

ARTICLE

# Save 4.2 Million Lives and Generate \$1.1 Trillion in Economic Benefits for Only \$41 Billion: Introduction to the Special Issue on the Most Efficient Policies for the Sustainable Development Goals

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## Abstract

The Sustainable Development Goals (SDGs) are ambitious but in deep trouble. Benefit–cost analysis can help. This Special Issue highlights 12 of the most efficient interventions to speed up progress on the SDGs with Benefit–Cost Ratios (BCRs) above 15. The approaches cover tuberculosis, education, maternal and newborn health, agricultural R&D, malaria, e-procurement, nutrition, land tenure security, chronic diseases, trade, child immunization, and skilled migration. Spanning 2023–2030, these policy approaches are estimated to cost an annual average of \$41 billion (of which \$6 billion is non-financial). They will realistically deliver \$2.1 trillion in annual benefits, consisting of \$1.1 trillion in economic benefits and 4.2 million lives saved. The pooled benefit–cost ratio of all 12 investments is 52. By prioritizing these high-impact “best buy” interventions, decision-makers can enhance resource allocation and contribute most efficiently to the SDGs.

## 1. Introduction

Benefit–cost analysis can play a crucial role in the pursuit of the Sustainable Development Goals (SDGs, 2015) by channeling additional funds toward development investments that generate the most welfare. This Special Issue is the academic conclusion of the “Halftime for the Sustainable Development Goals” project by the Copenhagen Consensus<sup>1</sup> think tank

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<sup>1</sup> The Copenhagen Consensus Center has been championing and working with benefit–cost analysis for two decades. It has undertaken subnational and national benefit–cost analysis projects in Bangladesh, Denmark, Ghana, Haiti, India, and Malawi (Lomborg, 2017; Lomborg & Rahman, 2017; Lomborg *et al.*, 2020, 2021; Lomborg & Bakshi, 2020; Mapila *et al.*, 2022); regional projects in Latin America and Africa (Lomborg, 2009b; Copenhagen

(or Halftime Project, Copenhagen Consensus, 2023). It uses benefit–cost analysis to highlight 12 “best buy” investments that would annually save 4.2 million lives and in total generate \$2.1 trillion in benefits.<sup>2</sup>

Benefit–cost analysis has long been recognized as a valuable tool that can guide decision-makers toward more informed and effective choices, given ever-present resource constraints (Lomborg, 2004, 2009a, 2018; Boardman *et al.*, 2018). When done well, benefit–cost analysis gives due consideration to all costs and benefits of a policy – not only those that are highly visible. It also ensures that benefits and costs can be explicitly and transparently compared against each other, with consistent weighting between present and future. This analytical framework can help guide policies toward decisions that optimize resource use, improve outcomes, and promote overall social welfare.

## 2. The SDGs: At halftime but nowhere near halfway

The SDGs, adopted by the United Nations in late 2015, were designed through an inclusive process with the goal of providing a comprehensive framework for addressing global challenges such as poverty, inequality, communicable disease, environmental conditions, and economic development. The SDGs have 169 targets spread out across 17 goals or themes, with 231 indicators.

Running from 2016 to 2030, mid-2023 is the halftime mark for the SDGs. Yet, there is considerable evidence that the world is nowhere near halfway to achieving the SDG promises. In a frank report, the UN Secretary-General describes the lack of SDG progress as a “collective failure” (UN, 2023). The report summarizes,

At the mid-way point on our way to 2030, the SDGs are in deep trouble. A preliminary assessment of the roughly 140 targets with data show only about 12% are on track; close to half, though showing progress, are moderately or severely off track and some 30% have either seen no movement or regressed below the 2015 baseline (UN, 2023).

The report also states that “it will take 286 years to close gender gaps in legal protection and remove discriminatory laws,” and that even by 2030, “some 660 million people will remain without electricity and close to 2 billion will continue to rely on polluting fuels and technologies for cooking.” On education, it finds that even “by 2030, some 84 million children will be out of school and 300 million children or young people who attend school will leave unable to read and write” (UN, 2023).

A team around Jeffrey Sachs, advisor to the UN Secretary-General on the SDGs, has created an overall index for the SDGs from the year 2000 until 2022 (Sachs *et al.*, 2023). It is constructed to be easily interpretable, with 100% meaning SDG completion.

The Global SDG Index score and scores by goal can be interpreted as the percentage of achievement. The difference between 100 and countries’ scores is therefore the distance in

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Consensus, 2021), and global projects that examined all major international and development challenges (Lomborg, 2004, 2009a, 2013, 2018), or specific responses to climate change and HIV/AIDS (Lomborg, 2010, 2012). The recommendations have helped shape policy decisions, for example being cited as part of the reasoning for a \$4.15bn increase to the nutrition sector in 2013 (N4G, 2013a, b), the reason for the Bangladeshi Finance Minister to commit to e-procurement in 2016, and the direct cause for the Haitian President to endorse and enact wheat flour fortification in 2017 (Lomborg, 2023, p. xi).

<sup>2</sup> The book *Best Things First* delivers a more accessible overview of this research (Lomborg, 2023).

percentage that needs to be completed to achieve the SDGs and goals. Sweden's overall Index score (85) suggests that the country is on average 85% of the way to the best possible outcome across the 17 SDGs (Lafortune *et al.*, 2018, p. 8).

The overall trend is shown on the left in Figure 1 and highlights an improvement in SDG outcomes across the entire period from 2000 to 2022, with a marked slow-down from 2020, likely because of the Covid pandemic which precipitated shutdowns and increased economic hardship.

It is not surprising that the general Global SDG Index is improving over time, as its constituent parts measure desirable outcomes, of which the world can afford more as incomes increase. The rate of increase of the SDG Index was much lower in the 2000s and increased in the 2010s, as is evident at the right in Figure 1.

However, it is noticeable that the speed did not pick up with the adoption of the SDGs. While the five-year period from 2015 to 2019 saw the fastest increase, the periods 2010–2014 and 2011–2015 were nearly as fast, and the three other five-year periods during the SDGs have been slower. This indicates that the adoption of the SDGs did not accelerate progress on key indicators. So far, the SDGs have had no observable, additional effect on development.

Moreover, progress remains far too slow to achieve the SDG promises. If we extrapolate the best-achieved progress from 2015 to 2019, and ignore the Covid slow-down, the world will achieve just above 71% completion on the SDG Index by 2030, as shown in Figure 2. This is a 7.5 percentage point increase over 15 years, as opposed to the 36 percentage points promised.

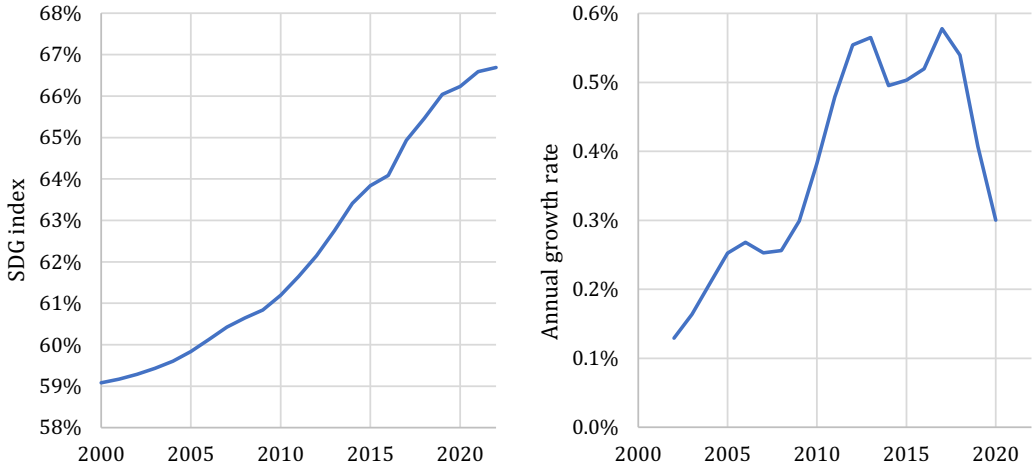
Another way to show the lack of achievement is to extrapolate progress up to 100% completion. At the current best speed, this would happen just before 2080, half a century late. This is not a prediction, since it is very likely that as countries get closer to 100% they will shift their spending and attention elsewhere. This is apparent for high-income countries that have seen an increase of just 1.75 percentage points since 2015. The measure nevertheless is a simple way to describe the difference between what the world promised would be achieved in 2030 and the time it will take, even optimistically, to happen.

Figure 2 summarizes how the SDGs neither have accelerated progress nor are likely to deliver anywhere near the promised outcome by 2030. While the world in 2023 is at halftime for the SDGs, it is nowhere near halfway. This Special Issue provides a roadmap showing how the world can do better, most efficiently.

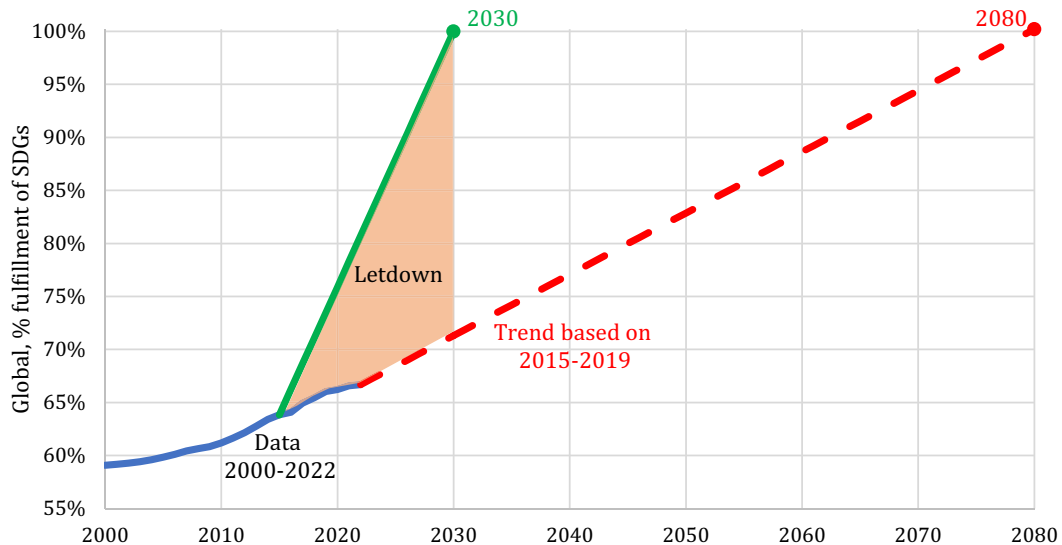
### 3. Process for the 12 articles in this Special Issue

When they were introduced, the SDGs aimed to reflect the diversity and complexity of global challenges, and to balance the three dimensions of sustainable development: social, economic, and environmental. Benefit–cost analysis can incorporate all these dimensions and help weigh which policies can deliver most benefits for the resources used.

The aim of the Halftime Project is to identify, estimate, and communicate interventions with large benefits relative to costs, defined as those with a benefit–cost ratio (BCR) greater than 15. The benefit–cost ratio is here chosen as the key indicator, since it is useful for comparison of additional investment across a wide range of policies while being particularly helpful in low- and middle-income countries where resources are significantly constrained (Robinson *et al.*, 2019a, pp. 79–80). To avoid picking trivial or very small projects, we explicitly look for investments that generate, large-scale impacts.



**Figure 1.** Left shows Global SDG Index, fulfillment of all SDGs, 2000–2022. Right shows annual growth rate for five-year mid-point (so 2002 shows the least-squares growth rate of 2000–2005, 2020 shows growth rate of 2018–2022) (Sachs et al., 2023).



**Figure 2.** Global fulfillment of all SDGs, based on 2000–2022 data, and the trend after 2022, based on 2015–2019 trend. The shaded area shows the unfulfilled promise for 2030.

The approach builds on an assessment undertaken in 2014–2015 as the SDG targets were being formulated (Lomborg, 2018). In this earlier analysis, 16 different topic areas were identified that contained targets or interventions with BCRs above or equal to 15. When looking back at the interventions from the 2014–2015 project, we worked with academic advisors for each relevant area to identify if it was likely that the BCR would remain at or above 15 in 2023.

In setting out on the Halftime Project, we considered a wide range of additional evidence published since our 2015 project. This included additional benefit–cost analysis and evidence uncovered during Copenhagen Consensus benefit–cost analysis projects in Bangladesh, Haiti, Rajasthan, and Andhra Pradesh in India, Ghana, and Malawi. We also looked at evidence on the benefits and costs of research and development spending across a wide range of policy areas (Dupont *et al.*, 2017), at the findings of a joint project with the African Academy of Sciences on “best buys” for Africa (Copenhagen Consensus, 2021), and at a study on benefits and costs of approaches to improving maternal and newborn health (Weissmann & Friberg, 2020). From this work, as well as from our wide network of collaborators, our academic advisory panel, and literature reviews, we elicited new promising areas for “best buy” interventions.

We found that some of the original, 2014–2015 “best buy” interventions had BCRs that likely no longer exceed 15 in 2023. An example is expanding cell phone connectivity. In 2015, this was estimated to bring \$17 worth of benefits in higher economic growth for each dollar spent. Today, most countries have much better connectivity and coverage than they did eight years ago, so additional investments would generate lower incremental benefits, and overall the approach would very likely have a BCR less than 15.

In total, the Halftime Project has identified 12 of the most efficient interventions that would speed progress on the SDGs. It is likely that these 12 approaches, by their selection, constitute the most efficient policies available (or nearly so).

The 12 policies cover a wide range of topic areas: tuberculosis, education, maternal and newborn health, agricultural research and development, malaria, e-procurement, nutrition, land tenure security, chronic diseases, trade, child immunization, and skilled migration.

For each of these areas, the “best investment” case was researched by specialist economists in the field, using consistent approaches and comparable parameters as outlined below, with guidance and feedback from the Copenhagen Consensus advisory board, staff, and academic peers. All 12 papers have undergone a series of reviews. First, we assembled economic experts around the 12 topic areas to ensure that the most efficient policies were being assessed. One or more of these experts would author the chapter, and iterations of benefit–cost analyses were vetted and refined in close collaboration with the Copenhagen Consensus economists. The first draft was circulated to the other experts for comments and corrections. After a process of revisions, the final draft was sent for external review by two or more experts; all remarks and suggestions were considered and either incorporated or commented on in the final paper. The process of getting all 12 papers to their current format in this journal took approximately two years.

#### 4. Common parameters for all articles

To ensure comparability across articles, all the 12 benefit–cost analyses published here use common parameters and time series.

All articles focus on low- and lower middle-income countries, using the World Bank categorization of countries for the Financial Year 2022, based on 2020 data of per-person gross national income (GNI) (World Bank, 2023). This categorization can also be roughly described as “the poorer half” of the world, as low-income countries are home to around 700 million people, and lower middle-income countries are home to 3.4 billion, adding to a total of 4.1 billion, or slightly over half the global population.

The project uses the projections from the United Nations’ Shared Socioeconomic Pathways which map out population and gross domestic product (GDP) for the rest of the century for regions and countries under different scenarios (Riahi *et al.*, 2017). Across all 12 papers, authors used the central, so-called middle-of-the-road scenario (SSP2), which also fits the long-term economic predictions of the Organisation for Economic Co-operation and Development (OECD) and expert-elicited long-term trajectories (Christensen *et al.*, 2018; OECD, 2018; Lomborg, 2020).

The income per worker is estimated from GDP per person. Today, low-income country workers have an income of almost 1.5xGDP/person, with rich countries close to 1xGDP/person. Using the SSP2 GDP per capita over the rest of the century, we have estimated the income per worker for each low- and lower middle-income country for each year using the methodology described in the Supplementary material of the Education article included in this Special Issue (Angrist *et al.*, 2023). These estimates are used to calculate the benefits from education (percent increase in income per year from different schooling outcomes) and the costs of waiting times, as described in the individual papers.

Each article compares a baseline with one or more interventions. The baseline is a business-as-usual scenario set by the standard in the relevant area as assessed by the authors. The articles attempt to analyze all low- and lower middle-income countries, but this approach is sometimes restricted by models. For example, the article on Maternal and Newborn Health uses the Lives Saved Tool (LiST) model which has 55 low- and lower middle-income countries that account for around 90% of the relevant global health burden. In other cases, the approach is modified as relevant: the Malaria article, for example, investigates the 29 highest-burden countries in Africa responsible for 96% of global malaria deaths.

For the discount rate, one recent review assembles a list of governments’ social discount rates (Groom *et al.*, 2022, Table 1). The discount rate for high-income countries ranges from 1 to 8% with an average of 4.2%. The entries for all other, non-high-income countries and development banks range from 6 to 12%, with an average of 8.9%. Similarly, the World Bank’s internal guidelines and the *Guidelines for the Conduct of Benefit–Cost Analysis in Global Health and Development* (Robinson *et al.*, 2019a) suggest that a discount rate should be double a country’s projected GDP growth per person. The growth estimates for the coming decades of the middle-of-the-road SSP2 scenario for the poorer half of the world suggest a discount rate of 7.8%. Taking this together with the 8.9% average for non-rich countries, we chose an 8% discount rate for this project. If a lower discount rate was set, all the BCRs in the articles below would be higher, as all have costs that take place before or concurrently with benefits.

Similarly, all of the articles in this Special Issue have adopted a standardized approach to valuing small changes in the risk of death, commonly referred to as the value per statistical life (VSL). The value of these risk changes has been extensively studied in high-income countries, but there is a much smaller number of studies in low- and lower middle income countries (Robinson *et al.*, 2019b). We use the *Reference Case Guidelines for Benefit–Cost*

*Analysis in Global Health and Development*, which link PPP GNI per person to the likely value of a statistical life (Robinson *et al.*, 2019a). The specific calculations are described in the Malaria article included in this Special Issue (Shretta & Ngwafor, 2023). In 2020, over all low- and lower middle income countries, VSL is 54 times the GNI per person, leading to a VSL of \$98,700 in 2020US\$. The GDP growth in this group of countries outpaces population growth, so VSL grows rapidly over time to \$150,000 in 2025 and \$212,000 in 2030, all in 2020US\$.

Across all analyses, we convert this estimate to an estimate of the value per statistical life year (VSLY) by dividing with half the life expectancy at birth (half of 68.2 years in 2020, from the World Bank), leading to a VSLY value of \$2,893 in 2020US\$. The life expectancy for all low- and lower middle-income countries is updated for all future years using the UN Population Division's 2019 Population Prospect's medium variant (UNPD, 2019). In 2030, that leads to a life expectancy for low- and lower middle-income countries of 69.9 years, meaning the VSLY is \$6,062 in 2030 in US2020\$ ( $\$212,000/(69.9/2)$ ).

Setting one value for a statistical life year across all nations in low- and lower middle-income countries ensures a consistent and simpler approach, and is likely more acceptable than alternatives to most people, but this approach does disregard the reality that policy makers in poorer countries will likely not value these changes in risk as highly as our analyses do, while policy makers in richer countries will value them higher than our analyses.

## 5. Summary findings of all 12 articles

The 12 articles included in this Special Issue highlight “best buy” areas where investment of relatively modest resources can deliver spectacular social benefits, with a BCR of at least 15.

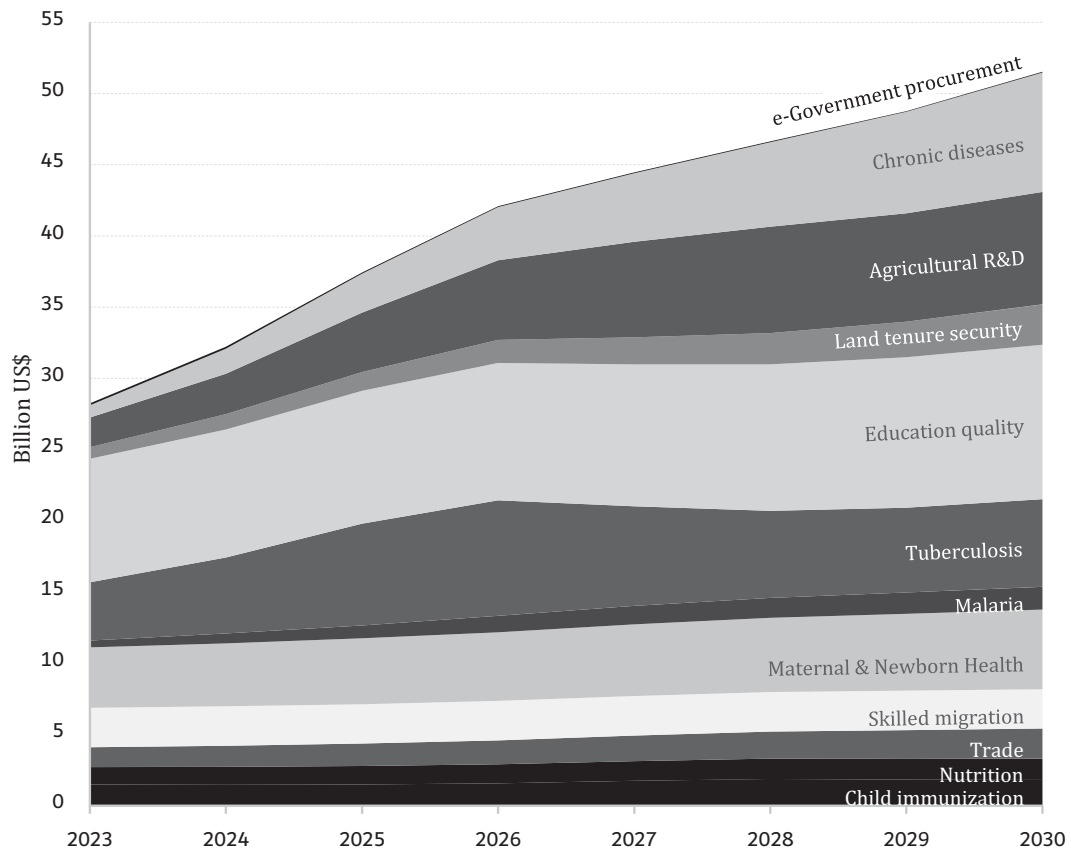
Figure 3 shows the costs of each of the 12 areas for each year across 2023 to 2030, which is the remaining SDG time period. All costs are in 2023 US\$ and include real cost increases as modeled in the individual papers. Note that two of the articles, on Education and on Maternal and Newborn Health, each only make a one-year benefit–cost analysis, and the costs here have been updated and extended for 2023 to 2030 incorporating slightly increasing numbers of primary students and births over the period, and assuming constant real costs for goods but increasing costs for labor according to the wage time series.

In total, annual costs for implementing the 12 policies described in the articles rise from \$30 billion in 2023 to almost \$50 billion by the end of the decade, with an average cost of \$41 billion per year (as indicated in Table 1). The 2030 cut-off denotes the end of the SDG era. These policies would likely remain phenomenally efficient in the years and decades after that point. Indeed, for some of them, the researchers estimated the costs and benefits far beyond 2030, as indicated in the individual articles.

Some of these costs are non-financial, such as time costs for mothers to get their children vaccinated, or for tuberculosis patients to go to support meetings. These non-financial costs sum to about \$6 billion annually, and they do not need to be financed by higher taxes or additional philanthropists' checks. Of the total cost of \$41 billion per year, about \$35 billion a year would be required to pay for these policies.

The benefits of these 12 “best buy” policies substantially exceed their costs. In terms of lives saved, Table 1 shows the annual average of lives saved (for the six interventions where this has been estimated) totals 4.2 million lives each year. The BCRs in Table 1 come from





**Figure 3.** The costs for each of the policies proposed in the 12 articles, for the years 2023–2030, in 2023US\$.

**Table 1.** Annual costs in 2023US\$ and lives saved, average over the period 2023–2030.

	Annual cost	Annual lives saved	BCR
Tuberculosis	\$6.2 billion	0.6 million	46
Maternal & Newborn	\$4.9 billion	1.4 million	87
Malaria	\$1.1 billion	0.2 million	48
Nutrition	\$1.4 billion	~18,000	18
Chronic diseases	\$4.4 billion	1.5 million	23
Child immunization	\$1.7 billion	0.5 million	101
Education	\$9.8 billion		65
Agricultural R&D	\$5.5 billion		33
e-Procurement	\$76 million		125
Land tenure security	\$1.8 billion		21
Trade	\$1.7 billion		95
Skilled migration	\$2.8 billion		20
Total	\$41 billion	4.2 million	
Weighted average			52

Note: BCR from the individual articles. Policy areas are listed in no particular order. Lives saved are not estimated in blank cells. Lives saved for child immunization are estimated for the birth year.

the individual articles. A reasonable question is, what is the overall BCR for all the interventions proposed? If weighted by the average costs over 2023–30, the average BCR is 52. If \$41 billion is spent at an average BCR of 52, this means an average benefit over 2023–30 of \$2.1 trillion.

Benefit–cost analyses make it easier for campaigners and policymakers to advocate for and introduce policies and investments that maximize welfare for each dollar spent. They give tailwind to efficient policies and headwind to inefficient ones. It is my hope that this Halftime Project can help make it easier to focus additional SDG funding on these 12 highly efficient, proven, and powerful interventions.

## 6. The 12 articles in this Special Issue

“One Million Lives Saved Per Year: A Cost-Benefit Analysis of the Global Plan to End TB, 2023–2030 and Beyond” by Pretorius *et al.* (2023) presents a benefit–cost analysis of increased spending on responding to tuberculosis using impacts and costs drawn from the Global Plan to End Tuberculosis, 2023–2030. The authors show that TB investment would avert substantial mortality, estimated at 27.3 million averted deaths over the 27-year period between 2023 and 2050, or 1 million averted deaths per year on average. Alternative specifications using different baselines, interventions, cost profiles, and discount rates still yield robustly high BCRs.

In “Achieving Maternal and Neonatal Mortality Development Goals Effectively: A Cost-Benefit Analysis,” Madise *et al.* (2023) identify relatively small investments that can save millions of lives. The authors use the LiST model developed by the Institute for International Programs at Johns Hopkins Bloomberg School of Public Health to calculate the impact of scaling up maternal and neonatal health interventions. Focusing on 55 low- and lower

middle income countries which account for around 90% of the burden of maternal and neonatal mortality globally, the research evaluates packages of interventions to compound the benefits for each recipient and lower the time and costs of treatment: increased coverage of Basic Emergency Obstetric and Newborn Care (BEmONC) from 68% to 90%, with increased Family Planning services. Together, these approaches can save more than 160,000 mothers and 1.2 million children each year.

The paper “Improving Learning in Low- and Lower-middle-income Countries” by Angrist *et al.* (2023) examines two policies to use education resources more effectively. The first approach is called “teaching at the right level.” This intervention takes students out of age-based classes for 1 hour a day to learn at their specific learning level, either physically or with a tablet. Material is tailored so children are not lost or bored. Just 1 hour a day for a year can make the full school year deliver learning that would have taken 2–3 years otherwise. The second strategy is “structured pedagogy.” As used successfully in Kenya, teachers are provided with lesson plans and supported with workshops and text messages. The extra cost for one student for 1 year is less than \$8, and it has been shown to deliver learning that is equivalent to almost 1 extra year of schooling. Teaching at the right level (with and without technology) and structured pedagogy deliver phenomenal benefits for each dollar spent.

The paper “Benefit–Cost Analysis of Increased Funding for Agricultural Research and Development in the Global South” by Rosegrant *et al.* (2023) proposes an increase in global agricultural R&D. The investment focused on CGIAR research centers, national agricultural research systems, and private companies along with improved research efficiency. The authors use the IMPACT model which estimates physical results (like higher yields), producer economic impacts (like higher farm incomes), consumer impacts (like lower food prices and rates of hunger), and global outcomes (like higher GDP). The average increased spending annually is about \$5.2 billion, with annual benefits of \$184 billion. Over the entire 35-year period, the average BCR is 33.

“Benefits and Costs of Scaling up Coverage and Use of Insecticide Treated Nets: An Investment Case for the Scale up of Insecticide Treated Nets and the Use of all Nets, Halfway into the SDG Targets” by Shretta and Ngwafor (2023) highlights the enormous power of long-lasting insecticide-treated nets (LLINs). The use of LLINs while sleeping is one of the best ways to prevent malaria, as the nets form a physical and chemical barrier against mosquitoes. The study estimates the costs and benefits of scaling up the number of LLINs by 10 percentage points in the 29 highest-burden countries in Africa from 2023 to 2030. By the end of the decade, this effort will have halved deaths from malaria. Each dollar spent will deliver \$48 of social benefits.

“The Investment Case for E-government Procurement: A Cost–Benefit Analysis” by Bosio *et al.* (2023) studies the costs and benefits of 11 e-procurement initiatives in low-income countries like Bangladesh and Rwanda, middle-income countries such as Ukraine and Tunisia, and high-income countries like Italy and South Korea. They show that the cost is likely very low. Over the first 12 years, costs average \$16.7 million, irrespective of a country’s size – a trivial sum compared to most government budgets. A well-designed e-procurement system allows for proactive monitoring and the identification of corruption. Most importantly, it cuts the overall cost of government spending. The average reduction in procurement prices is 6.75%, leading to savings by 2030 worth more than \$100 million per year for an average low-income country. In lower middle-income countries, the average savings are more than \$1 billion per year.

“Investing in Nutrition—A Global Best Investment Case” by Larsen *et al.* (2023) outlines five policies that have real potential to improve children’s dietary intake in their first 1,000 days and thereby prevent serious long-term harm. The first two policies focus on micronutrients for pregnant women, with a BCR of 24. The third and fourth policies focus on two ways of promoting complementary feeding in the 40 low- and lower middle-income countries with the highest rates of stunting. The third intervention delivers only information to the top 40%, who can afford food but need more guidance (BCR of 16), while the fourth intervention focuses on the lower 60%, who need both information and more food, which means higher costs, leading to a lower BCR of 7.5. Finally, the fifth intervention examines the costs and benefits of “Small-quantity lipid-based nutrient supplements,” which delivers a BCR of 14.

There is considerable evidence that the SDG target of improving property rights provision and recognition would lead to significant economic benefits. However, a review by the authors of “The Investment Case for Land Tenure Security in Sub-Saharan Africa: A Cost–Benefit Analysis” (Byamugisha & Dubosse, 2023) found that no single mechanism alone has been successful in improving land tenure security. Instead, a whole process is necessary, and the paper identifies the costs and benefits of introducing this process across sub-Saharan Africa. The authors highlight the need for surveying and registering land, digitizing land registries, and operation costs, along with the need to strengthen institutions and resolving land disputes. They estimate the costs and benefits for rural and urban areas separately, finding that the benefits in sub-Saharan African rural areas are less well documented, whereas the benefits for urban areas are well documented. The BCR is 18 for rural areas, and the BCR is 30 for urban areas.

“Best Investments in Chronic, Noncommunicable Disease Prevention and Control in Low- and Lower-middle-income Countries” by Watkins *et al.* (2023) emphasizes the substantial benefits that can be achieved in tackling noncommunicable diseases. First, it explores the BCR of the standard focus on primary cardiovascular prevention (mostly pills to lower blood pressure) and a slew of smaller interventions. Second, the paper looks at tax and regulation policies on tobacco, alcohol, and salt; these have implementation costs but additionally cause deadweight losses for people who will change their behavior. The paper estimates the total costs and benefits of all of these approaches and finds these are often very efficient. In total, the cost of introducing all these approaches across low- and lower middle-income countries requires an annual additional \$4.4 billion and this will save about 1.5 million lives, delivering a BCR of 23.

In their study, “Benefit–Cost Analysis of Increased Trade: An Order-of-Magnitude Estimate of the Benefit–Cost Ratio,” Feyrer *et al.* (2023) employ an innovative methodology to examine not just the benefits of more trade but also the significant costs that some groups will bear. This paper specifically estimates the costs to import-exposed industries, and in this way can make a meaningful contribution to understanding the real pain from trade, as experienced for instance in the United States Rust Belt. The paper looks at not only the global level of costs and benefits but also at different World Bank income groupings, using empirically estimated relationships between import exposure and worker outcomes reported in the trade cost literature. Using a structural gravity model, the researchers estimate the costs and benefits of a 5% increase in global trade (which could be achieved through tariff reductions, more trade agreements or lower transportation costs). The world sees a significant BCR of 11 from increased trade, but almost all costs hit high-income countries. Therefore, the BCR for the high-income countries is “only” 7, which explains the high degree of trade skepticism across this bloc. However, for the poorer half of the world, the benefits are vastly higher than the costs, with a BCR of 95. Sensitivity analyses suggest that

the benefit–cost ratios provided are conservative estimates, possibly representing the lower end of the plausible range.

To estimate the costs and benefits to achieve the SDG targets for childhood immunization “SDG Halftime Project: Benefit–Cost Analysis using Methods from the Decade of Vaccine Economics (DOVE) Model” by Patenaude *et al.* (2023) calculates the incremental economic benefit–cost ratio for immunization programs in 80 low- and middle-income countries targeted by the Global Vaccine Action Plan (GVAP) from 2023 to 2030. The authors look at 9 vaccines employed against 10 antigens, delivered through both routine immunization programs and supplemental immunization activities. The vaccines covered in the analysis include the penta-valent vaccine, human papillomavirus (HPV) vaccine, Japanese encephalitis (JE) vaccine, measles (MCV) vaccine, measles-rubella (MR) vaccine, meningococcal conjugate A (Men A) vaccine, pneumococcal conjugate (PCV) vaccine, rotavirus vaccine, and yellow fever (YF) vaccine. It is estimated that additional immunization will be much more costly than it is presently, yet the extra cost of \$1.7 billion annually is outweighed by benefits more than 100:1.

“A Benefit–Cost Analysis of Increased International Migration of Skilled Labor in Africa and the World” by Maskus (2023) builds models of the key impacts of greater international flows of skilled workers of key categories (physicians, engineers or STEM workers, and other persons with advanced education), both across Africa and 25 global regions. The reference scenario is a 10% increase in the skilled migration that has already taken place. This is likely less politically problematic, since countries that already have had a large skilled migration are more likely to accept 10% of this large number, whereas countries with few skilled migrants will take 10% of this much smaller number. The costs include relocation and inefficiencies in both the sending and the receiving country, whereas the main benefit is the increase in productivity of the skilled migrant. In total, 10% more highly skilled migration can deliver a global BCR of 20, and within Africa of 4–7.

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**Competing interest.** The author declares none.

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