44.9	0.313	16.1	0.354	22.8	24.0	17.6	28.7
156	Solomon Islands	0.562	..	..	..	..	12.0	0.687	..	..	22.5	0.365	18.4	29.2	..	37.1
157	Syrian Arab Republic	0.557	..	..	..	..	12.7	0.703	..	..	..	..	..	..	20.7	..
158	Haiti	0.552	0.335	39.3	-9	38.3	25.5	0.501	37.3	0.311	52.1	0.241	15.8	31.2	19.6	41.1
159	Uganda	0.550	0.377	31.5	6	30.7	20.4	0.534	27.9	0.380	43.6	0.265	16.1	34.5	19.3	42.7
159	Zimbabwe	0.550	0.370	32.7	2	30.6	24.4	0.458	14.6	0.512	52.9	0.216	15.1	34.8	21.1	50.3
Low human development																
161	Nigeria	0.548	0.369	32.7	3	32.1	39.7	0.312	37.8	0.339	18.6	0.475	18.7	26.7	11.6	35.1
161	Rwanda	0.548	0.377	31.2	8	30.3	19.3	0.585	27.4	0.348	44.3	0.264	15.8	35.6	19.9	43.7
163	Togo	0.547	0.345	36.9	0	36.5	27.7	0.462	37.7	0.340	44.1	0.262	15.6	33.0	14.8	42.5
164	Mauritania	0.540	0.351	35.0	2	34.7	25.1	0.515	44.0	0.214	35.0	0.391	19.9	24.9	10.8	32.6
164	Pakistan	0.540	0.360	33.3	4	32.8	26.8	0.523	43.5	0.207	28.2	0.432	22.7	25.5	15.7	29.6
166	Côte d'Ivoire	0.534	0.318	40.4	-8	40.0	30.4	0.417	46.1	0.227	43.4	0.340	18.0	29.0	21.0	37.2
167	Tanzania (United Republic of)	0.532	0.372	30.1	12	29.5	20.6	0.572	27.0	0.312	41.1	0.289	17.4	33.1	18.2	40.5
168	Lesotho	0.521	0.332	36.3	-2	34.8	33.6	0.338	19.6	0.450	51.4	0.242	13.5	32.9	14.5	44.9
169	Senegal	0.517	0.334	35.4	1	34.3	16.3	0.617	47.1	0.185	39.3	0.325	17.9	30.8	14.3	38.3
170	Sudan	0.516	0.331	35.9	-1	35.4	24.4	0.530	42.5	0.210	39.3	0.326	19.9	27.8	15.4	34.2

Continued -

TABLE 3

HDI RANK	SDG 10.1														
	Human Development Index (HDI)	Inequality-adjusted HDI (IHDI)			Coefficient of human inequality	Inequality in life expectancy	Inequality-adjusted life expectancy index	Inequality in education ^a	Inequality-adjusted education index	Inequality in income ^a	Inequality-adjusted income index	Income shares held by			Gini coefficient
	Value	Value	Overall loss (%)	Difference from HDI rank ^b	2022	(%)	Value	(%)	Value	(%)	Value	Poorest 40 percent	10 percent	1 percent	2010-2022 ^c
	2022	2022	2022	2022	2022	2022 ^c	2022	2022 ^d	2022	2022 ^e	2022	2010-2022 ^e	2010-2022 ^e	2021	2010-2022 ^e
171 Djibouti	0.515	0.341	33.8	5	33.1	24.7	0.496	45.8	0.191	28.7	0.419	15.8	32.3	15.9	41.6
172 Malawi	0.508	0.359	29.3	11	29.0	19.7	0.530	28.0	0.356	39.3	0.244	17.9	31.0	15.0	38.5
173 Benin	0.504	0.309	38.7	-6	38.5	32.4	0.415	43.7	0.220	39.3	0.324	18.0	30.0	14.0	37.9
174 Gambia	0.495	0.311	37.2	-2	36.4	22.0	0.515	47.0	0.212	40.1	0.275	17.5	30.6	13.6	38.8
175 Eritrea	0.493	..	..	..	..	20.1	0.573	..	..	..	..	..	..	13.8	..
176 Ethiopia	0.492	0.324	34.1	2	33.7	21.9	0.548	42.8	0.204	36.5	0.304	19.4	28.5	13.8	35.0
177 Liberia	0.487	0.310	36.3	-1	36.2	30.0	0.443	42.1	0.271	36.4	0.249	18.8	27.1	12.2	35.3
177 Madagascar	0.487	0.328	32.6	4	31.8	22.3	0.541	28.3	0.293	44.9	0.223	15.7	33.5	15.2	42.6
179 Guinea-Bissau	0.483	0.310	35.8	1	35.5	29.2	0.434	42.1	0.240	35.3	0.287	19.4	27.6	12.0	34.8
180 Congo (Democratic Republic of the)	0.481	0.315	34.5	4	34.1	30.8	0.423	26.8	0.371	44.8	0.198	15.5	32.0	14.6	42.1
181 Guinea	0.471	0.285	39.5	-1	38.9	34.9	0.390	50.1	0.181	31.6	0.328	21.6	23.1	8.6	29.6
182 Afghanistan	0.462	0.300	35.1	1	34.2	24.6	0.498	48.8	0.195	29.2	0.277	..	..	16.2	..
183 Mozambique	0.461	0.270	41.4	-4	40.4	28.6	0.435	38.3	0.263	54.4	0.172	12.7	41.2	31.1	50.5
184 Sierra Leone	0.458	0.277	39.5	0	39.3	34.5	0.407	47.5	0.193	35.9	0.269	19.6	29.4	15.0	35.7
185 Burkina Faso	0.438	0.261	40.4	-4	40.0	30.5	0.425	46.1	0.163	43.4	0.258	16.1	35.3	15.6	43.0
186 Yemen	0.424	0.285	32.8	4	32.1	26.7	0.493	46.4	0.168	23.2	0.279	18.8	29.4	24.2	36.7
187 Burundi	0.420	0.273	35.0	1	34.7	25.1	0.484	39.5	0.234	39.5	0.179	17.9	31.0	14.7	38.6
188 Mali	0.410	0.277	32.4	4	32.0	32.0	0.412	41.0	0.147	23.0	0.351	18.7	28.1	11.8	36.0
189 Chad	0.394	0.238	39.6	-1	39.6	37.7	0.316	42.9	0.173	38.2	0.245	18.2	29.7	13.8	37.5
189 Niger	0.394	0.262	33.5	1	33.4	27.8	0.468	35.0	0.159	37.4	0.241	19.0	31.1	16.6	37.3
191 Central African Republic	0.387	0.237	38.8	0	38.6	35.0	0.345	35.2	0.217	45.5	0.178	15.3	33.1	31.0	43.0
192 South Sudan	0.381	0.222	41.7	0	41.4	35.9	0.351	39.6	0.210	48.9	0.149	12.5 ^f	33.2 ^f	15.5	44.1
193 Somalia	0.380	..	..	..	..	36.8	0.351	..	..	47.4	0.188	..	..	12.4	..
Other countries or territories															
.. Korea (Democratic People's Rep. of)	..	..	..	..	..	11.3	0.731	..	..	..	..	..	..	11.9	..
.. Monaco	..	..	..	..	..	3.5	0.965	..	..	..	..	..	..	..	..
Human development groups															
Very high human development	0.902	0.807	10.5	-	10.2	4.5	0.871	5.9	0.819	20.2	0.737	18.9	27.3	16.0	-
High human development	0.764	0.628	17.8	-	17.3	8.3	0.779	14.0	0.594	29.6	0.536	17.3	31.3	17.1	-
Medium human development	0.640	0.447	30.2	-	29.7	17.4	0.609	34.6	0.370	37.1	0.396	19.3	28.7	20.2	-
Low human development	0.517	0.341	34.0	-	33.8	28.9	0.455	39.2	0.251	33.4	0.348	18.8	29.1	15.4	-
Developing countries	0.694	0.524	24.5	-	24.2	14.9	0.662	25.0	0.452	32.5	0.480	18.2	29.9	17.9	-
Regions															
Arab States	0.704	0.534	24.1	-	23.7	13.8	0.681	32.9	0.395	24.5	0.566	20.8	26.8	17.3	-
East Asia and the Pacific	0.766	0.640	16.4	-	16.0	7.9	0.797	12.3	0.593	27.9	0.554	18.2	29.6	16.5	-
Europe and Central Asia	0.802	0.708	11.7	-	11.5	7.5	0.762	6.5	0.733	20.4	0.636	19.6	26.9	15.7	-
Latin America and the Caribbean	0.763	0.605	20.7	-	20.0	9.8	0.746	14.7	0.605	35.3	0.490	13.0	37.1	21.8	-
South Asia	0.641	0.443	30.9	-	30.3	17.7	0.613	37.7	0.343	35.5	0.414	20.3	27.6	19.6	-
Sub-Saharan Africa	0.549	0.363	33.9	-	33.6	27.9	0.451	33.6	0.322	39.4	0.330	16.4	32.4	16.0	-
Least developed countries	0.542	0.363	33.0	-	32.7	23.4	0.529	36.2	0.286	38.6	0.316	18.0	30.5	16.6	-
Small island developing states	0.730	0.558	23.6	-	23.2	14.9	0.675	22.0	0.497	32.7	0.518	..	..	18.9	-
Organisation for Economic Co-operation and Development	0.906	0.803	11.4	-	11.1	4.7	0.881	6.7	0.809	21.8	0.725	18.2	28.3	15.9	-
World	0.739	0.576	22.1	-	21.7	13.1	0.695	21.7	0.508	30.3	0.542	18.4	29.4	17.5	-

TABLE 3

Notes	Definitions	Main data sources
a See http://hdr.undp.org/en/composite/IHDI for the list of surveys used to estimate inequalities.	Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See <i>Technical note 1</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the HDI is calculated.	Column 1: HDRO calculations based on data from Barro and Lee (2018), IMF (2023), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).
b Based on countries for which an Inequality-adjusted Human Development Index value is calculated.	Inequality-adjusted HDI (IHDI): HDI value adjusted for inequalities in the three basic dimensions of human development. See <i>Technical note 2</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the IHDI is calculated.	Column 2: Calculated as the geometric mean of the values in the inequality-adjusted life expectancy index, inequality-adjusted education index and inequality-adjusted income index using the methodology in <i>Technical note 2</i> (available at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf).
c Calculated by HDRO from period life tables from UNDESA (2022).	Overall loss: Percentage difference between the IHDI value and the HDI value.	Column 3: Calculated based on data in columns 1 and 2.
d Data refer to 2022 or the most recent year available.	Difference from HDI rank: Difference in ranks on the IHDI and the HDI, calculated only for countries for which an IHDI value is calculated.	Column 4: Calculated based on IHDI values and recalculated HDI ranks for countries for which an IHDI value is calculated.
e Data refer to the most recent year available during the period specified.	Coefficient of human inequality: Average inequality in the three basic dimensions of human development.	Column 5: Calculated as the arithmetic mean of the values in inequality in life expectancy, inequality in education and inequality in income using the methodology in <i>Technical note 2</i> (available at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf).
f Refers to 2009.	Inequality in life expectancy: Inequality in distribution of expected length of life based on data from life tables estimated using the Atkinson inequality index.	Column 6: Calculated based on complete life tables from UNDESA (2022).
	Inequality-adjusted life expectancy index: HDI life expectancy index value adjusted for inequality in distribution of expected length of life based on data from life tables listed in Main data sources.	Column 7: Calculated based on inequality in life expectancy and the HDI life expectancy index.
	Inequality in education: Inequality in distribution of years of schooling based on data from household surveys estimated using the Atkinson inequality index.	Column 8: Calculated based on data from CEDLAS and World Bank (2023), Eurostat's European Union Statistics on Income and Living Conditions (2023), ICF Macro Demographic and Health Surveys (various years), LIS (2023), United Nations Children's Fund Multiple Indicator Cluster Surveys (various years) and UNESCO Institute for Statistics (2023), using the methodology in <i>Technical note 2</i> (available at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf).
	Inequality-adjusted education index: HDI education index value adjusted for inequality in distribution of years of schooling based on data from household surveys listed in Main data sources.	Column 9: Calculated based on inequality in education and the HDI education index.
	Inequality in income: Inequality in income distribution based on data from household surveys estimated using the Atkinson inequality index.	Column 10: UNU-WIDER 2023.
	Inequality-adjusted income index: HDI income index value adjusted for inequality in income distribution based on data from household surveys listed in Main data sources.	Column 11: Calculated based on inequality in income and the HDI income index.
	Income shares: Percentage share of income (or consumption) that accrues to the indicated population subgroups.	Columns 12, 13 and 15: World Bank 2023.
	Income share held by richest 1%: Share of pretax national income held by the richest 1 percent of the population. Pretax national income is the sum of all pretax personal income flows accruing to the owners of the production factors, labour and capital, before the tax/transfer system is taken into account and after the pension system is taken into account.	Column 14: World Inequality Database 2022.
	Gini coefficient: Measure of the deviation of the distribution of income among individuals or households in a country from a perfectly equal distribution. A value of 0 represents absolute equality, a value of 100 absolute inequality.	

TABLE 4

Gender Development Index

HDI RANK	Gender Development Index		Human Development Index		SDG 3 Life expectancy at birth		SDG 4.3 Expected years of schooling		SDG 4.4 Mean years of schooling		SDG 8.5 Estimated gross national income per capita ^a		
	Value	Group ^b	Value		(years)		(years)		(years)		(2017 PPP \$)		
			Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	
	2022	2022	2022	2022	2022	2022	2022 ^c	2022 ^c	2022 ^c	2022 ^c	2022	2022	
Very high human development													
1	Switzerland	0.971	2	0.949	0.977	85.9	82.5	16.7	16.5	13.5 ^d	14.3 ^d	56,928	82,109 ^e
2	Norway	0.986	1	0.957	0.970	85.1	81.7	19.5 ^f	17.8	13.2 ^d	12.9 ^d	61,067	77,164 ^e
3	Iceland	0.975	1	0.946	0.969	84.3	81.4	20.5 ^f	17.8	13.9	13.7	45,506	63,420
4	Hong Kong, China (SAR)	0.972	2	0.943	0.970	86.9	81.8	17.9	17.8	12.0	12.8	51,563	75,270 ^e
5	Denmark	0.981	1	0.942	0.960	83.8	80.0	19.4 ^f	18.2 ^g	13.2	12.8	51,753	72,387
5	Sweden	0.983	1	0.941	0.957	85.1	81.9	20.7 ^f	17.5	12.8 ^d	12.5 ^d	47,828	66,019
7	Germany	0.966	2	0.932	0.964	83.5	78.5	17.4	17.3	14.0	14.5	41,022	70,040
7	Ireland	0.991	1	0.943	0.951	84.4	81.0	19.5 ^f	18.8 ^g	11.9 ^d	11.4 ^d	66,876	108,424 ^e
9	Singapore	0.991	1	0.945	0.954	86.3	82.0	17.0	16.8	11.6	12.3	76,611 ^h	99,844 ^e
10	Australia	0.978	1	0.935	0.956	85.5	81.7	22.0 ^f	20.2 ^g	12.8	12.6	41,131	57,496
10	Netherlands	0.960	2	0.925	0.964	83.9	80.9	18.9 ^f	18.2 ^g	12.4	12.8	44,139	70,575
10	Belgium	0.975	1	0.929	0.952	84.4	80.2	19.9 ^f	18.0	12.5 ^d	12.6 ^d	43,720	63,804
12	Finland	0.989	1	0.937	0.947	84.9	79.8	20.3 ^f	18.3 ^g	13.1 ^d	12.7 ^d	42,302	56,914
12	Liechtenstein	0.949	3	0.924	0.974	86.1	83.0 ⁱ	14.5	16.4	12.1 ^j	14.0 ^j	114,829 ^h	179,045 ^e
15	United Kingdom	0.976	1	0.926	0.949	83.8	80.4	18.2 ^f	17.1	13.4	13.4	35,910	57,591
16	New Zealand	0.970	2	0.924	0.953	84.7	81.3	20.2 ^f	19.2 ^g	12.9	13.0	34,940	52,542
17	United Arab Emirates	0.986	1	0.923	0.936	81.4	77.7	19.8 ^f	16.4	12.6	12.9	51,510	84,088 ^e
18	Canada	0.988	1	0.929	0.940	84.8	80.9	16.5	15.4	14.0 ^d	13.8 ^d	39,765	57,230
19	Korea (Republic of)	0.948	3	0.900	0.950	87.1	80.7	16.1	16.8	12.0 ^d	13.3 ^d	31,063	61,037
20	Luxembourg	0.993	1	0.920	0.927	84.8	80.4	14.3	14.1	12.9 ^k	13.0 ^k	66,697	90,256 ^e
20	United States	1.005	1	0.928	0.923	81.0	75.5	17.3	15.6	13.7	13.5	53,469	77,898 ^e
22	Austria	0.972	2	0.912	0.938	84.6	80.2	16.8	15.9	12.0 ^d	12.6 ^d	41,899	71,616
22	Slovenia	0.999	1	0.924	0.925	84.6	79.6	18.3 ^f	16.6	12.9 ^d	12.8 ^d	35,264	47,843
22	Japan	0.968	2	0.904	0.933	87.8 ⁱ	81.8	15.4	15.5	12.4	13.0	33,478	54,395
25	Israel	0.991	1	0.910	0.918	84.5	80.6	15.6	14.5	13.5 ^d	13.4 ^d	37,415	49,792
25	Malta	0.980	1	0.903	0.922	85.7	81.6	16.6	15.2	12.0	12.4	33,971	54,099
27	Spain	0.988	1	0.902	0.913	86.5	81.2	18.4 ^f	17.2	10.5	10.7	32,835	47,543
28	France	0.986	1	0.903	0.916	86.0	80.4	16.4	15.6	11.5 ^d	11.9 ^d	38,135	57,263
29	Cyprus	0.977	1	0.895	0.916	83.7	80.1	16.6	15.8	12.4	12.5	31,777	48,470
30	Italy	0.969	2	0.890	0.918	86.0	82.0	17.1	16.2	10.6	10.9	31,413	57,808
31	Estonia	1.022	1	0.908	0.888	83.0	75.0	16.8	15.1	13.8	13.3	31,199	43,737
32	Czechia	0.988	1	0.888	0.899	81.2	75.1	16.9	15.8	12.8 ^d	13.1 ^d	30,761	49,404
33	Greece	0.969	2	0.878	0.907	83.3	78.0	20.2 ^f	19.9 ^g	11.1	11.7	24,821	38,227
34	Bahrain	0.937	3	0.847	0.904	80.5	78.2	17.0	15.7	10.8	11.2	22,722	64,700
35	Andorra	..	..	..	..	85.8	81.4	12.8	12.8	11.5	11.7	..	..
36	Poland	1.009	1	0.884	0.876	80.8	73.2	16.7	15.2	13.3	13.0	27,366	43,446
37	Latvia	1.022	1	0.887	0.868	80.1	71.5	17.3	15.9	13.6 ^d	13.0 ^d	26,345	38,716
37	Lithuania	1.028	2	0.891	0.867	79.1	69.5	17.1	15.8	13.6	13.4	33,012	43,912
39	Croatia	0.993	1	0.875	0.881	82.0	76.4	16.5	14.7	12.1 ^d	12.6 ^d	27,573	41,433
40	Qatar	1.027	2	0.893	0.869	83.1	80.6	15.3	12.6	11.8 ^d	9.7 ^d	47,964	114,135 ^e
40	Saudi Arabia	0.928	3	0.832	0.897	79.5	76.7	15.5 ^m	14.8 ⁿ	10.7	11.7	24,647	69,723
42	Portugal	0.998	1	0.873	0.874	84.9	79.3	17.1	16.6	9.6	9.5	31,845	39,199
43	San Marino	0.966	2	0.853	0.883	84.7	82.0	12.0	12.9	10.7 ^o	10.5 ^o	50,410	65,363
44	Chile	0.973	2	0.847	0.870	81.9	77.2	17.1	16.5	11.0 ^d	11.2 ^d	18,612	30,337
45	Slovakia	1.002	1	0.856	0.854	78.8	71.9	15.3	14.2	13.0 ^d	13.0 ^d	26,634	37,967
45	Türkiye	0.941	3	0.825	0.876	81.5	75.4	19.6 ^f	19.8 ^g	8.1 ^d	9.6 ^d	20,538	45,077
47	Hungary	0.989	1	0.846	0.855	78.3	71.6	15.4	14.7	12.1	12.4	27,203	41,768
48	Argentina	0.995	1	0.841	0.845	79.3	72.9	20.9 ^f	17.1	11.4	10.9	16,933	27,265
49	Kuwait	1.014	1	0.848	0.836	82.8	78.9	17.8 ^d	13.8 ^d	8.3 ^d	7.0 ^d	28,018	75,232 ^e
50	Montenegro	0.978	1	0.833	0.852	80.3	73.5	15.6	14.6	12.1 ^d	13.2 ^d	17,543	27,750
51	Saint Kitts and Nevis	..	..	..	..	75.7	68.7	19.7 ^l	17.0 ^p	11.1 ^m	10.6 ^q	..	..
52	Uruguay	1.020	1	0.832	0.816	81.7	74.1	18.8 ^f	15.9	9.3 ^d	8.7 ^d	17,426	27,294
53	Romania	0.981	1	0.818	0.834	77.6	70.7	15.0	14.0	11.1 ^d	11.7 ^d	22,595	41,297
54	Antigua and Barbuda	..	..	..	..	81.6	76.5	16.7 ^d	14.4 ^d	10.3 ⁿ	10.6 ⁿ	..	..
55	Brunei Darussalam	0.983	1	0.814	0.829	76.8	72.5	14.2	13.3	9.2	9.2	44,703	72,823
55	Russian Federation	1.021	1	0.829	0.812	75.7	64.7	15.8 ^d	15.5 ^d	12.5	12.3	21,781	33,001
57	Bahamas	1.007	1	0.822	0.817	77.8	70.8	12.2 ^m	11.6 ^m	12.8 ^d	12.7 ^d	28,375	37,085
57	Panama	1.017	1	0.826	0.813	80.1	73.7	13.9 ^d	12.6 ^d	10.9 ^d	10.4 ^d	27,611	36,447
59	Oman	0.937	3	0.780	0.833	76.0	72.4	13.5	12.6	12.3	11.7	13,055	45,769

Continued -

TABLE 4

HDI RANK	Gender Development Index		Human Development Index		SDG 3		SDG 4.3		SDG 4.4		SDG 8.5		
	Value	Group ^a	Value		Life expectancy at birth		Expected years of schooling		Mean years of schooling		Estimated gross national income per capita ^a		
			Female	Male	(years)		(years)		(years)		(2017 PPP \$)		
	2022	2022	2022	2022	Female	Male	Female	Male	Female	Male	Female	Male	
60	Georgia	1.005	1	0.815	0.811	76.5	66.8	17.0	16.5	12.8	12.6	12,237	20,141
60	Trinidad and Tobago	0.992	1	0.809	0.815	78.2	71.3	14.4 ^f	13.8 ^f	11.9 ^d	11.6 ^d	17,088	28,007
62	Barbados	1.030	2	0.815	0.792	79.6	75.7	18.3 ^{df}	14.8 ^d	10.4 ^s	9.1 ^s	12,595	17,214
63	Malaysia	0.973	2	0.794	0.816	78.8	74.0	13.4	12.5	10.7 ^d	10.8 ^d	19,262	34,983
64	Costa Rica	0.995	1	0.803	0.807	80.0	74.8	16.7 ^d	15.6 ^d	8.9	8.7	16,531	23,965
65	Serbia	0.986	1	0.799	0.810	77.0	71.3	15.2	13.8	11.2 ^d	11.9 ^d	15,909	23,388
66	Thailand	1.011	1	0.807	0.798	83.9	75.5	15.9	15.3	8.7 ^d	9.0 ^d	15,289	18,580
67	Kazakhstan	0.998	1	0.799	0.801	73.0	65.8	15.0	14.6	12.5 ^d	12.4 ^d	18,595	26,890
67	Seychelles	1.064	3	0.829	0.779	76.0	68.2	15.4	12.6	12.0 ^m	10.4	24,756	31,651
69	Belarus	1.003	1	0.801	0.799	78.4	68.1	13.9	14.0	12.3 ^d	12.2 ^d	14,502	23,022
High human development													
70	Bulgaria	0.995	1	0.797	0.800	75.1	68.3	14.1	13.6	11.5	11.3	20,700	31,466
71	Palau	1.007	1	0.802	0.797	69.3	62.2	18.3 ^{to}	16.9 ^o	13.3 ^o	12.8 ^m	15,159	23,218
72	Mauritius	0.976	1	0.784	0.803	77.1	71.0	15.2	14.1	9.9 ^s	10.1 ^s	15,594	31,124
73	Grenada	0.976	1	0.781	0.801	78.3	72.6	17.1 ^d	16.1 ^d	9.8 ^m	9.9 ⁿ	9,775	17,412
74	Albania	0.977	1	0.780	0.798	79.5	74.5	14.7	14.3	9.8 ^s	10.4 ^s	13,199	17,398
75	China	0.962	2	0.771	0.802	81.3	76.0	15.7 ^d	14.8 ^d	7.5 ^m	8.7 ^t	13,292	22,567
76	Armenia	1.026	2	0.795	0.775	78.4	67.9	14.8	14.0	11.3	11.3	13,443	17,770
77	Mexico	0.979	1	0.770	0.787	78.2	71.5	15.0	14.1	9.1	9.4	13,548	25,008
78	Iran (Islamic Republic of)	0.880	5	0.710	0.806	77.5	71.9	14.2	14.1	10.7 ^d	10.8 ^d	4,140	25,192
78	Sri Lanka	0.947	3	0.751	0.793	80.2	72.9	14.1 ^d	13.2 ^d	11.1	11.4	6,241	17,990
80	Bosnia and Herzegovina	0.952	2	0.759	0.797	77.5	73.1	13.8	12.8	9.8	11.4	12,420	20,853
81	Saint Vincent and the Grenadines	..	..	..	..	71.7	66.7	16.4 ^d	16.1 ^d	11.0 ^o	11.0 ^o	..	..
82	Dominican Republic	1.029	2	0.775	0.753	77.5	71.0	14.8	12.3	9.6 ^d	8.7 ^d	14,773	22,506
83	Ecuador	0.990	1	0.760	0.768	80.5	75.3	15.3	14.4	8.9	9.0	9,147	12,245
83	North Macedonia	0.950	2	0.744	0.783	76.2	71.7	13.4	12.6	9.7	10.8	11,526	21,296
85	Cuba	0.973	2	0.750	0.771	80.6	75.8	15.3	13.7	10.6 ^d	10.4 ^d	5,571	10,373
86	Moldova (Republic of)	1.033	2	0.776	0.751	73.3	64.2	15.4	14.4	11.9 ^d	11.8 ^d	12,272	13,725
87	Maldives	0.976	1	0.748	0.767	81.8	80.1	13.3 ^d	11.2 ^d	7.9 ^d	7.7 ^d	12,161	23,783
87	Peru	0.952	2	0.742	0.779	75.5	71.3	14.9 ^d	14.7 ^d	9.4 ^d	10.6 ^d	9,515	14,365
89	Azerbaijan	0.961	2	0.743	0.773	76.2	70.6	12.7	12.7	10.2 ^d	10.9 ^d	11,526	18,603
89	Brazil	1.000	1	0.758	0.758	76.6	70.3	16.2	15.0	8.5 ^d	8.0 ^d	11,292	18,061
91	Colombia	0.998	1	0.756	0.758	77.1	70.3	14.7	14.2	9.0	8.7	12,252	17,854
92	Libya	0.988	1	0.739	0.748	74.8	69.7	14.8 ⁿ	13.5 ⁿ	8.4 ^m	7.2 ^m	12,073	27,248
93	Algeria	0.881	5	0.682	0.774	78.5	75.9	16.3	14.7	6.5 ^d	7.5 ^d	3,842	17,859
94	Turkmenistan	..	..	..	..	72.9	65.9	13.2	13.2	10.8 ^d	11.5 ^d	..	..
95	Guyana	0.992	1	0.738	0.743	69.4	62.8	13.3 ^r	12.7 ^r	8.7 ^s	8.5 ^s	26,505	45,454
96	Mongolia	1.032	2	0.751	0.728	77.4	68.1	15.3 ^d	13.8 ^d	9.9	8.8	8,099	12,640
97	Dominica	..	..	..	..	76.5	69.9	14.4 ^m	12.7 ^m	9.0 ⁿ	9.7 ⁿ	..	..
98	Tonga	0.996	1	0.736	0.739	74.1	68.6	17.4	15.2	11.0 ^s	10.8 ^s	5,051	7,698
99	Jordan	0.863	5	0.662	0.767	76.7	72.1	12.9 ^d	12.4 ^d	10.1	10.8	2,753	15,380
100	Ukraine	1.021	1	0.741	0.726	73.9	63.5	13.5	13.1	11.4 ^s	10.7 ^s	9,025	14,233
101	Tunisia	0.928	3	0.698	0.751	77.4	71.4	15.5 ^d	13.8 ^d	7.3 ^d	8.7 ^d	5,198	15,528
102	Marshall Islands	0.945	3	0.708	0.748	67.1	63.5	17.0	15.8	12.7 ^o	12.9 ^m	4,518	9,096
102	Paraguay	0.994	1	0.728	0.732	73.6	67.6	14.6 ^u	13.3 ^u	8.9	8.9	10,349	15,954
104	Fiji	0.940	3	0.700	0.745	70.2	66.5	14.4	13.3	10.4	10.3	6,282	16,158
105	Egypt	0.884	5	0.664	0.752	72.6	67.9	12.8	13.0	10.2 ^d	9.6 ^d	3,739	20,790
106	Uzbekistan	0.924	4	0.691	0.748	74.3	69.0	12.0	12.0	11.7	12.1	4,390	11,716
107	Viet Nam	1.007	1	0.729	0.723	79.3	69.9	13.3 ^v	12.8 ^v	8.1 ^d	8.8 ^d	9,615	12,042
108	Saint Lucia	1.013	1	0.729	0.719	74.9	68.0	13.4	12.1	8.8 ^d	8.3 ^d	11,815	17,807
109	Lebanon	0.928	3	0.690	0.743	76.6	72.2	12.8 ^w	11.3 ^w	8.0 ^m	9.2 ^o	6,546	18,439
110	South Africa	0.985	1	0.710	0.721	64.2	58.6	14.8	13.7	11.5	11.7	10,423	16,095
111	Palestine, State of	0.880	5	0.649	0.737	75.9	71.0	14.0	12.4	9.9	10.0	2,134	11,759
112	Indonesia	0.940	3	0.688	0.732	70.4	66.2	14.1 ^d	13.9 ^d	8.2	8.9	8,111	15,926
113	Philippines	0.966	2	0.694	0.718	74.2	70.2	13.2	12.4	9.2 ^d	8.7 ^d	6,179	11,851
114	Botswana	0.998	1	0.707	0.708	68.4	63.3	11.8	11.1	10.4	10.5	13,676	16,037
115	Jamaica	1.016	1	0.710	0.699	72.7	68.5	13.6 ^d	11.4 ^d	9.9 ^d	8.6 ^d	7,647	11,775
116	Samoa	0.968	2	0.687	0.709	75.3	70.1	13.0	11.9	11.8 ^d	11.0 ^d	3,314	6,562
117	Kyrgyzstan	0.975	1	0.690	0.707	74.9	66.2	13.2	12.8	11.9 ^d	12.0 ^d	3,442	6,170
118	Belize	0.982	1	0.691	0.704	74.7	67.7	12.8	12.1	9.0	8.7	6,319	12,133

Continued -

TABLE 4

HDI RANK	Value	Group ^b	Human Development Index		SDG 3		SDG 4.3		SDG 4.4		SDG 8.5		
			Value		Life expectancy at birth		Expected years of schooling		Mean years of schooling		Estimated gross national income per capita ^a		
			Female	Male	(years)		(years)		(years)		(2017 PPP \$)		
			2022	2022	2022	2022	2022 ^c	2022 ^c	2022 ^c	2022 ^c	2022	2022	
Medium human development													
119	Venezuela (Bolivarian Republic of)	1.002	1	0.695	0.693	75.7	66.9	14.3 ^o	12.4 ^o	9.8 ^o	9.5 ^m	4,285	8,126
120	Bolivia (Plurinational State of)	0.965	2	0.686	0.711	67.9	62.3	15.1	14.9	9.2	10.5	6,727	9,243
120	Morocco	0.851	5	0.628	0.737	77.2	72.9	14.5	14.7	5.1	7.0	2,968	12,876
122	Nauru	1.037	2	0.708	0.683	67.8	60.5	14.4 ^d	11.0 ^d	9.3 ^m	9.2 ⁿ	11,558	18,213
123	Gabon	0.982	1	0.683	0.696	68.4	63.4	12.6 ⁿ	12.3 ^m	10.4	8.7	7,296	14,958
124	Suriname	0.987	1	0.683	0.692	73.6	67.2	11.3	10.6	8.6 ^d	8.2 ^d	8,820	15,832
125	Bhutan	0.970	2	0.670	0.690	74.2	70.6	13.6 ^d	12.6 ^d	5.2 ^d	6.3 ^d	9,343	11,766
126	Tajikistan	0.919	4	0.647	0.704	73.5	69.2	10.4 ^d	11.3 ^d	10.9 ^s	11.6 ^s	3,295	6,300
127	El Salvador	0.972	2	0.662	0.681	75.8	66.8	12.2 ^u	11.6 ^u	6.8	7.6	6,244	11,794
128	Iraq	0.786	5	0.569	0.724	73.4	69.2	11.6 ^v	12.8 ^v	5.6 ^s	8.0 ^s	2,087	16,070
129	Bangladesh	0.914	4	0.635	0.694	76.0	71.5	12.4	11.5	6.8	8.0	3,684	9,387
130	Nicaragua	0.949	3	0.647	0.682	77.6	71.6	12.3 ^u	12.8 ^u	7.5	7.0	3,596	7,311
131	Cabo Verde	0.981	1	0.652	0.664	79.0	70.3	11.8 ^d	11.3 ^d	5.8 ^o	6.3 ^o	5,732	9,491
132	Tuvalu	0.975	1	0.643	0.659	69.4	61.1	12.4 ^d	11.8 ^d	10.5 ^d	10.8 ^d	3,378	6,063
133	Equatorial Guinea	..	..	..	..	63.3	59.4	12.0 ⁿ	12.3 ⁿ	8.2 ⁿ	8.4 ^m	..	..
134	India	0.852	5	0.582	0.684	69.4	66.3	12.6	12.6	5.5	7.6	2,958	10,696
135	Micronesia (Federated States of)	0.950	2	0.615	0.647	74.8	67.3	12.7 ⁿ	12.5 ^m	6.9 ⁿ	7.8 ⁿ	2,652	4,756
136	Guatemala	0.931	3	0.604	0.649	71.8	65.7	10.6 ^d	10.9 ^d	5.2 ^d	6.3 ^d	6,114	11,938
137	Kiribati	0.849	5	0.555	0.654	69.4	65.7	12.4	11.3	9.3 ^m	9.0 ^o	1,100	5,903
138	Honduras	0.974	2	0.616	0.632	73.2	68.5	10.3 ^u	9.6 ^u	6.9 ^d	7.8 ^d	4,695	5,837
139	Lao People's Democratic Republic	0.919	4	0.593	0.645	71.2	66.9	10.0	10.4	5.0 ^s	6.9 ^s	6,380	9,088
140	Vanuatu	0.936	3	0.591	0.631	73.1	68.3	11.9 ^d	11.7 ^d	6.6 ⁿ	7.5 ⁿ	2,445	4,033
141	Sao Tome and Principe	..	..	..	..	71.9	66.1	12.9 ^r	12.5 ^r	5.3 ^d	6.7 ^d	..	..
142	Eswatini (Kingdom of)	0.987	1	0.606	0.614	60.6	52.6	14.4 ^d	15.5 ^d	5.8	5.7	6,958	9,848
142	Namibia	1.006	1	0.612	0.608	61.7	54.6	11.7 ^s	11.8 ^s	7.5 ^s	7.0 ^s	7,827	10,673
144	Myanmar	0.941	3	0.583	0.619	70.5	64.2	12.3 ^d	11.3 ^d	6.2 ^s	6.9 ^s	2,545	5,544
145	Ghana	0.933	3	0.583	0.625	66.1	61.8	11.5	11.7	5.6 ^s	7.6 ^s	4,794	5,970
146	Kenya	0.948	3	0.585	0.617	64.7	59.6	11.4 ^s	11.4 ^s	7.1	8.3	3,977	5,654
146	Nepal	0.885	5	0.562	0.635	72.4	68.6	12.8	12.5	3.4 ^d	5.7 ^d	2,609	5,564
148	Cambodia	0.926	3	0.577	0.623	72.6	67.1	11.3 ^o	11.8 ^m	4.4	6.2	3,563	5,034
149	Congo	0.909	4	0.564	0.620	64.6	61.5	13.0 ^d	11.9 ^d	7.2 ^s	9.4 ^s	2,085	3,722
150	Angola	0.905	4	0.561	0.620	64.5	59.4	11.5	12.9	4.5 ^s	7.2 ^s	4,696	5,974
151	Cameroon	0.900	4	0.556	0.618	62.6	59.4	12.7 ^d	14.1 ^d	5.6 ^s	7.6 ^s	3,048	4,318
152	Comoros	0.914	4	0.558	0.611	66.1	61.5	13.4 ^d	12.7 ^d	5.2 ^v	7.3 ^v	2,338	4,174
153	Zambia	0.930	3	0.548	0.589	64.5	59.1	11.1 ^v	11.0 ^v	6.4 ^s	8.3 ^s	2,531	3,800
154	Papua New Guinea	0.927	3	0.546	0.589	69.2	63.4	10.5 ^s	11.7 ^s	4.2 ^s	5.3 ^s	3,219	4,171
155	Timor-Leste	0.904	4	0.534	0.591	70.8	67.4	13.4 ^s	13.1 ^s	5.5 ^s	6.6 ^s	1,145	2,094
156	Solomon Islands	0.959	2	0.554	0.578	72.4	69.3	11.1 ^d	9.7 ^d	5.5 ⁿ	6.8 ⁿ	1,998	2,537
157	Syrian Arab Republic	0.805	5	0.481	0.597	76.1	68.7	7.2 ^o	7.7 ^m	5.4 ^o	6.7 ^o	1,049	6,132
158	Haiti	0.929	3	0.531	0.571	66.7	60.9	11.1 ^m	11.2 ^m	5.1 ^s	6.3 ^s	2,110	3,506
159	Uganda	0.899	5	0.522	0.580	65.7	61.5	11.1 ^s	11.9 ^s	5.2 ^d	7.7 ^d	1,890	2,597
159	Zimbabwe	0.936	3	0.532	0.568	62.1	56.4	10.7 ^d	11.4 ^d	8.2 ^d	9.6 ^d	1,762	2,433
Low human development													
161	Nigeria	0.886	5	0.515	0.581	54.0	53.3	10.2	10.8	6.6	8.7	4,110	5,386
161	Rwanda	0.921	4	0.524	0.569	69.2	64.8	11.5	11.3	4.5	5.4	1,662	3,000
163	Togo	0.848	5	0.505	0.596	62.2	60.9	12.5 ^d	14.3 ^d	4.2 ^d	7.2 ^d	1,744	2,679
164	Mauritania	0.874	5	0.503	0.575	66.4	63.0	8.2	8.0	4.1 ^s	5.8 ^s	3,053	7,727
164	Pakistan	0.834	5	0.480	0.575	68.9	64.1	7.3 ^d	8.4 ^d	3.9 ^d	4.8 ^d	2,120	8,571
166	Côte d'Ivoire	0.861	5	0.492	0.572	60.3	57.7	9.5	10.7	3.1 ^s	5.4 ^s	4,063	6,665
167	Tanzania (United Republic of)	0.940	3	0.516	0.549	68.9	64.7	8.7	8.5	5.1 ^d	6.3 ^d	2,195	2,970
168	Lesotho	0.999	1	0.519	0.520	55.9	50.3	11.4 ^d	10.8 ^d	8.2 ^d	6.8 ^d	2,129	3,304
169	Senegal	0.925	3	0.496	0.536	70.2	65.5	9.9	8.4	2.3 ^d	3.7 ^d	2,256	4,712
170	Sudan	0.868	5	0.472	0.544	68.2	63.0	8.3 ^d	8.7 ^d	3.5	4.2	1,750	5,282
171	Djibouti	0.844	5	0.466	0.552	65.5	60.3	8.2 ^d	8.0 ^d	2.9 ^o	5.1 ^o	2,307	7,481
172	Malawi	0.926	3	0.489	0.528	66.3	59.6	11.5 ^d	11.5 ^d	4.3	6.4	1,191	1,687
173	Benin	0.848	5	0.462	0.544	61.7	58.3	9.5	11.1	2.1 ^s	4.4 ^s	2,604	4,205
174	Gambia	0.940	3	0.481	0.511	64.3	61.5	9.9 ^s	8.1 ^s	3.7	5.6	1,792	2,390
175	Eritrea	..	..	..	..	68.7	64.5	6.9 ^d	7.8 ^d	4.0 ⁿ	5.7 ⁿ	..	..
176	Ethiopia	0.922	4	0.472	0.512	68.9	62.6	10.2 ^d	9.8 ^d	1.7 ^d	3.2 ^d	1,762	2,970

Continued →

TABLE 4

	Gender Development Index		Human Development Index		SDG 3		SDG 4.3		SDG 4.4		SDG 8.5	
	Value	Group ^a	Value		Life expectancy at birth		Expected years of schooling		Mean years of schooling		Estimated gross national income per capita ^a	
			Female	Male	(years)		(years)		(years)		(2017 PPP \$)	
					Female	Male	Female	Male	Female	Male	Female	Male
2022	2022	2022	2022	2022	2022	2022 ^c	2022 ^c	2022 ^c	2022 ^c	2022	2022	
HDI RANK												
177 Liberia	0.860	5	0.451	0.524	62.4	59.8	10.1	10.8	3.6 ^s	7.2 ^s	1,163	1,499
177 Madagascar	0.945	3	0.473	0.500	67.6	63.0	9.3 ^d	9.1 ^d	4.3	4.9	1,224	1,702
179 Guinea-Bissau	0.862	5	0.451	0.523	61.9	57.7	10.4 ^v	11.6 ^v	2.5	5.1	1,487	2,282
180 Congo (Democratic Republic of the)	0.891	5	0.454	0.510	62.1	57.5	9.6 ^d	9.7 ^d	5.8 ^s	8.8 ^s	917	1,246
181 Guinea	0.818	5	0.422	0.515	60.2	57.6	9.1 ^d	11.2 ^d	1.4 ^d	3.4 ^d	1,719	3,104
182 Afghanistan	0.622	5	0.332	0.534	66.2	59.8	8.1 ^d	13.2 ^d	1.2	3.9	396	2,256
183 Mozambique	0.929	3	0.443	0.477	62.7	56.5	10.3 ^d	11.1 ^d	3.2	4.4	1,060	1,385
184 Sierra Leone	0.885	5	0.432	0.488	61.7	59.1	9.4 ^f	9.0 ^f	2.4 ^d	4.8 ^d	1,326	1,898
185 Burkina Faso	0.881	5	0.409	0.464	61.5	58.0	8.2	8.0	1.6 ^d	3.1 ^d	1,454	2,624
186 Yemen	0.456	5	0.219	0.480	67.2	60.5	6.9 ^o	8.9 ^o	1.8 ^z	3.6 ^z	150	2,042
187 Burundi	0.926	3	0.404	0.436	63.9	60.1	10.2 ^d	9.7 ^d	2.6 ^d	4.1 ^d	636	789
188 Mali	0.830	5	0.368	0.444	60.8	58.1	6.4 ^d	7.5 ^d	1.1	2.2	1,333	2,741
189 Chad	0.776	5	0.342	0.441	54.8	51.3	6.8 ^d	9.5 ^d	1.3 ^d	3.5 ^d	991	1,783
189 Niger	0.826	5	0.354	0.428	63.4	60.8	6.5 ^d	7.9 ^d	1.0 ^s	1.8 ^s	893	1,663
191 Central African Republic	..	..	..	..	56.8	52.3	6.1 ^d	8.4 ^d	2.7 ^s	5.4 ^s	..	..
192 South Sudan	..	..	..	..	57.0	54.0	4.5 ^d	6.7 ^d	4.8 ^{aa}	6.2 ^{aa}	..	..
193 Somalia	0.769	5	0.327	0.425	58.2	54.1	7.6 ⁿ	8.3 ⁿ	0.9	2.9	578	1,563
Other countries or territories												
Korea (Democratic People's Rep. of)	..	..	..	..	76.1	71.0	..	..	..	..	..	..
Monaco	..	..	..	..	88.9 ^l	85.1 ^l	19.4 ^{dl}	18.1 ^{dg}	..	..	..	..
Human development groups												
Very high human development	0.988	-	0.895	0.906	82.3	76.4	17.1	16.1	12.2	12.3	34,726	55,442
High human development	0.962	-	0.747	0.777	78.0	72.5	14.8	14.2	8.3	9.0	10,904	20,011
Medium human development	0.870	-	0.587	0.675	69.9	66.1	12.3	12.3	5.8	7.6	3,127	9,638
Low human development	0.868	-	0.478	0.551	63.7	59.7	8.9	9.6	3.9	5.5	2,073	4,368
Developing countries	0.929	-	0.665	0.716	72.9	68.2	12.6	12.5	7.1	8.2	7,283	14,943
Regions												
Arab States	0.877	-	0.646	0.736	73.5	69.3	11.8	12.0	7.2	8.3	5,468	22,726
East Asia and the Pacific	0.962	-	0.749	0.779	79.0	73.6	14.8	14.2	7.8	8.7	11,939	20,216
Europe and Central Asia	0.963	-	0.785	0.815	77.0	70.2	15.5	15.5	10.4	10.8	13,573	26,631
Latin America and the Caribbean	0.991	-	0.758	0.765	76.9	70.6	15.3	14.2	9.0	8.9	11,503	18,823
South Asia	0.855	-	0.580	0.678	70.4	66.7	11.8	12.0	5.7	7.5	2,958	10,808
Sub-Saharan Africa	0.915	-	0.525	0.574	62.6	58.7	10.2	10.5	5.2	6.9	3,025	4,388
Least developed countries	0.890	-	0.509	0.572	67.4	62.5	9.9	10.3	4.3	5.9	2,042	4,054
Small island developing states	0.979	-	0.722	0.738	74.3	69.0	12.9	12.3	8.5	8.8	13,079	19,712
Organisation for Economic Co-operation and Development	0.984	-	0.898	0.912	82.9	77.4	17.1	16.1	12.1	12.3	36,106	56,848
World	0.951	-	0.719	0.756	74.5	69.6	13.1	12.9	8.2	9.1	12,516	22,035

TABLE 4

Notes	
a	Because disaggregated income data are not available, data are crudely estimated. See <i>Definitions</i> and <i>Technical note 3</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the Gender Development Index is calculated.
b	Countries are divided into five groups by absolute deviation from gender parity in HDI values.
c	Data refer to 2022 or the most recent year available.
d	Updated by HDRO based on data from UNESCO Institute for Statistics (2023).
e	In calculating the male HDI value, estimated gross national income per capita is capped at \$75,000.
f	In calculating the female HDI value, expected years of schooling is capped at 18 years.
g	In calculating the male HDI value, expected years of schooling is capped at 18 years.
h	In calculating the female HDI value, estimated gross national income per capita is capped at \$75,000.
i	In calculating the male HDI value, life expectancy at birth is capped at 82.5 years.
j	Updated by HDRO using the mean years of schooling trend of Austria and data from UNESCO Institute for Statistics (2023).
k	Updated by HDRO based on data from OECD (2023) and UNESCO Institute for Statistics (2023).
l	In calculating the female HDI value, life expectancy at birth is capped at 87.5 years.
m	HDRO estimate based on data from Robert Barro and Jong-Wha Lee; the Center for Distributive, Labor and Social Studies and the World Bank's Socio-Economic Database for Latin America and the Caribbean; ICF Macro Demographic and Health Surveys; the Organisation for Economic Co-operation and Development; United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys; and the United Nations Educational, Scientific and Cultural Organization Institute for Statistics.
n	Based on HDRO estimates using cross-country regression.
o	Updated by HDRO based on data from UNESCO Institute for Statistics (2023) and estimates using cross-country regression.
p	Refers to 2015 based on UNESCO Institute for Statistics (2023).
q	Refers to 2015 based on HDRO estimates using cross-country regression.
r	Updated by HDRO based on data from UNESCO Institute for Statistics (2023) and UNICEF Multiple Indicator Cluster Surveys for various years.
s	Updated by HDRO based on data from Barro and Lee (2018) and UNESCO Institute for Statistics (2023).
t	Refers to 2018 based on UNESCO Institute for Statistics (2023).
u	Updated by HDRO based on data from CEDLAS and World Bank (2023) and UNESCO Institute for Statistics (2023).
v	Updated by HDRO based on data from UNICEF Multiple Indicator Cluster Surveys for various years.

w	Updated by HDRO based on data from UNICEF Multiple Indicator Cluster Surveys for various years and estimates using cross-country regression.
x	Updated by HDRO based on data from ICF Macro Demographic and Health Surveys for various years and UNESCO Institute for Statistics (2023).
y	Updated by HDRO based on data from ICF Macro Demographic and Health Surveys for various years.
z	Updated by HDRO based on data from Barro and Lee (2018) and estimates using cross-country regression.
aa	Refers to 2008 based on UNESCO Institute for Statistics (2023).

Definitions

Gender Development Index: Ratio of female to male HDI values. See *Technical note 3* at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the Gender Development Index is calculated.

Gender Development Index groups: Countries are divided into five groups by absolute deviation from gender parity in HDI values. Group 1 comprises countries with high equality in HDI achievements between women and men (absolute deviation of less than 2.5 percent), group 2 comprises countries with medium to high equality in HDI achievements between women and men (absolute deviation of 2.5–5 percent), group 3 comprises countries with medium equality in HDI achievements between women and men (absolute deviation of 5–7.5 percent), group 4 comprises countries with medium to low equality in HDI achievements between women and men (absolute deviation of 7.5–10 percent) and group 5 comprises countries with low equality in HDI achievements between women and men (absolute deviation from gender parity of more than 10 percent).

Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See *Technical note 1* at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the HDI is calculated.

Life expectancy at birth: Number of years a newborn infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth stay the same throughout the infant's life.

Expected years of schooling: Number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child's life.

Mean years of schooling: Average number of years of education received by people ages 25 and older, converted from educational attainment levels using official durations of each level.

Estimated gross national income per capita: Derived from the ratio of female to male wages, female and male shares of economically active population and gross national income (in 2017 purchasing power parity terms). See *Technical note 3* at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details.

Main data sources

Column 1: Calculated based on data in columns 3 and 4.

Column 2: Calculated based on data in column 1.

Columns 3 and 4: HDRO calculations based on data from Barro and Lee (2018), IMF (2023), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).

Columns 5 and 6: UNDESA 2022.

Columns 7 and 8: CEDLAS and World Bank 2023, ICF Macro Demographic and Health Surveys, UNESCO Institute for Statistics 2023 and UNICEF Multiple Indicator Cluster Surveys.

Columns 9 and 10: Barro and Lee 2018, ICF Macro Demographic and Health Surveys, OECD 2023, UNESCO Institute for Statistics 2023 and UNICEF Multiple Indicator Cluster Surveys.

Columns 11 and 12: HDRO calculations based on ILO (2023), IMF (2023), UNDESA (2023), United Nations Statistics Division (2023) and World Bank (2023).

TABLE 5

Gender Inequality Index

HDI RANK	Gender Inequality Index		SDG 3.1	SDG 3.7	SDG 5.5	SDG 4.4		Labour force participation rate ^a		
	Value	Rank	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament	Population with at least some secondary education		Labour force participation rate ^a		
			(deaths per 100,000 live births)	(births per 1,000 women ages 15-19)	(% held by women)	(% ages 25 and older)		(% ages 15 and older)		
	2022	2022	2020	2022	2022	Female	Male	Female	Male	
Very high human development										
1	Switzerland	0.018	3	7	2.2	39.0	96.9 ^c	97.5 ^c	61.5	71.9
2	Norway	0.012	2	2	2.2	45.0	99.1 ^c	99.3 ^c	62.5	69.6
3	Iceland	0.039	9	3	5.1	47.6	99.8	99.7	70.7	78.3
4	Hong Kong, China (SAR)	..	..	..	1.6	..	77.9	84.1	52.9	64.7
5	Denmark	0.009	1	5	1.8	43.6	95.1	95.2	59.4	67.4
5	Sweden	0.023	4	5	3.3	46.4	92.4 ^c	92.7 ^c	63.7	70.4
7	Germany	0.071	19	4	7.2	34.8	95.4	95.9	56.1	66.6
7	Ireland	0.072	20	5	5.9	27.4	88.6 ^c	86.4 ^c	59.4	70.5
9	Singapore	0.036	8	7	2.5	29.1	80.5	85.9	63.4	77.0
10	Australia	0.063	17	3	7.7	44.5	94.6	94.4	62.3	71.1
10	Netherlands	0.025	5	4	2.7	37.8	89.8	92.7	63.6	72.4
12	Belgium	0.044	11	5	5.1	44.3	88.7 ^c	90.7 ^c	50.8	59.5
12	Finland	0.032	6	8	4.1	45.5	99.2	98.9	58.2	64.2
12	Liechtenstein	..	..	..	3.0	28.0	..	..	52.8	67.3
15	United Kingdom	0.094	28	10	10.0	31.3	99.8	99.8	59.1	68.0
16	New Zealand	0.082	23	7	11.8	50.4	82.0	81.8	66.9	75.9
17	United Arab Emirates	0.035	7	9	2.8	50.0	82.0	86.1	55.3	89.5
18	Canada	0.069	18	11	6.6	35.0	97.8 ^d	97.6 ^d	61.5	69.5
19	Korea (Republic of)	0.062	16	8	2.1	18.6	83.8 ^c	93.5 ^c	55.0	73.7
20	Luxembourg	0.043	10	6	4.2	33.3	96.6 ^d	89.3 ^d	58.0	65.1
20	United States	0.180	44	21	15.1	28.1	95.4	95.1	56.8	68.0
22	Austria	0.048	12	5	5.2	41.0	100.0 ^d	100.0 ^d	56.6	66.7
22	Slovenia	0.049	13	5	4.4	33.1	97.8 ^c	98.8 ^c	54.3	63.6
24	Japan	0.078	22	4	2.8	15.4	98.2	99.1	54.2	71.4
25	Israel	0.092	26	3	7.4	23.3	92.5 ^c	94.5 ^c	61.2	68.5
25	Malta	0.117	35	3	11.5	27.8	82.2	88.1	56.1	71.2
27	Spain	0.059	15	3	6.3	41.4	78.5	83.2	53.2	62.9
28	France	0.084	24	8	9.4	36.4	84.3 ^c	88.3 ^c	52.5	60.2
29	Cyprus	0.253	62	68	6.8	14.3	81.1	84.8	59.6	71.1
30	Italy	0.057	14	5	3.9	33.0	78.6	86.1	40.7	58.1
31	Estonia	0.093	27	5	8.1	25.7	97.6	98.1	60.6	71.4
32	Czechia	0.113	32	3	9.4	23.5	99.8 ^c	99.8 ^c	52.2	67.9
33	Greece	0.120	37	8	8.3	21.0	69.9	77.8	44.7	60.4
34	Bahrain	0.181	45	16	8.7	22.5	79.9	83.1	42.4	85.8
35	Andorra	..	..	..	5.9	46.4	81.7	84.6	..	..
36	Poland	0.105	31	2	9.2	27.5	86.5	90.7	50.1	65.5
37	Latvia	0.142	39	18	10.5	30.0	99.8 ^c	99.3 ^c	55.6	67.9
37	Lithuania	0.098	30	9	9.7	28.4	95.5	97.9	58.8	67.7
39	Croatia	0.087	25	5	8.2	31.8	95.5 ^d	97.4 ^d	46.9	58.2
40	Qatar	0.212	54	8	6.9	4.4	81.8 ^c	71.4 ^c	61.7	95.3
40	Saudi Arabia	0.229	55	16	11.6	19.9	71.3	80.9	34.5	79.6
42	Portugal	0.076	21	12	7.1	37.0	59.7	61.9	54.7	63.1
43	San Marino	..	..	..	3.7	33.3	81.8 ^a	84.3 ^a	70.4	70.6
44	Chile	0.190	49	15	22.8	32.7	82.2	84.4	50.1	70.6
45	Slovakia	0.184	46	5	26.6	21.3	98.8 ^c	99.1 ^c	56.2	67.3
45	Türkiye	0.259	63	17	15.7	17.4	59.1 ^c	78.1 ^c	35.1	71.4
47	Hungary	0.230	56	15	21.9	14.1	97.6	98.8	53.7	67.8
48	Argentina	0.292	71	45	37.9	44.4	73.6 ^d	71.6 ^d	52.1	71.7
49	Kuwait	0.199	51	7	5.3	6.3	61.8 ^c	56.5 ^c	44.4	88.5
50	Montenegro	0.114	33	6	9.7	27.2	70.8 ^c	83.7 ^c	44.4	57.8
51	Saint Kitts and Nevis	..	..	..	36.8	31.3	..	..	..	..
52	Uruguay	0.240	60	19	35.2	26.9	62.5	59.3	55.7	71.4
53	Romania	0.230	56	10	35.4	18.9	89.4 ^c	94.0 ^c	42.3	62.0
54	Antigua and Barbuda	..	..	21	32.3	31.4	..	..	..	..
55	Brunei Darussalam	0.279	68	44	9.5	9.1	70.9	71.5	54.9	71.7
56	Russian Federation	0.178	43	14	14.5	17.8	98.3	98.9	55.5	70.3
57	Bahamas	0.333	79	77	25.1	20.0	86.8 ^c	90.0 ^c	69.0	73.9
57	Panama	0.392	95	50	68.5	22.5	67.6	65.6	49.7	77.0
59	Oman	0.267	66	17	9.7	9.9	93.3	98.7	35.0	83.8

Continued -

TABLE 5

HDI RANK	Gender Inequality Index		SDG 3.1	SDG 3.7	SDG 5.5	SDG 4.4		Labour force participation rate ^a		
	Value	Rank	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament	Population with at least some secondary education		Female	Male	
			(deaths per 100,000 live births)	(births per 1,000 women ages 15-19)	(% held by women)	(% ages 25 and older)				
	2022	2022	2020	2022	2022	2022 ^b	2022 ^b	2022	2022	
60	Georgia	0.283	69	28	29.7	19.0	98.2	98.7	55.5	73.5
60	Trinidad and Tobago	0.264	64	27	37.7	32.4	86.0 ^d	81.9 ^d	47.3	62.4
62	Barbados	0.289	70	39	41.9	32.7	95.7 ^d	86.3 ^d	58.2	65.1
63	Malaysia	0.202	52	21	9.1	14.5	76.1 ^e	79.2 ^e	55.1	80.5
64	Costa Rica	0.232	58	22	35.7	47.4	50.2	48.1	50.1	72.9
65	Serbia	0.119	36	10	14.4	36.6	89.9 ^e	96.1 ^e	51.0	66.1
66	Thailand	0.310	74	29	31.6	14.0	49.3 ^e	53.0 ^e	59.9	76.0
67	Kazakhstan	0.177	42	13	20.9	24.7	100.0 ^e	100.0 ^e	63.3	74.6
67	Seychelles	..	..	3	52.1	22.9	..	..	65.2	65.3
69	Belarus	0.096	29	1	11.2	34.7	98.4 ^e	99.5 ^e	65.8	75.3
High human development										
70	Bulgaria	0.206	53	7	38.2	24.2	94.9	96.5	50.6	63.1
71	Palau	..	..	..	42.1	6.9	96.9 ^f	97.3 ^f	59.8	73.6
72	Mauritius	0.369	87	84	24.0	20.0	66.5 ^e	72.4 ^e	42.2	68.4
73	Grenada	..	..	21	32.1	31.0	..	..	37.7	54.3
74	Albania	0.116	34	8	14.5	35.7	82.2 ^d	86.5 ^d	56.1	69.9
75	China	0.186	47	23	11.1	24.9	79.7 ^d	86.4 ^d	53.8	74.5
76	Armenia	0.198	50	27	18.3	35.5	96.0	97.1	62.8	71.8
77	Mexico	0.352	84	59	53.7	49.8	63.7	65.4	45.0	76.3
78	Iran (Islamic Republic of)	0.484	121	22	29.7	5.6	73.1 ^e	77.3 ^e	13.6	67.5
78	Sri Lanka	0.376	90	29	15.4	5.3	80.6	83.3	29.7	70.7
80	Bosnia and Herzegovina	0.148	40	6	9.4	17.5	82.7	94.0	41.1	61.8
81	Saint Vincent and the Grenadines	..	..	62	46.5	18.2	43.6 ^g	41.8 ^g	..	..
82	Dominican Republic	0.433	107	107	63.2	25.7	67.5	64.2	50.9	76.9
83	Ecuador	0.371	89	66	62.1	38.7	54.1	54.2	53.6	76.9
83	North Macedonia	0.134	38	3	16.1	41.7	61.9	75.1	42.2	64.1
85	Cuba	0.300	73	39	48.9	53.4	78.6 ^e	81.8 ^e	55.5	84.0
86	Moldova (Republic of)	0.156	41	12	27.2	40.6	96.3 ^e	98.1 ^e	71.5	73.7
87	Maldives	0.328	76	57	6.8	4.6	46.9 ^d	46.3 ^d	53.3	78.2
87	Peru	0.360	85	69	56.1	40.0	55.6	66.7	66.7	82.4
89	Azerbaijan	0.329	77	41	40.1	18.3	93.6 ^e	97.6 ^e	61.9	69.6
89	Brazil	0.391	94	72	43.6	17.5	67.4	65.0	53.8	73.6
91	Colombia	0.392	95	75	57.6	29.2	59.7	57.1	51.1	76.2
92	Libya	0.266	65	72	7.0	16.5	62.2 ^h	45.3 ^h	32.8	59.9
93	Algeria	0.460	114	78	11.6	7.0	42.9 ^e	46.8 ^e	17.6	65.5
94	Turkmenistan	..	..	5	21.2	25.7	98.1 ^e	98.4 ^e	..	..
95	Guyana	0.416	104	112	64.6	35.4	58.7 ^d	56.4 ^d	37.8	53.4
96	Mongolia	0.297	72	39	25.0	17.1	79.3	73.0	53.5	68.4
97	Dominica	..	..	..	37.9	34.4	..	..	..	..
98	Tonga	0.462	115	126	19.2	3.7	93.7 ^d	93.4 ^d	43.0	54.9
99	Jordan	0.449	111	41	24.9	13.3	77.4	84.2	13.8	60.7
100	Ukraine	0.188	48	17	15.2	20.3	95.7 ^d	93.5 ^d	47.8	62.9
101	Tunisia	0.237	59	37	6.6	26.3	40.0 ^e	47.2 ^e	29.3	71.8
102	Marshall Islands	..	..	..	57.5	6.1	91.6 ⁱ	92.5 ⁱ	37.3	61.2
102	Paraguay	0.429	106	71	69.9	16.8	54.3	53.3	59.1	82.4
104	Fiji	0.332	78	38	26.1	19.6	66.1	61.3	37.3	77.7
105	Egypt	0.389	93	17	43.6	22.8	85.9 ^e	78.7 ^e	15.3	69.1
106	Uzbekistan	0.242	61	30	15.7	29.1	100.0	100.0	39.9	73.1
107	Viet Nam	0.378	91	124	35.0	30.3	61.5 ^e	69.5 ^e	68.5	77.8
108	Saint Lucia	0.347	82	73	36.3	24.1	50.0 ^e	44.0 ^e	62.7	75.8
109	Lebanon	0.365	86	21	20.0	6.3	54.7 ⁱ	61.1 ^g	29.8	70.2
110	South Africa	0.401	99	127	60.9	45.4 ^k	83.0	84.9	50.8	63.5
111	Palestine, State of	..	..	20	42.9	..	67.9	67.6	18.6	70.7
112	Indonesia	0.439	109	173	32.9	21.9	51.0	58.2	52.5	81.5
113	Philippines	0.388	92	78	48.1	27.5	74.4 ^e	69.9 ^e	44.1	68.8
114	Botswana	0.483	120	186	48.3	11.1	92.1	92.5	60.1	69.7
115	Jamaica	0.350	83	99	32.0	31.0	74.8 ^d	67.0 ^d	56.0	69.9
116	Samoa	0.406	101	59	43.8	13.0	92.4 ⁱ	87.0 ⁱ	49.8	80.6
117	Kyrgyzstan	0.345	81	50	33.8	20.5	92.4 ^e	94.4 ^e	52.5	78.0
118	Belize	0.454	113	130	56.6	19.6	54.5	49.8	48.6	75.6

Continued -

TABLE 5

HDI RANK	Gender Inequality Index		SDG 3.1	SDG 3.7	SDG 5.5	SDG 4.4		Labour force participation rate ^a		
	Value	Rank	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament	Population with at least some secondary education		Labour force participation rate ^a		
			(deaths per 100,000 live births)	(births per 1,000 women ages 15-19)	(% held by women)	(% ages 25 and older)		(% ages 15 and older)		
	2022	2022	2020	2022	2022	Female	Male	Female	Male	
Medium human development										
119	Venezuela (Bolivarian Republic of)	0.521	134	259	82.0	22.2 ^m	81.0 ^d	76.4 ^d	45.2	70.6
120	Bolivia (Plurinational State of)	0.418	105	161	63.1	48.2	58.4	69.5	71.8	85.0
120	Morocco	0.440	110	72	25.5	21.4	31.9	37.9	19.8	69.6
122	Nauru	..	..	..	71.1	10.5	..	..	56.8	73.6
123	Gabon	0.524	136	227	89.8	18.1	70.4	55.3	34.7	56.2
124	Suriname	0.405	100	96	55.2	29.4	45.5 ^p	42.3 ^q	42.3	61.7
125	Bhutan	0.334	80	60	18.5	15.7	26.7 ^q	34.3 ^q	53.5	73.5
126	Tajikistan	0.269	67	17	44.9	26.6	93.6 ^d	94.0 ^d	33.3	52.1
127	El Salvador	0.369	87	43	54.5	27.4	42.7	51.4	46.4	77.7
128	Iraq	0.562	143	76	61.2	28.9	25.3 ^d	40.4 ^d	10.8	68.2
129	Bangladesh	0.498	127	123	73.3	20.9	43.7 ^c	50.5 ^c	39.2	81.4
130	Nicaragua	0.397	97	78	84.0	51.6	49.4 ^c	40.3 ^c	48.6	81.1
131	Cabo Verde	0.325	75	42	54.0	38.9	28.8 ^q	31.7 ^q	46.7	62.8
132	Tuvalu	..	..	..	31.7	6.3	58.1	58.5	20.0	29.6
133	Equatorial Guinea	..	..	212	136.4	27.0	..	..	..	..
134	India	0.437	108	103	16.3	14.6	41.0	58.7	28.3	76.1
135	Micronesia (Federated States of)	..	..	74	35.7	7.1	..	..	45.0	66.0
136	Guatemala	0.474	117	96	63.2	19.4	31.1 ^c	37.8 ^c	41.5	82.8
137	Kiribati	..	..	76	39.6	6.7	..	..	16.1	73.0
138	Honduras	0.413	102	72	71.3	27.3	34.8 ^c	31.4 ^c	49.6	81.1
139	Lao People's Democratic Republic	0.467	116	126	71.8	22.0	18.7 ^d	30.4 ^d	61.5	70.8
140	Vanuatu	..	..	94	63.2	1.9	..	..	26.7	36.4
141	Sao Tome and Principe	..	..	146	77.4	14.5	42.9 ^q	52.8 ^q	..	..
142	Eswatini (Kingdom of)	0.491	124	240	68.4	21.2	35.3	37.3	44.9	51.5
142	Namibia	0.450	112	215	63.1	35.6	42.1 ^d	45.0 ^d	54.1	61.2
144	Myanmar	0.479	119	179	32.8	15.0 ^m	39.2 ^d	49.9 ^d	44.2	78.6
145	Ghana	0.512	130	263	63.4	14.5	59.1 ^d	74.0 ^d	72.1	73.1
146	Kenya	0.533	139	530	62.6	24.8	54.6	63.5	62.9	72.6
146	Nepal	0.495	126	174	63.4	33.8	26.0 ^d	42.8 ^d	27.9	55.0
148	Cambodia	0.486	122	218	45.7	19.3	16.4	29.0	73.7	85.8
149	Congo	0.572	144	282	101.2	15.9	32.1 ^d	50.0 ^d	44.1	63.9
150	Angola	0.520	133	222	135.8	33.6	21.3 ^q	37.4 ^q	74.7	78.2
151	Cameroon	0.555	142	438	108.6	31.1	24.5 ^d	39.3 ^d	66.8	76.8
152	Comoros	..	..	217	56.1	16.7	..	..	41.1	59.4
153	Zambia	0.526	137	135	116.1	15.1	33.7 ^d	51.4 ^d	54.2	66.4
154	Papua New Guinea	0.604	151	192	54.3	1.7	26.3 ^d	37.5 ^d	46.0	48.0
155	Timor-Leste	0.415	103	204	33.3	40.0	33.5 ^c	39.8 ^c	27.9	41.4
156	Solomon Islands	..	..	122	59.4	8.0	..	..	82.9	86.0
157	Syrian Arab Republic	0.487	123	30	38.1	11.2	24.1 ^l	32.0 ^l	14.4	68.9
158	Haiti	0.621	158	350	51.8	2.7 ^o	28.0 ^d	36.9 ^d	48.8	66.0
159	Uganda	0.527	138	284	105.7	33.8	10.8 ^c	20.4 ^c	74.5	84.2
159	Zimbabwe	0.519	132	357	92.6	33.6	63.4 ^c	73.6 ^c	60.0	71.6
Low human development										
161	Nigeria	0.677	165	1,047	99.6	4.5	42.4	57.8	77.0	85.7
161	Rwanda	0.400	98	259	32.2	54.7	14.6	18.7	54.8	66.2
163	Togo	0.578	147	399	77.0	18.7	13.5 ^c	33.1 ^c	79.8	98.6
164	Mauritania	0.603	150	464	76.8	20.3	16.1 ^d	27.6 ^d	31.0	65.7
164	Pakistan	0.522	135	154	41.2	20.1	22.0 ^c	26.9 ^c	24.5	80.7
166	Côte d'Ivoire	0.612	156	480	103.3	15.6	13.5 ^d	29.3 ^d	54.5	71.2
167	Tanzania (United Republic of)	0.513	131	238	123.4	36.9	9.3 ^c	14.3 ^c	75.5	84.5
168	Lesotho	0.552	141	566	89.1	26.0	34.1 ^c	29.7 ^c	51.6	65.0
169	Senegal	0.505	129	261	64.6	44.2	9.2 ^c	19.0 ^c	39.3	68.4
170	Sudan	0.548	140	270	77.6	31.0 ^p	17.0	20.4	28.0	69.1
171	Djibouti	..	..	234	22.7	26.2	..	..	18.2	48.1
172	Malawi	0.579	148	381	117.2	22.9	12.7	26.2	63.1	74.6
173	Benin	0.649	160	523	90.8	7.4	9.2 ^c	21.5 ^c	51.6	67.8
174	Gambia	0.585	149	458	60.7	8.6	26.0	40.7	59.0	64.5
175	Eritrea	..	..	322	63.6	22.0 ^o	..	..	..	..
176	Ethiopia	0.494	125	267	66.5	38.9	7.5 ^c	13.1 ^c	57.6	79.2

Continued -

TABLE 5

HDI RANK	Gender Inequality Index		SDG 3.1	SDG 3.7	SDG 5.5	SDG 4.4		Labour force participation rate ^a		
	Value	Rank	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament	Population with at least some secondary education		Labour force participation rate ^a		
			(deaths per 100,000 live births)	(births per 1,000 women ages 15-19)	(% held by women)	(% ages 25 and older)		(% ages 15 and older)		
	2022	2022	2020	2022	2022	2022 ^b	2022 ^b	2022	2022	
177	Liberia	0.656	161	652	122.0	9.7	19.7 ^d	45.8 ^d	43.5	50.1
177	Madagascar	0.574	145	392	118.1	17.8	15.9	21.2	78.8	88.9
179	Guinea-Bissau	0.631	159	725	85.8	13.7	10.9	24.6	52.1	66.1
180	Congo (Democratic Republic of the)	0.605	152	547	107.5	14.8	38.8 ^c	65.7 ^c	60.0	66.4
181	Guinea	0.609	154	553	112.2	29.6	7.5 ^c	20.0 ^c	44.6	67.0
182	Afghanistan	0.665	162	620	79.7	27.2 ^m	7.0	24.1	23.3	77.1
183	Mozambique	0.477	118	127	165.1	42.4	17.9	25.1	73.9	80.1
184	Sierra Leone	0.613	157	443	97.9	12.3	14.5 ^c	33.9 ^c	48.3	55.9
185	Burkina Faso	0.577	146	264	108.7	16.9	11.2 ^c	20.3 ^c	27.5	41.0
186	Yemen	0.820	166	183	52.5	0.3	23.7	38.2	5.8	64.7
187	Burundi	0.499	128	494	52.6	38.9	8.2 ^c	13.8 ^c	78.0	79.1
188	Mali	0.607	153	440	147.7	28.6	8.0	15.5	51.5	85.0
189	Chad	0.671	163	1,063	135.7	25.9	3.7 ^c	15.0 ^c	51.1	75.0
189	Niger	0.609	154	441	168.0	25.9	2.6 ^c	4.5 ^c	64.6	96.5
191	Central African Republic	..	..	835	159.0	12.9	14.2	31.8	..	..
192	South Sudan	..	..	1,223	97.4	32.3	26.5 ^a	36.4 ^a	..	..
193	Somalia	0.674	164	621	116.1	20.7	4.4	17.8	22.3	49.3
Other countries or territories										
..	Korea (Democratic People's Rep. of)	..	..	107	2.4	17.6	..	..	..	..
..	Monaco	..	..	..	6.9	33.3	..	..	39.5	56.6
Human development groups										
0.150	Very high human development	..	..	15	13.5	29.3	87.7	90.1	54.0	69.4
0.339	High human development	..	..	65	28.7	26.0	74.0	78.4	49.8	74.2
0.476	Medium human development	..	..	152	37.8	23.0	40.5	55.6	34.2	75.7
0.579	Low human development	..	..	497	88.3	24.0	21.3	31.9	50.8	77.5
0.485	Developing countries	..	..	235	45.9	24.3	56.8	65.4	44.9	75.3
Regions										
0.523	Arab States	..	..	128	44.2	18.3	51.0	57.4	19.9	70.2
0.340	East Asia and the Pacific	..	..	78	21.4	21.0	72.5	79.0	54.0	75.4
0.224	Europe and Central Asia	..	..	21	19.5	26.0	83.7	89.9	45.4	69.6
0.386	Latin America and the Caribbean	..	..	85	52.3	34.1	64.4	64.2	51.6	75.3
0.478	South Asia	..	..	132	27.9	17.9	40.9	55.7	28.1	76.3
0.565	Sub-Saharan Africa	..	..	516	99.3	26.4	30.9	42.0	63.9	76.4
0.556	Least developed countries	..	..	354	92.4	25.1	23.4	33.8	50.4	75.5
0.457	Small island developing states	..	..	203	50.6	27.0	58.8	62.3	51.4	69.8
0.194	Organisation for Economic Co-operation and Development	..	..	21	18.5	32.7	86.7	89.3	53.0	68.7
0.462	World	..	..	215	41.9	26.2	64.1	71.0	46.8	73.9

TABLE 5

Notes	Definitions	Main data sources
a Updated by HDRO based on data from International Labour Organization (2023).	Gender Inequality Index: A composite measure reflecting inequality in achievement between women and men in three dimensions: reproductive health, empowerment and the labour market. See <i>Technical note 4</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the Gender Inequality Index is calculated.	Column 1: HDRO calculations based on data in columns 3–9.
b Data refer to 2022 or the most recent year available.	Maternal mortality ratio: Number of deaths due to pregnancy-related causes per 100,000 live births.	Column 2: Calculated based on data in column 1.
c Updated by HDRO based on data from UNESCO Institute for Statistics (2023).	Adolescent birth rate: Number of births to women ages 15–19 per 1,000 women ages 15–19.	Column 3: WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division 2023.
d Updated by HDRO based on data from Barro and Lee (2018) and UNESCO Institute for Statistics (2023).	Share of seats in parliament: Proportion of seats held by women in the national parliament expressed as a percentage of total seats. For countries with a bicameral legislative system, the share of seats is calculated based on both houses.	Column 4: UNDESA 2022.
e Refers to 2018 based on UNESCO Institute for Statistics (2023).	Population with at least some secondary education: Percentage of the population ages 25 and older that has reached (but not necessarily completed) a secondary level of education.	Columns 6 and 7: Barro and Lee 2018, ICF Macro Demographic and Health Surveys, OECD 2023, UNESCO Institute for Statistics 2023 and UNICEF Multiple Indicator Cluster Surveys.
f Refers to 2013 based on UNESCO Institute for Statistics (2023).	Labour force participation rate: Proportion of the working-age population (ages 15 and older) that engages in the labour market, either by working or actively looking for work, expressed as a percentage of the working-age population.	Columns 8 and 9: ILO 2023.
g Updated by HDRO based on data from UNESCO Institute for Statistics (2023) and estimates using cross-country regression.		
h Updated by HDRO based on data from Barro and Lee (2018) and estimates using cross-country regression.		
i Refers to 2011 based on UNESCO Institute for Statistics (2023).		
j HDRO estimate based on data from Robert Barro and Jong-Wha Lee, ICF Macro Demographic and Health Surveys, the Organisation for Economic Co-operation and Development, United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys and the United Nations Educational, Scientific and Cultural Organization Institute for Statistics.		
k Excludes the 36 special rotating delegates appointed on an ad hoc basis.		
l Refers to 2019 based on UNESCO Institute for Statistics (2023).		
m Refers to 2021.		
n Updated by HDRO based on data from UNESCO Institute for Statistics (2023) and UNICEF Multiple Indicator Cluster Surveys for various years.		
o Refers to 2019.		
p Refers to 2018.		
q Refers to 2008 based on UNESCO Institute for Statistics (2023).		

TABLE 6

Multidimensional Poverty Index: developing countries

Country	Year and survey ^b	Multidimensional Poverty Index ^a		Population in multidimensional poverty ^a						Contribution of deprivation in dimension to overall multidimensional poverty ^a			SDG 1.2 Population living below monetary poverty line (%)	
		2011-2022	Value	Headcount		Intensity of deprivation	Inequality among the poor	Population in severe multidimensional poverty	Population vulnerable to multidimensional poverty ^a	Health	Education	Standard of living	National poverty line	PPP \$2.15 a day
				(thousands)										
				In survey year	2021									
			(%)		(%)	Value	(%)	(%)	(%)	(%)		2011-2021 ^c	2011-2021 ^c	
Estimates based on surveys for 2017-2022														
Albania	2017/2018 D	0.003	0.7	20	20	39.1	.. ^d	0.1	5.0	28.3	55.1	16.7	21.8	0.0
Algeria	2018/2019 M	0.005	1.4	590	610	39.2	0.007	0.2	3.6	31.2	49.3	19.5	5.5	0.5
Argentina	2019/2020 M ^e	0.001 ^f	0.4 ^f	195 ^f	196 ^f	34.0 ^f	.. ^d	0.0 ^f	1.6 ^f	69.7 ^f	21.4 ^f	8.9 ^f	42.0	1.0
Bangladesh	2019 M	0.104	24.6	40,784	41,730	42.2	0.010	6.5	18.2	17.3	37.6	45.1	24.3	13.5
Benin	2017/2018 D	0.368	66.8	7,976	8,682	55.0	0.025	40.9	14.7	20.8	36.3	42.9	38.5	19.9
Burundi	2016/2017 D	0.409 ^g	75.1 ^g	8,378 ^g	9,426 ^g	54.4 ^g	0.022 ^g	46.1 ^g	15.8 ^g	23.8 ^g	27.2 ^g	49.0 ^g	64.9	65.1
Cambodia	2021/2022 D	0.070	16.6	2,791	2,761	42.3	0.009	4.1	20.5	21.5	48.0	30.5	17.7	..
Cameroon	2018 D	0.232	43.6	10,931	11,856	53.2	0.026	24.6	17.6	25.2	27.6	47.1	37.5	25.7
Central African Republic	2018/2019 M	0.461	80.4	4,189	4,388	57.4	0.025	55.8	12.9	20.2	27.8	52.0	..	..
Chad	2019 M	0.517	84.2	13,575	14,461	61.4	0.024	64.6	10.7	19.1	36.6	44.3	42.3	30.9
Congo (Democratic Republic of the)	2017/2018 M	0.331	64.5	56,187	61,869	51.3	0.020	36.8	17.4	23.1	19.9	57.0	63.9	69.7
Costa Rica	2018 M	0.002 ^h	0.5 ^h	27 ^h	28 ^h	37.1 ^h	.. ^d	0.0 ^h	2.4 ^h	40.5 ^h	41.0 ^h	18.5 ^h	30.0	1.2
Cuba	2019 M	0.003 ⁱ	0.7 ⁱ	80 ⁱ	80 ⁱ	38.1 ⁱ	.. ^d	0.1 ⁱ	2.7 ⁱ	10.1 ⁱ	39.8 ⁱ	50.1 ⁱ	..	..
Dominican Republic	2019 M	0.009	2.3	247	252	38.8	0.006	0.2	4.8	14.6	46.2	39.2	21.0	0.9
Ecuador	2018 N	0.008	2.1	356	372	38.0	0.004	0.1	5.9	33.9	27.3	38.8	33.0	3.6
Ethiopia	2019 D	0.367	68.7	78,443	82,679	53.3	0.022	41.9	18.4	14.0	31.5	54.5	23.5	27.0
Fiji	2021 M	0.006	1.5	14	14	38.1	.. ^d	0.2	7.4	38.0	17.4	44.6	24.1	1.3
Gambia	2019/2020 D	0.198	41.7	1,074	1,101	47.5	0.016	17.3	28.0	32.7	33.0	34.3	48.6	17.2
Georgia	2018 M	0.001 ^j	0.3 ^j	13 ^j	13 ^j	36.6 ^j	.. ^d	0.0 ^j	2.1 ^j	47.1 ^j	23.8 ^j	29.1 ^j	21.3	5.5
Ghana	2017/2018 M	0.111	24.6	7,606	8,089	45.1	0.014	8.4	20.1	23.6	30.5	45.9	23.4	25.2
Guinea	2018 D	0.373	66.2	8,313	8,960	56.4	0.025	43.5	16.4	21.4	38.4	40.3	43.7	13.8
Guinea-Bissau	2018/2019 M	0.341	64.4	1,269	1,327	52.9	0.021	35.9	20.0	19.1	35.0	45.8	47.7	21.7
Guyana	2019/2020 M	0.007 ^k	1.8 ^k	15 ^k	15 ^k	39.3 ^k	0.007 ^k	0.2 ^k	6.5 ^k	30.4 ^k	22.4 ^k	47.2 ^k	..	..
Haiti	2016/2017 D	0.200	41.3	4,483	4,724	48.4	0.019	18.5	21.8	18.5	24.6	57.0	58.5	29.2
Honduras	2019 M	0.051	12.0	1,193	1,231	42.7	0.011	3.0	14.8	18.8	39.2	42.0	48.0	12.7
India	2019/2021 D	0.069	16.4	230,739	230,739	42.0	0.010	4.2	18.7	32.2	28.2	39.7	21.9	10.0
Indonesia	2017 D	0.014 ^l	3.6 ^l	9,572 ^l	9,907 ^l	38.7 ^l	0.006 ^l	0.4 ^l	4.7 ^l	34.7 ^l	26.8 ^l	38.5 ^l	9.8	3.5
Iraq	2018 M	0.033	8.6	3,505	3,759	37.9	0.005	1.3	5.2	33.1	60.9	6.0	18.9	0.1
Jamaica	2018 N	0.011 ^k	2.8 ^k	78 ^k	78 ^k	38.9 ^k	0.005 ^k	0.2 ^k	5.0 ^k	52.2 ^k	20.9 ^k	26.9 ^k	19.9	..
Jordan	2017/2018 D	0.002	0.4	45	48	35.4	.. ^d	0.0	0.7	37.5	53.5	9.0	15.7	..
Kiribati	2018/2019 M	0.080	19.8	25	26	40.5	0.006	3.5	30.2	30.3	12.1	57.6	21.9	1.7
Kyrgyzstan	2018 M	0.001	0.4	24	26	36.3	.. ^d	0.0	5.2	64.6	17.9	17.5	25.3	1.3
Lao People's Democratic Republic	2017 M	0.108	23.1	1,615	1,713	47.0	0.016	9.6	21.2	21.5	39.7	38.8	18.3	7.1
Lesotho	2018 M	0.084 ^h	19.6 ^h	431 ^h	447 ^h	43.0 ^h	0.009 ^h	5.0 ^h	28.6 ^h	21.9 ^h	18.1 ^h	60.0 ^h	49.7	32.4
Liberia	2019/2020 D	0.259	52.3	2,662	2,717	49.6	0.018	24.9	23.3	19.7	28.6	51.7	50.9	27.6
Madagascar	2021 D	0.386	68.4	19,784	19,784	56.4	0.026	45.8	15.4	17.8	31.6	50.6	70.7	80.7
Malawi	2019/2020 M	0.231	49.9	9,666	9,922	46.3	0.012	17.5	27.5	18.6	25.5	55.9	50.7	70.1
Maldives	2016/2017 D	0.003	0.8	4	4	34.4	.. ^d	0.0	4.8	80.7	15.1	4.2	5.4	0.0
Mali	2018 D	0.376	68.3	13,622	14,968	55.0	0.022	44.7	15.3	19.6	41.2	39.3	44.6	14.8
Mauritania	2019/2021 D	0.327	58.4	2,697	2,697	56.0	0.024	38.0	12.3	17.7	42.4	39.9	31.8	6.5
Mexico	2021 N	0.016 ^{lm}	4.1 ^{lm}	5,156 ^{lm}	5,156 ^{lm}	40.5 ^{lm}	0.007 ^{lm}	0.8 ^{lm}	3.5 ^{lm}	64.1 ^{lm}	13.6 ^{lm}	22.3 ^{lm}	43.9	3.1
Mongolia	2018 M	0.028 ⁿ	7.3 ⁿ	230 ⁿ	243 ⁿ	38.8 ⁿ	0.004 ⁿ	0.8 ⁿ	15.5 ⁿ	21.1 ⁿ	26.8 ⁿ	52.1 ⁿ	27.8	0.7
Montenegro	2018 M	0.005	1.2	8	8	39.6	.. ^d	0.1	2.9	58.5	22.3	19.2	22.6	2.8
Morocco	2017/2018 P	0.027 ^o	6.4 ^o	2,285 ^o	2,358 ^o	42.0 ^o	0.012 ^o	1.4 ^o	10.9 ^o	24.4 ^o	46.8 ^o	28.8 ^o	4.8	1.4
Mozambique	2019/2020 N	0.372 ^{kp}	61.9 ^{kp}	19,310 ^{kp}	19,866 ^{kp}	60.0 ^{kp}	0.037 ^{kp}	43.0 ^{kp}	13.9 ^{kp}	27.3 ^{kp}	26.3 ^{kp}	46.4 ^{kp}	46.1	64.6
Nepal	2019 M	0.074	17.5	5,047	5,258	42.5	0.010	4.9	17.8	23.2	33.9	43.0	..	..
Nigeria	2021 M	0.175 ^{la}	33.0 ^{la}	70,516 ^{la}	70,516 ^{la}	52.9 ^{la}	0.027 ^{la}	18.1 ^{la}	16.6 ^{la}	19.5 ^{la}	35.5 ^{la}	45.0 ^{la}	40.1	30.9
North Macedonia	2018/2019 M	0.001	0.4	8	8	38.2	.. ^d	0.1	2.2	29.6	52.6	17.8	21.8	2.7
Pakistan	2017/2018 D	0.198	38.3	84,228	88,701	51.7	0.023	21.5	12.9	27.6	41.3	31.1	21.9	4.9
Palestine, State of	2019/2020 M	0.002	0.6	28	29	35.0	.. ^d	0.0	1.3	62.9	31.0	6.1	29.2	0.5
Papua New Guinea	2016/2018 D	0.263 ^j	56.6 ^j	5,283 ^j	5,634 ^j	46.5 ^j	0.016 ^j	25.8 ^j	25.3 ^j	4.6 ^j	30.1 ^j	65.3 ^j	..	..
Peru	2021 N	0.026	6.6	2,236	2,236	38.9	0.006	0.9	10.4	14.0	33.6	52.4	30.1	2.9
Philippines	2017 D	0.024 ^j	5.8 ^j	6,187 ^j	6,600 ^j	41.8 ^j	0.010 ^j	1.3 ^j	7.3 ^j	20.3 ^j	31.0 ^j	48.7 ^j	16.7	3.0
Rwanda	2019/2020 D	0.231	48.8	6,418	6,572	47.3	0.014	19.7	22.7	19.0	26.6	54.4	38.2	52.0
Samoa	2019/2020 M	0.025	6.3	14	14	39.1	0.003	0.5	12.9	36.9	31.2	31.9	20.3	1.2
Sao Tome and Principe	2019 M	0.048	11.7	25	26	40.9	0.007	2.1	17.0	18.7	36.6	44.6	66.7	15.6
Senegal	2019 D	0.263	50.8	8,134	8,579	51.7	0.019	27.7	18.2	20.7	48.4	30.9	46.7	9.3
Serbia	2019 M	0.000 ^{lr}	0.1 ^{lr}	8 ^{lr}	8 ^{lr}	38.1 ^{lr}	.. ^d	0.0 ^{lr}	2.1 ^{lr}	30.9 ^{lr}	40.1 ^{lr}	29.0 ^{lr}	21.7	1.6
Seychelles	2019 N	0.003 ^{hs}	0.9 ^{hs}	1 ^{hs}	1 ^{hs}	34.2 ^{hs}	.. ^d	0.0 ^{hs}	0.4 ^{hs}	66.8 ^{hs}	32.1 ^{hs}	1.1 ^{hs}	25.3	0.5

Continued -

TABLE 6

Country	SDG 1.2											SDG 1.2		SDG 1.1	
	Multidimensional Poverty Index ^a		Population in multidimensional poverty ^a							Contribution of deprivation in dimension to overall multidimensional poverty ^a			Population living below monetary poverty line (%)		
	Year and survey ^b	Value	Headcount		Intensity of deprivation	Inequality among the poor	Population in severe multidimensional poverty	Population vulnerable to multidimensional poverty ^a	Health	Education	Standard of living	National poverty line	PPP \$2.15 a day		
			(thousands)	(%)										(%)	(%)
	2011-2022	Value	(%)	In survey year	2021	(%)	Value	(%)	(%)	(%)	(%)	2011-2021 ^c	2011-2021 ^c		
Sierra Leone	2019 D	0.293	59.2	4,765	4,987	49.5	0.019	28.0	21.3	23.0	24.1	53.0	56.8	26.1	
Suriname	2018 M	0.011	2.9	17	17	39.4	0.007	0.4	4.0	20.4	43.8	35.8	..	..
Tajikistan	2017 D	0.029	7.4	664	726	39.0	0.004	0.7	20.1	47.8	26.5	25.8	26.3	6.1	
Thailand	2019 M	0.002 ^f	0.6 ^f	412 ^f	414 ^f	36.7 ^f	0.003 ^f	0.0 ^f	6.1 ^f	38.3 ^f	45.1 ^f	16.7 ^f	6.8	0.0	
Togo	2017 M	0.180	37.6	2,954	3,252	47.8	0.016	15.2	23.8	20.9	28.1	50.9	45.5	28.1	
Tonga	2019 M	0.003	0.9	1	1	38.1	.. ^d	0.0	6.4	38.2	40.7	21.1	..	1.8	
Tunisia	2018 M	0.003	0.8	94	97	36.5	.. ^d	0.1	2.4	24.4	61.6	14.0	15.2	0.1	
Turkmenistan	2019 M	0.001 ^h	0.2 ^h	15 ^h	16 ^h	34.0 ^h	.. ^d	0.0 ^h	0.3 ^h	82.4 ^h	15.5 ^h	2.1 ^h	..	..
Tuvalu	2019/2020 M	0.008	2.1	0	0	38.2	0.002	0.0	12.2	36.5	43.6	20.0	..	..
Uzbekistan	2021/2022 M	0.006 ^{ia}	1.7 ^{ia}	599 ^{ia}	589 ^{ia}	35.3 ^{ia}	0.001 ^{ia}	0.0 ^{ia}	0.2 ^{ia}	94.5 ^{ia}	0.0 ^{ia}	5.5 ^{ia}	14.1	..	
Viet Nam	2020/2021 M	0.008 ^j	1.9 ^j	1,871 ^j	1,871 ^j	40.3 ^j	0.010 ^j	0.4 ^j	3.5 ^j	22.9 ^j	40.7 ^j	36.4 ^j	6.7	0.7	
Zambia	2018 D	0.232	47.9	8,544	9,329	48.4	0.015	21.0	23.9	21.5	25.0	53.5	54.4	61.4	
Zimbabwe	2019 M	0.110	25.8	3,961	4,126	42.6	0.009	6.8	26.3	23.6	17.3	59.2	38.3	39.8	
Estimates based on surveys for 2011–2016															
Afghanistan	2015/2016 D	0.272 ^j	55.9 ^j	19,365 ^j	22,420 ^j	48.6 ^j	0.020 ^j	24.9 ^j	18.1 ^j	10.0 ^j	45.0 ^j	45.0 ^j	54.5	..	
Angola	2015/2016 D	0.282	51.1	14,899	17,633	55.3	0.024	32.5	15.5	21.2	32.1	46.8	32.3	31.1	
Armenia	2015/2016 D	0.001 ^g	0.2 ^g	5 ^g	5 ^g	36.2 ^g	.. ^d	0.0 ^g	2.8 ^g	33.1 ^g	36.8 ^g	30.1 ^g	26.5	0.5	
Barbados	2012 M	0.009 ^k	2.5 ^k	7 ^k	7 ^k	34.2 ^k	.. ^d	0.0 ^k	0.5 ^k	96.0 ^k	0.7 ^k	3.3 ^k	..	..
Belize	2015/2016 M	0.017	4.3	16	17	39.8	0.007	0.6	8.4	39.5	20.9	39.6	..	..
Bolivia (Plurinational State of)	2016 N	0.038	9.1	1,020	1,094	41.7	0.008	1.9	12.1	18.7	31.5	49.8	36.4	2.0	
Bosnia and Herzegovina	2011/2012 M	0.008 ^k	2.2 ^k	80 ^k	72 ^k	37.9 ^k	0.002 ^k	0.1 ^k	4.1 ^k	79.7 ^k	7.2 ^k	13.1 ^k	16.9	0.1	
Botswana	2015/2016 N	0.073 ^u	17.2 ^u	405 ^u	446 ^u	42.2 ^u	0.008 ^u	3.5 ^u	19.7 ^u	30.3 ^u	16.5 ^u	53.2 ^u	..	15.4	
Brazil	2015 N ^v	0.016 ^{lv}	3.8 ^{lv}	7,883 ^{lv}	8,234 ^{lv}	42.5 ^{lv}	0.008 ^{lv}	0.9 ^{lv}	6.2 ^{lv}	49.8 ^{lv}	22.9 ^{lv}	27.3 ^{lv}	..	5.8	
China	2014 N ^w	0.016 ^{xv}	3.9 ^{xv}	53,815 ^{xv}	55,396 ^{xv}	41.4 ^{xv}	0.005 ^{xv}	0.3 ^{xv}	17.4 ^{xv}	35.2 ^{xv}	39.2 ^{xv}	25.6 ^{xv}	0.0	0.1	
Colombia	2015/2016 D	0.020 ^j	4.8 ^j	2,308 ^j	2,497 ^j	40.6 ^j	0.009 ^j	0.8 ^j	6.2 ^j	12.0 ^j	39.5 ^j	48.5 ^j	39.3	6.6	
Comoros	2012 D	0.181	37.3	255	306	48.5	0.020	16.1	22.3	20.8	31.6	47.6	42.4	18.6	
Congo	2014/2015 M	0.112	24.3	1,229	1,416	46.0	0.013	9.4	21.3	23.4	20.2	56.4	40.9	35.4	
Côte d'Ivoire	2016 M	0.236	46.1	11,155	12,659	51.2	0.019	24.5	17.6	19.6	40.4	40.0	39.5	11.4	
Egypt	2014 D	0.020 ^{gh}	5.2 ^{gh}	5,008 ^{gh}	5,724 ^{gh}	37.6 ^{gh}	0.004 ^{gh}	0.6 ^{gh}	6.1 ^{gh}	40.0 ^{gh}	53.1 ^{gh}	6.9 ^{gh}	32.5	1.5	
El Salvador	2014 M	0.032	7.9	488	496	41.3	0.009	1.7	9.9	15.5	43.4	41.1	26.2	3.6	
Eswatini (Kingdom of)	2014 M	0.081	19.2	216	229	42.3	0.009	4.4	20.9	29.3	17.9	52.8	58.9	36.1	
Gabon	2012 D	0.070 ^q	15.6 ^q	287 ^q	365 ^q	44.7 ^q	0.013 ^q	5.1 ^q	18.4 ^q	32.7 ^q	21.4 ^q	46.0 ^q	33.4	2.5	
Guatemala	2014/2015 D	0.134	28.9	4,621	5,086	46.2	0.013	11.2	21.1	26.3	35.0	38.7	59.3	9.5	
Kazakhstan	2015 M	0.002 ^{lo}	0.5 ^{lo}	81 ^{lo}	87 ^{lo}	35.6 ^{lo}	.. ^d	0.0 ^{lo}	1.8 ^{lo}	90.4 ^{lo}	3.1 ^{lo}	6.4 ^{lo}	5.2	0.0	
Kenya	2014 D	0.171 ^q	37.5 ^q	17,176 ^q	19,865 ^q	45.6 ^q	0.014 ^q	12.4 ^q	35.8 ^q	23.5 ^q	15.0 ^q	61.5 ^q	36.1	29.4	
Libya	2014 P	0.007	2.0	122	135	37.1	0.003	0.1	11.4	39.0	48.6	12.4	..	..
Moldova (Republic of)	2012 M	0.004	0.9	33	29	37.4	.. ^d	0.1	3.7	9.2	42.4	48.4	24.5	0.0	
Myanmar	2015/2016 D	0.176	38.3	19,883	20,613	45.9	0.015	13.8	21.9	18.5	32.3	49.2	24.8	2.0	
Namibia	2013 D	0.185 ^q	40.9 ^q	901 ^q	1,034 ^q	45.2 ^q	0.013 ^q	13.1 ^q	19.2 ^q	31.6 ^q	13.9 ^q	54.4 ^q	17.4	15.6	
Nicaragua	2011/2012 D	0.074 ^q	16.5 ^q	993 ^q	1,128 ^q	45.3 ^q	0.013 ^q	5.6 ^q	13.4 ^q	11.5 ^q	36.2 ^q	52.3 ^q	24.9	3.9	
Niger	2012 D	0.601 ^q	91.0 ^q	16,333 ^q	22,973 ^q	66.1 ^q	0.026 ^q	76.3 ^q	4.9 ^q	21.4 ^q	36.7 ^q	41.8 ^q	40.8	50.6	
Paraguay	2016 M	0.019	4.5	282	302	41.9	0.013	1.0	7.2	14.3	38.9	46.8	26.9	0.7	
Saint Lucia	2012 M	0.007 ^k	1.9 ^k	3 ^k	3 ^k	37.5 ^k	.. ^d	0.0 ^k	1.6 ^k	69.5 ^k	7.5 ^k	23.0 ^k	25.0	5.1	
South Africa	2016 D	0.025	6.3	3,530	3,716	39.8	0.005	0.9	12.2	39.5	13.1	47.4	55.5	20.5	
Sri Lanka	2016 N	0.011	2.9	626	636	38.3	0.004	0.3	14.3	32.5	24.4	43.0	4.1	1.0	
Sudan	2014 M	0.279	52.3	19,363	23,892	53.4	0.023	30.9	17.7	21.1	29.2	49.8	..	15.3	
Tanzania (United Republic of)	2015/2016 D	0.284 ^q	57.1 ^q	31,046 ^q	36,288 ^q	49.8 ^q	0.016 ^q	27.5 ^q	23.4 ^q	22.5 ^q	22.3 ^q	55.2 ^q	26.4	44.9	
Timor-Leste	2016 D	0.222 ^q	48.3 ^q	591 ^q	637 ^q	45.9 ^q	0.014 ^q	17.4 ^q	26.8 ^q	29.3 ^q	23.1 ^q	47.6 ^q	41.8	24.4	
Trinidad and Tobago	2011 M	0.002 ^f	0.6 ^f	9 ^f	10 ^f	38.0 ^f	.. ^d	0.1 ^f	3.7 ^f	45.5 ^f	34.0 ^f	20.5 ^f	..	..
Uganda	2016 D	0.281 ^q	57.2 ^q	22,152 ^q	26,214 ^q	49.2 ^q	0.017 ^q	25.7 ^q	23.6 ^q	24.0 ^q	21.6 ^q	54.5 ^q	20.3	42.2	
Ukraine	2012 M	0.001 ^{sj}	0.2 ^{sj}	111 ^{sj}	106 ^{sj}	34.4 ^{sj}	.. ^d	0.0 ^{sj}	0.4 ^{sj}	60.5 ^{sj}	28.4 ^{sj}	11.2 ^{sj}	1.6	0.0	
Yemen	2013 D	0.245 ^q	48.5 ^q	13,078 ^q	15,985 ^q	50.6 ^q	0.021 ^q	24.3 ^q	22.3 ^q	29.0 ^q	30.4 ^q	40.6 ^q	48.6	19.8	
Developing countries	–	0.088	18.2	1,051,611	1,116,713	48.5	0.017	7.9	14.8	24.2	31.6	44.2	20.1	10.5	
Regions															
Arab States	–	0.074	15.1	44,119	52,636	48.9	0.019	6.9	9.0	26.1	34.3	39.7	23.4	4.7	
East Asia and the Pacific	–	0.022	5.1	102,302	105,845	42.4	0.008	0.9	14.4	28.1	35.8	36.1	3.8	0.8	
Europe and Central Asia	–	0.004	1.2	1,671	1,713	37.1	0.003	0.1	2.5	66.7	16.5	16.8	12.2	0.7	
Latin America and the Caribbean	–	0.024	5.6	31,712	33,258	43.1	0.011	1.5	6.5	33.5	27.6	38.9	37.9	4.9	
South Asia	–	0.091	20.5	380,793	389,488	44.6	0.014	6.9	17.9	27.9	33.7	38.3	22.6	9.2	
Sub-Saharan Africa	–	0.262	49.5	491,015	533,772	52.9	0.022	27.9	18.6	20.6	29.6	49.8	41.1	37.4	

TABLE 6

Notes	
a	Not all indicators were available for all countries, so caution should be used in cross-country comparisons. When an indicator is missing, weights of available indicators are adjusted to total 100 percent. See <i>Technical note 5</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details.
b	<i>D</i> indicates data from Demographic and Health Surveys, <i>M</i> indicates data from Multiple Indicator Cluster Surveys, <i>N</i> indicates data from national surveys and <i>P</i> indicates data from Pan Arab Population and Family Health Surveys (see https://hdr.undp.org/mpi-2023-faqs and <i>Methodological Note 55</i> at https://ophi.org.uk/mpi-methodological-note-55/ for the list of national surveys).
c	Data refer to the most recent year available during the period specified.
d	Value is not reported because it is based on a small number of multidimensionally poor people.
e	Urban areas only.
f	Considers child deaths that occurred at any time because the survey did not collect the date of child deaths.
g	Revised estimate from the 2020 MPI.
h	Missing indicator on cooking fuel.
i	Revised estimate from the 2022 MPI based on the survey microdata update.
j	Missing indicator on nutrition.
k	Missing indicator on child mortality.
l	Child mortality data were not used because the data were collected from a sample of women ages 15–49 that was not representative of the female population in that age group.
m	Anthropometric data were collected from all children under age 5 and from selected individuals who are age 5 or older. Construction of the nutrition indicator was restricted to children under age 5 since the anthropometric sample is representative of the under 5 population.
n	Indicator on sanitation follows the national classification in which pit latrine with slab is considered unimproved.
o	Following the national report, latrines are considered an improved source for the sanitation indicator.
p	Some 235 households were present in the individual datafile but not in the asset datafile. It is assumed that these households owned zero relevant assets.
q	The analytical sample was restricted to the Multiple Indicator Cluster Survey sample, and its sample weight was used, because child mortality information was not collected for the National Immunization Coverage Survey sample.
r	Because of the high proportion of children excluded from nutrition indicators due to measurements not being taken, estimates based on the 2019 Serbia Multiple Indicator Cluster Survey should be interpreted with caution. The unweighted sample size used for the multidimensional poverty calculation is 82.8 percent.
s	Missing indicator on school attendance.
t	The analytical sample was restricted to the round 2 sample because standard of living questions were not collected for the round 1 sample.

u	Captures only deaths of children under age 5 who died in the last five years and deaths of children ages 12–18 years who died in the last two years.
v	The methodology was adjusted to account for missing indicator on nutrition and incomplete indicator on child mortality (the survey did not collect the date of child deaths).
w	Based on the version of data accessed on 7 June 2016.
x	Given the information available in the data, child mortality was constructed based on deaths that occurred between surveys—that is, between 2012 and 2014. Child deaths reported by an adult man in the household were taken into account because the date of death was reported.
y	Missing indicator on housing.

Definitions

Multidimensional Poverty Index: Proportion of the population that is multidimensionally poor adjusted by the intensity of the deprivations. See *Technical note 5* at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the Multidimensional Poverty Index is calculated.

Multidimensional poverty headcount: Population with a deprivation score of at least 33.3 percent. It is expressed as a share of the population in the survey year, the number of multidimensionally poor people in the survey year and the projected number of multidimensionally poor people in 2021.

Intensity of deprivation of multidimensional poverty: Average deprivation score experienced by people in multidimensional poverty.

Inequality among the poor: Variance of individual deprivation scores of poor people. It is calculated by subtracting the deprivation score of each multidimensionally poor person from the intensity, squaring the differences and dividing the sum of the weighted squares by the number of multidimensionally poor people.

Population in severe multidimensional poverty: Percentage of the population in severe multidimensional poverty—that is, those with a deprivation score of 50 percent or more.

Population vulnerable to multidimensional poverty: Percentage of the population at risk of suffering multiple deprivations—that is, those with a deprivation score of 20–33.3 percent.

Contribution of deprivation in dimension to overall multidimensional poverty: Percentage of the Multidimensional Poverty Index attributed to deprivations in each dimension.

Population living below national poverty line: Percentage of the population living below the national poverty line, which is the poverty line deemed appropriate for a country by its authorities. National estimates are based on population-weighted subgroup estimates from household surveys.

Population living below PPP \$2.15 a day: Percentage of the population living below the international poverty line of \$2.15 (in 2017 purchasing power parity [PPP] terms) a day.

Main data sources

Column 1: Refers to the year and the survey whose data were used to calculate the country's Multidimensional Poverty Index value and its components.

Columns 2–12: HDRO and OPHI calculations based on data on household deprivations in health, education, and standard of living from various surveys listed in column 1 using the methodology described in *Technical note 5* at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf. Columns 4 and 5 also use population data from UNDESA (2022).

Columns 13 and 14: World Bank 2022.

TABLE 7

Planetary pressures–adjusted Human Development Index

HDI RANK	Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)				Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index
	Value	Value	Difference from HDI value* (%)	Difference from HDI rank ^a	Value	(tonnes)	Value	(tonnes)	Value	
	2022	2022	2022	2022	2022	2021	2021	2022	2022	
Very high human development										
1	Switzerland	0.967	0.826	14.6	-6	0.854	4.1	0.946	33.6	0.761
2	Norway	0.966	0.808	16.4	-12	0.837	7.6	0.901	32.1	0.772
3	Iceland	0.959	0.806	16.0	-14	0.841	9.5	0.876	27.4	0.805
4	Hong Kong, China (SAR)	0.956	..	..	..	..	4.4	0.943	..	..
5	Denmark	0.952	0.839	11.9	2	0.881	5.1	0.934	24.2	0.828
5	Sweden	0.952	0.839	11.9	2	0.881	3.7	0.952	26.7	0.811
7	Germany	0.950	0.833	12.3	1	0.876	8.1	0.894	19.9	0.859
7	Ireland	0.950	0.814	14.3	-4	0.857	7.5	0.902	26.3	0.813
9	Singapore	0.949	0.745	21.5	-38	0.785	9.4	0.877	43.2	0.694
10	Australia	0.946	0.763	19.3	-29	0.807	14.9	0.805	26.9	0.809
10	Netherlands	0.946	0.796	15.9	-12	0.842	8.0	0.896	29.8	0.788
12	Belgium	0.942	0.803	14.8	-8	0.852	8.2	0.892	26.5	0.811
12	Finland	0.942	0.787	16.5	-12	0.835	6.9	0.911	33.9	0.760
12	Liechtenstein	0.942	..	..	..	..	3.7	0.951	..	..
15	United Kingdom	0.940	0.846	10.0	12	0.900	5.2	0.933	18.7	0.868
16	New Zealand	0.939	0.814	13.3	4	0.867	6.7	0.913	25.2	0.821
17	United Arab Emirates	0.937	0.688	26.6	-58	0.735	25.3	0.669	28.2	0.800
18	Canada	0.935	0.726	22.4	-40	0.776	14.1	0.816	37.2	0.736
19	Korea (Republic of)	0.929	0.775	16.6	-16	0.835	11.9	0.845	24.7	0.825
20	Luxembourg	0.927	0.685	26.1	-58	0.739	13.2	0.828	49.2	0.651
20	United States	0.927	0.740	20.2	-30	0.798	14.9	0.805	29.3	0.792
22	Austria	0.926	0.789	14.8	-2	0.852	7.4	0.903	28.0	0.801
22	Slovenia	0.926	0.832	10.2	14	0.898	6.2	0.920	17.4	0.877
24	Japan	0.920	0.809	12.1	10	0.879	8.5	0.889	18.5	0.869
25	Israel	0.915	0.780	14.8	-7	0.852	6.2	0.920	30.2	0.785
25	Malta	0.915	0.806	11.9	6	0.881	3.1	0.960	28.0	0.801
27	Spain	0.911	0.839	7.9	23	0.921	4.8	0.937	13.3	0.906
28	France	0.910	0.823	9.6	17	0.905	4.8	0.938	18.1	0.872
29	Cyprus	0.907	0.803	11.5	8	0.886	5.6	0.926	21.8	0.845
30	Italy	0.906	0.825	8.9	20	0.910	5.7	0.926	14.8	0.895
31	Estonia	0.899	0.766	14.8	-8	0.852	7.8	0.898	27.3	0.806
32	Czechia	0.895	0.782	12.6	3	0.874	9.2	0.880	18.6	0.868
33	Greece	0.893	0.809	9.4	19	0.906	5.5	0.928	16.2	0.885
34	Bahrain	0.888	0.673	24.2	-54	0.758	26.1	0.660	20.3	0.856
35	Andorra	0.884	..	..	..	..	4.6	0.940	..	..
36	Poland	0.881	0.780	11.5	3	0.885	8.6	0.887	16.5	0.883
37	Latvia	0.879	0.782	11.0	7	0.890	3.9	0.950	23.9	0.830
37	Lithuania	0.879	0.748	14.9	-10	0.851	5.0	0.935	32.8	0.767
39	Croatia	0.878	0.807	8.1	21	0.920	4.3	0.944	14.8	0.895
40	Qatar	0.875	0.450	48.6	-108	0.514	39.9	0.479	63.6	0.548
40	Saudi Arabia	0.875	0.690	21.1	-35	0.789	17.6	0.771	27.1	0.808
42	Portugal	0.874	0.807	7.7	24	0.924	3.9	0.949	14.3	0.898
43	San Marino	0.867	..	..	..	..	..	..	..	..
44	Chile	0.860	0.786	8.6	16	0.914	4.6	0.940	15.8	0.888
45	Slovakia	0.855	0.776	9.2	9	0.907	6.5	0.916	14.2	0.899
45	Türkiye	0.855	0.783	8.4	15	0.916	5.3	0.930	13.8	0.902
47	Hungary	0.851	0.769	9.6	8	0.904	5.0	0.935	17.9	0.873
48	Argentina	0.849	0.782	7.9	17	0.921	4.2	0.945	14.5	0.897
49	Kuwait	0.847	0.580	31.5	-68	0.685	24.3	0.683	44.0	0.688
50	Montenegro	0.844	..	..	..	..	3.7	0.952	..	..
51	Saint Kitts and Nevis	0.838	..	..	..	..	4.7	0.939	..	..
52	Uruguay	0.830	0.784	5.5	21	0.945	2.4	0.969	11.2	0.921
53	Romania	0.827	0.759	8.2	6	0.917	4.0	0.948	16.0	0.887
54	Antigua and Barbuda	0.826	..	..	..	..	6.4	0.916	..	..
55	Brunei Darussalam	0.823	0.576	30.0	-69	0.700	25.4	0.669	37.8	0.731
56	Russian Federation	0.821	0.725	11.7	-8	0.883	11.8	0.846	11.4	0.919
57	Bahamas	0.820	0.744	9.3	3	0.907	5.1	0.933	16.7	0.882
57	Panama	0.820	0.773	5.7	16	0.943	2.7	0.965	11.1	0.921
59	Oman	0.819	0.593	27.6	-55	0.724	15.7	0.795	49.0	0.652

Continued –

TABLE 7

HDI RANK	Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)		Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index		
	Value	Value	Difference from HDI value* (%)	Difference from HDI rank*	Value	(tonnes)	Value	(tonnes)		
	2022	2022	2022	2022	2022	2021	2021	2022		
60	Georgia	0.814	0.767	5.8	17	0.942	2.9	0.962	10.9	0.922
60	Trinidad and Tobago	0.814	..	..	..	..	23.3	0.696	..	..
62	Barbados	0.809	..	..	..	..	4.4	0.943	..	..
63	Malaysia	0.807	0.704	12.8	-11	0.872	8.3	0.892	20.8	0.852
64	Costa Rica	0.806	0.763	5.3	17	0.947	1.5	0.981	12.2	0.913
65	Serbia	0.805	0.732	9.1	3	0.909	6.0	0.921	14.5	0.897
66	Thailand	0.803	0.750	6.6	14	0.934	3.7	0.951	11.8	0.916
67	Kazakhstan	0.802	0.688	14.2	-15	0.858	13.3	0.827	15.6	0.889
67	Seychelles	0.802	..	..	..	..	6.2	0.919	..	..
69	Belarus	0.801	..	..	..	..	6.4	0.917	..	..
High human development										
70	Bulgaria	0.799	0.720	9.9	0	0.901	6.1	0.920	16.5	0.883
71	Palau	0.797	..	..	..	..	12.3	0.839	..	..
72	Mauritius	0.796	..	..	..	..	3.1	0.959	..	..
73	Grenada	0.793	..	..	..	..	2.6	0.965	..	..
74	Albania	0.789	0.747	5.3	15	0.947	1.7	0.978	11.7	0.917
75	China	0.788	0.679	13.8	-22	0.862	8.0	0.896	24.3	0.828
76	Armenia	0.786	0.752	4.3	20	0.957	2.5	0.967	7.4	0.948
77	Mexico	0.781	0.734	6.0	13	0.939	3.7	0.952	10.3	0.927
78	Iran (Islamic Republic of)	0.780	0.715	8.3	3	0.917	7.8	0.898	8.9	0.937
78	Sri Lanka	0.780	0.762	2.3	24	0.976	0.9	0.988	5.0	0.965
80	Bosnia and Herzegovina	0.779	0.710	8.9	3	0.911	6.1	0.920	13.9	0.901
81	Saint Vincent and the Grenadines	0.772	..	..	..	..	2.3	0.970	..	..
82	Dominican Republic	0.766	0.732	4.4	14	0.956	2.1	0.972	8.5	0.940
83	Ecuador	0.765	0.733	4.2	17	0.958	2.2	0.971	7.7	0.945
83	North Macedonia	0.765	0.715	6.5	7	0.935	3.7	0.952	11.6	0.917
85	Cuba	0.764	0.740	3.1	22	0.968	1.9	0.976	5.6	0.960
86	Moldova (Republic of)	0.763	0.731	4.2	16	0.958	1.8	0.976	8.5	0.939
87	Maldives	0.762	..	..	..	..	3.3	0.957	..	..
87	Peru	0.762	0.733	3.8	21	0.962	1.7	0.978	7.8	0.945
89	Azerbaijan	0.760	0.719	5.4	13	0.946	3.7	0.951	8.3	0.941
89	Brazil	0.760	0.702	7.6	7	0.924	2.3	0.970	17.1	0.879
91	Colombia	0.758	0.725	4.4	18	0.957	1.9	0.976	8.8	0.937
92	Libya	0.746	0.661	11.4	-19	0.886	9.5	0.876	14.6	0.896
93	Algeria	0.745	0.702	5.8	11	0.942	4.1	0.947	8.7	0.938
94	Turkmenistan	0.744	0.662	11.0	-15	0.890	11.0	0.856	10.7	0.924
95	Guyana	0.742	..	..	..	..	4.4	0.942	..	..
96	Mongolia	0.741	0.619	16.5	-23	0.836	11.4	0.851	25.3	0.820
97	Dominica	0.740	..	..	..	..	2.1	0.973	..	..
98	Tonga	0.739	..	..	..	..	1.8	0.976	..	..
99	Jordan	0.736	0.706	4.1	16	0.960	2.0	0.973	7.6	0.946
100	Ukraine	0.734	0.685	6.7	5	0.934	4.8	0.937	9.8	0.930
101	Tunisia	0.732	0.701	4.2	14	0.957	2.9	0.962	6.7	0.952
102	Marshall Islands	0.731	..	..	..	..	3.6	0.953	..	..
102	Paraguay	0.731	0.684	6.4	4	0.936	1.4	0.982	15.4	0.891
104	Fiji	0.729	..	..	..	..	1.2	0.985	..	..
105	Egypt	0.728	0.695	4.5	14	0.955	2.3	0.971	8.4	0.940
106	Uzbekistan	0.727	0.696	4.3	16	0.958	3.4	0.955	5.6	0.960
107	Viet Nam	0.726	0.681	6.2	5	0.938	3.6	0.953	10.8	0.924
108	Saint Lucia	0.725	..	..	..	..	2.6	0.966	..	..
109	Lebanon	0.723	0.680	5.9	5	0.940	4.2	0.945	9.2	0.935
110	South Africa	0.717	0.667	7.0	-1	0.930	7.2	0.906	6.7	0.953
111	Palestine, State of	0.716	0.695	2.9	19	0.970	0.7	0.991	7.1	0.949
112	Indonesia	0.713	0.685	3.9	14	0.960	2.2	0.971	7.0	0.950
113	Philippines	0.710	0.687	3.2	16	0.968	1.3	0.984	6.8	0.952
114	Botswana	0.708	0.677	4.4	8	0.956	2.4	0.969	8.0	0.943
115	Jamaica	0.706	0.676	4.2	8	0.957	2.3	0.969	7.7	0.945
116	Samoa	0.702	..	..	..	..	1.2	0.985	..	..
117	Kyrgyzstan	0.701	0.683	2.6	14	0.975	1.4	0.981	4.4	0.968
118	Belize	0.700	0.668	4.6	7	0.954	1.8	0.977	9.8	0.931

Continued -

TABLE 7

HDI RANK	Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)			Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index	
	Value	Value	Difference from HDI value* (%)	Difference from HDI rank ^a	Value	(tonnes)	(tonnes)	Value		
	2022	2022	2022	2022	2022	2021	2021	2022		
Medium human development										
119	Venezuela (Bolivarian Republic of)	0.699	0.664	5.0	5	0.950	2.5	0.967	9.4	0.934
120	Bolivia (Plurinational State of)	0.698	0.662	5.2	4	0.948	1.8	0.977	11.3	0.920
120	Morocco	0.698	0.672	3.7	10	0.963	2.0	0.974	6.8	0.952
122	Nauru	0.696	..	..	..	..	4.3	0.944	..	..
123	Gabon	0.693	0.667	3.8	10	0.963	2.5	0.967	5.9	0.958
124	Suriname	0.690	..	..	..	..	6.0	0.922	..	..
125	Bhutan	0.681	0.615	9.7	-3	0.903	1.4	0.982	24.7	0.824
126	Tajikistan	0.679	0.664	2.2	10	0.978	1.0	0.987	4.4	0.969
127	El Salvador	0.674	0.649	3.7	5	0.963	1.2	0.985	8.2	0.942
128	Iraq	0.673	0.643	4.5	5	0.956	3.9	0.949	5.2	0.963
129	Bangladesh	0.670	0.656	2.1	8	0.980	0.6	0.992	4.6	0.967
130	Nicaragua	0.669	0.642	4.0	6	0.959	0.8	0.990	10.0	0.929
131	Cabo Verde	0.661	..	..	..	..	1.0	0.988	..	..
132	Tuvalu	0.653	..	..	..	..	1.0	0.987	..	..
133	Equatorial Guinea	0.650	0.624	4.0	5	0.960	3.4	0.955	5.0	0.964
134	India	0.644	0.625	3.0	7	0.971	1.9	0.975	4.8	0.966
135	Micronesia (Federated States of)	0.634	..	..	..	..	1.4	0.982	..	..
136	Guatemala	0.629	0.604	4.0	3	0.960	1.1	0.985	9.1	0.935
137	Kiribati	0.628	..	..	..	..	0.5	0.993	..	..
138	Honduras	0.624	0.606	2.9	5	0.972	1.1	0.986	6.1	0.957
139	Lao People's Democratic Republic	0.620	0.580	6.5	-3	0.936	3.1	0.959	12.2	0.914
140	Vanuatu	0.614	..	..	..	..	0.7	0.991	..	..
141	Sao Tome and Principe	0.613	..	..	..	..	0.7	0.991	..	..
142	Eswatini (Kingdom of)	0.610	..	..	..	..	0.9	0.988	..	..
142	Namibia	0.610	0.584	4.3	1	0.958	1.5	0.981	9.2	0.935
144	Myanmar	0.608	0.596	2.0	6	0.980	0.7	0.991	4.5	0.968
145	Ghana	0.602	0.586	2.7	4	0.974	0.6	0.992	6.1	0.957
146	Kenya	0.601	0.590	1.8	6	0.982	0.5	0.994	4.4	0.969
146	Nepal	0.601	0.581	3.3	3	0.967	0.5	0.993	8.5	0.940
148	Cambodia	0.600	0.572	4.7	-2	0.953	1.2	0.984	10.9	0.923
149	Congo	0.593	0.580	2.2	4	0.979	1.2	0.984	3.7	0.974
150	Angola	0.591	0.581	1.7	7	0.984	0.5	0.993	3.7	0.974
151	Cameroon	0.587	0.577	1.7	3	0.983	0.4	0.995	4.0	0.972
152	Comoros	0.586	..	..	..	..	0.5	0.993	..	..
153	Zambia	0.569	0.561	1.4	1	0.987	0.4	0.994	3.0	0.979
154	Papua New Guinea	0.568	0.558	1.8	1	0.983	0.8	0.990	3.4	0.976
155	Timor-Leste	0.566	..	..	..	..	0.5	0.993	..	..
156	Solomon Islands	0.562	..	..	..	..	0.4	0.994	..	..
157	Syrian Arab Republic	0.557	..	..	..	..	1.3	0.983	..	..
158	Haiti	0.552	0.546	1.1	1	0.989	0.2	0.997	2.7	0.981
159	Uganda	0.550	0.543	1.3	1	0.987	0.1	0.998	3.3	0.977
159	Zimbabwe	0.550	0.541	1.6	0	0.983	0.5	0.993	3.7	0.973
Low human development										
161	Nigeria	0.548	0.539	1.6	-1	0.983	0.6	0.992	3.7	0.974
161	Rwanda	0.548	0.541	1.3	2	0.987	0.1	0.998	3.4	0.976
163	Togo	0.547	0.541	1.1	4	0.989	0.3	0.996	2.5	0.982
164	Mauritania	0.540	0.520	3.7	-1	0.964	1.0	0.987	8.4	0.940
164	Pakistan	0.540	0.528	2.2	1	0.979	1.0	0.987	4.2	0.970
166	Côte d'Ivoire	0.534	..	..	..	..	0.4	0.994	..	..
167	Tanzania (United Republic of)	0.532	0.525	1.3	2	0.986	0.2	0.997	3.4	0.976
168	Lesotho	0.521	..	..	..	..	1.1	0.986	..	..
169	Senegal	0.517	0.503	2.7	0	0.973	0.7	0.991	6.3	0.955
170	Sudan	0.516	0.506	1.9	2	0.982	0.5	0.994	4.3	0.970
171	Djibouti	0.515	0.493	4.3	-1	0.956	0.4	0.995	11.5	0.918
172	Malawi	0.508	0.501	1.4	2	0.986	0.1	0.999	3.8	0.973
173	Benin	0.504	0.494	2.0	2	0.980	0.6	0.992	4.5	0.968
174	Gambia	0.495	0.489	1.2	1	0.988	0.3	0.996	2.9	0.979
175	Eritrea	0.493	0.487	1.2	1	0.988	0.2	0.997	3.1	0.978
176	Ethiopia	0.492	0.485	1.4	1	0.986	0.2	0.998	3.7	0.974

Continued -

TABLE 7

HDI RANK	Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)		Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index		
	Value	Value	Difference from HDI value* (%)	Difference from HDI rank*	Value	(tonnes)	(tonnes)	Value		
	2022	2022	2022	2022	2022	2021	2021	2022		
177	Liberia	0.487	0.482	1.0	0	0.991	0.2	0.998	2.3	0.984
177	Madagascar	0.487	0.483	0.8	1	0.992	0.1	0.998	2.0	0.986
179	Guinea-Bissau	0.483	..	..	..	..	0.2	0.998	..	..
180	Congo (Democratic Republic of the)	0.481	0.477	0.8	1	0.992	0.0	0.999	2.1	0.985
181	Guinea	0.471	0.462	1.9	1	0.981	0.4	0.995	4.6	0.967
182	Afghanistan	0.462	0.459	0.6	1	0.994	0.3	0.996	1.2	0.992
183	Mozambique	0.461	0.456	1.1	1	0.988	0.2	0.997	2.9	0.980
184	Sierra Leone	0.458	0.452	1.3	1	0.988	0.1	0.998	3.2	0.977
185	Burkina Faso	0.438	0.433	1.1	0	0.990	0.3	0.997	2.5	0.983
186	Yemen	0.424	0.420	0.9	0	0.992	0.4	0.995	1.7	0.988
187	Burundi	0.420	0.417	0.7	0	0.994	0.1	0.999	1.6	0.989
188	Mali	0.410	0.404	1.5	0	0.986	0.3	0.996	3.3	0.977
189	Chad	0.394	0.382	3.0	-2	0.969	0.1	0.998	8.3	0.941
189	Niger	0.394	0.389	1.3	0	0.987	0.1	0.998	3.5	0.975
191	Central African Republic	0.387	0.383	1.0	1	0.989	0.0	0.999	3.1	0.978
192	South Sudan	0.381	0.376	1.3	0	0.986	0.2	0.998	3.6	0.975
193	Somalia	0.380	0.376	1.1	1	0.988	0.0	1.000	3.2	0.977
Other countries or territories										
..	Korea (Democratic People's Rep. of)	..	..	..	..	..	2.0	0.974	..	..
..	Monaco	..	..	..	..	..	..	..	..	..
Human development groups										
	Very high human development	0.902	0.779	13.6	-	0.863	9.5	0.876	21.0	0.851
	High human development	0.764	0.691	9.6	-	0.904	5.5	0.928	16.9	0.880
	Medium human development	0.640	0.622	2.8	-	0.972	1.6	0.979	5.0	0.964
	Low human development	0.517	0.509	1.5	-	0.985	0.4	0.994	3.5	0.975
	Developing countries	0.694	0.652	6.1	-	0.940	3.5	0.955	10.6	0.924
Regions										
	Arab States	0.704	0.658	6.5	-	0.935	4.6	0.940	10.0	0.929
	East Asia and the Pacific	0.766	0.683	10.8	-	0.891	6.2	0.919	19.3	0.863
	Europe and Central Asia	0.802	0.743	7.4	-	0.927	5.3	0.931	10.9	0.923
	Latin America and the Caribbean	0.763	0.716	6.2	-	0.939	2.6	0.966	12.4	0.912
	South Asia	0.641	0.622	3.0	-	0.970	1.9	0.975	4.9	0.965
	Sub-Saharan Africa	0.549	0.539	1.8	-	0.982	0.7	0.991	3.8	0.973
	Least developed countries	0.542	0.533	1.7	-	0.984	0.4	0.995	3.8	0.973
	Small island developing states	0.730	..	..	-	..	2.7	0.965	..	..
	Organisation for Economic Co-operation and Development	0.906	0.787	13.1	-	0.869	8.7	0.887	21.0	0.851
	World	0.739	0.685	7.3	-	0.926	4.5	0.941	12.5	0.911

TABLE 7

Notes	Definitions	Main data sources
<p>a Based on countries for which a Planetary pressures-adjusted Human Development Index value is calculated.</p>	<p>Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See <i>Technical note 1</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the HDI is calculated.</p> <p>Planetary pressures-adjusted HDI (PHDI): HDI value adjusted by the level of carbon dioxide emissions and material footprint per capita to account for the excessive human pressure on the planet. It should be seen as an incentive for transformation. See <i>Technical note 6</i> at http://hdr.undp.org/sites/default/files/hdr2023_technical_notes.pdf for details on how the PHDI is calculated.</p> <p>Difference from HDI value: Percentage difference between the PHDI value and the HDI value, calculated only for countries for which a PHDI value is calculated.</p> <p>Difference from HDI rank: Difference in ranks on the PHDI and the HDI, calculated only for countries for which a PHDI value is calculated.</p> <p>Adjustment factor for planetary pressures: Arithmetic average of the carbon dioxide emissions index and the material footprint index, both defined below. A high value implies less pressure on the planet.</p> <p>Carbon dioxide emissions per capita (production): Carbon dioxide emissions produced as a consequence of human activities (use of coal, oil and gas for combustion and industrial processes, gas flaring and cement manufacture), divided by midyear population. Values are territorial emissions, meaning that emissions are attributed to the country in which they physically occur.</p> <p>Carbon dioxide emissions (production) index: Carbon dioxide emissions per capita (production-based) expressed as an index with a minimum value of 0 and a maximum value of 76.61 tonnes per capita. A high value on this index implies less pressure on the planet.</p> <p>Material footprint per capita: Material footprint is the attribution of global material extraction to a country's domestic final demand. Total material footprint is the sum of the material footprint for biomass, fossil fuels, metal ores and nonmetal ores. This indicator is calculated as the raw material equivalent of imports plus domestic extraction minus raw material equivalents of exports, divided by annual average population.</p> <p>Material footprint index: Material footprint per capita expressed as an index with a minimum value of 0 and a maximum value of 140.82 tonnes per capita. A high value on this index implies less pressure on the planet.</p>	<p>Column 1: HDRO calculations based on data from Barro and Lee (2018), IMF (2023), UNDESA (2022, 2023), UNESCO Institute for Statistics (2023), United Nations Statistics Division (2023) and World Bank (2023).</p> <p>Column 2: Calculated as the product of the HDI and the adjustment factor presented in column 5.</p> <p>Column 3: Calculated based on data in columns 1 and 2.</p> <p>Column 4: Calculated based on PHDI values and recalculated HDI ranks for countries for which a PHDI value is calculated.</p> <p>Column 5: Calculated based on data in columns 7 and 9.</p> <p>Column 6: Global Carbon Project 2023.</p> <p>Column 7: Calculated based on data in column 6.</p> <p>Column 8: United Nations Environment Programme 2023.</p> <p>Column 9: Calculated based on data in column 8.</p>

Developing regions

Arab States (20 countries or territories)

Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, State of Palestine, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen

East Asia and the Pacific (26 countries)

Brunei Darussalam, Cambodia, China, Fiji, Indonesia, Kiribati, Democratic People's Republic of Korea, Lao People's Democratic Republic, Malaysia, Marshall Islands, Federated States of Micronesia, Mongolia, Myanmar, Nauru, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Viet Nam

Europe and Central Asia (17 countries)

Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Montenegro, North Macedonia, Serbia, Tajikistan, Türkiye, Turkmenistan, Ukraine, Uzbekistan

Latin America and the Caribbean (33 countries)

Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Plurinational State of Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Bolivarian Republic of Venezuela

South Asia (9 countries)

Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan, Sri Lanka

Sub-Saharan Africa (46 countries)

Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Eritrea, Kingdom of Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, South Sudan, United Republic of Tanzania, Togo, Uganda, Zambia, Zimbabwe

Note: All countries listed in developing regions are included in aggregates for developing countries. Countries included in aggregates for Least Developed Countries and Small Island Developing States follow UN classifications, which are available at <https://www.un.org/ohrlls/>. Countries included in aggregates for Organisation for Economic Co-operation and Development are listed at <http://www.oecd.org/about/membersandpartners/list-oecd-member-countries.htm>.

Statistical references

Note: Statistical references relate to statistical material presented in this Statistical Annex and in the full set of statistical tables posted at <https://hdr.undp.org/en/human-development-report-2023-24>.

Barro, R. J., and J.-W. Lee. 2018. Dataset of Educational Attainment, June 2018 Revision. <http://www.barrolee.com>. Accessed 9 August 2023.

CEDLAS (Center for Distributive, Labor and Social Studies) and World Bank. 2023. Socio-Economic Database for Latin America and the Caribbean (SEDLAC). <https://www.cedlas.econo.unlp.edu.ar/wp/en/estadisticas/sedlac/estadisticas/>. Accessed 19 September 2023.

Eurostat. 2023. European Union Statistics on Income and Living Conditions. EU-SILC UDB 2021 – version of October 2023. Brussels. <https://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions>. Accessed 30 October 2023.

Global Carbon Project. 2023. Global Carbon Atlas. <https://globalcarbonatlas.org/emissions/carbon-emissions/>. Accessed 24 November 2023.

ICF Macro. Various years. Demographic and Health Surveys. <https://dhsprogram.com>. Accessed 28 November 2023.

ILO (International Labour Organization). 2023. ILOSTAT database. <https://ilostat.ilo.org/data/>. Accessed 22 November 2023.

IMF (International Monetary Fund). 2023. World Economic Outlook database. October 2023 Edition. Washington, DC. <https://www.imf.org/en/Publications/WEO>

[/weo-database/2023/October](#). Accessed 15 November 2023.

IPU (Inter-Parliamentary Union). 2023. Parline database: Monthly ranking of women in national parliaments. <https://data.ipu.org/women-ranking>. Accessed 11 August 2023.

LIS. 2023. Luxembourg Income Study Database. <https://www.lisdatacenter.org/data-access>. Accessed 30 September 2023.

OECD (Organisation for Economic Co-operation and Development). 2023. OECD.Stat. <https://stats.oecd.org>. Accessed 20 September 2023.

UNDESA (United Nations Department of Economic and Social Affairs). 2022. *World Population Prospects: The 2022 Revision*. New York. <https://population.un.org/wpp/>. Accessed 1 August 2023.

UNDESA (United Nations Department of Economic and Social Affairs). 2023. *World Economic Situation and Prospects 2023*. <https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-2023/>. Accessed 15 November 2023.

UNEP (United Nations Environment Programme). 2023. International Resource Panel's Global material flows database. <https://www.resourcepanel.org/global-material-flows-database>. Accessed 18 December 2023.

UNESCO (United Nations Educational, Scientific and Cultural Organization) Institute for Statistics. 2023. UIS Developer Portal, Bulk Data Download Service. <https://apiportal.uis.unesco.org/bdds>. Accessed 19 September 2023.

UNICEF (United Nations Children's Fund). Various years. Multiple Indicator Cluster Surveys. New York. <http://mics.unicef.org>. Accessed 31 October 2023.

United Nations Statistics Division. 2023. National Accounts Main Aggregates Database. <http://unstats.un.org/unsd/snaama>. Accessed 15 November 2023.

UNU-WIDER (United Nations University World Institute for Development Economics Research). 2023. World Income Inequality Database (WIID) Companion dataset. Version 28 November 2023. <https://www.wider.unu.edu/database/world-income-inequality-database-wiid#WIIDcomp>. Accessed 28 November 2023.

WHO (World Health Organization), UNICEF (United Nations Children's Fund), UNFPA (United Nations Population Fund), World Bank Group and UNDESA (United Nations Department of Economic and Social Affairs)/Population Division. 2023. *Trends in Maternal Mortality 2000 to 2020: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division*. Geneva: World Health Organization. <https://www.who.int/publications/i/item/9789240068759>. Accessed 1 August 2023.

World Bank. 2022. World Development Indicators database. Washington, DC. <http://data.worldbank.org>. Accessed 2 May 2023.

World Bank. 2023. World Development Indicators database. Washington, DC. <http://data.worldbank.org>. Accessed 7 November 2023.

World Inequality Database. 2022. World Inequality Database. <http://wid.world>. Accessed 28 September 2023.

KEY TO HUMAN DEVELOPMENT INDEX RANKS, 2022

Afghanistan	182	Dominican Republic	82	Liberia	177	Saint Lucia	108
Albania	74	Ecuador	83	Libya	92	Saint Vincent and the Grenadines	81
Algeria	93	Egypt	105	Liechtenstein	12	Samoa	116
Andorra	35	El Salvador	127	Lithuania	37	San Marino	43
Angola	150	Equatorial Guinea	133	Luxembourg	20	Sao Tome and Principe	141
Antigua and Barbuda	54	Eritrea	175	Madagascar	177	Saudi Arabia	40
Argentina	48	Estonia	31	Malawi	172	Senegal	169
Armenia	76	Eswatini (Kingdom of)	142	Malaysia	63	Serbia	65
Australia	10	Ethiopia	176	Maldives	87	Seychelles	67
Austria	22	Fiji	104	Mali	188	Sierra Leone	184
Azerbaijan	89	Finland	12	Malta	25	Singapore	9
Bahamas	57	France	28	Marshall Islands	102	Slovakia	45
Bahrain	34	Gabon	123	Mauritania	164	Slovenia	22
Bangladesh	129	Gambia	174	Mauritius	72	Solomon Islands	156
Barbados	62	Georgia	60	Mexico	77	Somalia	193
Belarus	69	Germany	7	Micronesia (Federated States of)	135	South Africa	110
Belgium	12	Ghana	145	Moldova (Republic of)	86	South Sudan	192
Belize	118	Greece	33	Monaco		Spain	27
Benin	173	Grenada	73	Mongolia	96	Sri Lanka	78
Bhutan	125	Guatemala	136	Montenegro	50	Sudan	170
Bolivia (Plurinational State of)	120	Guinea	181	Morocco	120	Suriname	124
Bosnia and Herzegovina	80	Guinea-Bissau	179	Mozambique	183	Sweden	5
Botswana	114	Guyana	95	Myanmar	144	Switzerland	1
Brazil	89	Haiti	158	Namibia	142	Syrian Arab Republic	157
Brunei Darussalam	55	Honduras	138	Nauru	122	Tajikistan	126
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