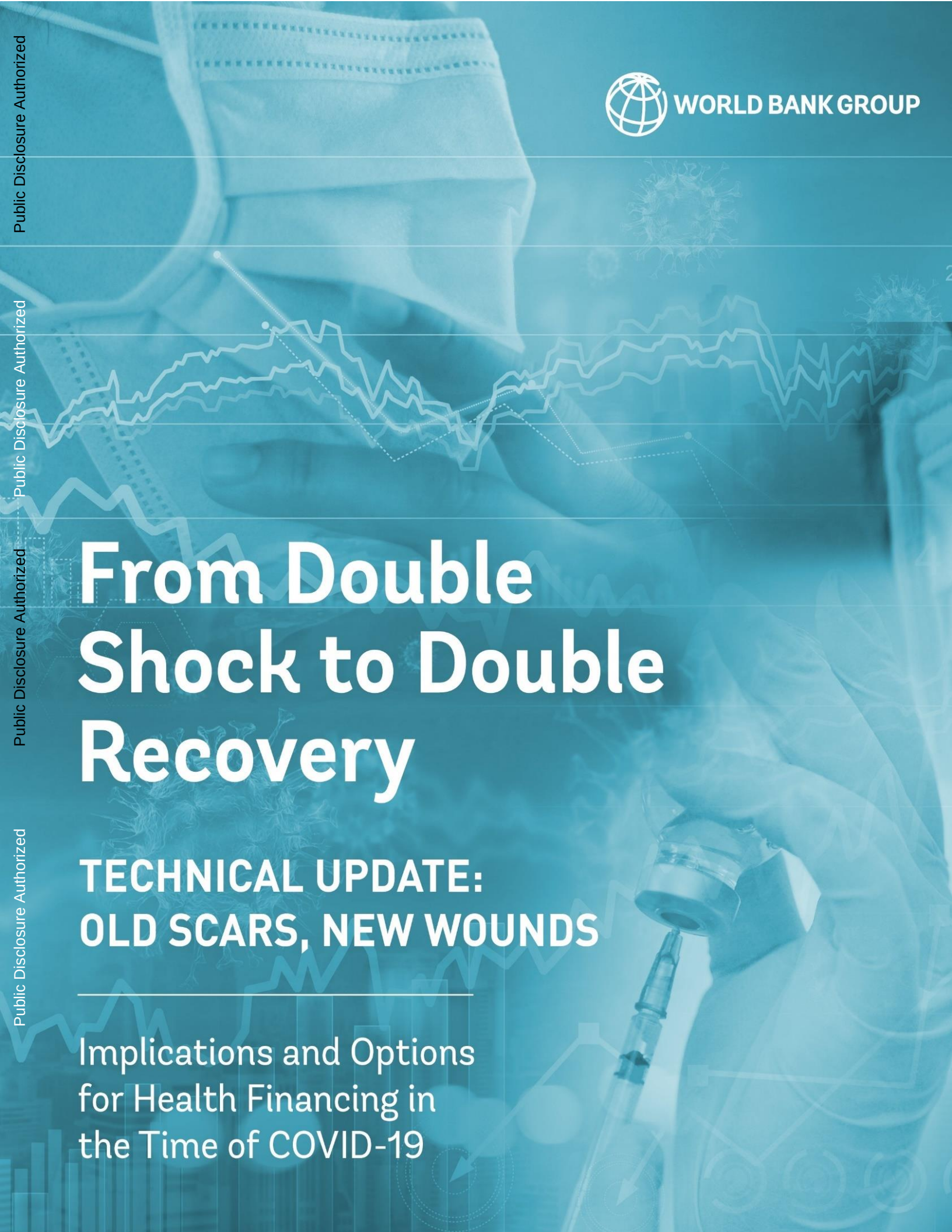

WORLD BANK GROUP

From Double Shock to Double Recovery

TECHNICAL UPDATE: OLD SCARS, NEW WOUNDS

Implications and Options for Health Financing in the Time of COVID-19

From Double Shock to Double Recovery – Implications and Options for Health Financing in the Time of COVID-19

Technical Update 2: Old Scars, New Wounds

Christoph Kurowski, David B. Evans, Ajay Tandon, Patrick Hoang-Vu Eozenou, Martin Schmidt, Alec Irwin, Jewelwayne Salcedo Cain, Eko Setyo Pambudi, and Iryna Postolovska

September 2022

Health, Nutrition and Population Discussion Paper

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Health, Nutrition and Population Discussion Paper

From Double Shock to Double Recovery – Implications and Options for Health Financing in the Time of COVID-19

Technical Update 2: Old Scars, New Wounds

Christoph Kurowski, David B. Evans, Ajay Tandon, Patrick Hoang-Vu Eozenou, Martin Schmidt, Alec Irwin, Jewelwayne Salcedo Cain, Eko Setyo Pambudi, and Iryna Postolovska.

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Abstract

This publication provides a second technical update to the March 2021 paper "From Double Shock to Double Recovery - Implications and Options for Health Financing in the Time of Covid-19." The update reflects deteriorating global economic conditions following the Russian Federation's invasion of Ukraine combined with increasing inflation, and fears of debt distress in poor countries. The new update has three objectives: (1) summarize the macroeconomic projected issued by the IMF in April 2022 for 177 countries through 2027; (2) highlight how rising interest payments on public debt threaten government spending capacities in vulnerable countries; and (3) explore implications for health spending.

Using the revised IMF data, this analysis distinguishes between countries projected to experience contraction, stagnation, or expansion of their real per capita general government expenditures (GGE) through 2027. In 41 "spending contraction" countries, per capita GGE will likely lag below pre-pandemic levels through 2027, while 69 "spending stagnation" countries will see 2027 per capita spending rise above 2019 levels, but only slightly. In 67 "spending expansion" countries, per capita GGE is projected to rise strongly through the period.

Public debt will further reduce spending capacities. Interest per capita payments are projected to rise on average in all country income groups through 2027, thereby increasing liabilities that are set aside before the remaining funds can be allocated to other priorities, including health.

The paper unpacks the implications of the projected changes in both GGE and interest payments for countries' health spending capacities through a series of scenarios.

Expansion countries are expected to see, on average, the fastest growth in per capita interest payments, but their government expenditures after interest payments are expected to continue growing strongly, allowing per capita government health expenditure to increase steadily even without an increase in the budget share allocated to health. In contrast, in the contraction and stagnation countries, and especially the LICs and LMICs among them, interest payments are expected to substantially restrict government capacities to spend on health. For example, in the contraction low-income countries (LICs), despite being the only subset of countries where per capita interest payments on public debt are expected to fall, they will, assuming no change in the priority given to health in budget decisions, still curtail potential per capita government spending on health, on average, by 4.4 percent (US$0.8) in 2027. In the contraction lower

middle-income countries (LMICs), the equivalent reduction in per capita government expenditures on health in 2027 is forecasted at 7.2 percent ($4.6).

To the scars left on vulnerable health systems by COVID-19, the Russian invasion of Ukraine and its destabilizing shocks, inflation and rising interest payments on public debt are adding new wounds. The situation presented in this paper may, in fact, be optimistic given that they are based on IMF projections released barely a month after the Russian invasion and before interest rates had been increased by some central banks. Universal health coverage (UHC) goals and future pandemic preparedness are now at risk.

Domestic policies to raise government revenues as a share of GDP, increase the share of health in government budgets, and improve the efficiency and equity of health spending are critical, options discussed in more detail in Part B of the original "From Double Shock to Double Recovery" report released in March 2021. Debt relief that cancels or reduces interest payments on public debt, and increases in external funding for health, are complementary options that, combined with appropriate domestic responses, could transform countries' health spending prospects, halting a looming downward spiral in some of the world's poorest countries.

Keywords: COVID-19, economic crisis, inflation, debt distress, government health expenditure, contraction, stagnation, expansion

Disclaimer: The findings, interpretations, and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.

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ACRONYMS AND ABBREVIATIONS

COVID	Corona Virus Disease
DAH	Development Assistance for Health
GDP	Gross Domestic Product
GGE	General Government Expenditure
GGR	General Government Revenue
GHE	Government Health Expenditure
HICs	High-Income Countries
HIV/AIDS	Human immunodeficiency virus, acquired immunodeficiency syndrome
IHME	Institute for Health Metrics and Evaluation
IMF	International Monetary Fund
LICs	Low-Income Countries
LMICs	Lower- Middle-Income Countries
OOP	Out-of-Pocket
P4H	The Global Network for Social Health Protection and Health Financing
PAHO	The Pan American Health Organization
SDG	Sustainable Development Goal
SEARO	South-East Asia Regional Office WHO
SHI	Social Health Insurance
UHC	Universal Health Coverage
UMICs	Upper- Middle-Income Countries
WHO	World Health Organization
WHO GHED	WHO Global Health Expenditure Database
WPRO	Western Pacific Regional Office WHO

EXECUTIVE SUMMARY

The health and economic double shock of COVID-19 has left deep scars in many countries. Before those injuries could heal, the Russian Federation's invasion of Ukraine caused a new series of destabilizing shocks. Added to the inflationary pressures that were already building, these are now inflicting fresh wounds on countries and their health systems. This second update to the March 2021 paper "From Double Shock to Double Recovery – Implications and Options for Health Financing in the Time of COVID-19" analyzes the evolving macro-fiscal situation in 177 countries, assesses its likely impacts on health spending. The analysis foregrounds the threat that rising debt stress poses to many countries' capacity to invest in health and, ultimately, to their prospects for equitable economic growth.

The health financing landscape continues to shift

In October 2021, a first update to the "From Double Shock to Double Recovery" paper projected a more optimistic evaluation of countries' capacity to finance health in the near term than that offered in the original study. The hopeful assessment was based on a stronger-than-expected global economic recovery as of mid-2021 and the International Monetary Fund's (IMF) upward revision of its projections for future economic growth, government revenues, and government spending in most countries.

Despite that broadly favorable outlook, the October 2021 update demonstrated that 52 countries were likely to see their real per capita government expenditures lag below pre-COVID-19 levels through 2026. These countries were expected to have difficulties to spend sufficiently to control COVID-19, develop stronger pandemic preparedness and response systems, and meet backlogged demand for routine health services. In turn, failure to invest adequately in health threatened to undermine these countries' economic recovery, widening existing inter-country inequalities.

Since then, the economic outlook has deteriorated, and in April 2022, the IMF revised downwards its growth projections for many countries and the global economy. Russia's invasion of Ukraine in February 2022 led to an immediate surge in the prices of energy, food, and some other commodities. This came atop inflationary pressures already evident in many countries, particularly those that had used fiscal stimuli to address the health and economic shocks of COVID-19. Simultaneously, signs emerged that rising public indebtedness would increase debt stress in low- and lower-middle-income countries (LICs and LMICs), with the pressures poised to intensify if central banks continued raising interest rates to control inflation.

This second update to the "From Double Shock to Double Recovery" paper now explores the implications of lower economic growth projections for countries' capacities to spend, including on health, extending the projection period to 2027. The new analysis finds that wide rifts between countries in their health-investment capacities remain, with vulnerable countries risking falling further behind. It shows that higher interest payments on public debt risk further eroding many countries' spending capacities during a period critical for healing the damage that COVID-19 has inflicted on health systems, building preparedness for future health emergencies, and advancing toward universal health coverage (UHC).

Rifts in government health spending: wide and growing

The deteriorating macroeconomic situation will affect countries in markedly different ways. The analysis presented here highlights that 41 countries, referred to as “contraction” countries, face the prospect of lower levels of real per capita government spending in 2027 than in 2019, tantamount to a “lost decade” for public investment. In a further 69 “stagnation” countries, 2027 per capita spending levels will exceed those of 2019, but only slightly. In contrast, in 67 countries, referred to as the “expansion” group, per capita spending is set to rise strongly over the projection period.

As these divergent trends play out, countries will be unequally positioned to tackle health challenges and manage their economic impacts, further widening disparities in a divided world. At one extreme are higher-income countries in the expansion group with already-strong health financing capacities that are poised to grow in the years ahead. At the other extreme are some lower-income countries in the contraction and stagnation groups whose health spending is historically weak and likely to lose further ground. Of great concern are four LICs and 14 LMICs that are expected to see their government spending capacity lag below pre-COVID-19 levels through to 2027. In addition, 10 LICs and 19 LMICs will see very slow growth in the government capacity to spend, including on health.

Interest payments on public debt bite into health spending

Public debt will further complicate the health-financing picture for many countries. All country income groups are projected to see their average per capita interest payments on public debt increase during the period. The possible impact on health spending varies across the different groups of countries.

Average per capita interest payments on public debt are projected to increase most rapidly in the expansion countries. In this group, the largest growth is expected in LMICs, more than doubling between 2019 and 2027. Assuming no changes to the priority assigned to health in government budgets, these interest payments are expected to constrain potential per capita government health spending, on average, by 8.5 percent ($7.3) in 2027. Nevertheless, strong growth in overall spending allows these countries to continually expand government health spending.

Interest payments on public debt are forecast to rise less rapidly in the stagnation countries but limit already stagnant growth in health spending. By 2027, again with no change in the priority given to health, these payments are projected to limit potential per capita health spending, on average, by 7.8 percent ($1.4) in LICs and 9.7 percent ($6.6) in LMICs.

In the face of per capita GGE below pre-COVID-19 levels through 2027, in the contraction countries, per capita interest payments rise on overage in LMICs, but are projected to fall in LICs. These interest payments are projected to still constrain potential per capita GHE, on average, by 7.2 percent ($4.6) in 2027 in the LMICs and by 4.4 percent (US$0.8) in the LICs.

The impact of interest payments on health-spending capacities varies substantially and is in some countries high. For example, in Mozambique, a contraction LIC, interest payments on public debt reduce potential per capita government health spending by 10.9 percent ($2.5). In Sri Lanka, a LMIC in the stagnation group, interest payments have an even larger impact, reducing potential government health expenditures per capita by 29.1 percent ($37.6).

Without immediate action, some countries risk being left further behind

Today, scores of vulnerable countries face stark constraints to their capacity to spend on health, and the contraction or stagnation in spending capacities documented here may signal the start of a broader deterioration in health spending and subsequent economic growth. This occurs at a moment when further ambitious investments are needed to control new variants of COVID-19, strengthen future pandemic preparedness and resilience, and reignite progress toward UHC.

Importantly, the IMF's projections of growth slowdowns and the resulting estimates of new wounds to countries' health spending may well prove optimistic. When the IMF released its latest projections in April 2022, the full effects of the war in Ukraine had not been apparent and only some central banks had raised their interest rates. The banks' recent moves can be expected to further increase interest payments while constraining economic growth. The World Bank's June 2022 Global Economic Prospects[1] and the IMF's July 2022 World Economic Outlook[2] update both anticipate darker, more uncertain conditions ahead.

In contraction LICs and LMICs, the impact of the projected falls in government health spending per capita through to 2027 could be dampened if governments increase the priority given to health in budget decisions. This is important, but it is unlikely that, alone, it will allow them to return to the positive trends in per capita government health spending seen during the decade before COVID-19: that would require boosting the share of health in overall government expenditures to historical highs.

In addition, many of the contraction and stagnation LICs and LMICs have room to take other domestic policy actions that could allow them to spend more on health: increasing the share of government revenues in GDP through improvements in fiscal policies and their enforcement and increasing the efficiency and equity of their health spending. These options were considered in detail in Part B to the original "From Double Shock to Double Recovery" paper of March 2021 and are still relevant now.

Over recent months, attention in the development community has increasingly shifted from COVID-19 to dangerous shortfalls in food and energy supplies, the impact of shortages and higher prices on the poor, and the need to control inflation. Where health is still highlighted, it is often in relation to preparedness for future pandemic threats. Yet COVID-19 continues to cause substantial morbidity in many settings, though its direct mortality impacts have diminished. Many countries have yet to resolve the backlog of health services put on hold during the pandemic's earlier phases. And most have not begun to approach the levels of health investment required to strengthen pandemic preparedness and deliver UHC. Adequate funding for health is essential to address all these concerns—crucial for countries' future health and economic security. In this context, it is important to recall that health gains and the investments that make them possible are important not only for their own sake, but also because they contribute to long-term, equitable economic growth.

A powerful lesson of COVID-19 is that injuries to one country's health system can and do contribute to suffering far beyond that country's borders. While this update details substantial differences in countries' health-spending situations, it also underscores their shared interest in protecting health through robust, equitable health financing. In the 1980s and 90s, a convergence of factors including high debt burdens contributed to severe and prolonged weakening of health systems in some of the world's poorest

[1] https://www.worldbank.org/en/publication/global-economic-prospects

[2] https://www.imf.org/en/Publications/WEO/Issues/2022/07/26/world-economic-outlook-update-july-2022

countries. Resource-starved health systems proved powerless to control the spread of HIV/AIDS, leading in the ensuing years to vast loss of life and squandered economic opportunity on a global scale. It is necessary and possible to avoid a recurrence of such scenarios now and the international community needs to respond by increasing the resources they contribute to the neediest countries and through actions such as debt relief. In the wake of COVID-19 and looking toward even greater health challenges on the horizon, it is crucial that no country be left behind.

INTRODUCTION

"From Double Shock to Double Recovery: Implications and Options for Health Financing in the Time of COVID-19" (C. Kurowski, et al. 2021a) was written barely a year into the COVID-19 crisis. At that time, IMF macroeconomic projections looked dire. They suggested that few countries had been spared by the global recession of 2020 and that in many countries government spending, after initial increases in response to the crisis, was likely to fall in at least one, often multiple years. The paper showed that, despite a projected return to global economic growth from 2021, low- and lower-middle-income countries (LICs and LMICs) would, with few exceptions, struggle to maintain health spending at levels sufficient to continue combating the pandemic. Even fewer of these countries were expected to be able to resume pre-pandemic spending trends and make progress towards the health-related Sustainable Development Goals (SDGs) and their targets, including universal health coverage (UHC). The paper discussed a range of policy options that countries could use to increase the available domestic resources for health in times of economic crisis.

A year later, revised and extended IMF projections suggested a much stronger recovery than had earlier been foreseen. However, rifts between countries in their capacities to spend, including on health, were becoming increasingly obvious. Accordingly, a first update to the original paper (C. Kurowski, D. Evans, et al. 2021b) explored the implications of the new IMF projections for governments' capacities to spend on health. The update identified a group of 52 countries of special concern. In these settings, real per capita government spending on health had not increased in 2020 to combat the pandemic and was expected to remain below 2019 (pre-COVID-19) levels through 2026. The update found that, to change this dynamic, governments in these countries would need to take bold steps to substantially increase the share of their available resources allocated to health. The paper also showed that many LICs and LMICs would struggle to find the domestic resources to roll out COVID-19 vaccines to their populations and to strengthen pandemic preparedness and response, putting the economic recovery at risk.

Since that first update was published, much has changed. First, the global economy, in the process of recovering strongly from the 2020 recession, was hit by the war in Ukraine, resulting in a surge in prices, particularly for energy, food, fertilizers, and some commodities. These effects came on top of inflationary pressures that had already built up, particularly in countries providing strong financial stimulus in response to the pandemic. Concerns emerged that countries would substantially raise and then sustain higher interest rates to control inflation, which could slow economic recovery (IMF 2022a); (IMF 2022b); (Reinhart and Luckner 2022).[3]

Second, debt has become a pressing issue for many countries. Both public and private debt had been growing steadily even before the pandemic, but record-low interest rates meant that, in many jurisdictions, the share of government spending required to meet interest payments had not increased substantially (Kose 2020); (Boone 2022). Subsequently, however, increases in public debt to fund COVID-19 stimulus packages, combined with the prospect of higher interest rates, has spurred concern that a number of LICs and LMICs may not be able to service their debt in the future (Pazarbasioglu and Gaspar 2022); (Chabert, Cerisola and Hakura 2022); (World Bank 2022).[4] Even if countries are not in debt distress, the domestic funds available for governments to spend on essential services may fall over time, if interest payments absorb an increasing proportion of government spending.

[3] The US Federal Reserve increased interest rates in both March and May 2022.

[4] If some of the heavily indebted countries suffer a devaluation of their domestic currencies at the same time, their ability to repay debt denominated in stronger currencies will be further impacted.

Third, since many countries relaxed COVID-19 restrictions in 2022, the focus of the COVID-19 recovery debate is now less on the needs for health spending to end the pandemic, including through the deployment of vaccines. Instead, recovery discussions have turned increasingly to the steps necessary to reduce poverty and hunger associated with rising food prices, control inflation, manage rising levels of country indebtedness, and address climate change (Bretton Woods 2022a); (Bretton Woods 2022b); (Bretton Woods 2022c). The pandemic has, nevertheless, further retarded progress towards the health-related SDGs, with the rate of progress now estimated to be only a quarter of the pace necessary to achieve the goals (WHO 2022a). Addressing the continued backlog of health services put on hold during the pandemic, and then getting on track to achieving the SDGs, requires investing more in health. As noted at the 2019, pre-COVID-19, meeting of G20 finance ministers and central bank governors: spending on health is critical not just for the health benefits, but it also is an important pre-requisite for inclusive economic growth (World Bank 2019).

The most recent IMF World Economic Outlook (IMF 2022a) now suggests lower global growth, increasing inflation, and for many countries, public debt levels exceeding those estimated a year earlier. The rifts across countries in growth and spending prospects remain. These developments risk inflicting new wounds on top of the scars remaining from the COVID-19 pandemic: moreover, the IMF's recent projections may well prove to be optimistic, since they were developed barely a month after the Russian Federation's invasion of Ukraine, when the duration of the conflict and its full effects on the global economy were difficult to predict.

There are, therefore, three objectives for this second update to the "From Double Shock to Double Recovery" report. The first is to briefly describe the new IMF macroeconomic projections. The second is to explore the extent to which the need to pay interest on debt might reduce governments' capacities to spend. The third is to explore the implications for country health spending.

The analysis presented in this second update covers 177 countries or territories.[5] Data needed to project health spending taking into account interest payments on public debt were available for 169 countries.[6] Data are generally summarized according to World Bank country income groups, while cross-country heterogeneity within income groups is also explored.[7][8] All per capita figures are reported in constant 2019 US dollars even where, to facilitate ease of reading, the qualifier "real" is not used in the text.

As with the first update, this paper focuses only on the revised macroeconomic data and their implications for health spending. The policy options countries can take to increase or maintain health spending, contingent on their own macroeconomic prospects, were outlined in the second part of the original paper

[5] The IMF provides macro-fiscal projections for 196 countries/territories. From this group, 19 are excluded from the analysis in this paper, either because the IMF data set does not include projections of their government spending up to 2027 or because WHO's Global Health Expenditure Database does not contain health expenditure data for these jurisdictions. The countries and territories excluded for these reasons are: Afghanistan; Albania; Aruba; Ecuador; Guyana; Hong Kong SAR; Kosovo; Lebanon; Libya; Macao SAR; Puerto Rico; Somalia; Syria; Taiwan Province of China; Tunisia; Ukraine; Venezuela; West Bank and Gaza; Yemen. The analysis reported here focuses on the remaining group of 177 countries/territories.

[6] The 8 countries for which data needed to project health spending taking into account interest payments on public debt were not available are Andorra, Antigua and Barbuda, Nauru, Palau, Samoa, Singapore, Tonga, Turkmenistan.

[8] The World Bank income groups have been modified recently, with few movements of countries both to higher- or lower-income groupings. This paper still uses the 2020/2021 classification of countries as in the previous update. Nevertheless, the income group averages reported in this update cannot be compared directly with those of the previous update because the samples do not completely overlap.

and are still valid. Interested readers are referred to the original version of the paper (C. Kurowski, D. Evans, et al. 2021a).

MACROECONOMIC PROJECTIONS

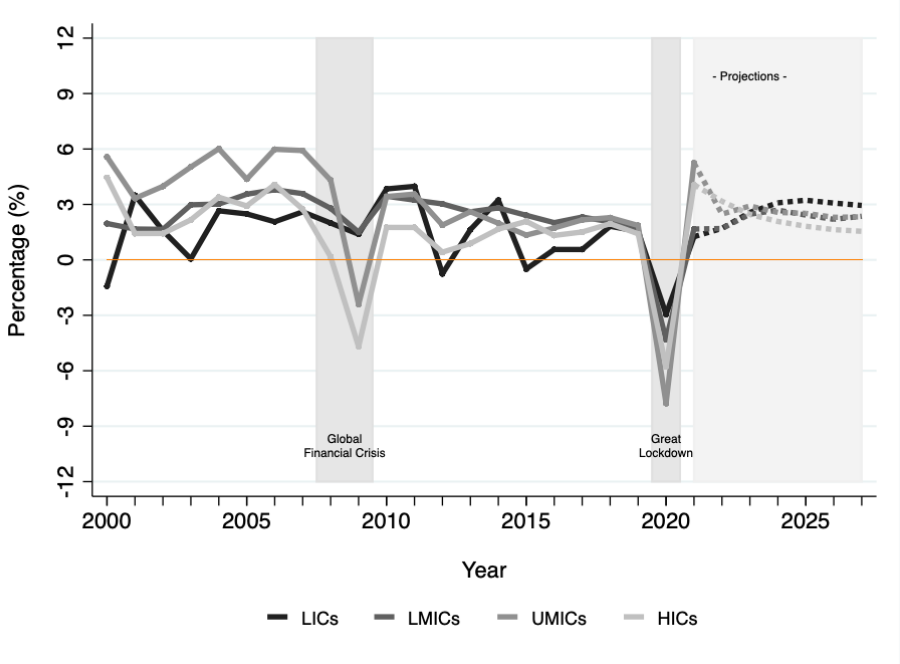
The section covers economic growth, government revenues, and government spending, domains that are critical to the capacity of governments to spend on health. It then considers the implications of public debt servicing requirements on governments' capacities to spend on other areas. The section also provides an update of the World Bank's poverty estimates.

For many countries, the latest IMF figures for 2020 now suggest that COVID-19 had a less severe macroeconomic impact in 2020 than earlier estimated (IMF 2022a). For that reason, the discussion of each macroeconomic variable begins with a brief update of 2020, then moves to the projections to 2027.

Economic growth

Although less severe than estimated earlier, the revised data still show that COVID-19 led to a deep economic contraction in 2020 (IMF 2022a). On average, country gross domestic product (GDP) per capita contracted by 5.5 percent on average in 2020 (compared to the estimate of 5.6 percent made in October 2021 and 5.9 percent in April 2021) (figure 1). Unlike previous recessions, falls occurred in all country income groups, although the magnitude of the recession was smaller in lower- than in higher-income groups. Average falls are now estimated at 2.9 percent in low-income countries (LICs), 4.3 percent in lower middle-income countries (LMICs), 7.8 percent upper-middle-income countries (UMICs) and 5.8 percent in high income countries (HICs).[9]

Figure 1. Annual growth rate in real per capita gross domestic product (GDP), 2000-2027

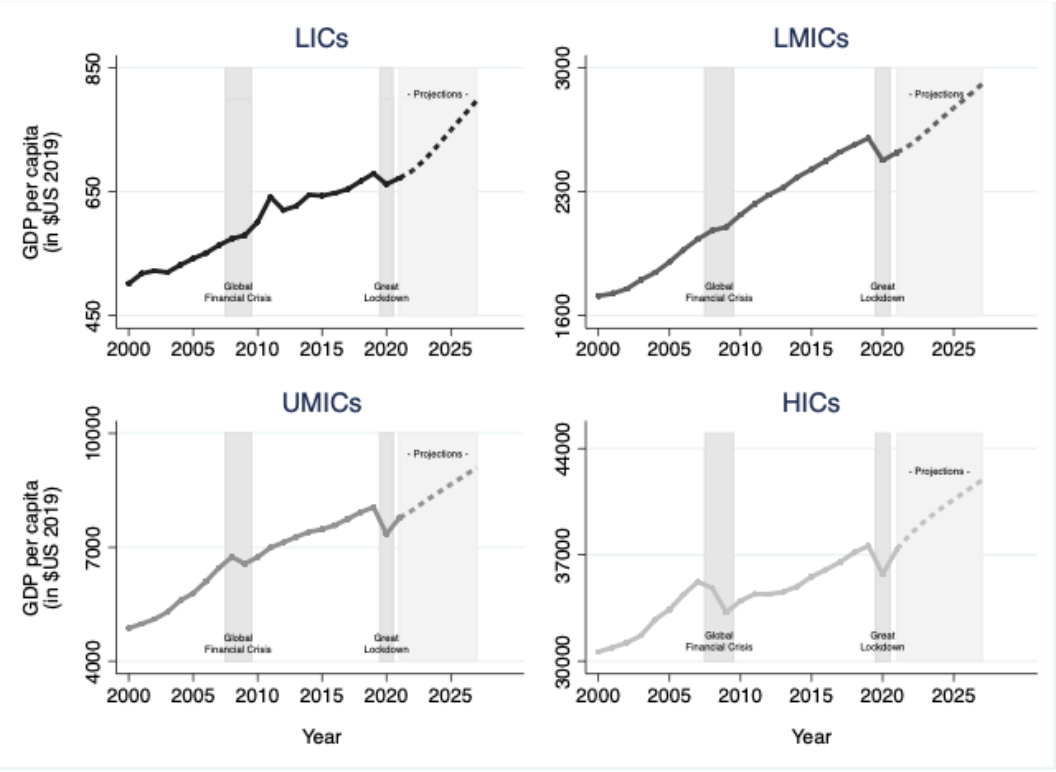


Source: Data from IMF, World Economic Outlook, April 2022

[9] All averages in this paper are unweighted.

The global economy bounced back strongly in 2021. The recovery is expected to continue to the end of the projection period in 2027, though now less strongly than earlier estimated. The rebound began, however, from the low base of 2020 so LICs and HICs are now, on average, expected to return to 2019 (pre-COVID-19) levels of GDP per capita in 2022, and LMICs and UMICs in 2023 (figure 2).

Figure 2. Per capita gross domestic product (GDP), by income group, 2000-2027. (Constant 2019 US$)



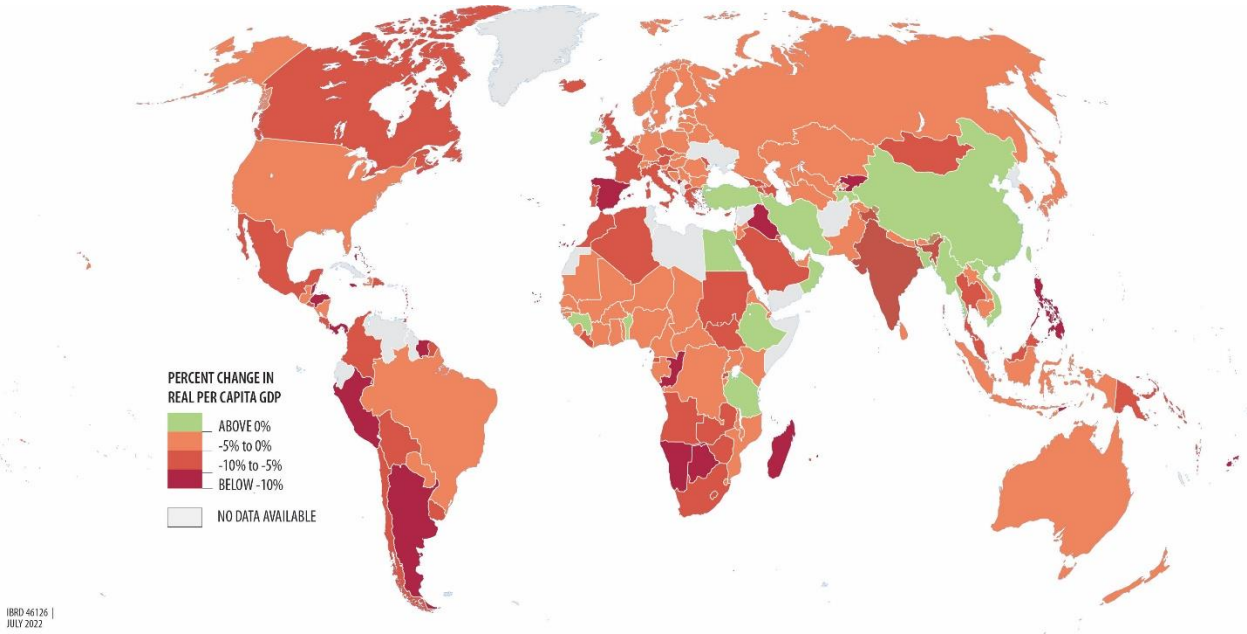
Source: Data from IMF, World Economic Outlook, April 2022

Disparate effects across countries

Despite the upward revision of GDP per capita estimates for 2020, considerable variation across countries within each income group can still be observed. For example, despite the global recession, the IMF reports now that 20 of the 177 countries maintained positive economic growth in 2020, only slightly up from the 19 countries reported in the first update of this report (map 1).[10] At the other extreme, 30 countries experienced GDP per capita declines in excess of 10 percent – slightly more than the 29 countries reported in the earlier IMF estimates. Only one of the 30 was a LIC – seven were LMICs, 15 were UMICs, and seven were HICs – showing again that the impact of COVID-19 on economic growth was less severe in lower-income than higher-income countries.[11]

[10] The countries are **LICs**: Ethiopia, Guinea; **LMICs**: Bangladesh, Benin, Egypt, Islamic Republic of Iran, Myanmar, Sao Tome and Principe, Tajikistan, Tanzania, Vietnam; **UMICs**: China, Tonga, Turkey, Tuvalu; and **HICs**: Brunei, Ireland, Nauru, Oman, Qatar.
[11] The 30 countries are: **LICs**: Madagascar **LMICs**: Belize, Cabo Verde, Congo, Rep., Honduras, Kyrgyz Republic, Philippines, Timor-Leste; **UMICs**: Argentina, Botswana, Dominica, Fiji, Grenada, Iraq, Jamaica, Maldives, Mauritius, Montenegro, Namibia, Panama, Peru, St. Lucia, Suriname; **HICs**: Andorra, Antigua and Barbuda, Bahamas, The, Barbados, Malta, Spain, St. Kitts and Nevis.

Map 1. Estimated percentage change in real per capita gross domestic product (GDP), 2020



Source: Data from IMF, World Economic Outlook, April 2022

The variation across countries observed in 2020 extends to country prospects for subsequent economic growth. At currently projected growth rates, 24 countries are now expected to find their levels of GDP per capita in 2027 lower than it was in 2019.[12] The group consists of one LIC, 12 LMICs, 6 UMICs, and 5 HICs.[13] On the other hand, in 2027, 28 countries are expected to have a GDP per capita at least 25 percent higher than it had been pre-COVID-19.[14] Later sections of the paper will consider the implications of this contrasting outlook for countries' capacities to maintain or increase government spending, including for health.

Harsh impacts on the poor and vulnerable

The pandemic caused unprecedented reversals in poverty reduction that are now further exacerbated by rising inflation and the effects of the war in Ukraine. (Mahler, et al. 2021) estimate that these combined crises will lead to an additional 75 million to 95 million people living in extreme poverty in 2022, compared to pre-pandemic projections. Over 30 percent of the additional poor will be in sub-Saharan Africa. If the more pessimistic scenario plays out, 2022 could be the second-worst year in terms of progress made in

[12] The IMF projections of April 2021 suggested that 40 countries would have GDP's per capita below 2019 levels in 2026. The current update shows 24 countries in 2027. Only 3 of the 40 countries from April 2021 "graduated" in the current projections because of the additional year of economic growth from 2026 to 2027. The others who no longer form part of the 27 "graduated" because of upward revisions in growth prospects by IMF.

[13] **LICs**: Chad; **LMICs**: Algeria, Angola, Belize, Comoros, Republic of Congo, Haiti, Lesotho, Myanmar, Nigeria, the Solomon Islands, Timor Leste, Vanuatu; **UMICs**: Equatorial Guinea, Iraq, Namibia, Russian Federation, South Africa, Surinam; **HICs**: Andorra, Antigua and Barbuda, Bahamas, Nauru, Palau.

[14] **LICs**: Ethiopia, Mozambique, Niger, Rwanda, Togo; **LMICs**: Bangladesh, Benin, Cambodia, Côte d'Ivoire, Djibouti, Egypt, India, Indonesia, Senegal, Vietnam; **UMICs**: Bulgaria, China, Dominican Republic, Georgia, Moldova, Serbia, Turkey, Tuvalu; **HICs**: Hungry, Ireland, Poland, Qatar, Singapore.

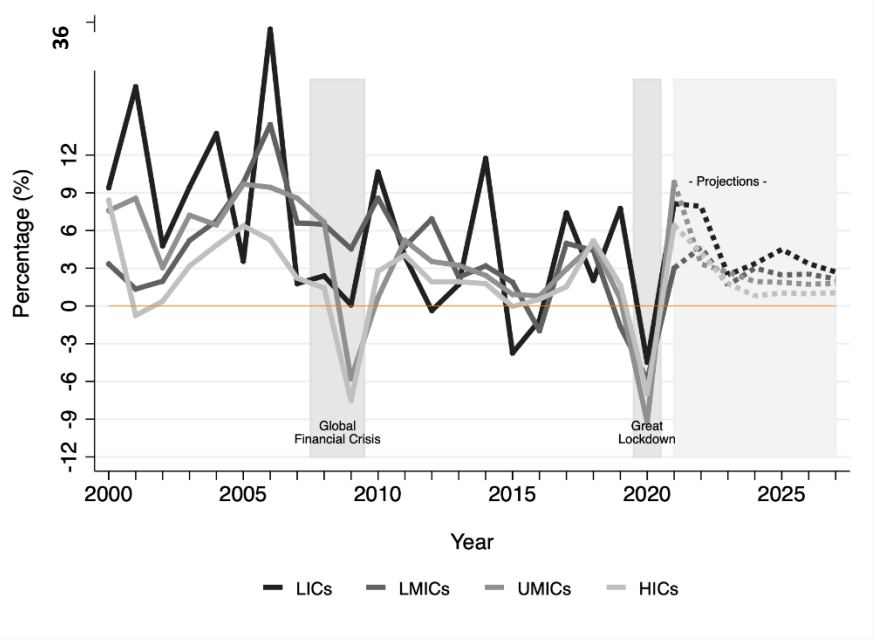
reducing extreme poverty this century—behind only 2020, when there was an actual increase in global poverty.

People living in extreme poverty spend about two-thirds of their resources on food, for example, compared to the 25 percent typically spent in high income countries, so increasing food prices affect them more severely than people on higher incomes. Even the poor households engaged in agriculture would not benefit as much as would be expected from increasing incomes associated with rising food prices, because increasing input costs, particularly fertilizer prices, lower farmers' profits and can exacerbate food shortages.

Government revenue

General government revenue (GGR) per capita (including grants) across all countries declined in 2020 by an average of 6.9 percent, greater than the 5.5 percent fall in GDP per capita described earlier. This fall is less severe than the earlier IMF estimates of April 2021 (IMF 2021). Average GGR per capita fell in all country income groups (figure 3) and, as with GDP per capita, the average percentage falls were more severe in HICs (7.0 percent) and UMICs (9.2 percent) than in LMICs (5.9 percent) and LICs (4.5 percent).

Figure 3. Annual growth rate in real per capita general government revenue (GGR), 2000-2027

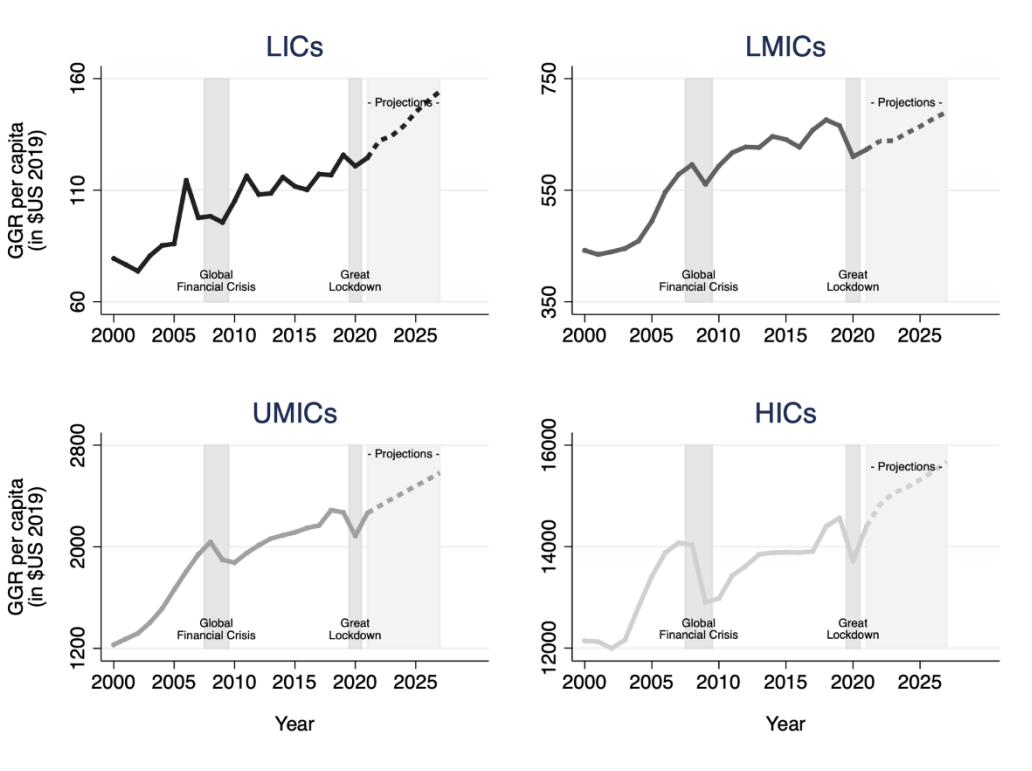


Source: Data from IMF, World Economic Outlook, April 2022

Average GGR per capita returned to growth in 2021 in LICs, UMICs, and HICs, and is projected to exceed pre-COVID-19 levels in 2022. However, despite rising from 2021, in LMICs it is not expected to reach 2019 levels until 2026 (figure 4). Projections of government revenue as a share of GDP follow similar patterns.[15]

[15] See annex 2.

Figure 4. Per capita general government revenue (GGR), by income group, 2000-2027. (Constant 2019 US$)



Source: Data from IMF, World Economic Outlook, April 2022

Uneven impact across countries

As with GDP per capita, the COVID-19 crisis had contrasting impacts on GGR per capita across countries in each income group in 2020. For example, a total of 27 countries saw a rise in GGR per capita despite the global recession. These were largely lower-income countries: six LICs and 14 LMICs compared to four UMICs, and three HICs (map 2).[16] Interestingly, 12 of the 20 countries where GDP per capita grew in 2020 suffered declines in GGR per capita,[17] while 19 countries in which GDP per capita fell in 2020 still saw increases in GGR per capita.[18] As yet, it is not possible to identify the extent to which development assistance channeled through government might have contributed to this in the four LICs and eight LMICs of the latter group.

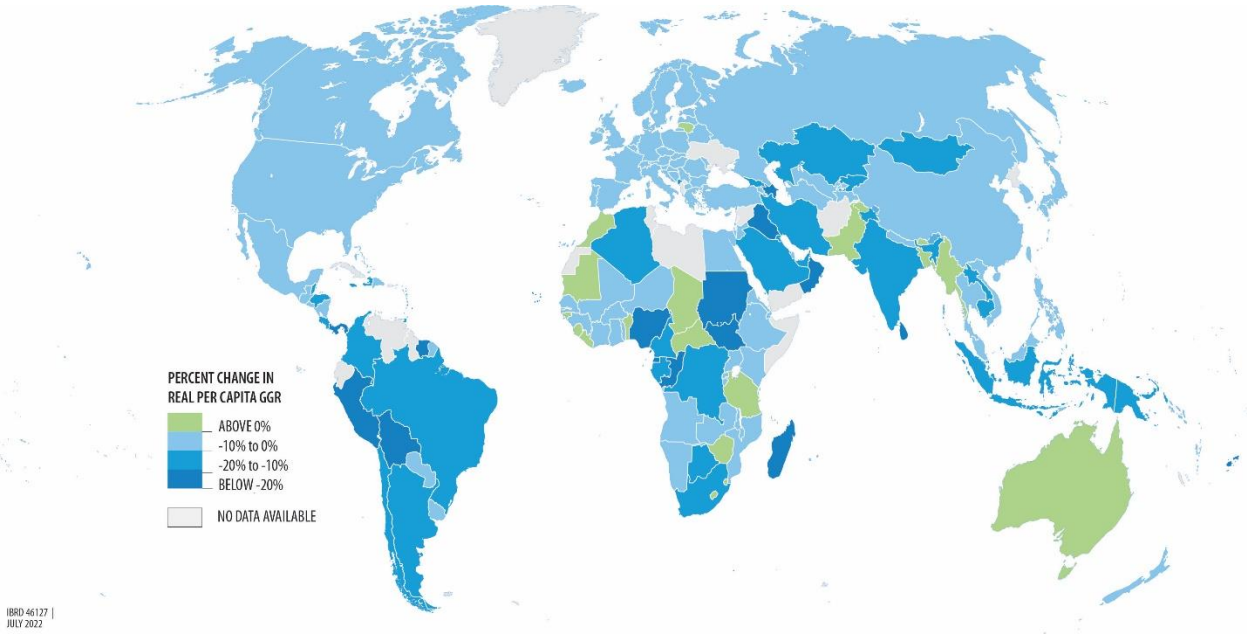
[16] **LICs**: Central African Republic, Chad, The Gambia, Guinea-Bissau, Liberia, Sierra Leone; **LMICs**: Bangladesh, Benin, Bhutan, Comoros, Eswatini, Lesotho, Mauritania, Morocco, Myanmar, Pakistan, Samoa, Sao Tome and Principle, Tanzania, Zimbabwe; **UMICs**: Dominica, Marshall Islands, Tonga, Tuvalu; **HIC**: Australia, Lithuania, Nauru.

[17] **LICs**: Ethiopia, Guinea; **LMICs**: Egypt, Arab Rep., Iran, Islamic Rep., Tajikistan, Vietnam; **UMICs**: China, Turkey; **HICs**: Brunei, Ireland, Oman, Qatar.

[18] **LICs**: Central African Republic, Chad, The Gambia, Liberia, Sierra Leone; **LMICs**: Bhutan, Comoros, Eswatini, Lesotho, Mauritania, Morocco, Pakistan, Samoa, Zimbabwe; **UMIC**: Dominica, Marshall Islands; **HICs**: Australia, Lithuania.

At the other extreme, 21 countries experienced falls in GGR per capita in excess of 20 percent in 2020. Three were LICs, five LMICs, nine UMICs, and four HICs.[19]

Map 2. Estimated percentage change in real per capita general government revenue (GGR), 2020



Source: Data from IMF, World Economic Outlook, April 2022

There is also considerable variation across countries in terms of the projected return to growth in GGR per capita. At one extreme, in 38 countries, GGR per capita is projected to remain below pre-COVID-19 levels even by 2027. Only one LIC is in this group.[20] In contrast, 22 countries will see GGR per capita in 2027 exceeding pre-COVID-19 levels by at least 35 percent.[21] In this case, only one HIC is in this group.

In the 139 countries which see some growth in GGR per capita over the period, the growth path is not projected to be smooth: 83 of them will suffer at least one annual decline in GGR per capita after 2021, and many will see multiple declines.

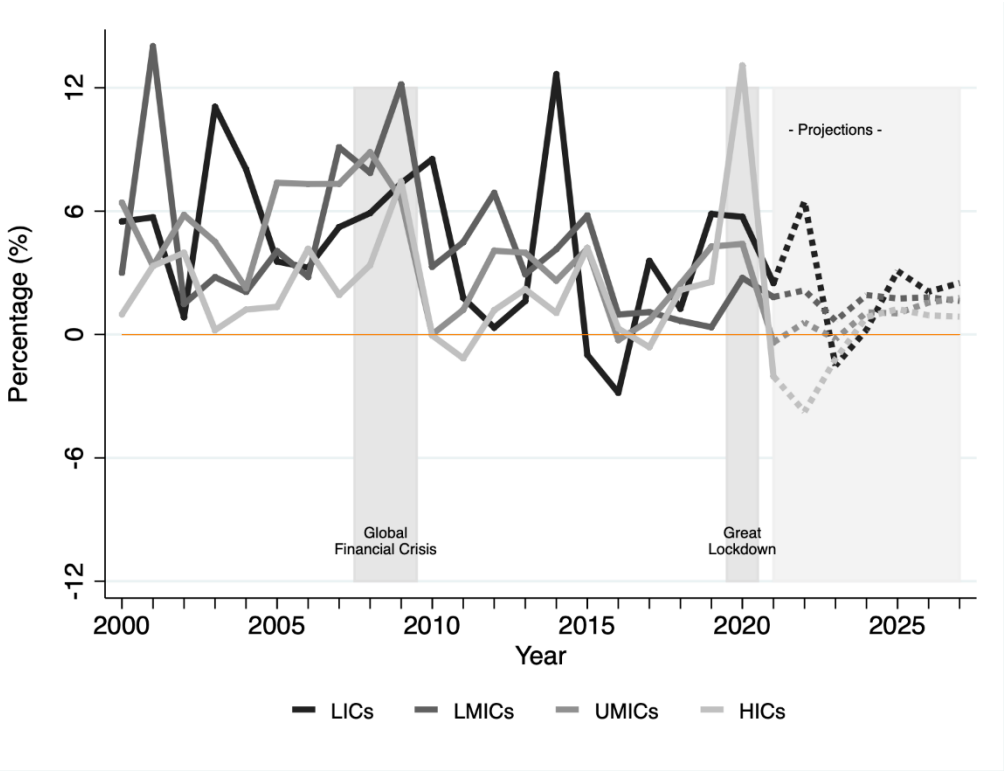
Again, the implications for government capacity to spend, including on health, are considered in the next section.

[19] **LICs**: Madagascar, South Sudan, Sudan; **LMICs**: Bolivia, Cap Verde, Nigeria, Republic of Congo, Sri Lanka; **UMICs**: Azerbaijan, Equatorial Guinea, Fiji, Iraq, Maldives, Panama, Peru, St. Lucia, Surinam; **HICs**: Bahrain, Brunei, Oman, St. Kitts and Nevis.
[20] **LICs**: South Sudan; **LMICs**: Algeria, Angola, Belize, Republic of Congo, Kiribati, Kyrgyzstan, Lesotho, Federated States of Micronesia, Myanmar, Nigeria, Samoa, Solomon Islands, Timor-Leste, Vanuatu; **UMICs**: Azerbaijan, Belarus, Brazil, Equatorial Guinea, Iraq, Jamaica, Malaysia, Namibia, Russian Federation, South Africa, Tonga, Turkmenistan; **HICs**: Bahrain, Brunei Darussalam, Kuwait, Nauru, Norway, Oman, Palau, San Marino, St. Kitts and Nevis.
[21] **LICs**: Democratic Republic of Congo, Ethiopia, Guinea-Bissau, Niger, Sudan, Uganda; **LMICs**: Bangladesh, Benin, Bhutan, Ghana, India, Kenya, Nepal, Pakistan, Philippines, Senegal, Zimbabwe; **UMICs**: China, Mauritius, Moldova, Serbia; **HICs**: Singapore.

General government expenditures

In all countries, government spending needs increased to fund the health sector pandemic response and protect people, jobs, and firms during the recession. Despite the decline in per capita GGR in the majority of countries in 2020, the additional needs resulted in a rise in real per capita general government expenditure (GGE) in all country income groups on average (figure 5). The average growth was 6.8 percent globally, although the average percentage increase was far greater in HICs (13.1 percent) than in the other income groups (UMICs 4.4 percent; LMICs 2.7 percent; LICs 5.7 percent). Higher government spending was largely funded by increased borrowing, supplemented by grants in lower-income settings (Tandon, Roubal, et al. 2020) (IMF 2021).

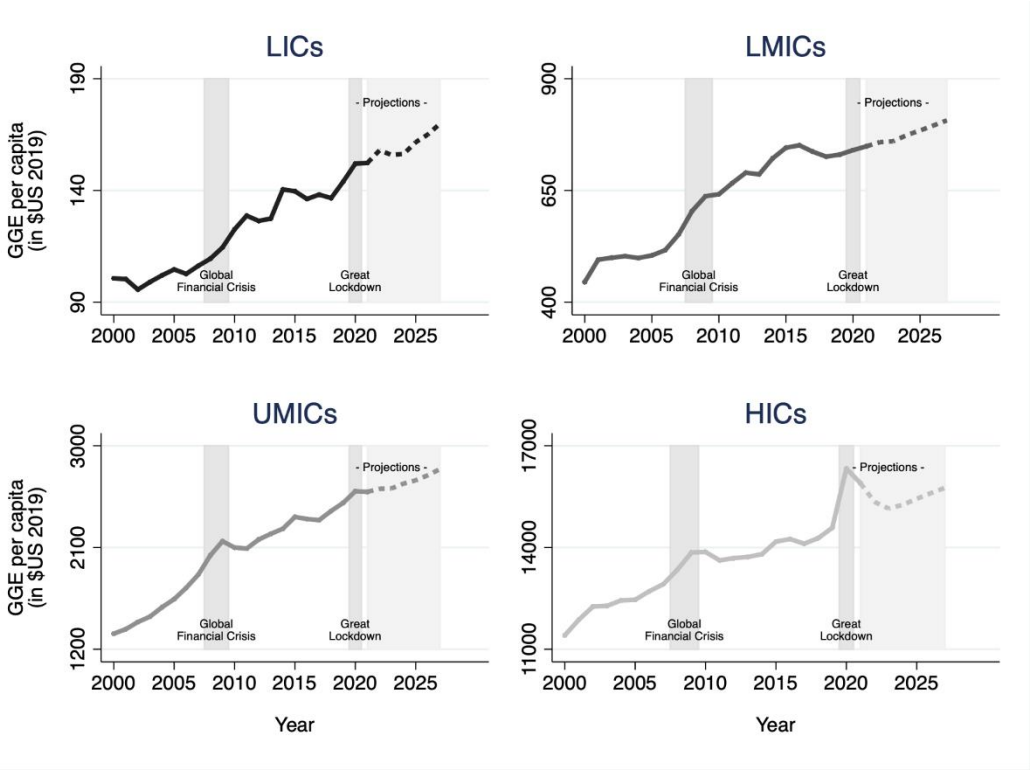
Figure 5. Annual growth rate in real per capita general government expenditure (GGE), 2000-2027



Source: Data from IMF, World Economic Outlook, April 2022

After the relatively large increases in spending in 2020, average GGE per capita is estimated to have fallen in UMICs and HICs in 2021, while continuing to increase, though at a slower rate than in 2020, in both LICs and LMICs (figure 6).

Figure 6. Per capita general government expenditure (GGE), 2000-2027. (Constant 2019 US$)



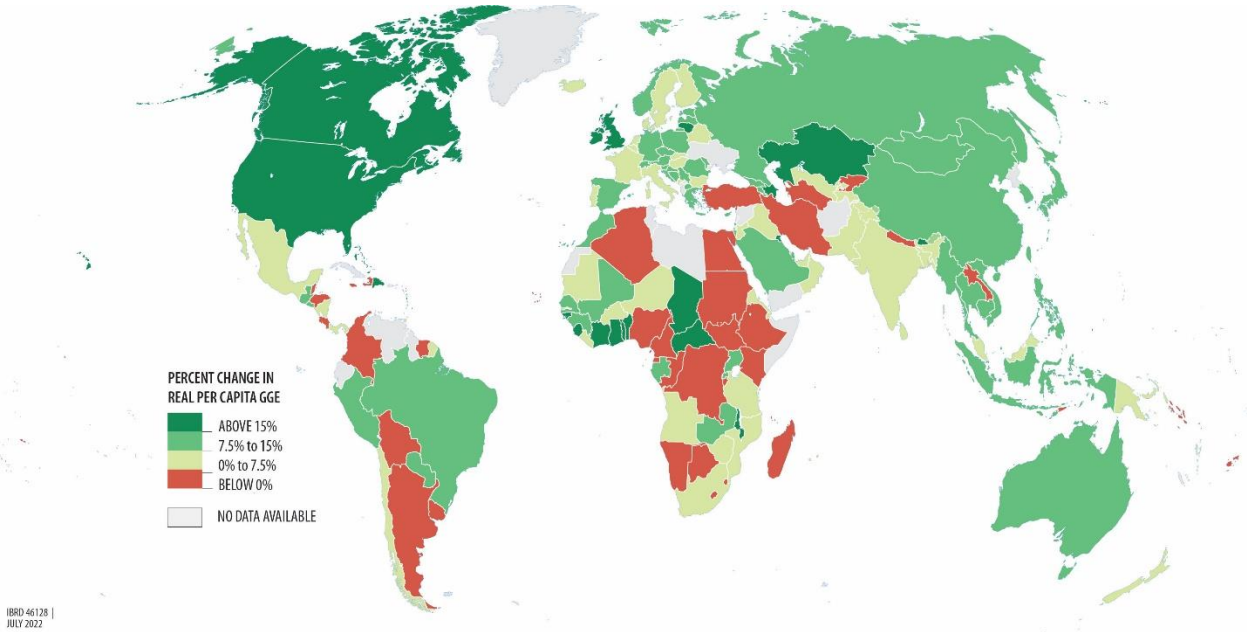
Source: Data from IMF, World Economic Outlook, April 2022

In all income groups, average GGE per capita exceeds pre-COVID-19 levels in all years from 2020 to 2027, yet the trajectories to 2027 differ. Both LMICs and UMICs are expected to see growth each year from 2022. In LICs, GGE per capita is expected to rise in 2022, fall slightly in 2023, remain stable in 2024, then rise each year to 2027. In HICs, average GGE per capita would fall each year until 2023, before starting to rise again in 2024.

A world divided

The considerable variation in 2020 across countries within the different income groups in terms of GDP and GGR per capita described earlier is also found with GGE per capita (map 3). Despite the average increases in all groups, GGE per capita actually fell during the first year of the pandemic in 44 of the 177 countries. The falls were more prevalent in lower-income countries: in 6 of 22 LICs (27.3 percent); 22 of 52 LMICs (42.3 percent); 13 of 47 UMICs (25.5 percent), and in only 3 of the 56 HICs (5.4 percent).

Map 3. Estimated percentage change in real per capita general government expenditure, 2020



Source: Data from IMF, World Economic Outlook, April 2022

Projections of future trends also show substantial variation across countries in the same income group. Taking pre-COVID-19 per capita spending levels as the benchmark, three groups of countries can be identified.

A first group includes 41 countries that are projected to see a drop in their spending capacity through 2027, with per capita GGE in 2027 remaining below pre-COVID-19 levels.[22] They are called contraction countries in the remainder of the paper.

A second group of 69 countries have positive, but relatively slow growth in GGE per capita over the period, called the stagnation group.[23] A country falls into this group if its average annual rate of growth from 2019 to 2027 is projected to be below the average growth rate of countries in its income group in the ten years before COVID-19 hit. In other words, these countries will not get back to the average pre-COVID growth path of the countries in their income group even by 2027.

[22] **LICs**: Liberia, Mozambique, South Sudan, Sudan; **LMICs**: Algeria, Angola, Belize, Comoros, Republic of Congo, Eswatini, Kiribati, Lesotho, Federated States of Micronesia, PNG, Solomon Islands, Timor-Leste, Vanuatu, Zambia; **UMICs**: Belarus, Botswana, Brazil, Costa Rica, Equatorial-Guinea, Fiji, Iraq, Jamaica, Malaysia, Namibia, Surinam, Turkmenistan; **HICs**: Andorra, Antigua and Barbuda, Bahrain, Brunei Darussalam, Kuwait, Nauru, Oman, Palau, Saudi Arabia, St. Kitts and Nevis, Trinidad and Tobago.

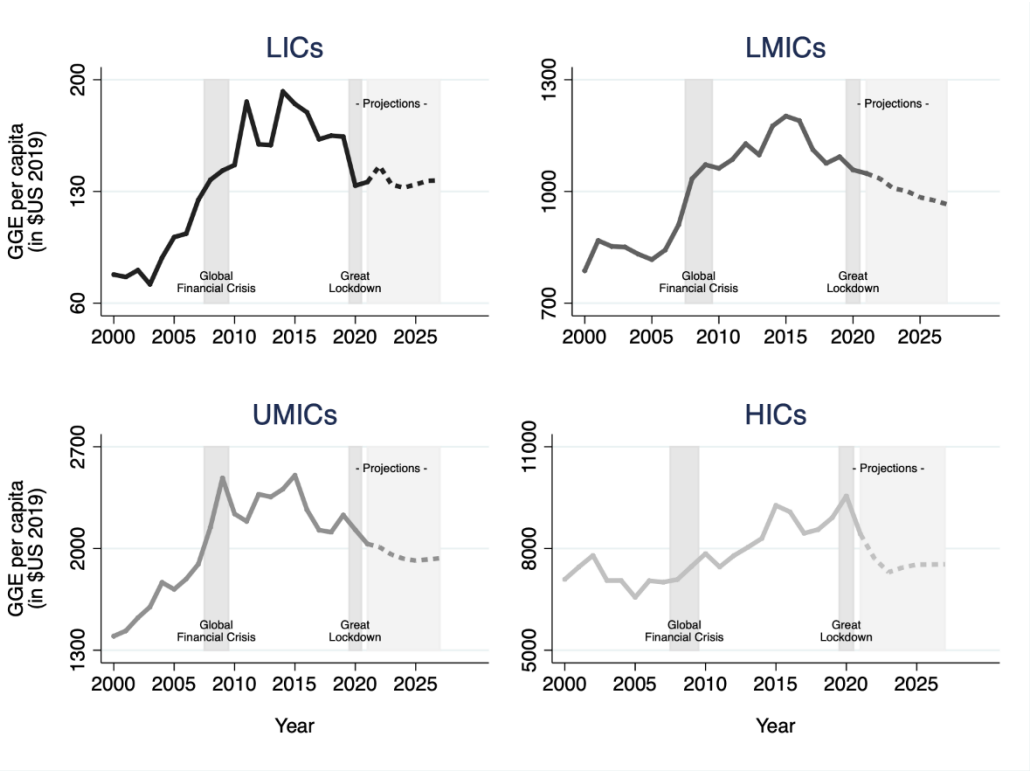
[23] **LICs**: Burkina Faso, Burundi, Central African Republic, Chad, Eritrea, the Gambia, Malawi, Mali, Rwanda, Sierra Leone; **LMICs**: Bolivia, Cap Verde, Cameroon, Djibouti, Egypt, Haiti, Honduras, Kenya, Kyrgyzstan, Lao People's Democratic Republic, Mauritania, Morocco, Myanmar, Nicaragua, Nigeria, Pakistan, Samoa, Sao Tome and Principe, Sri Lanka, Tajikistan; **UMICs**: Argentina, Azerbaijan, Colombia, Dominica, Gabon, Guatemala, Jordan, Kazakhstan, Maldives, Marshall Islands, Mauritius, Mexico, Montenegro, Paraguay, Peru, Russian Federation, South Africa, St. Lucia, St. Vincent and the Grenadines; **HICs**: Australia, Austria, the Bahamas, Canada, Chile, Finland, France, Greece, Iceland, Italy, Japan, New Zealand, Norway, Qatar, San Marino, Sweden, Switzerland, United Arab Emirates, United Kingdom, Uruguay.

The third group consists of the remaining 67 countries where GGE per capita is projected to grow strongly, exceeding the average annual growth rate of the relevant income group in the ten years before the arrival of COVID-19. These countries comprise the GGE expansion group. Each group is now discussed in turn.

Contraction countries

Across all income classes of the 41 contraction countries, average GGE per capita had fallen rather than risen in response to the pandemic. It is projected to continue to fall annually thereafter in LMICs and UMICs, while in LICs and HICs, there will be some years in which it rises, and some where it falls, but from the lower post-COVID-19 levels. As a result, average GGE per capita in 2027 is expected to be substantially lower than in 2019 in all groups – down 18.9 percent in LICs, 12.5 percent in LMICs, 14.0 percent in UMICs and 15.9 percent in HICs (figure 7).

Figure 7. Per capita general government expenditure (GGE), by income group, 2000-2027, 41 contraction countries. (Constant 2019 US$)



Source: Data from IMF, World Economic Outlook, April 2022

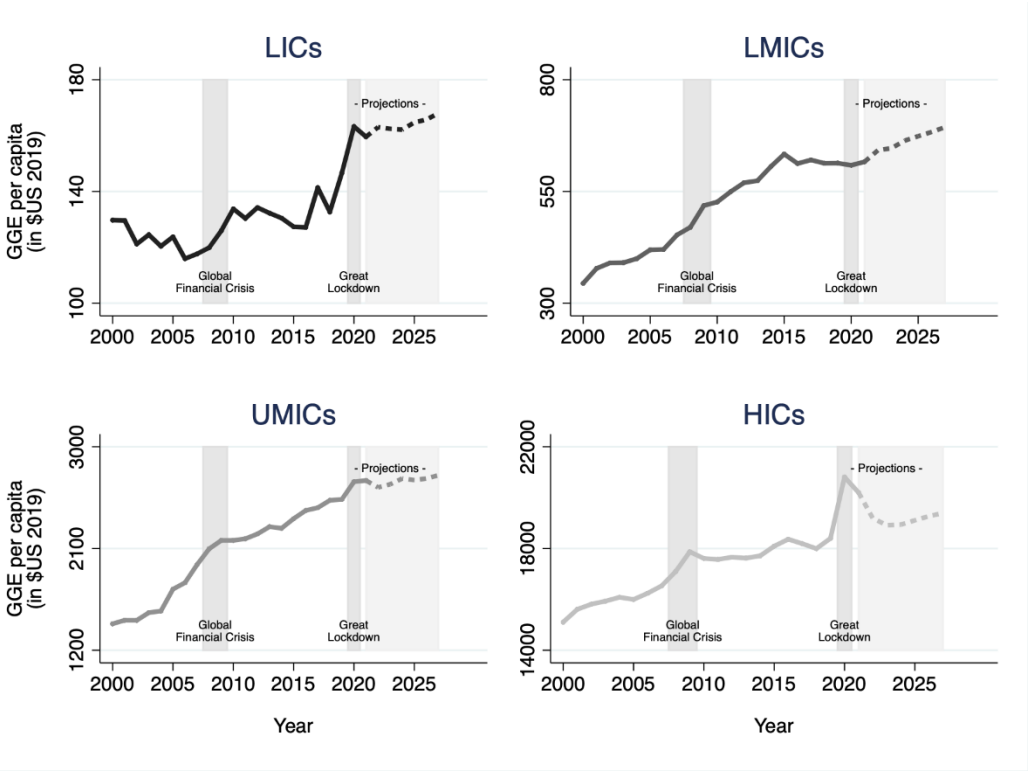
Despite these average trends, many of the 41 countries will see some years of growth in GGE per capita, in particular in the early years of the forecast period. For example, in 8 of the 41 countries, per capita government spending levels in 2022 are expected to exceed pre-COVID-19 levels.[24]

[24] **LICs**: Mozambique; **LMICs**: Comoros, Federal States of Micronesia, Timor-Leste, Vanuatu; **UMICs:** Brazil; **HICs:** Andorra, Nauru.

Stagnation countries

In the group of 69 stagnation countries, LICs, UMICs and HICs all increased average government per capita in 2020 in response to the pandemic (figure 8). In LMICs, however, it fell, but by less than one percent. The IMF projects annual increases for all groups after 2022, with GGE per capita in 2027 exceeding 2019 levels by 14.0 percent in LICs, 13.3 percent in LMICs, 8.1 percent in UMICs and 5.4 percent in HICs.

Figure 8. Per capita general government expenditure (GGE), by income group, 2000-2027, 69 stagnation countries. (Constant 2019 US$)



Source: Data from IMF, World Economic Outlook, April 2022

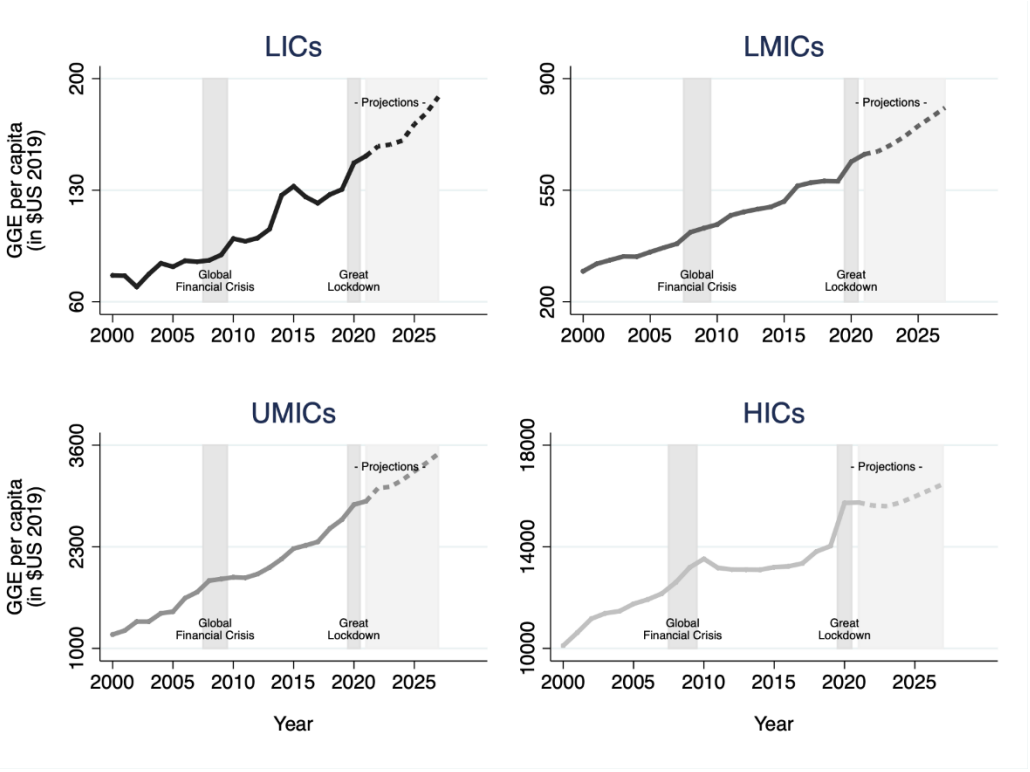
Despite the steady rise in average real GGE per capita over time, only two of these countries will see annual increases every year from 2021 to 2027.[25] The rest will have at least one year in which GGE per capita falls, and many will have multiple annual falls.

[25] **LMICs**: Egypt, Lao People's Democratic Republic.

Expansion countries

In the 67 expansion countries, after increases in 2020, average per capita GGE is projected to grow steadily over the entire period from 2021 to 2027 in all groups except HICs (figure 9). In HICs, the average is expected to fall in 2021 and 2022 before rising annually thereafter.

Figure 9. Per capita general government expenditure (GGE), by income group, 2000-2027, 67 expansion countries. (Constant 2019 US$)



Source: Data from IMF, World Economic Outlook, April 2022

Among these 67 countries, only 14 will see annual increases each year between 2021 and 2027.[26]
Most are expected to see temporary falls in GGE per capita in either or both of 2021 and 2022, with many projected to experience falls in three or more years during the 2021-2026 period.

[26] **LIC**: Democratic Republic of Congo; **LMICs**: Bangladesh, El Salvador, India, Islamic Republic of Iran, Nepal, Philippines, Senegal, Tanzania, Zimbabwe; **UMICs**: Bulgaria, Moldova, Turkey; **HICs**: Estonia.

The impact of public debt on government spending capacity

Public debt had been rising in many countries even before COVID-19, to the extent that around half of the 73 countries on debt service to the IMF and World Bank found themselves in, or at high risk of debt distress (IMF 2020c). This situation may well get worse because of the increased debt many countries took on to respond to the crisis combined with the possibility of higher interest rates (Pazarbasioglu and Gaspar 2022); (Chabert, Cerisola and Hakura 2022); (World Bank 2022).

The analysis in this section makes no assumptions about the wisdom of countries increasing their public debt pre-COVID-19. Nor does it seek to assess whether the increased pre-COVID-19 spending from these loans has allowed higher levels of government spending since 2020, that is, how effectively governments invested these funds, eventually limited through the extent of corruption (Baum, Mogues and Verdier 2020); (Human Right Watch 2021). The analysis simply takes the projected public debt levels and interest payments as a given that must be dealt with. If interest payments on public debt are projected to account for a higher share of government spending over the projection period, the remaining share for spending on other priorities, including health, falls.

The analysis assumes that governments set aside funding for their current liabilities before deciding how much of the remaining budget can be allocated to sectors and programs (Rahim, et al. 2022). Interest payments on public debt are one such liability and general government expenditure minus interest payments on public debt can be taken as the funding available for subsequent allocations to sectors and programs – sometimes called "discretionary" government expenditure (Box 1). However, because discretionary spending has a different meaning in public financial management, the remainder of this paper uses the term "post-interest" government expenditure to cover the expenditure after interest payments on public debt have been made.

This assumption may, however, not always be strictly accurate. First, there are non-debt liabilities for which governments might set aside funding before deciding on sector and program appropriations – for example, civil servant salaries and pensions and, sometimes, repayment of arrears (Heller 2013).[27] Post-interest GGE as defined above, therefore, can be taken as the maximum amount available to be allocated to sectors and programs once enough funding to meet interest payments has been set aside.

A second possible caveat is that governments and their debt-holders might choose to reduce projected interest payments through actions such as refinancing, rescheduling, debt service suspension, debt relief or forgiveness, and—at the extreme—defaulting on public debt (Mühleisen and Flanagan. 2019); (C. Kurowski, D. Evans, et al. 2021a).[28] They might also seek to increase government revenues as a share of GDP through fiscal reforms, or increase the efficiency of government spending (C. Kurowski, D. Evans, et al. 2021a). In such cases, actual post-interest spending would exceed the estimate derived by subtracting the interest payments on public debt from GGE. However, the IMF projections of interest payments on public debt used here reflect the institution's current expectations of each country's capacity to raise revenues domestically, attract development assistance, borrow and repay public debt.

Third, some governments not only pay interest on public debt but receive interest payments on financial assets such as special drawing rights, deposits and loans. At least some of the interest receivable is

[27] These non-debt obligations are sometimes referred to as mandatory expenditures.

[28] Part B of the original "From Double Shock to Double Recovery" paper (C. Kurowski, D. Evans, et al. 2021a) outlined a wide range of policy options that could help to raise additional revenues, and spend them more effectively.

consolidated as general government revenue.[29] Therefore, the impact of interest payments on spending capacity is ideally calculated as general government expenditure minus interest payable on public debt. However, the publicly available IMF projections only allow to derive net interest payments – i.e., gross interest payments minus any interest receivable from government financial assets. Therefore, the calculations that follow define post-interest GGE as GGE minus net interest payments on public debt. Where net interest payments are negative, they are taken to be zero. For any country with some revenue from financial assets, this approach underestimates the impact of debt on spending capacity. However, few LICs and LMICs are likely to be in this position.

Box 1. Discretionary versus post-interest GGE

The term "discretionary" government spending has generally been used to describe the budget envelope after all "mandatory" payments have been met. Mandatory payments include not only interest on public debt, as described above, but other liabilities such as pension payments, and the part of the public sector wage bill that cannot be modified in the year under consideration. GGE minus interest payments on public debt, therefore, reflect the amount available after one of the mandatory payments has been made, interest payments. The remainder needs to cover other mandatory payments as well as flexible spending across all sectors. For want of a better word, the paper uses the term "post-interest GGE" to capture this idea.

In summary, the post-interest GGE per capita figures presented in the following are an optimistic proxy for the expected government's ability to allocate funding through the budget process after meeting interest payments. The analysis is limited to 169 countries, as the IMF does not provide projections for net interest payments for eight out of the 177 countries discussed in the previous sections. For ease of reading, in the remainder of this section, the text uses the term "interest payments" although it refers to "net interest payments".

Projected interest payments and post-interest GGE

Globally, average interest payments per capita increased slightly in 2020 (table 1). While most countries increased their borrowing to fund the pandemic response during 2020, the impact on average interest payments was limited because, among other reasons, the interest payments did not start immediately. From 2021 onward, average interest payments per capita are expected to increase slowly but steadily each year. The all-country average is expected to further exceed the 2019 (pre-COVID-19) level reaching a high of $215.1 in 2027. While there are some differences across income classes in 2020 – on average, interest payments fell in LMICs and UMICs, but increased in LICs and HICs. In later years, however, the patterns are similar.

[29] This is not always the case – e.g., part or all of the interest earnings of sovereign wealth funds are re-invested.

Table 1. Average government interest payments on public debt per capita, by income group (constant 2019 US$)

Country income group	N	2019	2020	2027
All countries	169	180.1	180.5	215.1
LICs	22	9.3	10.0	12.4
LMICs	51	53.2	51.7	77.7
UMICs	45	161.2	158.9	214.1
HICs	51	397.3	401.9	441.0

Source: Authors' calculations based on data from IMF, World Economic Outlook, April 2022

The cross-country variations observed earlier for other macro-fiscal indicators extend to trends in per capita interest payments. Despite the increases in the averages across income groups, 53 of the 169 countries are projected to see lower per capita interest payments in 2027 than in 2019. The following pages explore this cross-country diversity in the impact of government interest payments on countries' spending capacities by considering, in turn, the situation in the GGE per capita contraction, stagnation, and expansion country groups.

In general, when GGE is rising, an increase in interest payments means that post-interest GGE will not rise as much as GGE. In contrast, a fall in interest payments means that the capacity to spend on sectors and programs increases more than the rise in GGE. When GGE falls, an increase in interest payments means that post-interest GGE falls by more than the decrease in GGE. But if interest payments decrease, the capacity of a government to spend on sectors and programs will fall by less than the fall in GGE. At the extreme, if the fall in interest payments exceeds the fall in GGE, post-interest GGE will rise.

Contraction countries

In the 36 contraction countries for which interest payment forecasts are available, the average per capita interest payments are lower than the all-country averages of table 2. They are expected to increase from $141.3 to $162.4 or 14.9 percent over the projection period. The upward trend is driven by increases among UMICs and HICs. In LICs, average per capita interest payments are expected to continuously fall, while in LMICs, they are projected to fall in the early years, before rising again, however, always remaining below the pre-COVID-19 values.

Table 2. Contraction countries: average interest payments on public debt per capita, by income group (constant 2019 US$)

Country income group	N	2019	2020	2027
All countries	36	141.3	151.9	162.4
LICs	4	7.2	7.5	5.6
LMICs	14	51.1	42.5	47.9
UMICs	11	217.9	212.6	233.7
HICs	7	278.0	357.8	369.2

Source: Authors' calculations based on data from IMF, World Economic Outlook, April 2022

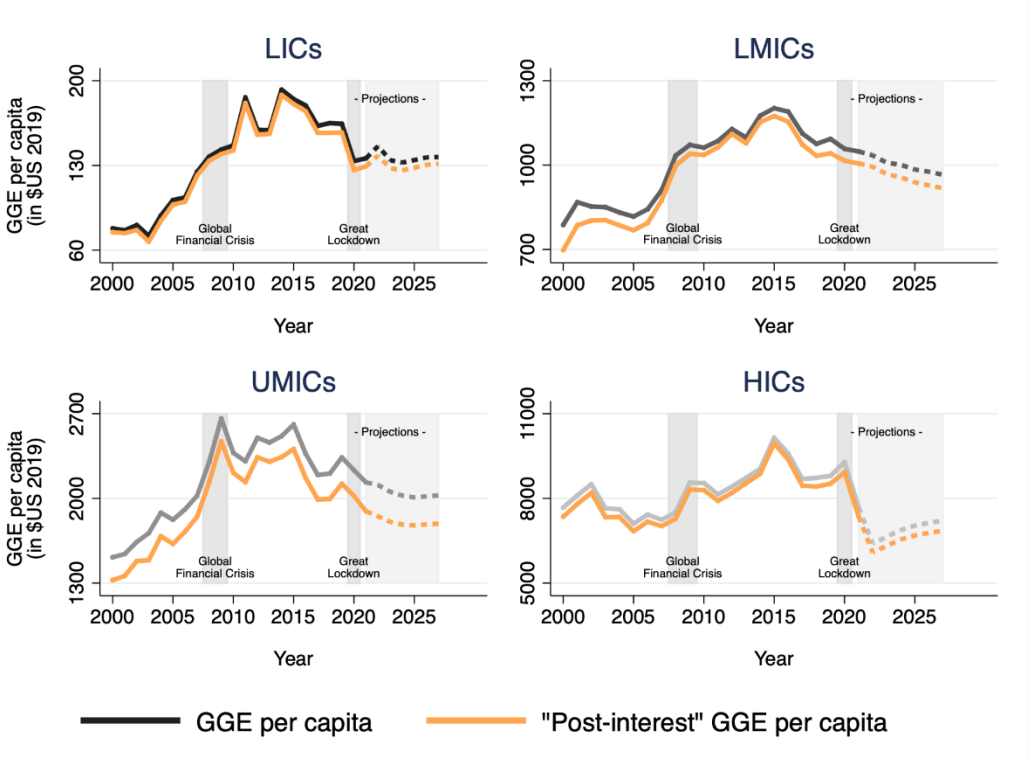
Given that GGE per capita is projected to contract among these countries, country post-interest spending will also decline (figure 10). However, in LICs and LMICs, post-interest GGE will not fall as much as GGE – the gap between the two lines in figure 10 narrows for these income groups – as interest payments on

debt decrease. In contrast, in both UMICs and HICs, the fall in post-interest spending capacity is slightly greater than the fall in GGE – the gap widens. Interest payments on public debt increase and, therefore, aggravate the problems the UMICs and HICs have in allocating funds to sectors and programs, including health.

Even though average per capita interest payments decrease in LICs and LMICs, any reduction in their capacities to spend on essential services is undesirable given that they spend little in absolute terms. In LICs, GGE per capita averaged only $164 in 2019 and is expected to fall to $137 in 2027. The estimated interest payments of $5.6 in 2027 represent a 4.1 percent reduction in government spending capacity. For LMICs, interest payments of $47.9 in the same year imply a slightly larger reduction of 5.0 percent in their spending capacity.

Furthermore, the reduction in government spending capacity because of interest payments on public debt is substantially higher than the average in several of the contraction LICs and LMICs. In 2027, interest payments are projected to be close to, or exceed, 10 percent of GGE in Angola, Mozambique, Papua New Guinea, and Zambia. In Angola and Zambia, the impact of interest payments is projected to decline over the projection period, but because the share was very high in 2019 (27.3 in Angola and 23.1 percent in Zambia), the share remains high in 2027 (17.2 in Angola and 18.3 percent in Zambia). In Mozambique, the share is projected to remain at around 10 percent each year, while in Papua New Guinea it is projected to rise steadily from 12.2 percent in 2019 to 14.9 by 2027.

Figure 10. Per capita general government expenditure (GGE) vs post-interest GGE per capita, by income group, 2000-2027, 36 contraction countries (constant 2019 US$)



Source: Data from IMF, World Economic Outlook, April 2022

Stagnation countries

In the 68 stagnation countries for which interest payment forecasts are available, average per capita interest payments exceed the all-country averages of table 3. They are projected to increase from $191.2 to $231.1 or 20.9 percent over the study period.

In 2020, interest payments are expected to fall in LMICs and UMICs, while rising in LICs and HICs. Post 2020, average interest payments are projected to increase in all income groups with some yearly fluctuations, but exceeding 2019 levels each year.

Table 3. Stagnation countries: average interest payments on public debt per capita, by income group (constant 2019 US$)

Country income group	**N**	**2019**	**2020**	**2027**
All countries	68	191.2	197.3	231.1
LICs	10	10.9	11.4	13.5
LMICs	19	59.2	58.9	75.4
UMICs	19	170.1	163.6	220.7
HICs	20	427.0	453.8	497.8

Source: Authors' calculations based on data from IMF, World Economic Outlook, April 2022

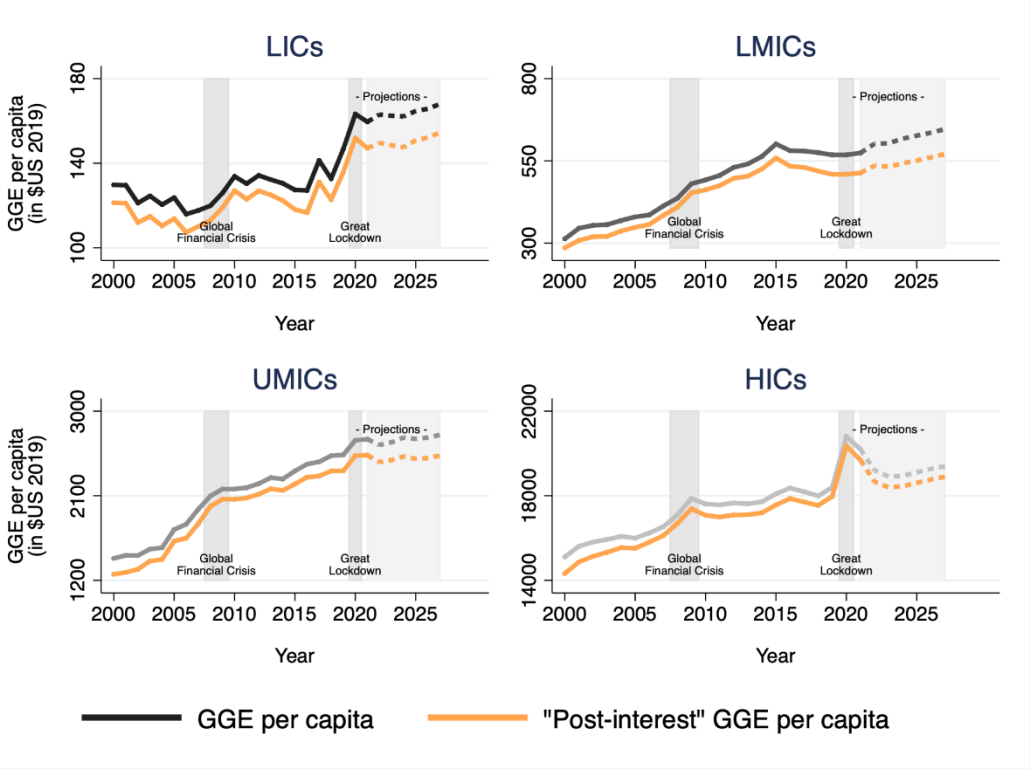
Post-interest GGE is therefore projected to grow by less than the slow increase in GGE in the stagnation countries. The gaps between the two lines in figure 11 widen.

In LICs and LMICs of the stagnation group, per capita interest payments significantly reduce the capacity of governments to spend on essential sectors and programs. In LICs, GGE per capita averages only $168 in 2027. The projected interest payments of $13.5 represent an 8.0 percent reduction in government spending capacity in the same year. For LMICs, 2027 interest payments of $75.4 imply a slightly larger reduction of 11.7 percent in the spending capacity of governments.

The impact of interest payments on public debt in some of the LICs and LMICs in the stagnation group substantially exceeds the group averages. In 2027, the share of interest payments is expected to exceed 20 percent of GGE in Egypt, Kenya, Malawi, Nigeria, Pakistan, reaching close to 40 percent in Sri Lanka.

There is also variation in the projected patterns over time. In Egypt, the situation is expected to improve over the period, but because the share was relatively high in 2019 (33.0 percent), it remains high in 2027 (26.7 percent). In Pakistan, the share remains relatively stable, but high, fluctuating between 24.6 and 27.2 percent. In Kenya, Malawi, Nigeria, and Sri Lanka, the share increases steadily over the projection period, with Sri Lanka the notable outlier: the share is projected to increase from 29.1 to 39.6 percent over the period.

Figure 11. Per capita general government expenditure (GGE) vs post-interest GGE per capita, by income group, 2000-2027, 68 stagnation countries (constant 2019 US$)



Source: Data from IMF, World Economic Outlook, April 2022

Expansion countries

In the 65 expansion countries for which data on interest payments are available, average per capita interest payments exceed the all-country averages of table 4 in 2019 and 2027. They are projected to increase from $189.9 to $227.6 or 19.9 percent over the study period.

Average per capita interest payments are expected to exceed those in 2019 across all income groups, however, the percentage growth rates are quite different: 70 percent in LICs, 113 percent in LMICs, 77 percent in UMICs – yet less than 2 percent in HICs (table 4).

Table 4. Expansion countries: average interest payments on public debt per capita, by income group (constant 2019 US$)

Country income group	N	2019	2020	2027
All countries	65	189.9	178.7	227.6
LICs	8	8.4	9.4	14.3
LMICs	18	48.5	51.3	103.2
UMICs	15	108.3	113.5	191.3
HICs	24	407.4	371.5	414.6

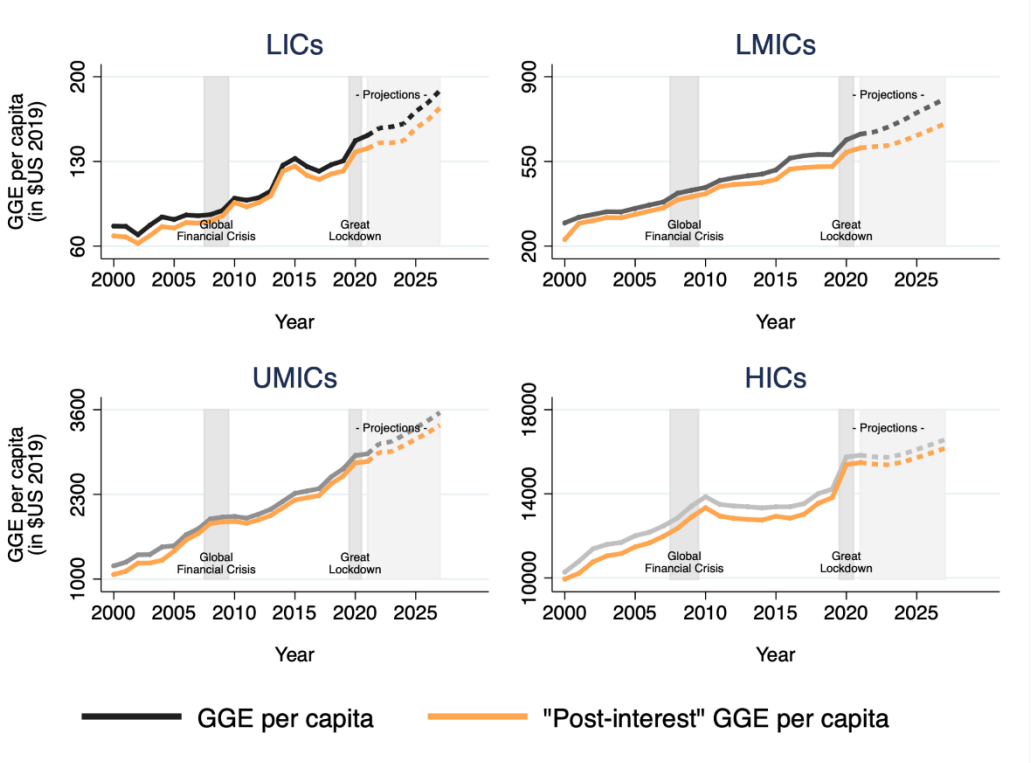
Source: Authors' calculations based on data from IMF, World Economic Outlook, April 2022

GGE per capita, however, also grows relatively rapidly in these countries, as a result, also post-interest GGE grows strongly, however, because of the rapid increase in interest payments, the annual increase in post-interest GGE is smaller than for GGE and the gap between the two lines in figure 12 widens. The gap grows most strongly in LMICs, where interest payments are expected to grow from 8.5 percent of GGE in 2019 to 11.5 percent of GGE in 2027. In LICs, the share increases from 5.9 percent 7.0 percent and in UMICs from 4.9 to 6.3 percent. In contrast, in HICs, the share of GGE devoted to interest payments falls from 3.5 of GGE in 2019 to 3.1 percent in 2027.

In LICs and LMICs of the expansion group, per capita interest payments significantly reduce the capacity of governments to spend on essential sectors and programs. In LICs, GGE per capita averages $189 in 2027. The projected interest payments of $14.3 represent a 7.6 percent reduction in government spending capacity in the same year. For LMICs, 2027 interest payments of $103.2 imply a slightly larger reduction of 12.7 percent in the spending capacity of governments.

Again, some of the LICs and LMICs in the expansion group face greater than average reductions in their capacity to spend because of interest payments on public debt. At the extreme, in 2027, the share of interest payments in GGE is expected to exceed 20 percent of GGE in El Salvador, India and the Islamic Republic of Iran, and 30 percent in Ghana. In all these countries, interest payments are projected to increase as a share of GGE between 2019 and 2027.

Figure 12. Per capita general government expenditure (GGE) vs post-interest GGE per capita, by income group, 2000-2027, 65 expansion countries (constant 2019 US$)



Source: Data from IMF, World Economic Outlook, April 2022

HOW WILL THE COVID-19 CRISIS AFFECT HEALTH SPENDING?

In general, the higher a country's GDP per capita, the higher its health spending per capita. To illustrate, in 2019, the latest year for which country expenditure data from the WHO Global Health Expenditure Database are available, current per capita health spending in the 169 countries averaged US$36 in LICs, US$125 in LMICs, US$516 in UMICs, and US$3,243 in HICs (WHO 2022b).[30]

Health is typically financed from a combination of three primary sources: government (taxes and charges plus obligatory social health insurance [SHI] contributions), household out-of-pocket (OOP) payments, and, in lower-income settings, external sources (largely development assistance for health [DAH]). Other private sources, mainly voluntary health insurance, comprise an additional, smaller component of overall health spending.

Given that the focus of this update is on the impact of increasing public debt on governments' capacities to spend on health, this section considers the expected impact of the macroeconomic forecasts described in the previous sections only on government health spending.

Government health spending: Possible pathways

Government health spending is derived from general government financing, which in some countries includes revenues from compulsory SHI contributions. Revenues from compulsory SHI contributions stem from earmarked payroll or income taxes or sometimes from obligatory premiums that individuals pay directly. Government financing can be mobilized at national and sub-national levels. Where countries benefit from external financing, the part that is channeled through government budgets appears as government health spending.

The previous sections showed substantial rifts across countries in their prospects of increasing government spending through 2027. Moreover, interest payments on public debt are projected to take an increasing share of GGE in many countries leaving less to spend on sectors and programs. These effects differed across the expansion, stagnation, and contraction countries. The three groups are analyzed separately in this section.

What priority for health?

The impact of the expected changes in GGE and post-interest GGE per capita on government per capita health expenditure (GHE per capita) will crucially depend on the priority given to health in government spending decisions. If, for example, health is given the same proportional allocation as before COVID-19, government per capita health spending will follow the trend in GGE per capita modified by the need to make interest payments on public debt. In contrast, if governments give health higher priority in their spending, GHE per capita can rise, possibly even in years where GGE and post-interest GGE per capita fall.

Governments invested in health at the onset of the COVID-19 crisis

Historically, real government per capita spending on health has in general been procyclical – that is, it has fallen during economic downturns and increased during upswings. This held true during the debt crises

30. The figures for the 177 countries included for the earlier discussions of GDP, GGR and GGE are very similar: US$36 in LICs, US$125 in LMICs, US$516 in UMICs, and US$3,244 in HICs.

affecting Latin American and Caribbean countries in the 1980s and 1990s, the Asian financial crisis of 1997, and the global financial crisis of 2007/8 (Gottret, et al. 2009); (Hou, et al. 2013); (Maresso, et al. 2015); (Musgrove 1987); (Thomson, et al. 2015).

However, in each of these crises, some governments have been willing and able to increase their per capita spending on health despite declining economic output and government revenues. Other governments have protected current health expenditures while allowing capital spending to decline, or protected expenditures on health programs that are vital for vulnerable populations and the poor.

The 2020 global recession differs from the previous economic downturns, most importantly because it was triggered by a pandemic requiring an immediate health spending response. As presented in the previous section, a majority of countries reacted to the crisis by raising their general government spending despite falls in government revenues, through deficit financing. On the other hand, 41 countries did not do so: real GGE per capita fell.

While health account data on actual health spending in 2020 are not yet available for most countries,[31] budget data suggest that many countries took steps to increase the availability of funds for health in 2020, such as through supplementary budgets or contingency, emergency and disaster or special COVID 19 funds (Kurowski, Tandon, et al. 2020c); (WHO 2020a); (Kurowski, Schmidt, et al. 2022). Therefore, in the current crisis, many countries likely adopted countercyclical health spending strategies in 2020. The question is how trends evolved since then and will continue in the future and how spending capacities may differ for the three groups of expansion, stagnation and contraction countries.

Government health spending in the time of COVID-19: four scenarios

The evolution of government health spending per capita during the recovery from the COVID-19 crisis and the subsequent pressures and shocks is projected under four feasible scenarios:

- **Scenario 1: Procyclical health spending.** In this scenario, government per capita health spending follows the same procyclical pattern observed in previous economic crises – it falls with a decline in GDP per capita and increases again with a return in economic growth. The elasticity of government per capita health spending to changes in GDP per capita across all countries since 1990 ranges between 1.2 and 1.3, depending on model specification. The projections reported here reflect the upper bound estimate of 1.3.[32]

  Because budget analyses suggest that many countries responded to the pandemic by increasing health spending in 2020, this scenario is more likely to apply in the minority of countries that allowed health spending to fall.

- **Scenario 2a: Status quo priority to health in government spending**. In scenario 2a, the observed share of health in government per capita spending is held constant, and per capita government spending on health follows the trend in general per capita government spending.[33] This scenario explores the impact of changes in GGE on future health spending.

[31] WHO's Global Health Expenditure data base is unlikely to include data on country health spending before the end of 2022.
[32] For details on the calculation of the elasticity of government health spending with respect to GDP per capita, see annex 1.
[33] The observed, pre-COVID-19 share is taken as the share in the year 2019 (see annex 1).

- **Scenario 2b: Status quo priority to health in post-interest government spending**. In scenario 2b, the observed share of GHE in post-interest GGE is held constant, and per capita government spending in health follows the trend in post-interest spending.[34]

  Putting it differently, in scenario 2b, the observed pre-pandemic share of GHE in post-interest GGE is held constant, and per capita government spending is driven by the changes in interest payments relative to the changes in government spending. As such, scenario 2b explores the impact of changes in interest payments on future health spending.

  For the remainder of this section, it is important to recognize the implications of the definitions of scenarios 2a and 2b for the projected levels of GHE per capita over the period 2020 to 2027.

  The starting point for both scenarios is 2019, the last year for which actual GHE per capita data are available. In that year, the average share of GHE in GGE for all country income groups was lower than the share in post-interest GGE. Therefore, the observed average share of GHE in GGE was lower than the observed share in post-interest GGE. This pattern reflects the situation in most countries, yet, in 14 out of the 169, net payments had been negative and, as explained earlier, set at zero. In these 14 countries, GGE estimates therefore equaled post-interest GGE, and the share of GHE in GGE and post-interest GGE was identical.

  In the 155 countries with different shares of GHE in GGE and post-interest GGE in the base year, whether 2a predicts a lower or higher estimate of GHE per capita than 2b, depends on the relative change in GGE compared to the proportional change in post-interest GGE. This, in turn, is driven by the proportional change in GGE compared to the proportional change in interest payments.

  It follows that when GGE rises:

  - The estimate for GHE per capita under scenario 2a is higher than under 2b, if the growth in post-interest GGE is slower than the growth in GGE (or post-interest GGE falls), and the gap between post-interest GGE and GGE widens. This is the case when the growth in interest payments is faster than the growth in GGE – i.e., the ratio of interest payments to GGE rises.
  - The estimate for GHE per capita under scenario 2a is lower than under 2b, if the growth in post-interest GGE is faster than the growth in GGE, and the gap between post-interest GGE and GGE narrows. This is the case when interest payments fall or the growth in interest payments is slower than the growth in GGE – i.e., the ratio of interest payments to GGE falls.

And when GGE falls:

- The estimate for GHE per capita under scenario 2a is higher than 2b if the fall in post-interest GGE is faster than the fall in GGE and the gap between post-interest GGE and GGE widens. This is the case when interest payments rise, or the fall in interest payments is slower than the fall in GGE (so the ratio of interest payments to GGE rises).

[34] The observed, pre-COVID-19 share, as with scenario 2a, is taken as the share in the year 2019 (see annex 1).

- The estimate for GHE per capita under scenario 2a is lower than 2b, if post-interest GGE falls more slowly than GGE (or post-interest GGE rises), and the gap between post-interest GGE and GGE narrows. This is the case when interest payments fall faster than GGE (and the ratio of interest payments to GGE falls).

- **Scenario 2c: Elimination of interest payments in LICs and LMICs.** In scenario 2c, the observed pre-COVID-19 share of GHE in post-interest GGE is held constant, yet per capita government spending on health follows the trend in general per capita government spending. In other words, interest payments on public debt are set as zero and post-interest GGE equals GGE.[35] This scenario explores the impact of interest payments on the potential of future government health spending, and, putting it differently, the impact of an elimination of interest payments - through mechanisms such as debt service suspension or debt cancellation - on future government health spending. Given its assumptions, the scenario is only applied to LICs and LMICs.

  The difference between scenario 2c and 2a can be taken as the extent to which interest payments constrain potential health spending, assuming no change in the priority given to health in budget decisions. To avoid the need to repeat the full explanation each time the difference between 2c and 2a is estimated in subsequent sections, the difference is termed the "debt burden" on potential health spending.

- **Scenario 3: Pro-health spending**. This scenario assumes that positive trends in per capita government health spending of the decade before COVID-19 will continue in the years after 2019. For countries with growth in per capita government health spending above the income group average in the decade before COVID-19, the scenario assumes that the country-specific pre-COVID-19 trend continues in the years after 2019. For countries with growth in government per capita health spending below their income group average in the decade before COVID-19, including countries with falling per capita government spending on health, the scenario assumes that per-capita government spending on health grows at the pre-COVID-19 income group's average rate in the years after 2019.

  This scenario is considered optimistic for most countries, especially for countries where per capita government spending on health had been falling before 2019. These countries are expected not only to reverse the decline but increase spending at the average rate observed in their income group – which means the share of spending on other sectors would decline. The scenario is also optimistic for the countries where per capita government health spending had been growing pre-COVID-19, as it ignores the impact of the global recession in 2020, and in many places, slow recovery from the COVID-19 crisis.

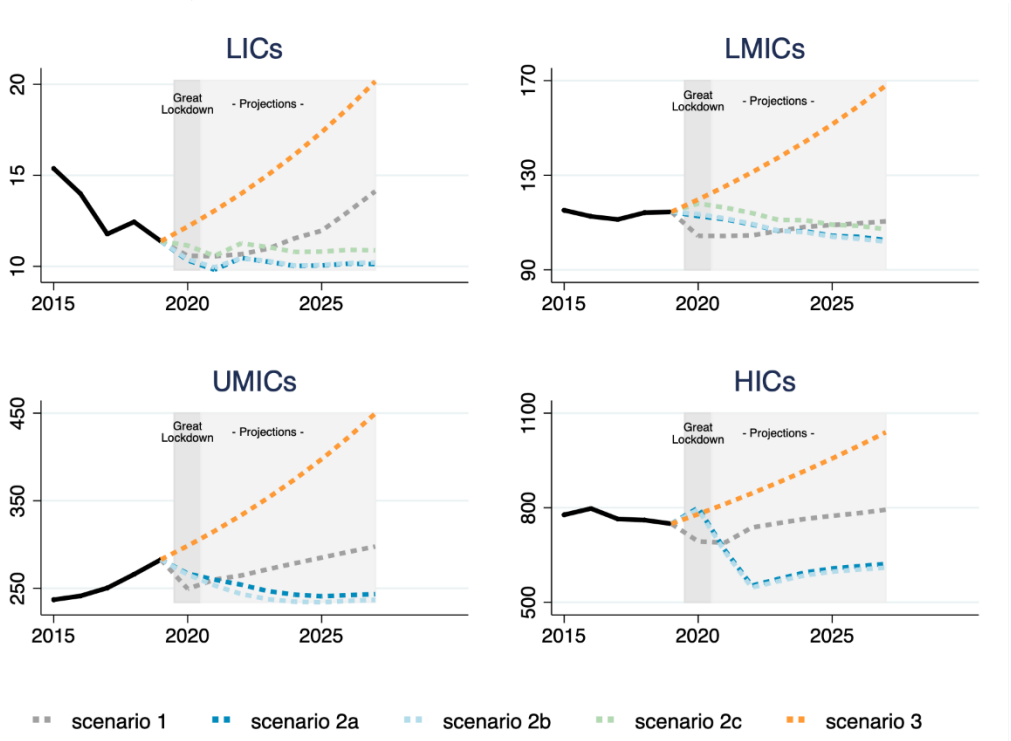
The implications of these scenarios are discussed first for the contraction countries, and in turn, the stagnation and expansion countries.

[35] As with scenarios 2a and 2b, the pre-COVID-19 share is taken as the share in the year 2019 (see annex 1).

Government health spending prospects in 36 contraction countries

Scenario 1 implies a decline in average per capita government health spending for all income groups in 2020, along with the fall in GDP per capita (figure 13).[36] Despite the return to global economic growth in 2021, GHE per capita decreases again in 2021 in all income groups except in UMICs, where it rises a little. In the later years, GHE per capita is projected to rise annually, though it will not exceed 2019 levels until 2022 in HICs, 2024 in LICs, 2025 in UMICs, and not even by 2027 in LMICs.

Figure 13. Per capita government health expenditure (GHE), by income group, 36 contraction countries. (Constant 2019 US$)



Source: Original calculations, using data from IMF, World Economic Outlook, April 2022 and WHO, Global Health Expenditure Database, 2022

Scenario 2a shows GHE per capita following the same declining path as GGE per capita for all income groups. The only exception are HICs with a spike of GHE per capita in 2020, followed by drops in 2021 and 2022, and slight increases thereafter. In 2027, GHE per capita averages are below pre-COVID-19 levels in all income groups with gaps varying across income groups, from 17 percent in HICs, to 14 percent in UMICs and around 11 percent in LMICs and LICs.

Scenario 2b also shows declining levels of GHE per capita for all income groups. Again, the only exception from this pattern is the group of HICs, with a spike of GHE per capita in 2020, followed by drops in 2021 and 2022 and small increases thereafter. Like in scenario 2a, in 2027, GHE per capita is projected to fall short of pre-COVID-19 levels in all income groups. The differences again vary across income groups, from 19 percent in HICs, to 16 percent in UMICs, 11 percent in LMICs, and 10 percent in LICs.

[36] The implications for GHE as a share of GDP and of GGE are shown in annex 3.

In UMICs and HICs, average GHE per capita falls below the estimates of scenario 2a in all years, and in LMICs, in the outer years. The differences between the estimates of scenario 2b and 2a are small, for example, in 2027, $101.9 compared to $102.6 in LMICs, $236.8 compared to $243.4 in UMICs, and 610.1 compared to $621.8 in HICs.

In LICs, average GHE per capita exceeds the estimates of scenario 2a in almost all years, including 2027. In these years, the relative decline in interest payments exceeds the relative fall in GGE, and with that, post-interest GGE does not fall as fast as GGE. The differences, however, are on average small. In 2027, for example, GHE per capita is $10.2 compared to $10.1 under scenario 2a. In LMICs, GHE per capita also exceeds estimates under scenario 2a from 2020 to 2023, again the differences are small, below 1 percent.

In scenario 2c, GHE per capita follows, after an initial spike, the same downward path of scenarios 2a and 2b, mirroring the projected declines in GGE and post-interest GGE in LICs from 2020 and in LMICs from 2021 on. The elimination of interest payments on public debt, however, would have a positive effect on the capacity to spend on health in LICs and LMICs. GHE per capita forecasts exceed estimates of scenarios 2a and 2b in all years. The differences are slowly declining, given the projected drop in interest payments per capita, yet they are even significant in 2027. Then, the average debt burden on potential GHE per capita is expected to amount to 4.4 percent ($0.8) in LICs and 7.2 percent ($4.6) in the LMICs.

The differences will, of course, vary from these average effects in some of the LICs and LMICs in the contraction group. For example, the 2027 debt burden is projected to account for less than 1 percent in Kiribati, Micronesia, Oman, Sudan, and Timor-Leste, and more than 10 percent in Bahrain, Brazil, Costa Rica, Mozambique, Republic of Congo, Papua New Guinea and Trinidad and Tobago, and by more than 25 percent in Angola, Jamaica, and Zambia.

Scenario 3 shows continual increases in government per capita spending on health with spending levels exceeding those of all other scenarios in all years, the only exception being the estimate for HICs under scenario 2a in 2020. In this case, the fiscal stimulus in HICs to fight the pandemic yields greater health spending than implied by holding pre-COVID-19 GHE per capita growth trends at or above the income group average constant. The gaps between forecasts under scenario 3 compared to all other scenarios grow over time. In 2027, average GHE per capita levels exceed those of scenario 2a by $10.0 or 99 percent in LICs, $65.4 or 64 percent in LMICs, $206.2 or 85 percent in UMICs, and $382.1 or 67 percent in HICs.

Moving to pro-health spending: what priority would need to be given to health in 36 GGE-contraction countries?

To attain the spending levels of scenario 3, the contraction countries will have to massively increase the share of their government spending on health (thereby reducing the share allocated to other sectors). Taking scenario 2a as the baseline for these calculations – as policymakers tend to think about the prioritization of health in terms of health in GGE rather than post-interest GGE – attaining spending levels of scenario 3 will require health shares in government spending to reach historical highs by 2027, levels that have been rarely reached even by high-income countries (table 2 and annex 3). On average, contraction countries will need to raise the share of health in government spending from 9.7 percent pre-COVID-19 to 18.7 percent in 2027, an increase of nine percentage points. In all income groups, they will need to almost double the pre-COVID-19 shares, except for HICs where the required increase is just under 70 per cent.

Table 5. What share of government spending for health? Achieving a pro-health spending scenario (Scenario 3) in 36 GGE contraction countries, 2019-2027

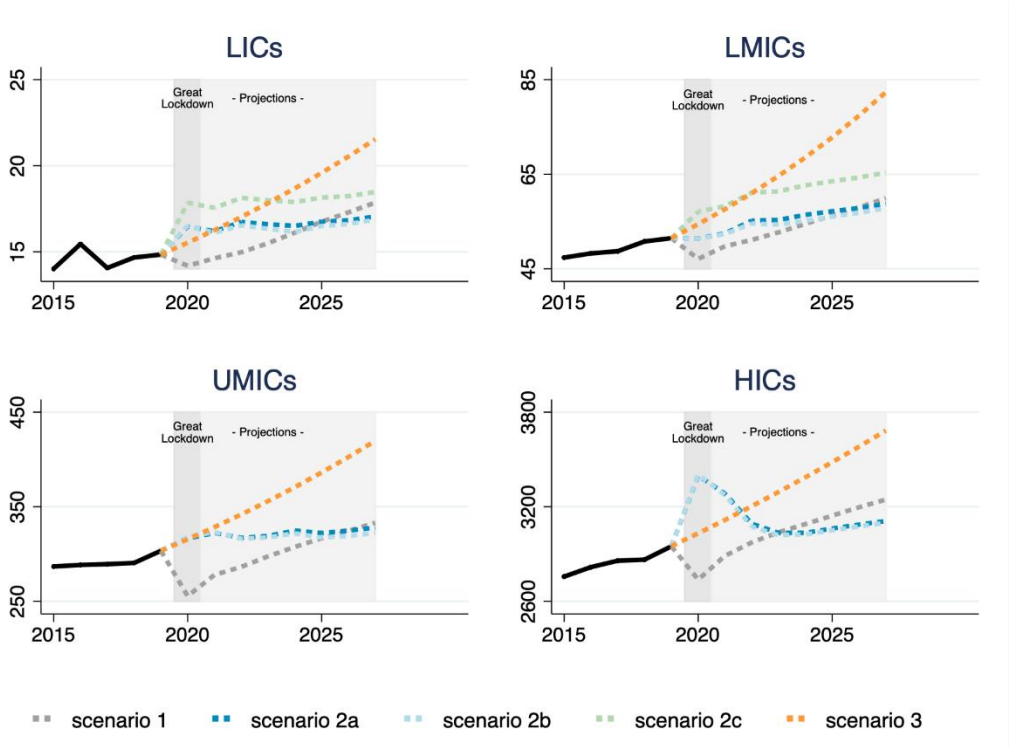
Income	N	2019	2020	2021	2022	2023	2024	2025	2026	2027	Difference 2019 – 2027
All countries	36	9.7	10.8	12.0	13.2	14.2	15.3	16.4	17.5	18.7	9.0
Low income	4	7.0	9.3	10.1	9.7	10.7	11.6	12.2	12.8	13.7	6.7
Lower middle income	14	9.7	10.6	11.5	12.3	13.5	14.6	15.8	17.2	18.9	9.2
Upper middle income	11	11.5	13.2	14.3	15.7	17.4	19.1	20.7	22.1	23.5	12.0
High income	7	8.4	8.4	10.3	13.0	12.8	12.8	13.1	13.5	13.9	5.5

Source: Author's calculations.

Government health spending prospects in the 68 GGE-stagnation countries

Scenario 1, which is based on the historical relationship between GHE and GDP, shows falls in average per capita government health spending for all income groups in 2020, followed by annual increases that track the economic recovery of stagnation countries (Figure 14). Average GHE per capita is expected to bounce back to pre-COVID-19 levels in LICs and HICs by 2022, however, in LMICS not until 2023, and in UMICs not until 2024.

Figure 14. Per capita government health expenditure (GHE), by income group, 68 GGE per capita stagnation countries (constant 2019 US$)



Source: Original calculations, using data from IMF, World Economic Outlook, April 2022 and WHO, Global Health Expenditure Database, 2022

Scenario 2a, which maintains the pre-COVID-19 share of GHE in GGE, shows increases in average GHE per capita for all income groups. In 2027, GHE per capita exceeds pre-COVID-19 levels in all income groups with increases varying from 5 percent in HICs to 8 percent in UMICs and close to 15 percent in LICs and LMICs.

In 2020, average GHE per capita increases in LICs, UMICs and HICs because of the fiscal stimulus programs in most of these countries. In LMICs, however, GHE per capita slightly falls. From 2021 on, GHE per capita shows small falls in some years, followed by small recoveries in LICs, LMICs and UMICs. Only in HICs, average GHE per capita is projected to fall in consecutive years, from 2021 to 2023, before rising again. Despite these fluctuations, GHE per capita remains in all income groups above pre-COVID-19 throughout the entire period of 2020 to 2027.

Scenario 2b, which maintains the pre-COVID-19 share of GHE in post-interest GGE, also shows increases in GHE per capita between 2019 and 2027 for all income groups. In 2027, average GHE per capita exceeds pre-COVID-19 levels in all income groups, with increases varying from 5 percent in HICs to 6 percent in UMICs, 12 percent in LMICs and 14 percent in LICs.

From 2022 on, the projected GHE per capita falls short of estimates under scenario 2a for all income groups. The differences are small though. By 2027, for example, the GHE per capita forecast under scenario 2a exceeds the estimate under scenario 2b by US$0.2, or 1.1 percent in LICs, $0.9 or 1.5 percent in LMICs, $5.5 or 1.7 percent in UMICs, and $10.9 or 0.4 percent in HICs.

In scenario 2c, GHE per capita follows, after an initial spike in 2020, the same slow upward trend of scenarios 2a and 2b. The elimination of interest payments on public debt would increase country capacities to spend on health. Average GHE per capita forecasts of scenario 2c exceed estimates of scenarios 2a and 2b in all years for both LICs and LMICs, with the differences projected to grow slightly over time, given the increase in interest payments on public debt. In 2027, the average debt burden on potential GHE per capita (2c-2a) is forecasted at 7.8 percent ($1.4) in LICs and 9.7 percent ($6.6) in the LMICs.

These average effects again hide considerable variation across the LICs and LMICs in this group. For example, in 2027, the debt burden is projected to amount to less than 3.0 percent in the Central African Republic, Haiti, Honduras, Kyrgyzstan, and Tajikistan. On the other hand, it is expected to be close to 15 percent in Kenya and Malawi, and exceed 25 percent in Egypt, Pakistan, and Sri Lanka.

In scenario 3, GHE per capita continuously increases in all income groups, exceeding the projections of all other scenarios from 2020 on in LICs, from 2021 on in LMICs and UMICs, and from 2022 on in HICs. The gaps to other scenarios are growing over time. In 2027, GHE per capita levels exceed those of scenario 2a by $4.5 or 26 percent in LICs, $23.6 or 40 percent in LMICs, $91.9 or 28 percent in UMICs, and $573.5 or 18 percent in HICs.

Moving to pro-health spending: what priority would need to be given to health in 68 GGE stagnation countries?

Taking scenario 2a as the baseline, the 68 stagnation countries will have to increase the share of GGE allocated to health on average from 12.0 percent in 2019 to 15.5 percent in 2027, an increase of 3.5

percentage points. Among them, LMICs will need to make the greatest effort, increasing the pre-COVID-19 share by 4.0 percentage points between 2019 and 2027.

Table 6. What share of government spending for health? Achieving the pro-health spending scenario (scenario 3) in 68 GGE stagnation countries, 2019-2027

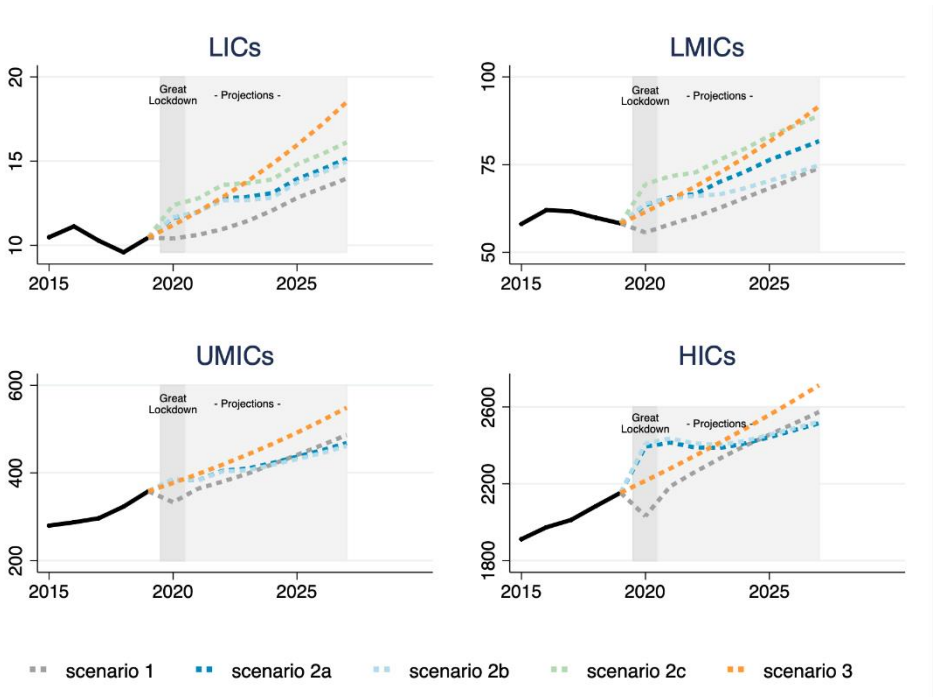
Income	N	2019	2020	2021	2022	2023	2024	2025	2026	2027	Difference 2019 – 2027
All countries	68	12.0	11.6	12.0	12.8	13.4	13.9	14.4	15.0	15.5	3.5
Low income	10	10.3	9.7	10.4	10.4	11.0	11.6	12.1	12.7	13.2	2.9
Lower middle income	19	8.2	8.7	9.0	9.2	9.8	10.3	10.8	11.4	12.1	4.0
Upper middle income	19	12.2	12.1	12.5	13.2	13.7	14.1	14.8	15.3	15.8	3.6
High income	20	16.2	14.7	15.3	16.8	17.7	18.3	18.7	19.2	19.6	3.5

Source: Author's calculations

Government health spending prospects in the 65 GGE expansion countries

Scenario 1 with its pro-cyclical assumptions about government spending on health implies a fall in per capita government health spending for all income groups in 2020, tracking the fall in GDP per capita (figure 15). GHE per capita then starts to rise with the return to economic growth, reaching pre-COVID-19 levels again in 2021 in all income groups, except in LMICs, where it exceeds pre-COVID-19 levels in 2022.

Figure 15. Per capita government health expenditure (GHE), by income-group, 65 GGE expansion countries, 2015-2027. (Constant US$ 2019)



Source: Original calculations, using data from IMF, World Economic Outlook, April 2022 and WHO, Global Health Expenditure Database, 2022

Scenario 2a shows rapid increases in average GHE per capita for all income. In 2027, GHE per capita exceeds pre-COVID-19 levels all income groups with increases varying from 17 percent in HICs to 30 percent in UMICs, 40 percent in LMICs and close to 45 percent in LICs.

In 2020, GHE per capita increases in all income groups, driven by the increases in GGE per capita as part of the pandemic response. Thereafter, continual annual increases are projected for LICs and LMICs to 2027. UMICs are expected to see a small decline in GHE per capita in 2021 before it starts to increase again. In HICs, GHE per capita is projected to fall in both 2022 and 2023, followed by annual increases to 2027. Despite these fluctuations, GHE per capita remains in all income groups above pre-COVID-19 throughout the entire period of 2020 to 2027.

Scenario 2b shows for LICs, LMICs and UMICs the same GHE per capita growth pattern as under scenario 2a, but at lower levels. In 2027, average GHE per capita exceeds pre-COVID-19 levels in all income groups with increases varying from 17 percent in HICs to 28 percent in UMICs and LMICs, and 43 percent in LICs.

From 2021 on, the differences between the estimates under scenario 2a and 2b grow, peaking in LICs in 2024 and in LMICs and UMICs in 2027. For LICs and UMICs, the differences remain small though, in general less than 2 percent. However, in LMICs, they grow from $0.3 or 0.5 percent in 2021 to $6.9 or 8.4 percent, reflecting the expected fast growth in interest payments on public debt in this country group. In contrast, in HICs, scenario 2b shows GHE per capita estimates that exceed expectations under scenario 2a in line with projected decreasing interest payments. The differences are, however, small ranging from around $20 or 0.9 percent in 2021 and 2022 to $8 or 0.3 percent in 2027.

In scenario 2c, average GHE per capita mirrors, after an initial spike in 2020, the expansionary time path of scenarios 2a and 2b. The elimination of interest payments on public debts would increase the average capacity to spend on health in LICs and LMICs with GHE per capita forecasts of scenario 2c exceeding the estimates of scenarios 2a and 2b in all years. The differences are growing over time in absolute terms, given the increase in interest payments on public debt, but very little as a share of GHE per capita. In 2027, the debt burden on potential GHE per capita is estimated, on average, at 5.9 percent ($1.0) in the expansion LICs and 8.5 percent ($7.3) in the LMICs.

Again, the debt burdens in 2027 are projected to be substantially lower or higher than these averages in some of the countries in the expansion group. For example, it forecasted at less than 3.0 percent in Cambodia, the Democratic Republic of Congo, Nepal, Uzbekistan, and Zimbabwe. At the other extreme, it is expected to exceed 12 percent in Bangladesh, India, El Salvador and Togo, and 25 percent in Ghana.

In scenario 3 GHE per capita continuously increases in all income groups. Once the impact of the financial stimulus of the COVID-19 crisis wears off, scenario 3 becomes the most ambitious of all. The differences between forecasts of scenario 3 and all other scenarios are growing over time. In 2027, GHE per capita levels exceed those of scenario 2a by $3.4 or 22 percent in LICs, $9.9 or 12 percent in LMICs, $80.6 or 17 percent in UMICs, and $197.9 or 8 percent in HICs.

Moving to pro-health spending: what priority would need to be given to health in 65 GGE expansion countries?

Even with the projected growth in GDP, GGR, and GGE per capita between 2021 and 2027, the expansion countries still need to direct a higher share of their government spending to health, above and beyond pre-COVID shares, to achieve the progress in per capita government spending on health required to attain the spending levels of scenario 3 (table 4). On average, the countries will need to move from a pre-COVID-19 share of 11.6 percent to a share of 13.1 percent in 2027, an increase of 1.4 percentage points.

The increases are certainly more feasible to achieve for all income groups compared to the stagnation and contraction countries, with the greatest efforts needed in LICs. There, the 1.7 percentage point increase implies a 20.0 percent increase on the pre-COVID-19 share.

Table 7. What share of government spending for health? Achieving a pro-health spending scenario (Scenario 3) in 65 expansion countries, 2019-2026

Income	**N**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**Difference 2019 – 2027**
All countries	65	11.6	11.1	11.4	11.6	12.0	12.4	12.6	12.8	13.1	1.4
Low income	8	8.5	8.8	8.8	8.6	9.1	9.6	9.6	9.9	10.3	1.7
Lower middle income	18	8.5	8.2	8.4	8.7	8.9	9.1	9.3	9.5	9.7	1.3
Upper middle income	15	12.6	12.2	12.8	12.9	13.4	13.7	13.9	14.1	14.3	1.7
High income	24	14.4	13.3	13.5	14.0	14.5	14.9	15.2	15.4	15.7	1.3

Source: Author's calculations

Conclusions

This is the second update to the original March 2021 discussion paper "From Double Shock to Double Recovery – Implications and Options for Health Financing in the Time of COVID-19" (C. Kurowski, D. Evans, et al. 2021a). This new analysis was motivated by revised IMF macroeconomic projections released in April 2022, suggesting a slowdown in global economic growth and possible new wounds to economies from rising inflation, partly due to the Russian Federation's invasion of Ukraine, and increasing levels of public debt.

The results are sobering. They may also be optimistic given that the IMF projections were released barely a month after the Russian invasion, and only some central banks had started to raise interest rates in the attempt to control inflation. Nevertheless, the revised estimates show that these new wounds mean that wide rifts between countries' capacities to spend on health will widen.

If countries continue to give the same priority to health in government budget decisions as before COVID-19, per capita government health spending will decline annually in 41 GGE contraction countries, remaining lower than 2019 expenditures each year to 2027. For them, this would be tantamount to a lost decade for progress toward the health SDGs. In another 69 GGE stagnation countries, GHE per capita is expected to grow, but only slowly. In these countries, unless governments assign greater budget priority to health, annual health spending over the projection period will never catch up with pre-COVID-19 trends. Meanwhile, in 61 GGE expansion countries, GHE per capita will rise continually even without higher priority to health. Thus, countries face very different health-financing realities in the wake of these new macroeconomic realities and as they work to prepare their health systems for future challenges.

If these health-spending trends are allowed to play out unmodified, the contraction and stagnation countries risk being left behind in their ongoing COVID-19 control, efforts to strengthen health security, and for the achievement of the health-related SDGs, including universal health coverage (UHC).

Rising public debt further complicates this picture. Public debt had grown even before the onset of COVID-19, but it has increased further in many countries to cover the spending needs associated with pandemic response and economic recovery. Without complementary activities to increase government revenues, interest payments on public debt are expected to reduce the amount governments have available to spend on other essential services and activities.[37] The impacts of these pressures on countries' health-spending capacities will be very different depending on the trends in countries' GGE, their prior levels of health spending, existing conditions in their health systems, and the critical choices that leaders now make.

In contraction countries, the major cause for concern remains the projected continual decline in both GGE and post-interest GGE per capita. This trend is likely to have particularly severe effects on the lower-income countries in this group. Without deliberate action to counterbalance the trend, the inequalities between the LICs and LMICs in the contraction group and wealthier countries will grow. On the positive side, the share of interest payments in GGE is projected to decline over time in this group. However, in countries where health-financing options are already limited, even small reductions in government spending capacity can severely impact health systems.

[37] We do not try to analyze whether expenditure from the additional debt allows the countries to grow, and spend, more than would otherwise be the case.

In countries for which GGE is projected to stagnate through 2027, comparable dynamics are expected. Interest payments on public debt in these countries will bring additional reductions in spending capacity, on average, though relatively small in dollar terms. However, such additional downward pressures mean that countries' post-interest spending is "more stagnant" than it would otherwise be. In lower-income countries whose health spending was already well below the levels needed to deliver UHC and other SDG health targets, and to reinforce preparedness for future health emergencies, the effects on health system performance and resilience may be severe (WHO 2022a).

The largest absolute impact of increased public debt service is seen in the GGE expansion countries, notably the LMICs in this group. There, by 2027, debt servicing is projected to substantially reduce average GHE per capita, relative to the levels these countries would otherwise have been able to achieve. While these countries will still be able to spend more on health than LMICs in either the stagnation or the contraction groups, the immediate needs of debt servicing reduce the sums that expansion LMICs have available to spend on health. As a result, these countries may be unable to fully seize the opportunities that expanding GGE could otherwise create for health systems strengthening and improved health security.

There is, of course, variation around the average in the impact of interest payments on public debt on countries' capacities to spend on health within country groups. In some of the LICs and LMICs of the contraction and stagnation groups, the debt burden on potential GHE per capita, assuming no change in the priority given to health in budget decisions, is projected to exceed 25 percent.

Governments' capacity to ensure strategic investment, including in health, remains vital for a successful rebound from COVID-19 and inclusive economic growth. Unfortunately, it is unrealistic to think that most contraction and stagnation countries could increase the share of their government spending assigned to health in the proportions required for the "pro-health" scenario described in this paper. Governments in these countries face especially difficult choices because increases in the share allocated to health implies reductions in the shares for other activities. Some increases in the share of spending that these governments assign to health is critical, if the rifts in health-financing capacities between countries are not to widen further, with potentially destructive consequences for health systems, at a moment when both COVID-19 recovery and ambitious SDG health targets hang in the balance.

The original "From Double Shock to Double Recovery" paper laid out the choices that countries have in managing their government funds to meet spending needs for health and economic recovery (C. Kurowski, D. Evans, et al. 2021a). They include fiscal reforms designed to increase government revenues as a share of GDP, and efforts to attract more external assistance, to reduce corruption and increase investment and spending efficiency. However, the macroeconomic projections on which this paper is based represent the IMF's best estimates of GGE and interest payments on public debt over the projection period after accounting for any reforms that were then in the pipeline. These data indicate that, in many countries, choices are increasingly constrained, and the financing of a full health recovery from countries' own resources increasingly impracticable. The new wounds to health system investments and, ultimately, population health associated with current trends will cut deeply in many countries whose health systems already bear scars from the direct and indirect effects of COVID-19, compounded in some cases by decades of underinvestment in health.

As health spending in vulnerable lower-income countries contracts or stagnates at inadequate levels, the health-related SDGs slip further out of reach, and countries' efforts to bolster health security falter. The

implications do not concern these countries alone. A trenchant lesson of COVID-19 is that injuries to one country's health system can and do contribute to suffering far beyond that country's borders. While this update has detailed the substantial differences in countries' health-spending situations, it has also underscored their shared interest in protecting health through adequate, equitable health financing. In the 1980s and 90s, a convergence of factors including high debt burdens contributed to severe and prolonged weakening of health systems in some of the world's poorest countries. It is necessary and possible to avoid a recurrence of such scenarios now.

In the wake of COVID-19 and looking toward even greater health challenges on the horizon, it is crucial that no country is left behind. The recent crises have exacerbated international tensions, but the pandemic has shown that robust health security can only be built on global foundations. Collaborative efforts now, including increases in development assistance for health and debt relief in countries facing debt distress, can enable countries to heal recent wounds, repair old scars, and jointly create conditions for a healthier, more secure, and more prosperous future. Health financing is a logical and necessary space to advance this shared work. Sustainable recovery for all depends on the adequate recovery of each.

BIBLIOGRAPHY

Baum, A., Mogues, T. and Verdier, G., 2020. Getting the most from public investment, in Schwartz, G., M. Fouad, T. Hansen, G. Verdier (eds.). *Well Spent: How Strong Infrastructure Governance Can End Waste in Public Investment*, Chapter 3, pp.30-49. Washington DC, IMF. Well Spent: How Strong Infrastructure Governance Can End Waste in Public ... - Google Books

Boone, L., J. Fels, Ò. Jordà, M. Schularick and A.M. Taylor. 2022. Debt: The Eye of the Storm. Geneva Reports on the World Economy 24, Geneva: International Center for Monetary and Banking Studies (ICMB).

Bretton Woods Project. 2022a. "G20 press briefing analysis – Spring Meetings 2022". G20 press briefing analysis – Spring Meetings 2022 – Bretton Woods Project

—. 2022b. "G24 communiqué analysis – Spring Meetings 2022". G24 communiqué analysis – Spring Meetings 2022 – Bretton Woods Project

—. 2022c. "IMFC chair statement analysis – Spring Meetings 2022". IMFC chair statement analysis – Spring Meetings 2022 – Bretton Woods Project

Chabert, G., M. Cerisola, D. Hakura. 2022. Restructuring Debt of Poorer Nations Requires more Efficient Coordination. International Monetary Fund Blog, April 7. Https://Blogs.Imf.Org/2022/04/07/Restructuring-Debt-Of-Poorer-Nations-Requires-More-Efficient-Coordination/?Utm_Medium=Email&Utm_Source=Govdelivery

Gaspar V. and C. Pazarbasioglu. 2022. Dangerous Global Debt Burden Requires Decisive Cooperation, IMF Blog, April 11. Dangerous Global Debt Burden Requires Decisive Cooperation – IMF Blog

Gottret, P., V. Gupta, S. Sparkes, A. Tandon, V. Moran, and P. Berman. 2009. "Protecting Pro-Poor Health Services During Financial Crises : Lessons from Experience." Adv Health Econ Health Services Research 21:23-53. PMID: 19791698.

Heller, P. 2013. "Assessing a Goverment's non Debt Liabilities." In: Allen, R., Hemming, R., Potter, B.H. (eds.) The International Handbook of Public Financing Management. London: Palgrave Macmillan.

Hou, X., R. Lunes, O. Smith, E. Velényi, and A. S. Yazbeck. 2013. "Learning from Economic Downturns. How to Better Assess, Track, and Mitigate the Impact on the Health Sector". *Directions in Development Series.* Washington, DC: World Bank.

Human Rights Watch. 2021. "IMF: Scant transparency for COVID-19 emergency loans". March 30. IMF: Scant Transparency for Covid-19 Emergency Loans | Human Rights Watch (hrw.org)

IMF (International Monetary Fund). 2020a. "COVID-19 Financial Assistance and Debt Service Relief." Washington DC: International Monetary Fund.

—. 2020b. “The Evolution of Debt Vulnerabilities in Lower Income Economies.” Policy Paper no. 2020/003. Washington DC: International Monetary Fund. The Evolution of Public Debt Vulnerabilities In Lower Income Economies (imf.org)

—. 2020c. "COVID-19 Financial Assistance and Debt Service Relief." Washington DC: International Monetary Fund

—. 2021. *World Economic Outlook Update, July 2021*: Fault Lines Widen in The Global Recovery. Washington, DC: International Monetary Fund.

—. 2022a. World Economic Outlook: War Sets Back the Global Recovery. Washington, DC: International Monetary Fund, April.

—. 2022b. Fiscal Monitor: Fiscal Policy from Pandemic to War. Washington, DC: International Monetary Fund, April.

Kose, M.A., Ohnsorge, F., Nagle, P. and Sugawara, N., 2020. Caught by a cresting debt wave: Past debt crises can teach developing economies to cope with COVID-19 financing shocks. *Finance & Development*, *57*(002).

Kurowski, C., D. B. Evans, A. Tandon, P. Hoang-Vu Eozenou, M. Schmidt, A. Irwin, J. Salcedo Cain, E. S. Pambudi, and I. Postolovska. 2021a. “From Double Shock to Double Recovery: Implications and Options for Health Financing in the Time of COVID-19.” Health, Nutrition and Population (HNP) Discussion Paper, Washington, DC: World Bank Group. From-Double-Shock-to-Double-Recovery-Implications-and-Options-for-Health-Financing-in-The-Time-of-COVID-19.pdf (worldbank.org)

Kurowski, C., D. B. Evans, A. Tandon, P. Hoang-Vu Eozenou, M. Schmidt, A. Irwin, J. Salcedo Cain, E. S. Pambudi, and I. Postolovska. 2021b. “From Double Shock to Double Recovery: Implications and Options for Health Financing in the Time of COVID-19. Technical Update. Widening Rifts” *Health, Nutrition and Population (HNP) Discussion Paper,* Washington, DC: World Bank Group From-Double-Shock-to-Double-Recovery-Technical-Update-Widening-Rifts.pdf.(Worldbank.org)

Kurowski, C., M. Schmidt, D. Silverberg, J. C. Mieses Ramirez. 2022.”Health Spending Trends in the Time of COVID-19” Health, Nutrition and Population (HNP), Washington, DC: World Bank Group. Forthcoming.

Mahler, D. G., N. Yonzan, C. Lakner, R. Castaneda Aguilar, and W. Haoyu. 2021. “Updated Estimates of the Impact of COVID-19 on Global Poverty: Turning the Corner on the Pandemic in 2021?” *Data Blog* (blog), June 24, 2021. https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty-turning-corner-pandemic-2021.

Maresso, A., P. Mladovsky, S. Thomson, A. Sagan, M. Karanikolos, E. Richardson, J. Cylus, T. Evetovits, M. Jowett, J. Figueras, and H. Kluge eds. 2015. “Economic Crisis, Health Systems in Europe: Country Experience”. Copenhagen: WHO/European Observatory on Health Systems and Policies.

Mühleisen, M. and M. Flanagan. 2019. Three Steps to Avert a Debt Crisis. IMF Blog, January 18. Three Steps to Avert a Debt Crisis – IMF Blog

Musgrove, P. 1987. "The Economic Crisis and its Impact on Health and Health Care in Latin America and the Caribbean." *International Journal of Health Services* 1 (3): 411-41.

Rahim, F.S., C.P. Wendling and E. Pedastsaar. 2022. How to Prepare Expenditure Baselines. *IMF How To Notes*, *2022*(002).

Reinhart, C. and C. Graf von Luckner. 2022. The Return of Global Inflation. World Bank Blog, February 14. The Return of Global Inflation (worldbank.org)

Tandon, Ajay, Jewelwayne Salcedo Cain, Christoph Kurowski, and Iryna Postolovska. 2018. "Intertemporal Dynamics of Public Financing for Universal Health Coverage: Accounting for Fiscal Space Across Countries (English)". *Health, Nutrition and Population (HNP) Discussion Paper,* Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/639541545281356938/Intertemporal-Dynamics-of-Public-Financing-for-Universal-Health-Coverage-Accounting-for-Fiscal-Space-Across-Countries.

Tandon, A., T. Roubal, L. McDonald, P. Cowley, T. Palu, V. de Oliveira Cruz, P. Eozenou, J. Cain, H. S. Teo, M. Schmidt, E. Pambudi, I. Postolovska, D. Evans, C. Kurowski. 2020. "Economic Impact of COVID-19 : Implications for Health Financing in Asia and Pacific". *Health, Nutrition and Population (HNP) Discussion Paper,* Washington, DC: World Bank Group.

Thomson, S., J. Figueras, T. Evetovits, M. Jowett, P. Mladovsky, A. Maresso, J. Cylus, M. Karanikolos, and H. Kluge (2015). "Economic crisis, health systems and health in Europe: impact and implications for policy", Maidenhead: Open University Press.

WHO (World Health Organization). 2020a. *Global Spending on Health: Weathering the Storm*. Geneva: World Health Organization.

—. 2022a. "Stronger collaboration for an equitable and resilient recovery towards the health-related Sustainable Development Goals, incentivizing collaboration: 2022 progress report on the Global Action Plan for Healthy Lives and Well-being for All". Geneva: World Health Organization who progress report may 2022.pdf

—. 2022b. "Global Health Expenditure Database." World Health Organization. https://apps.who.int/nha/database.

World Bank. 2019. "High-Performance Health Financing for Universal Health Coverage: Driving Sustainable, Inclusive Growth in the 21st Century." Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/31930 License: Creative Commons Attribution CC BY 3.0 IGO.

—. 2022. Global Economic Prospects, January 2022. Washington, DC: World Bank.

ANNEX 1. DATA AND METHODS: PROJECTING GOVERNMENT HEALTH SPENDING EXPENDITURE (GHE) PER CAPITA

This annex provides details about data and methods underpinning the different scenarios for per capita government health spending from 2020 to 2026. The scenarios rely on macro-fiscal data from the IMF's most recent World Economic Outlook (IMF 2022a) and health spending data from WHO's Global Health Expenditure Database (WHO 2022b). All absolute values are derived from nominal values in local currency units, adjusted for inflation with country-specific IMF deflators, and converted to US dollars at a fixed exchange rate. The base year for the inflation adjustment and the currency conversion is 2019.

Scenario 1: Procyclical health spending

To forecast GHE per capita during the years 2020-2027, this scenario uses the most recent IMF projections (IMF 2021) and linear regression to quantify past co-movements between GHE per capita and GDP per capita. A double log functional form of the regression is suggested by the following identity that connects GHE per capita with the share of health in general government spending, the income share of government expenditure, and GDP per capita:

$$GHE\ per\ capita = \frac{GHE}{GGE} \cdot \frac{GGE}{GDP} \cdot GDP\ per\ capita$$

A binary indicator of GDP per capita contraction and its interaction term were also included to allow for the possibility of an asymmetric relationship in times of GDP per capita decline. Parameters were estimated using a panel fixed effects regression model. The estimated income elasticity of per capita public spending on health produces GHE per capita forecasts for the years 2020-2027 when combined with current GHE per capita levels and IMF forecasts of GDP per capita.

Data were available for 186 countries between 2000 to 2027. Table A1.1 shows the regression results from three different regression specifications. The first column shows results from the simple regression of GHE per capita on GDP per capita. Globally, public health expenditure has been procyclical with an estimated income elasticity of per capita public spending on health of 1.3. This implies that each percentage change in GDP per capita is, on average, associated with a change in public health expenditures per capita of 1.3 percent. The second column includes the contraction indicator and its interaction with GDP per capita. The results show that the elasticity is slightly higher in periods of GDP per capita decline.

The third column shows the results when the share of GGE and its interaction with GDP per capita contraction are included in the regression. It shows that significant GHE per capita variation is captured by GGE per capita variation. Most of the effect of GDP on public health expenditures is mediated through the positive relationship between overall general government expenditures and GDP. The elasticity of public health expenditure with government expenditures is about 0.8, indicating that, on average, public health expenditures move in the same direction as the general government budget (though less than proportionally). At the same time, changes in GDP per capita remain positively associated with GHE per capita. This effect may capture the extent to which richer countries are better able to increase the degree to which health is prioritized in the government budget compared to poorer countries (Tandon, et al.

2018).[38] This regression specification is not used further because it leads to GHE per capita forecasts that are very similar to the more intuitive scenario 2.

Table A1. 1. Panel fixed effects regression results for estimating income elasticity of government spending for health

Dependent variable: Per capita government spending on health	(1)	(2)	(3)
Log of per capita GDP	1.30***	1.31***	1.18***
	(0.02)	(0.02)	(0.02)
Interaction of log of per capita GDP and contraction		0.04***	0.00
		(0.01)	(0.01)
Log of government spending share of GDP			0.75***
			(0.02)
Interaction of log of government spending share of GDP and contraction			0.05**
			(0.02)
Contraction indicator		-0.32***	-0.19*
		(0.06)	(0.07)
Observations	3,641	3,641	3,618

Scenario 2a: Status quo priority to health in government spending
This scenario forecasts GHE per capita based on the assumption that governments protect the share of health in general government spending. The protected share is based on the most recent WHO GHED data and is taken as the GHE-to-GGE ratio in the last pre-COVID year, this is in 2019. Multiplication of this ratio with IMF's projected government share of income and real GDP per capita in the years 2020 to 2027 yields the GHE per capita forecasts for 2020 to 2027.

Scenario 2b: Status quo priority to health in post-interest government spending
This scenario can be seen as a variation on scenario 2a. Here countries' government spending is adjusted for the effect of interest payments on public debt. Interest payments are approximated by countries' net interest - i.e., the difference between countries' primary deficit/surplus and the fiscal deficit/surplus. The primary deficit/surplus reflects the difference between government revenues and expenditures before interest receivable from financial assets and interest payable for financial liabilities. The fiscal deficit/surplus incorporates these interest flows.

The name "post-interest" government spending is used for the adjusted government spending. If countries net interest is negative, i.e., if governments' interest receivable is larger than the interest payable, then the net interest is set to zero. Post-interest GGE then can be taken as the maximum amount available to be allocated to other priorities once enough funding to meet debt liabilities has been set

[38] Changes in public health expenditure per capita can be decomposed into (i) changes in the share of health expenditure over government budget, (ii) changes the share of government budget over GDP, and (iii) changes in GDP per capita.

aside. Several caveats to this interpretation are discussed in the main body of the text in the section on the impact of public debt on government spending capacity.

Analogous to scenario 2a this scenario forecasts GHE per capita based on the assumption that governments protect a specific share of health in government spending - here the share of health in post-interest government spending. The protected share is based on the most recent WHO GHED data and IMF data is taken as the GHE-to- post-interest GGE ratio in the last pre-COVID year. i.e., in 2019. Multiplication of this ratio with projected post-interest GGE per capita in the years 2020 to 2027 yields the GHE per capita forecasts. Post-interest GGE per capita is calculated from IMF's primary deficit-to-GDP ratio, fiscal deficit-to-GDP ratio, government share of income, and real GDP per capita.

Scenario 2c: Elimination of interest payments in LICs and LMICs

This scenario can be seen as a special case of scenario 2b. Namely, the special case where lower-income countries can avoid interest payments on public debt for the years 2020 to 2027. During this period, post-interest GGE equals GGE, and health spending effectively tracks government spending. Different from scenario 2a governments do not protect the pre-COVID share of health in government spending but instead protect the pre-COVID share of health in post-interest government spending. Projected health spending in this scenario is necessarily higher than in scenarios 2a and 2b.

As in scenario 2b, the protected share is based on the most recent WHO GHED data and IMF data is taken as the GHE-to- post-interest GGE ratio in 2019. Multiplying this ratio with IMF's projected government share of income and real GDP per capita in the years 2020 to 2027 yields the GHE per capita forecasts for 2020 to 2027.

Scenario 3: Pro-health spending

In this scenario governments are either able to maintain above-average trend growth in per capita health spending or to catch up with the average trend growth of their countries' income group. Average trend growth is measured during the years 2009 – 2010 and equals 3.3 percent in LICs, 4.0 percent in LMICs, 3.2 percent in UMICs, and 2.4 percent in HICs. 10 out 27 LICs, 29 out of 55 LMICs, 27 out of 55 UMICs, and 30 out of 80 HICs recorded below average trend growth. To forecast health spending in this scenario, it is assumed that the above-average trend continues after 2019 or that average trend growth sets in. IMF projections play no role in this scenario and applying GHE per capita trend growth rates to GHE per capita in 2019 yields the projection for the year 2020 to 2027.

ANNEX 2. IMPLICATIONS OF THE PROJECTED CHANGES IN PER CAPITA GENERAL GOVERNMENT REVENUE (GGR) AND EXPENDITURE (GGE) FOR GGR/GDP AND GGE/GDP

GGR. Figure 4 in the main text shows that GGR per capita fell substantially in 2020 in all country income groups, before starting to rise with the return to economic growth in 2021. Table A2 1 shows that in 2020 GGR/GDP in LICs and LMICs has fallen more than GDP in 2020 whereas it has remained constant In UMICs and HICs. By the end of 2022 GGR/GDP ratios are expected to increase and either approach (LMICs) or surpass (all other income groups) pre-COVID ratios. After 2022 GGR/GDP is expected to steadily decline. This implies that in 2021 and 2022 GGR recovers quicker than GDP and that GGR growth is expected to be lower than GDP growth in subsequent years.

Table A2. 1. Projected shares of government revenue in GDP by country income group, 2019-2027

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	177	30.4	30.1	30.7	30.9	30.3	30.0	29.8	29.7	29.5
LICs	22	19.3	19.0	19.5	20.7	20.0	19.9	20.1	20.1	20.0
LMICs	52	25.7	25.1	25.2	25.4	24.9	24.9	24.7	24.7	24.6
UMICs	47	29.8	29.8	30.7	30.8	30.4	30.1	29.8	29.6	29.4
HICs	56	39.5	39.5	40.2	40.1	39.2	38.7	38.4	38.1	37.9

Source: IMF, World Economic Outlook, April 2022

GGE. On average, GGE per capita was substantially higher in 2020 than in 2019 despite falls in GGR (figure 6 in the main text). In 2021, GGE per capita further increased in LICs and LMICs while falling in UMICs and HICs. In all income groups, average GGE per capita exceeds pre-COVID-19 levels in 2027. The implications for GGE/GDP are shown in Table A2 2. GDP per capita is expected to start rising again in all income groups in 2021. The substantial increase of GGE in 2020 translated to a large increase of GGE/GDP. Subsequently, GGE/GDP is expected to peak in 2022 in LICs, in 2021 in LMICs, and then steadily decrease until 2027. In UMICs and HICs GGE/GDP steadily decreases from 2020 onwards.

The patterns differ when distinguishing contraction, stagnation, and expansion countries. The most notable difference being that 2027 GGE/GDP is expected to be significantly lower than pre-COVID in contraction countries, about the same as pre-COVID in stagnation countries, and substantially higher than pre-COVID in expansion countries.

Table A2. 2. Projected shares of government expenditure in GDP by country income group, 2019-2026

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	177	32.3	36.3	35.0	34.2	32.9	32.4	32.0	31.8	31.5
LICs	22	22.0	23.5	23.4	24.2	23.0	22.2	22.1	21.8	21.7
LMICs	52	28.6	30.2	30.5	30.5	29.8	29.5	29.1	28.8	28.5
UMICs	47	32.4	36.4	34.5	34.0	33.0	32.5	32.0	31.8	31.6
HICs	56	39.7	46.9	44.2	41.7	39.5	39.0	38.7	38.4	38.2

Source: IMF, World Economic Outlook, April 2022

Table A2. 3. Projected shares of government expenditure in GDP by country income group, 2019-2027, 36 Contraction Countries

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	41	38.7	40.5	39.3	38.0	35.4	34.6	33.9	33.4	32.9
LICs	4	29.3	24.7	26.1	27.9	24.1	22.8	22.5	21.8	20.9
LMICs	14	44.5	44.9	45.7	45.1	44.0	42.9	41.7	40.9	40.0
UMICs	12	30.0	31.5	29.5	28.6	27.3	26.6	26.0	25.8	25.6
HICs	11	44.1	50.3	46.7	42.8	37.3	37.0	36.9	36.5	36.2

Source: IMF, World Economic Outlook, April 2022

Table A2. 4. Projected shares of government expenditure in GDP by country income group, 2019-2027, 69 Stagnation Countries

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	69	30.2	34.9	33.4	32.2	31.3	31.0	30.6	30.3	30.0
LICs	10	23.3	26.7	25.6	26.3	25.6	24.7	24.3	23.9	23.7
LMICs	20	24.0	25.1	24.9	25.5	25.0	25.0	24.8	24.6	24.4
UMICs	19	31.0	36.7	35.0	33.0	32.5	32.2	31.4	31.1	30.8
HICs	20	39.2	47.0	44.2	40.9	39.5	39.0	38.7	38.5	38.2

Source: IMF, World Economic Outlook, April 2022

Table A2. 5. Projected shares of government expenditure in GDP by country income group, 2019-2027, 67 Expansion Countries

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	67	30.5	35.2	34.1	34.0	33.0	32.5	32.4	32.3	32.2
LICs	8	16.7	18.8	19.3	19.7	19.1	18.7	19.0	19.1	19.5
LMICs	18	21.4	24.5	25.0	24.7	24.2	24.0	24.1	24.1	24.1
UMICs	16	35.7	39.7	37.7	39.0	37.9	37.4	37.3	37.1	37.1
HICs	25	38.2	45.3	43.1	41.9	40.5	39.8	39.5	39.2	39.0

Source: IMF, World Economic Outlook, April 2022

ANNEX 3. IMPLICATIONS OF THE GOVERNMENT HEALTH SPENDING SCENARIOS

Part 1 - 36 Contraction Countries: Implications of the scenarios of the possible changes in per capita government health spending (GHE) for the share of government health expenditure in GDP

Scenario 1

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
LICs	4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
LMICs	14	4.3	4.2	4.2	4.2	4.3	4.3	4.3	4.3	4.3
UMICs	11	3.7	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.7
HICs	7	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2

Scenario 2a

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	3.7	3.8	3.6	3.5	3.4	3.3	3.2	3.2	3.1
LICs	4	2.0	1.9	1.9	2.0	1.9	1.7	1.7	1.6	1.5
LMICs	14	4.3	4.5	4.5	4.4	4.3	4.2	4.1	4.0	3.9
UMICs	11	3.7	3.8	3.6	3.5	3.3	3.2	3.1	3.1	3.0
HICs	7	3.2	3.6	3.1	2.5	2.5	2.5	2.5	2.5	2.5

Scenario 2b

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	3.7	3.8	3.6	3.4	3.3	3.2	3.2	3.1	3.1
LICs	4	2.0	1.9	1.9	2.0	1.9	1.7	1.7	1.6	1.5
LMICs	14	4.3	4.5	4.5	4.4	4.3	4.2	4.1	4.0	3.9
UMICs	11	3.7	3.8	3.5	3.3	3.2	3.1	3.0	3.0	3.0
HICs	7	3.2	3.6	3.0	2.4	2.5	2.5	2.5	2.5	2.5

Scenario 2c

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	3.7	4.1	3.9	3.7	3.6	3.5	3.4	3.4	3.3
LICs	4	2.0	2.1	2.0	2.1	2.0	1.9	1.8	1.7	1.6
LMICs	14	4.3	4.7	4.7	4.6	4.5	4.4	4.3	4.2	4.1
UMICs	11	3.7	4.2	4.0	3.8	3.7	3.5	3.4	3.4	3.4
HICs	7	3.2	3.7	3.2	2.6	2.6	2.6	2.6	2.6	2.6

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	3.7	4.2	4.4	4.5	4.7	4.9	5.2	5.4	5.7
LICs	4	2.0	2.3	2.4	2.6	2.7	2.8	2.9	2.9	2.9
LMICs	14	4.3	4.9	5.1	5.4	5.6	5.9	6.2	6.6	7.0
UMICs	11	3.7	4.3	4.5	4.7	4.9	5.2	5.4	5.7	6.0
HICs	7	3.2	3.5	3.7	3.7	3.7	3.8	4.0	4.1	4.2

Part 1 – 68 Stagnation Countries: Implications of the scenarios of the possible changes in per capita government health spending (GHE) for the share of government health expenditure in GDP

Scenario 1

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	3.9	3.8	3.8	3.8	3.9	3.9	3.9	3.9	3.9
LICs	10	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5
LMICs	19	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
UMICs	19	3.9	3.7	3.8	3.8	3.8	3.9	3.9	3.9	3.9
HICs	20	6.3	6.1	6.2	6.3	6.3	6.3	6.4	6.4	6.4

Scenario 2a

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	3.9	4.5	4.3	4.1	4.0	3.9	3.9	3.9	3.8
LICs	10	2.4	2.7	2.6	2.8	2.7	2.6	2.5	2.5	2.4
LMICs	19	2.0	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1
UMICs	19	3.9	4.5	4.4	4.1	4.1	4.0	3.9	3.9	3.8
HICs	20	6.3	7.7	7.2	6.6	6.3	6.3	6.2	6.2	6.2

Scenario 2b

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	3.9	4.5	4.3	4.1	4.0	3.9	3.8	3.8	3.8
LICs	10	2.4	2.7	2.6	2.7	2.6	2.5	2.5	2.4	2.4
LMICs	19	2.0	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1
UMICs	19	3.9	4.5	4.4	4.1	4.1	4.0	3.8	3.8	3.8
HICs	20	6.3	7.7	7.2	6.6	6.3	6.2	6.2	6.2	6.1

Scenario 2c

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	3.9	4.8	4.5	4.3	4.2	4.2	4.1	4.1	4.0
LICs	10	2.4	3.0	2.9	3.0	2.9	2.8	2.7	2.7	2.6
LMICs	19	2.0	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3
UMICs	19	3.9	4.8	4.7	4.4	4.4	4.3	4.2	4.2	4.1
HICs	20	6.3	7.9	7.4	6.8	6.5	6.4	6.4	6.4	6.3

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	3.9	4.3	4.3	4.3	4.4	4.5	4.6	4.7	4.9
LICs	10	2.4	2.6	2.7	2.8	2.8	2.9	2.9	3.0	3.1
LMICs	19	2.0	2.3	2.3	2.4	2.5	2.7	2.8	2.9	3.1
UMICs	19	3.9	4.5	4.4	4.5	4.5	4.6	4.7	4.8	4.9
HICs	20	6.3	6.9	6.8	6.8	6.9	7.0	7.1	7.3	7.4

Part 1 - 65 Expansion Countries: Implications of the scenarios of the possible changes in per capita government health spending (GHE) for the share of government health expenditure in GDP

Scenario 1

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	3.8	3.8	3.8	3.8	3.9	3.9	4.0	4.0	4.0
LICs	8	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5
LMICs	18	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9
UMICs	15	4.7	4.6	4.7	4.7	4.8	4.9	4.9	5.0	5.0
HICs	24	5.6	5.5	5.6	5.6	5.7	5.7	5.7	5.8	5.8

Scenario 2a

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	3.8	4.4	4.2	4.2	4.1	4.0	4.0	4.0	4.0
LICs	8	1.4	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.7
LMICs	18	1.8	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0
UMICs	15	4.7	5.2	4.8	5.0	4.9	4.9	4.8	4.8	4.8
HICs	24	5.6	6.6	6.3	6.1	5.9	5.8	5.8	5.7	5.7

Scenario 2b

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	3.8	4.4	4.2	4.2	4.1	4.0	4.0	4.0	3.9
LICs	8	1.4	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6
LMICs	18	1.8	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9
UMICs	15	4.7	5.3	4.8	5.0	4.9	4.8	4.8	4.8	4.7
HICs	24	5.6	6.6	6.3	6.1	5.9	5.8	5.8	5.8	5.7

Scenario 2c

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	3.8	4.6	4.4	4.4	4.3	4.2	4.2	4.2	4.2
LICs	8	1.4	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.8
LMICs	18	1.8	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2
UMICs	15	4.7	5.5	5.0	5.2	5.1	5.0	5.0	5.0	5.0
HICs	24	5.6	6.8	6.5	6.3	6.1	6.0	6.0	5.9	5.9

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	3.8	4.2	4.1	4.2	4.2	4.3	4.3	4.4	4.5
LICs	8	1.4	1.5	1.6	1.7	1.7	1.8	1.8	1.9	2.0
LMICs	18	1.8	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3
UMICs	15	4.7	5.1	5.1	5.2	5.3	5.4	5.5	5.6	5.7
HICs	24	5.6	6.1	5.9	5.9	6.0	6.0	6.1	6.1	6.2

Part 2 - 36 Contraction Countries: Implications of the scenarios for GHE as a share of GGE over time

Scenario 1

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	9.7	9.2	9.8	10.4	10.8	11.0	11.2	11.4	11.7
LICs	4	7.0	8.1	8.3	7.5	8.0	8.5	8.7	9.4	10.1
LMICs	14	9.7	9.1	9.3	9.4	9.8	10.0	10.2	10.4	10.6
UMICs	11	11.5	10.8	11.5	12.0	12.8	13.3	13.7	14.0	14.2
HICs	7	8.4	7.5	8.8	11.5	11.1	10.9	10.8	10.8	10.9

Scenario 2a

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
LICs	4	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
LMICs	14	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
UMICs	11	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
HICs	7	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4

Scenario 2b

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	9.7	9.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6
LICs	4	7.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0	7.1
LMICs	14	9.7	9.8	9.8	9.8	9.7	9.7	9.7	9.6	9.7
UMICs	11	11.5	11.4	11.2	11.0	11.1	11.1	11.2	11.2	11.2
HICs	7	8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.3	8.2

Scenario 2c

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	9.7	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
LICs	4	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
LMICs	14	9.7	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
UMICs	11	11.5	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
HICs	7	8.4	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	36	9.7	10.8	12.0	13.2	14.2	15.3	16.4	17.5	18.7
LICs	4	7.0	9.3	10.1	9.7	10.7	11.6	12.2	12.8	13.7
LMICs	14	9.7	10.6	11.5	12.3	13.5	14.6	15.8	17.2	18.9
UMICs	11	11.5	13.2	14.3	15.7	17.4	19.1	20.7	22.1	23.5
HICs	7	8.4	8.4	10.3	13.0	12.8	12.8	13.1	13.5	13.9

Part 2 – 68 Stagnation Countries: Implications of the scenarios for GHE as a share of GGE over time

Scenario 1

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	12.0	10.1	10.7	11.2	11.6	11.8	12.0	12.2	12.3
LICs	10	10.3	8.8	9.3	9.0	9.4	9.8	10.0	10.3	10.5
LMICs	19	8.2	7.6	7.8	7.7	7.9	7.9	8.1	8.1	8.3
UMICs	19	12.2	10.2	10.8	11.3	11.6	11.9	12.2	12.4	12.6
HICs	20	16.2	13.1	14.0	15.4	16.1	16.4	16.5	16.7	16.8

Scenario 2a

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
LICs	10	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
LMICs	19	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
UMICs	19	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
HICs	20	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2

Scenario 2b

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	12.0	12.0	11.9	11.9	11.8	11.8	11.8	11.8	11.8
LICs	10	10.3	10.3	10.2	10.2	10.1	10.1	10.1	10.2	10.2
LMICs	19	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0
UMICs	19	12.2	12.2	12.2	12.1	12.1	12.1	12.0	12.0	12.0
HICs	20	16.2	16.2	16.1	16.0	16.1	16.1	16.0	16.0	16.0

Scenario 2c

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	12.0	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
LICs	10	10.3	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
LMICs	19	8.2	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
UMICs	19	12.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2
HICs	20	16.2	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	68	12.0	11.6	12.0	12.8	13.4	13.9	14.4	15.0	15.5
LICs	10	10.3	9.7	10.4	10.4	11.0	11.6	12.1	12.7	13.2
LMICs	19	8.2	8.7	9.0	9.2	9.8	10.3	10.8	11.4	12.1
UMICs	19	12.2	12.1	12.5	13.2	13.7	14.1	14.8	15.3	15.8
HICs	20	16.2	14.7	15.3	16.8	17.7	18.3	18.7	19.2	19.6

Part 2 - 65 Expansion Countries: Implications of the scenarios for GHE as a share of GGE over time

Scenario 1

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	11.6	10.0	10.5	10.6	11.0	11.2	11.4	11.5	11.6
LICs	8	8.5	8.1	7.7	7.3	7.6	7.8	7.8	7.8	7.8
LMICs	18	8.5	7.5	7.5	7.6	7.7	7.8	7.8	7.9	7.9
UMICs	15	12.6	10.7	11.8	11.7	12.2	12.5	12.7	12.9	13.0
HICs	24	14.4	12.1	12.8	13.3	13.8	14.2	14.4	14.6	14.8

Scenario 2a

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
LICs	8	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
LMICs	18	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
UMICs	15	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
HICs	24	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4

Scenario 2b

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	11.6	11.7	11.7	11.6	11.5	11.5	11.5	11.5	11.5
LICs	8	8.5	8.6	8.5	8.5	8.4	8.4	8.4	8.4	8.4
LMICs	18	8.5	8.5	8.4	8.4	8.2	8.1	8.0	8.0	8.0
UMICs	15	12.6	12.7	12.7	12.6	12.5	12.5	12.5	12.4	12.4
HICs	24	14.4	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5

Scenario 2c

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	11.6	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
LICs	8	8.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
LMICs	18	8.5	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
UMICs	15	12.6	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
HICs	24	14.4	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026	2027
All countries	65	11.6	11.1	11.4	11.6	12.0	12.4	12.6	12.8	13.1
LICs	8	8.5	8.8	8.8	8.6	9.1	9.6	9.6	9.9	10.3
LMICs	18	8.5	8.2	8.4	8.7	8.9	9.1	9.3	9.5	9.7
UMICs	15	12.6	12.2	12.8	12.9	13.4	13.7	13.9	14.1	14.3
HICs	24	14.4	13.3	13.5	14.0	14.5	14.9	15.2	15.4	15.7