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From Double Shock to Double Recovery

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

TECHNICAL UPDATE:
WIDENING RIFTS

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

Technical Update: Widening Rifts

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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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

The COVID-19 pandemic has resulted in a double shock - health and economic. As of September 1, 2021, COVID-19 has cost more than 4.5 million lives and triggered an economic recession surpassing any economic downturn since World War II (WHO 2021a).

In the months ahead, the world is likely to witness the fastest economic growth in the aftermath of any recession in the last 80 years. This swift turnaround in growth numbers, however, can't hide the fact that a sustained, inclusive global recovery from COVID-19 poses complex challenges that remain unresolved today.

The most recent International Monetary Fund (IMF) macroeconomic projections, the basis of this update, show a mixed picture regarding countries' capacities to further build up government spending over the coming 5 years. A group of 126 countries is expected to increase per capita government expenditure (GGE) over the period 2021 and 2026. But in 52 countries, per capita GGE is projected to remain below the levels that countries reported in 2019, before the pandemic hit. We call the first group "GGE-growth countries" and the second "non-GGE-growth countries."

Also important are forms of diversity within each group. For example, both groups include both rich and poor countries. In addition—and crucially—in both groups, countries show diversity in the outlook across a wider range of fiscal parameters. Among both GGE-growth and non-GGE-growth countries, prospects vary substantially for the length and depth of periods during which governments are expected to cut their spending. Growing debt service requirements will also differentially constrain countries' ability to invest in the welfare of their populations. Unaddressed, these disparities in fiscal outlook will leave countries even more divided in their ability to finance recovery from the COVID-19 health shock. When all these variables are considered, a stark rift between countries comes into focus. At one extreme are some higher-income countries in the GGE-growth group—countries whose already-strong health financing capacities are poised to grow further in the years ahead. At the other extreme are some lower-income countries in the non-GGE-growth group—countries whose health spending is historically weak and likely to lose further ground.

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Drawing on experiences from previous economic crises, the scenario analysis presented here suggests that governments will have to make bolds choices to return to pre-COVID-19 growth trends in government health spending per capita. GGE-growth countries would need to increase the share of their overall spending going to health to prevent falls in health spending during years of fiscal adjustment, and then to get back on the path of progress toward universal health coverage (UHC). The required increase in the share of health in overall government spending to 2026 averages 1.8 percentage points, or just over 15 percent of the existing health share. In contrast, in non-GGE-growth countries, a return to pre-COVID-19 growth rates in per capita government spending to would require increases in the share of their spending assigned to health well beyond historical highs – in low-income countries, for example, the share would need to almost double.

Additional analyses demonstrate that the expected government health spending growth in low-income countries (LICs) and lower middle-income countries (LMICs) will fall far short of the spending needs to end the pandemic and prevent future ones. For example, without any changes in the share of government spending flowing to health, the expected net growth in health spending during 2021 and 2022 will amount on average to only 28.4 percent of the countries' cost share of a COVID-19 vaccine roll out in LICs and 42.7 percent in LMICs. Likewise, the expected growth in government health spending in 2026 will cover only 63.5 percent of the necessary annual investment to strengthen and maintain public-health preparedness and response capabilities in LICs and 61.3 percent in LMICs.

Widening rifts in health financing capacities across countries are expected to have even more far-reaching destructive effects. This is because they may force cash-strapped countries into difficult either/or choices in health investment. Funding response and preparedness priorities at the cost of other essential health services would pose grave risks for a full, sustained health and economic recovery from COVID-19. The initial COVID-19 health shock weakened non-pandemic health services in many settings, as health-system resources were redirected to the pandemic response. In these countries, growth in government spending on health was even prior to COVID-19 insufficient to meet the health SDGs goals and targets.

Combined with intensified local efforts to increase the efficiency of health spending, coordinated global action that reverses the recent stagnation in development assistance for health will have positive effects far beyond the lower-income countries that benefit from it first. It won't be easy to boost development assistance for health at a time when some wealthy donor countries are also struggling. But high-income countries, too, have a vital interest in reinforcing a global recovery that remains fragile. By recognizing joint interests and backing that recognition with resources, countries can bridge the health financing rift to build a healthier, more secure, more prosperous future for all.

Keywords: Covid-19, economic crisis, health financing, equity

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

COVAX	COVID-19 Vaccines Global Access
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
IHME	Institute for Health Metrics and Evaluation
IMF	International Monetary Fund
LICs	Low-Income Countries
LMICs	Lower Middle-Income Countries
OECD	Organization for Economic Co-operation and Development
OOP	Out-of-Pocket
SDG	Sustainable Development Goal
SHI	Social Health Insurance
UHC	Universal Health Coverage
UMICs	Upper-Middle-Income Countries
WB	World Bank
WHO	World Health Organization
WHO GHED	WHO Global Health Expenditure Database

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INTRODUCTION

This publication updates the analyses presented in the original discussion paper "From Double Shock to Double Recovery – Implications and Options for Health Financing in the Time of COVID-19," published in March 2021 (C. Kurowski, D. B. Evans, et al. 2021). The original paper used macroeconomic projections released by the International Monetary Fund (IMF) in October 2020 (IMF 2020a) to project the possible time path of health spending per capita in 178 countries and territories from 2020 to 2025, under different scenarios. The scenarios built on observations of how health spending had responded during and immediately after previous economic crises, while taking into account that the economic crisis provoked by COVID-19 is different in its nature and scale. Since the launch of the original paper, its findings have been discussed with government officials, development partners, and World Bank staff in a series of seminars designed to clarify implications for countries and explore how governments can maintain needed levels of health spending following COVID-19.

The most recent IMF country macroeconomic data, released in April 2021 (IMF 2021a), forecast country macroeconomic performance through 2026. In comparison to earlier estimates, these projections suggest a less severe global economic downturn in 2020 and a stronger recovery in 2021. However, the new data also indicate greater variation across countries, including markedly uneven growth prospects. Some economies are set to experience very strong economic recoveries, while others will likely struggle to rekindle sustained economic growth.

The objective of the present update is threefold. First, the paper briefly reports the IMF's revised macroeconomic projections. Second, it spells out the implications of these projections for countries' health spending. Finally, it compares different spending scenarios with estimates of countries' incremental spending needs if they are to halt the COVID-19 pandemic and return to a path of progress toward universal health coverage (UHC).

As with the original paper, the analysis presented here covers 178 countries or territories for which the data needed to project health spending were available, with data summarized generally according to World Bank income groups.[1] All per capita figures are reported in constant 2018 US dollars.

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

[1] The IMF provides macro-fiscal projections for 191 countries/territories. From this group, 13 are excluded from the analysis in this paper, either because the IMF data set does not include projections of their government spending up to 2026 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: Argentina; Aruba; Equatorial Guinea; Guyana; Hong Kong SAR, China; Kosovo; Libya; Macao SAR, China; Montenegro; Puerto Rico; Taiwan, China; West Bank and Gaza; and Yemen. The analysis reported here focuses on the remaining group of 178 countries/territories.

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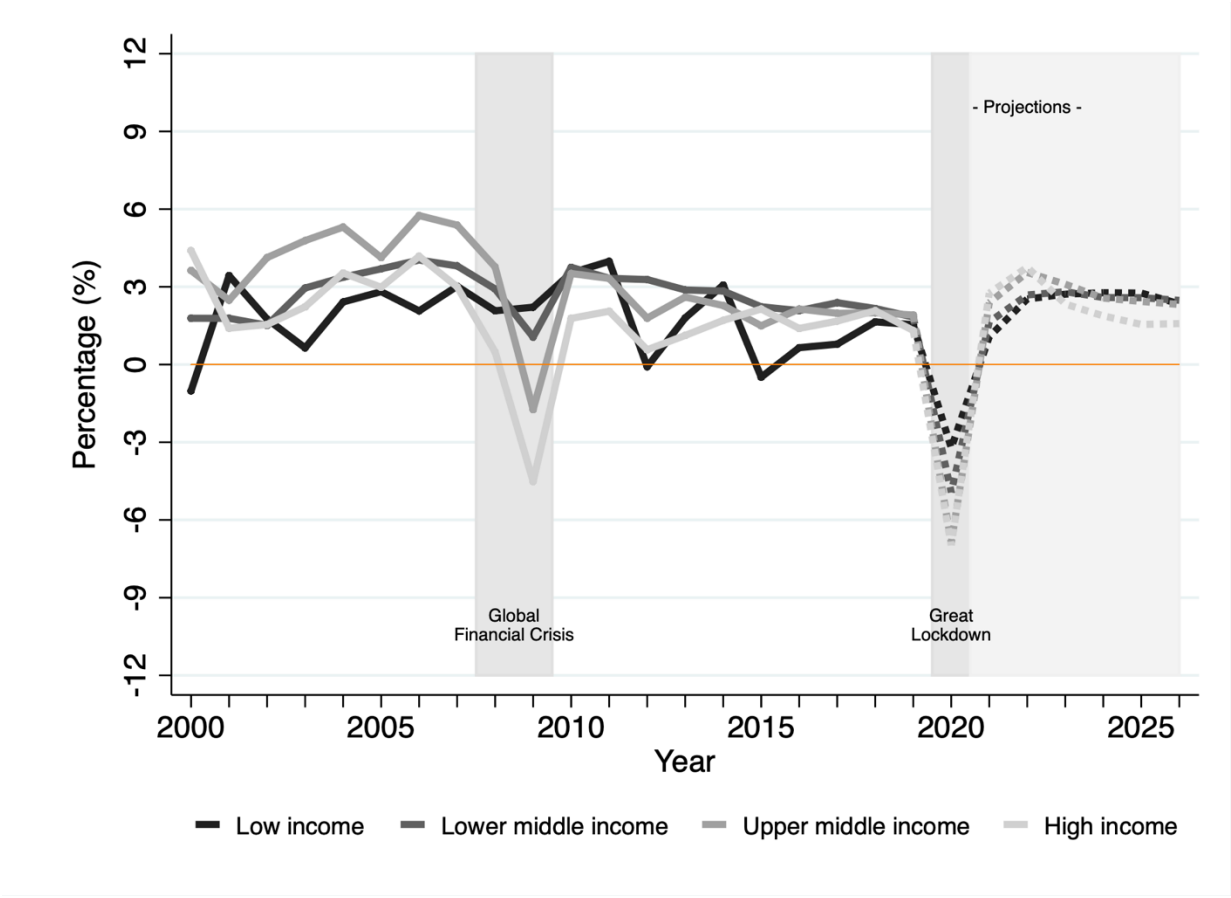
COVID-19'S MACROECONOMIC IMPACT

This section summarizes the latest IMF estimates and projections for economic growth, government revenues, and government spending - domains with central importance for health financing. Estimates and projections cover the period 2020 to 2026. The section also provides an update of the World Bank's poverty estimates.

Economic growth

COVID-19 led to a deep economic contraction in 2020. On average, country gross domestic product (GDP) per capita is estimated to have contracted by 5.9 percent (figure 1). Unlike previous recessions, falls are estimated to have occurred in all country income groups, although the magnitude of the recession is expected to be smaller in lower- than in higher-income groups. An average fall of 3.2 percent is estimated for low-income countries (LICs), compared to a drop of 4.9 percent in lower middle-income countries (LMICs). For upper-middle-income countries (UMICs) an average fall of 6.9 percent is expected and for high income countries (HICs) of 7.0 percent.

Figure 1. Annual growth rate in real per capita gross domestic product (GDP), 2000-2026



Source: Data from (IMF 2021a).

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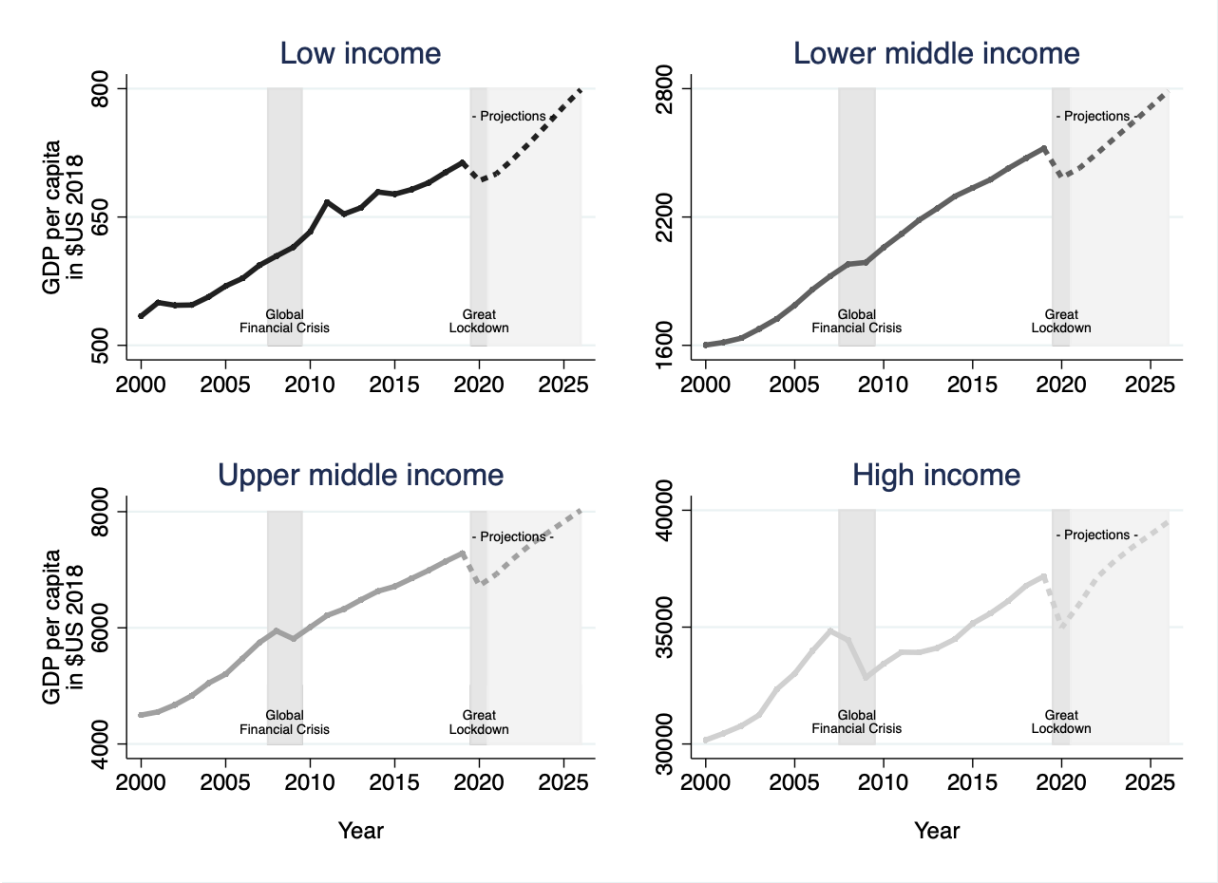
The global economy is projected to bounce back strongly starting in 2021 – the recovery may well result in the strongest growth seen in the immediate aftermath of any recession in the last 80 years (IMF 2021a); (World Bank 2021a). Any rebound in growth, however, will begin from the low base of 2020. While countries across all income groups will experience on average return to growth in per capita terms in 2021, LICs are expected to return to pre-COVID-19 (2019) levels of GDP per capita in 2022 while it will take until 2023 for average GDP per capita to return to 2019 levels in the other three income groups (figure 2).

Figure 2. Per capita gross domestic product (GDP), by income group, 2000-2026. (Constant 2018 US$)



Source: Data from (IMF 2021a).

Disparate effects across countries

The averages of the estimated crisis' impact on 2020 GDP per capita for each income group hide considerable variation across countries. For example, despite the global recession, 13 of the 178 countries are estimated to have maintained positive economic growth in 2020, though at lower rates than before the pandemic (map 1).[2] At the other extreme, 28 countries are expected to have experienced GDP per capita declines in excess of 10 percent. None of these were LICs, four were LMICs, 11 were UMICs, and 13

[2] The countries included **LICs**: Ethiopia, Guinea, Tajikistan; **LMICs**: Bangladesh, Egypt, Myanmar, Vietnam; **UMICs**: China, Islamic Republic of Iran, Turkmenistan; and **HICs**: Brunei, Ireland, Nauru.

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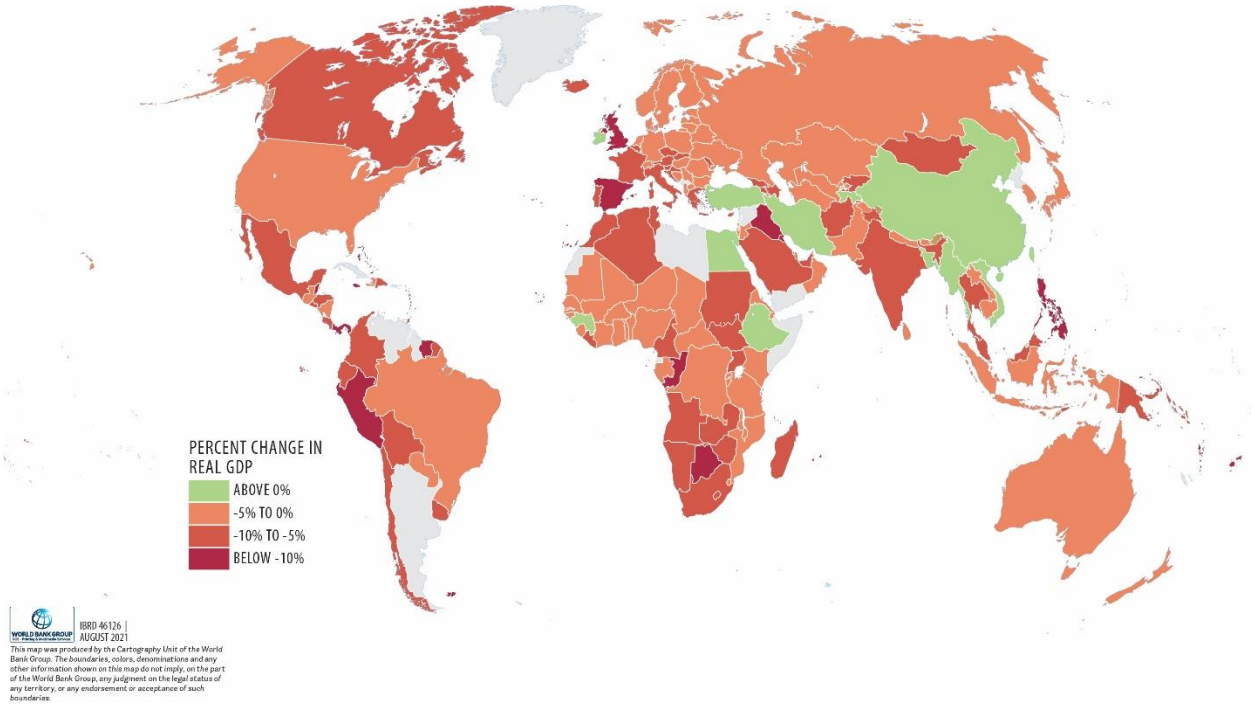
were HICs – consistent with the data presented earlier showing that the average percentage falls in GDP per capita were smaller in lower-income than higher-income countries.[3]

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



Source: Data from (IMF 2021a).

The variation across countries observed in 2020 extends to country prospects for a subsequent return to economic growth. Of greatest concern, projected rates of economic growth will be insufficient to allow 40 countries to return to pre-COVID-19 levels of GDP per capita even by 2026. This group consists of four LICs, 15 LMICs, 10 UMICs, and 11 HICs.[4] Later sections of the paper will consider the implications of this outlook for countries' capacity to maintain government spending, including for health.

[3] Broken down by income group, the countries are as follows: **LMICs**: Cape Verde, Republic of Congo, Philippines, Vanuatu; **UMICs**: Belize, Botswana, Dominica, Fiji, Grenada, Iraq, Jamaica, Maldives, Peru, St Lucia, Surinam; **HICs**: Antigua and Barbuda, Bahamas, Barbados, Kuwait, Malta, Mauritius, Palau, Panama, San Marino, Seychelles, Spain, St Kitts and Nevis, United Kingdom. While no LIC experienced a decline of more than 10 percent, Afghanistan, Madagascar, and Sudan experienced declines of more than double the LIC average of 3.2 percent.

[4] **LICs**: Burundi, Chad, Haiti, Sudan; **LMICs**: Algeria, Angola, Comoros, Republic of Congo, Eswatini, Micronesia, Nigeria, Papua New Guinea, Sao Tome and Principe, the Solomon Islands, Timor Leste, Tunisia, Vanuatu, Zambia, Zimbabwe; **UMICs**: Azerbaijan, Belize, Ecuador, Grenada, Iraq, Namibia, Samoa, South Africa, St Lucia, Surinam; **HICs**: Antigua and Barbuda, Bahamas, Bahrain, Kuwait, Nauru, Oman, Palau, San Marino, Saudi Arabia, St. Kitts and Nevis, United Arab Emirates.

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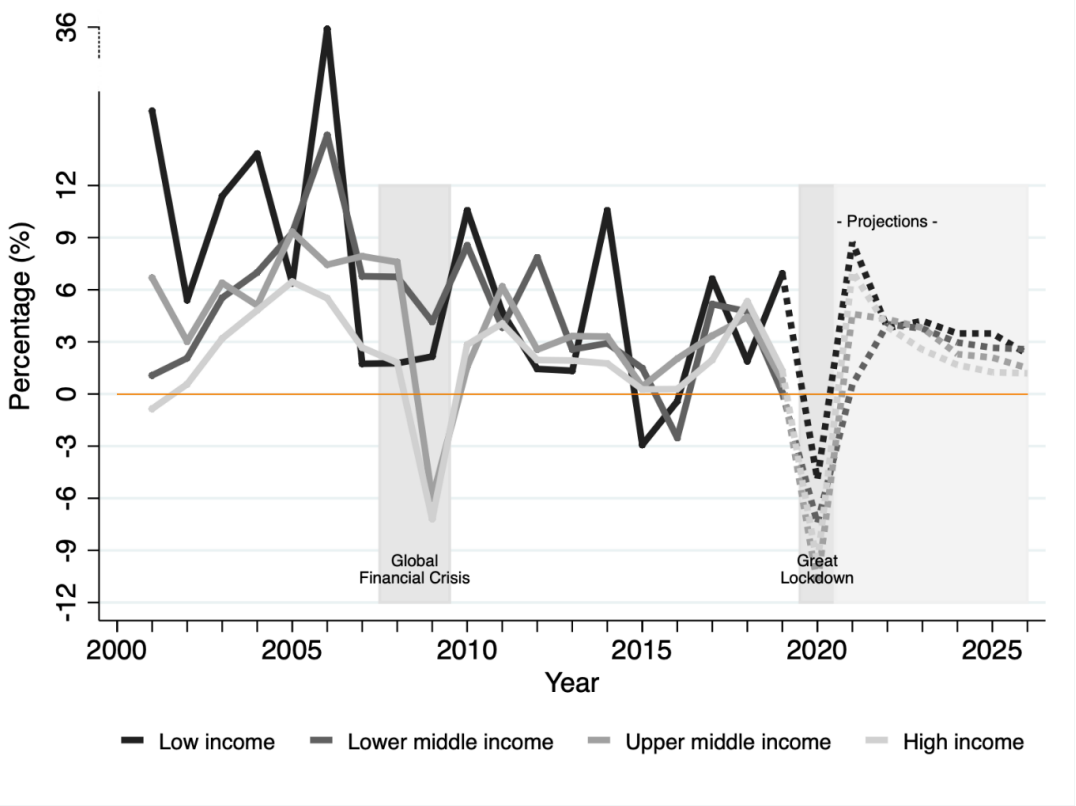
Harsh impacts on the poor and vulnerable

The COVID-19 crisis is also estimated to have resulted in a sharp increase in extreme poverty. In 2020 alone, 97 million people were estimated to have been pushed into extreme poverty, the majority in Sub-Saharan Africa and South Asia (Mahler, et al. 2021). After years of continuous progress on poverty reduction, this would return global poverty to levels not observed in since 2015. Whereas the rate of poverty decline from 2020 to 2021 is expected to be similar to the rate of decline expected before the pandemic, there are variations across regions and income groups. The number of poor is set to increase in Middle East & North Africa and Sub-Saharan Africa, as well as in low-income countries. Simulations suggest that COVID-19 has put the 2030 target of 3 percent global poverty even further out of reach. The COVID-19 crisis is also expected to have a disproportionate impact on vulnerable populations more broadly, with the result that income inequality is predicted to increase and shared prosperity to decline (World Bank 2020a).

Government revenue

Across all countries, general government revenue (GGR) per capital (including grants) is estimated to have declined by 8.8 percent in 2020. This fall is greater than the estimated percentage fall in GDP per capita described earlier (5.9 percent) Average GGR per capita is estimated to have fallen in all country income groups (figure 3) and, as with GDP per capita, the average percentage falls were more severe in HICs (9.8 percent) and UMICs (10.9 percent) than in LMICs (7.4 percent) and LICs (4.9 percent).

Figure 3. Annual growth rate in real per capita general government revenue (GGR), 2000-2026



Source: Data from (IMF 2021a).

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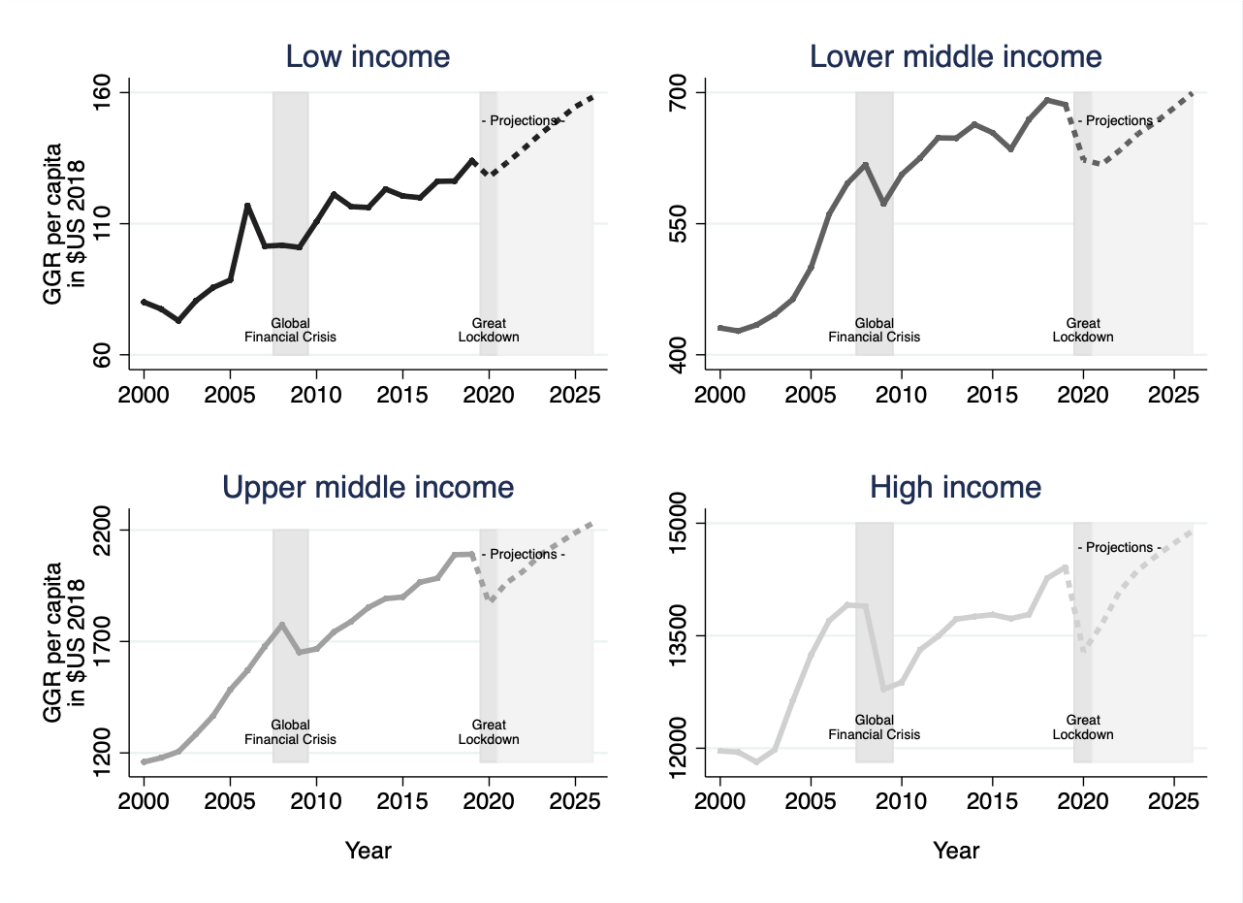
Average GGR per capita is projected to rise in LICs, UMICs, and HICs from 2021, but in LMICs it will likely fall again in 2021 before rising from 2022 (figure 4). Average per capita government revenue is forecasted not to rebound to pre-pandemic levels in LICs until 2022. In UMICs and HICs, this is unlikely to until 2023, while in LMICs it is not forecasted to happen until 2026. Projections of government revenue as a share of GDP follow similar patterns.[5]

Figure 4. Per capita general government revenue (GGR), by income group, 2000-2026. (Constant 2018 US$)



Source: Data from (IMF 2021a).

Uneven impact across countries

As with GDP per capita, the COVID-19 crisis is expected to have had varying impacts on GGR per capita across countries in each income group in 2020. For example, a total of 26 countries are estimated to have seen a rise in GGR per capita despite the global recession. These were largely lower-income countries:

[5] See annex 2.

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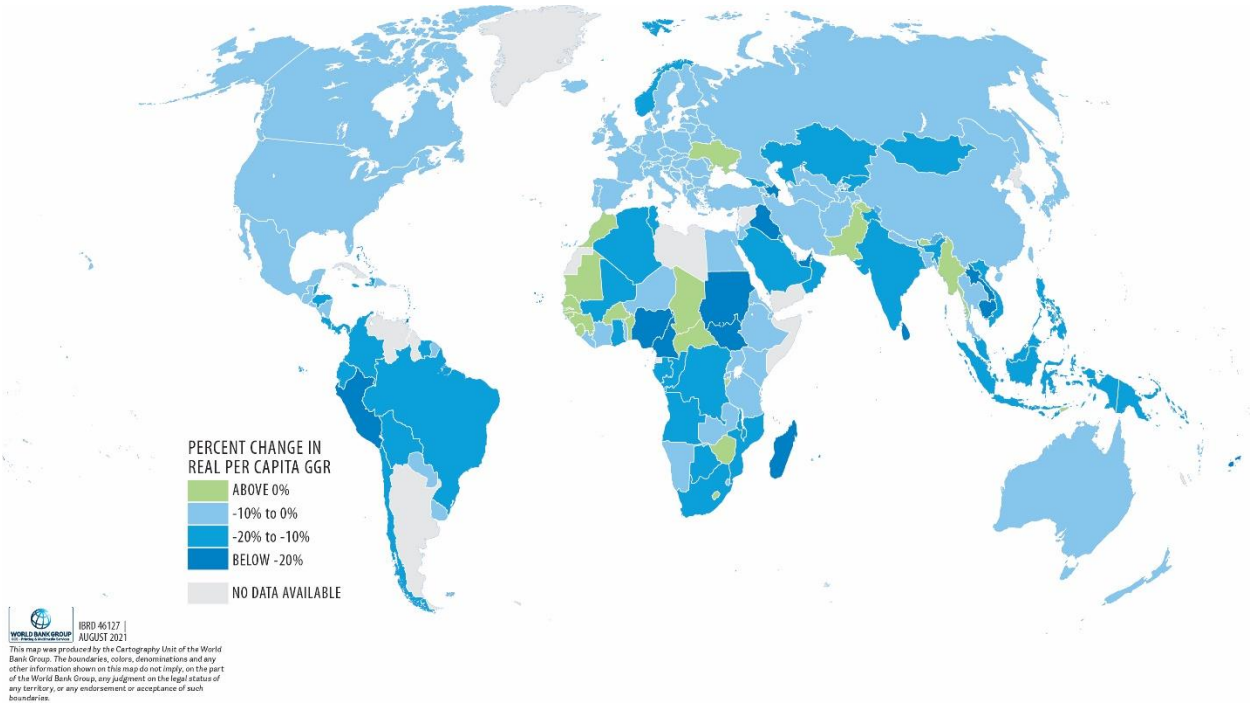
eight LICs, 13 LMICs, four UMICs, and one HIC (map 2).[6] On the other hand, 20 countries are likely to have experienced falls in excess of 20 percent. In this case, three were LICs, six LMICs, six UMICs, and five HICs.[7]

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



Source: Data from (IMF 2021a)

There is also considerable variation across countries in terms of the projected return to growth in GGR per capita. At the extreme, real GGR per capita is projected to remain below pre-COVID-19 levels throughout the period from 2021 to 2026 in 49 countries.[8] Again, the implications for government capacity to spend, including on health, are considered in the next section.

General government expenditures

Globally, most countries responded to the COVID-19 crisis by increasing per capita general government expenditure (GGE) in 2020 (figure 5). While per capita GGR declined in most settings, government spending needs increased because of the urgent requirement to fund the health sector pandemic response and protect people, jobs, and firms during the recession. Higher government investments were

[6] **LICs**: Burkina Faso, Burundi, Central African Republic, Chad, the Gambia, Guinea, Guinea-Bissau, Sierra Leone; **LMICs**: Benin, Bhutan, Comoros, Lesotho, Mauritania, Morocco, Myanmar, Pakistan, Sao Tome and Principle, Senegal, Timor Leste, Ukraine, Zimbabwe; **UMICs**: Marshalls, Samoa, Tonga, Tuvalu; **HIC**: Nauru.

[7] **LICs**: Madagascar, South Sudan, Sudan; **LMICs**: Cap Verde, Cambodia, Cameroon, Lao PDR, Nigeria, Sri Lanka; **UMICs**: Azerbaijan, Fiji, Iraq, Moldova, Peru, St. Lucia; **HICs**: Bahamas, Brunei, St. Kitts and Nevis, Trinidad and Tobago, United Arab Emirates.

[8] In addition, GGR per capita is projected to fall in at least one year up to 2026 in 10 other LICs (of a total of 18 LICs), 17 of 32 LMICs, 29 of 32 UMICs, and 38 of 44 HICs.

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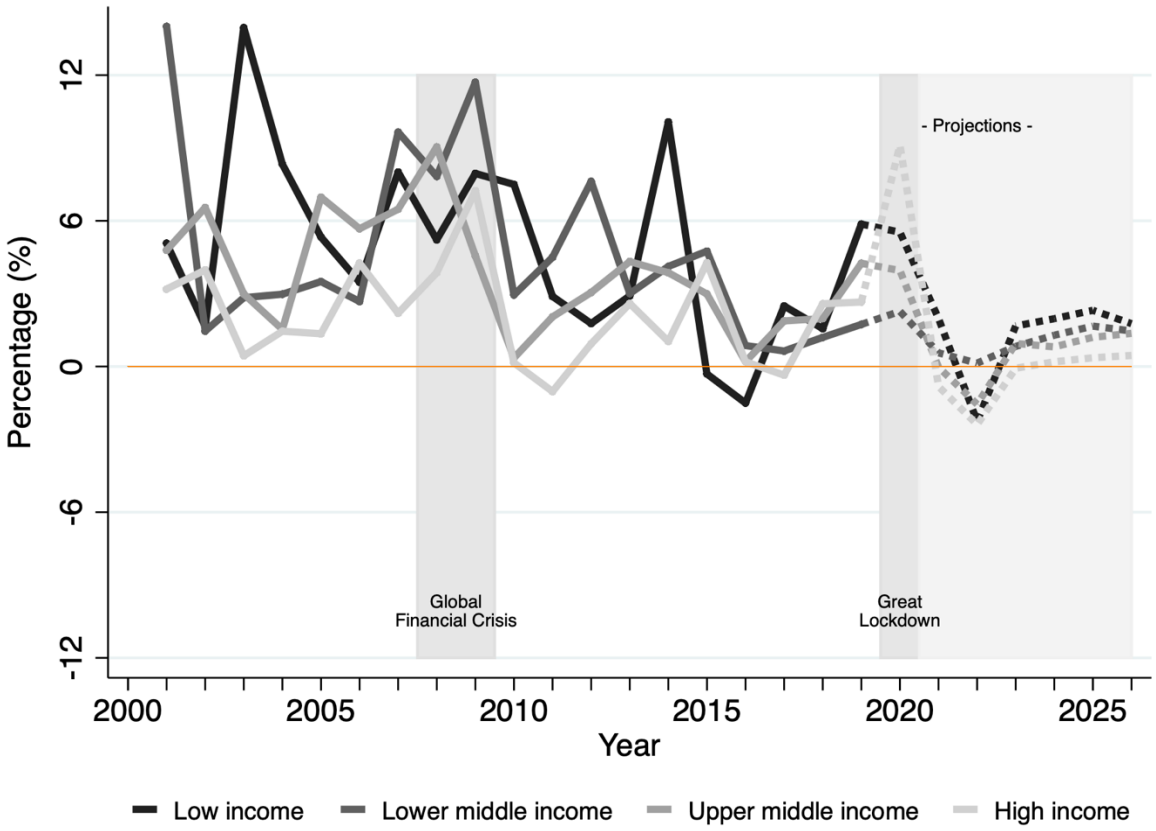
largely funded by increased borrowing, supplemented by grants in lower-income settings (Tandon, Roubal, et al. 2020) (IMF 2021b). On average, countries' general government expenditure per capita is estimated to have grown by 5.4 percent, though in HICs (9.1 percent) and LICs (5.5 percent) proportionally more than UMICs (4.0 percent) and LMICs (2.3 percent).

Figure 5. Annual growth rate in real per capita general government expenditure (GGE), 2000-2026



Source: Data from (IMF 2021a).

In 2021, GGE per capita is projected to continue growing on average in LICs, LMICs, and UMICs (figure 6). In 2022, however, it is expected to fall, before it rises in these three income groups from 2023 on. For HICs, falls are expected annually from 2021-2023 before average GGE per capita starts to rise. By the end of 2026, GGE per capita is projected to be for all income groups on average above pre-COVID levels and above 2020 levels for LICs, LMICs, and UMICs.

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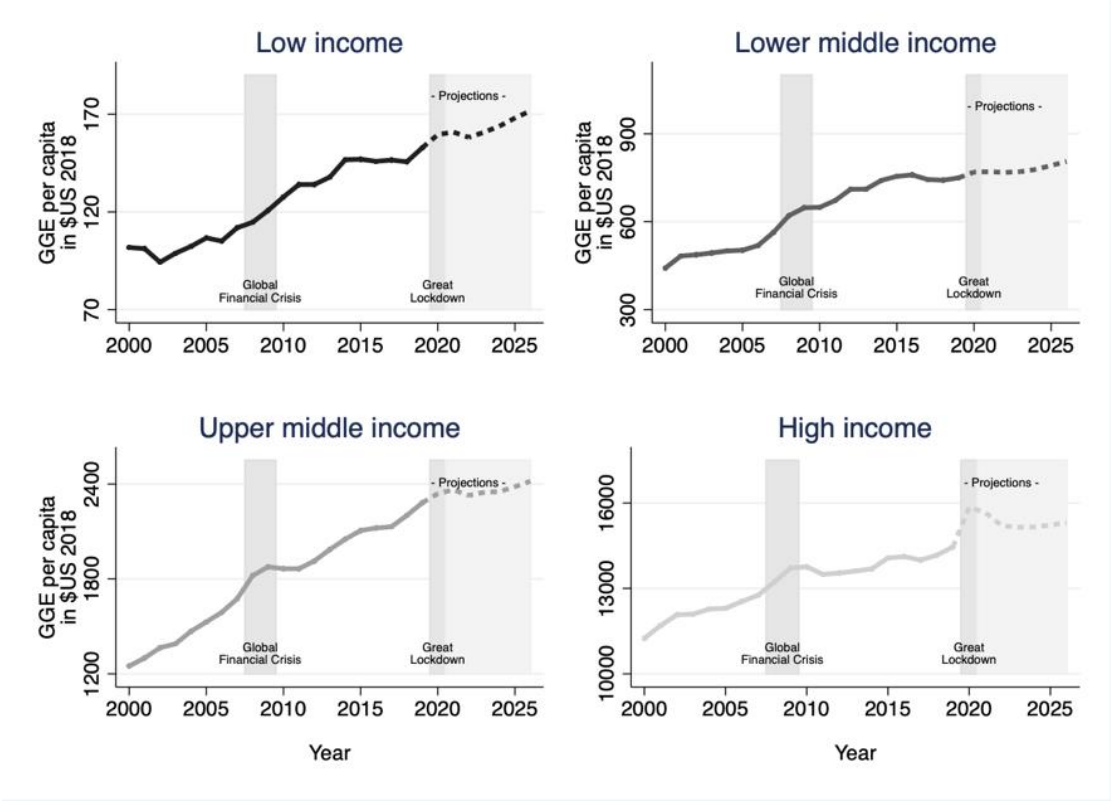
Figure 6. Per capita general government expenditure (GGE), 2000-2026. (Constant 2018 US$)



Source: Data from (IMF 2021a)

A world divided

The average of GGE per capita growth estimates for the four country income groups hide considerable variation across countries (map 3). In 2020, for example, despite the average increases in GGE per capita in LICs and LMICs, GGE per capita is estimated to have fallen in almost half of these countries (36 out of 73). Falls are estimated to be have occurred less frequently among higher-income countries – in only 13 of the 46 UMICs and in six of the 58 HICs.

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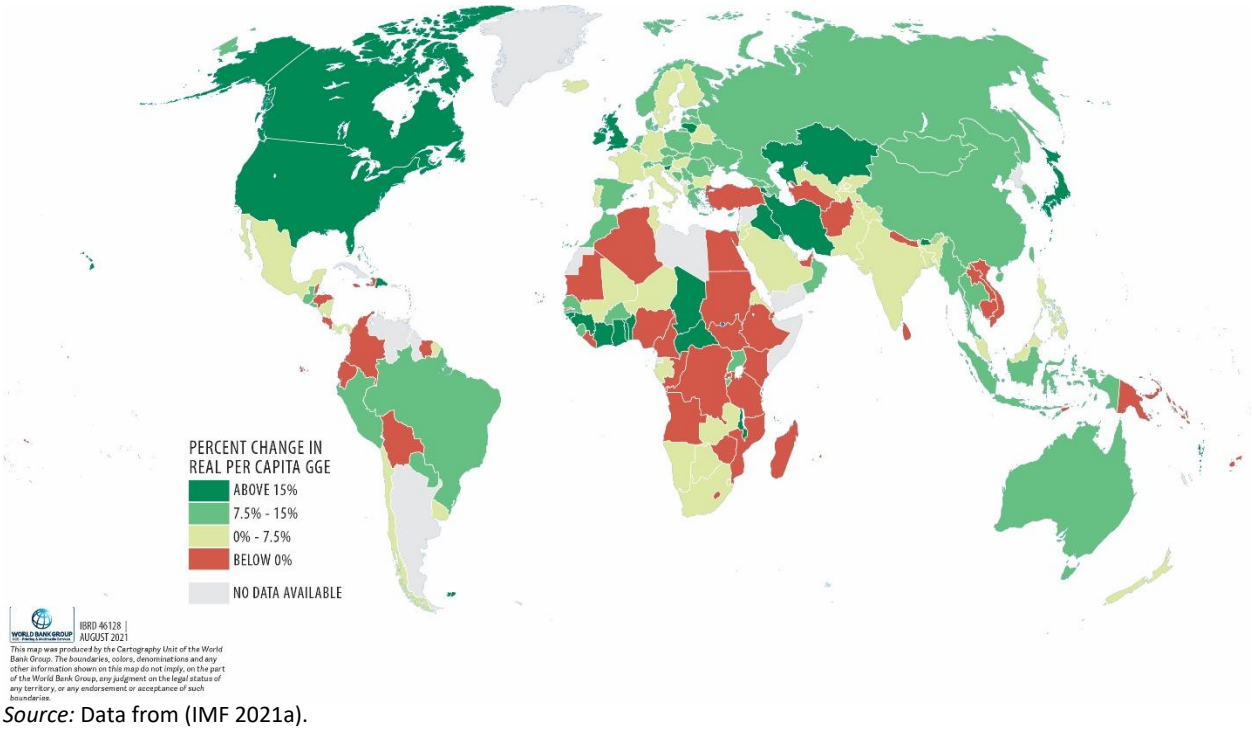
Map 3. Estimated percentage change in real per capita general government expenditure, 2020



Source: Data from (IMF 2021a).

Projections of future trends in general government expenditure per capita also show substantial variations, underscoring that future spending capacities are likely to differ considerably across countries in the medium term. The differences in the outlook reflect variations in the macro-fiscal constraints presented earlier, including the projected changes in GDP and GGR per capita.

Taking pre-COVID-19 per capita spending levels as the benchmark, 126 countries are projected to increase their government spending capacity by 2026, that is, their levels of per capita GGE in 2026 are expected to exceed the levels in 2019. The remainder of this paper refers to this group as GGE-growth countries.

In contrast, a set of 52 countries are projected to see a drop in their spending capacity through 2026, that is, their levels of per capita GGE in 2026 will fall short of their government spending levels in 2019.[9] The remainder of this paper refers to this group as non-GGE-growth countries. The non-GGE-growth countries are currently home to approximately 900 million people, the majority of them (64.3 percent) living in lower income countries.

[9] Broken down by income groups, the 52 countries are as follows. **LICs**: Afghanistan, Burundi, Liberia, Mozambique, Sierra Leone, South Sudan, Sudan; **LMICs**: Algeria, Angola, Bolivia, Cameroon, Comoros, Republic of Congo, Djibouti, Eswatini, Kiribati, Lesotho, Micronesia, Nigeria, PNG, Sao Tome and Principe, Timor Leste, Vanuatu, Zambia; **UMICs**: Belize, Botswana, Costa Rica, Dominica, Ecuador, Fiji, Jordan, Maldives, Mexico, Namibia, South Africa, St. Lucia, Surinam, Turkmenistan; **HICs**: Antigua and Barbuda, The Bahamas, Bahrain, Iceland, Kuwait, Nauru, New Zealand, Oman, Palau, Qatar, Saudi Arabia, St. Kitts and Nevis, Trinidad and Tobago, United Arab Emirates.

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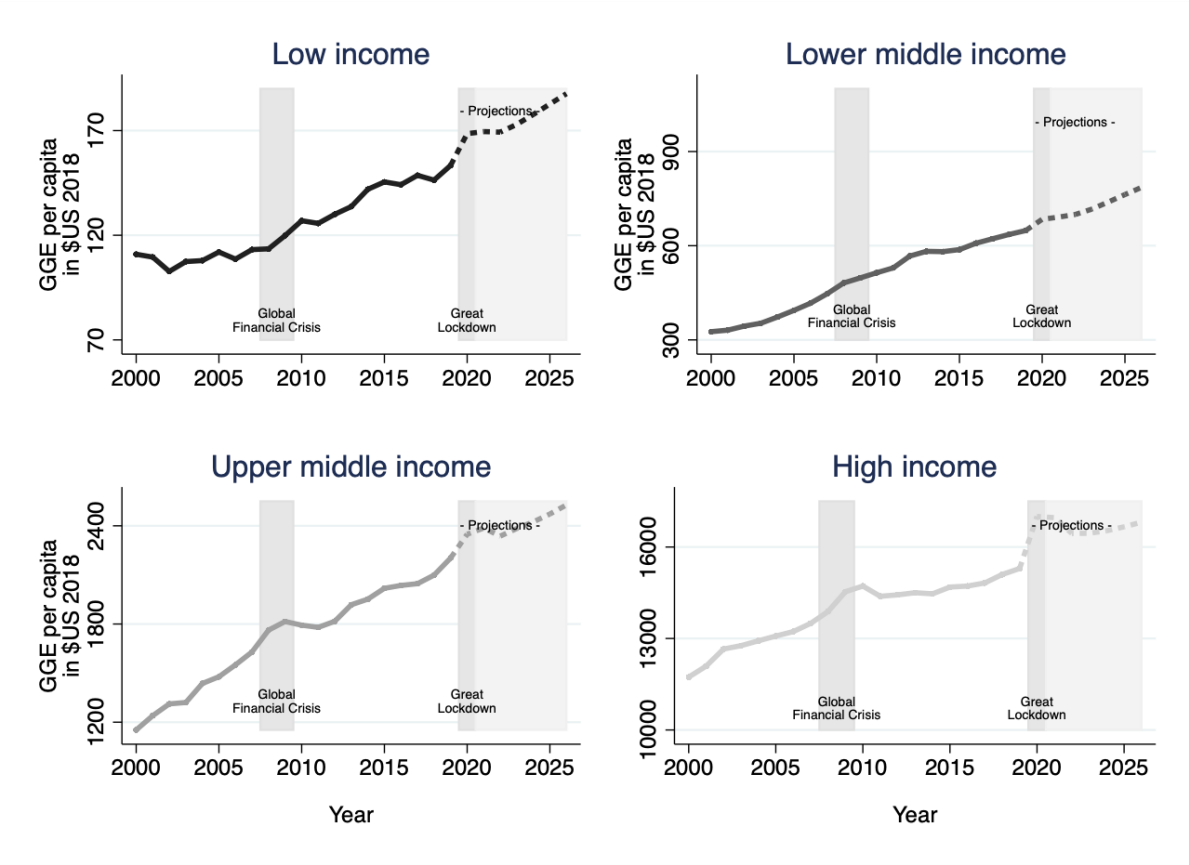
GGE-growth countries

Among the 126 GGE-growth countries, for LMICs, average per capita GGE is projected to grow steadily over the entire period from 2021 to 2026 (figure 7). However, in LICs and UMICs, it is expected to fall in 2022 before rising again, while in HICs it is expected to fall during both 2021 and 2022. In HICs, the drop is sharp, and GGE per capita is not expected to return by 2026 to the elevated levels of 2020 (though it always exceeds the pre-COVID-19 level of 2019). As a result of these trends in the early years, in nine of the 126 countries, per capita GGE is expected to drop below pre-COVID-19 levels in 2022.[10]

Figure 7. Per capita general government expenditure (GGE), by income group, 2000-2026, 126 GGE-growth countries. (Constant 2018 US$)



Source: Data from (IMF 2021a)

Across all income groups, most of the 126 GGE-growth countries are expected to see temporary falls in GGE per capita in either 2021, 2022, or both years, with many of them projected to experience falls in three or more years during the 2021-2026 period.[11] In other words, despite the net positive GGE per capita growth over the entire five-year time horizon, most of the GGE-growth countries will experience periods of fiscal adjustment, particularly in the early years.

[10] Broken down by income class, the nine countries are as follows. **LICs:** Democratic Republic of Congo. **LMICs:** Tanzania. **UMICs:** Brazil, Jamaica, Tuvalu. **HICs:** Mauritius, Panama, San Marino, Uruguay.

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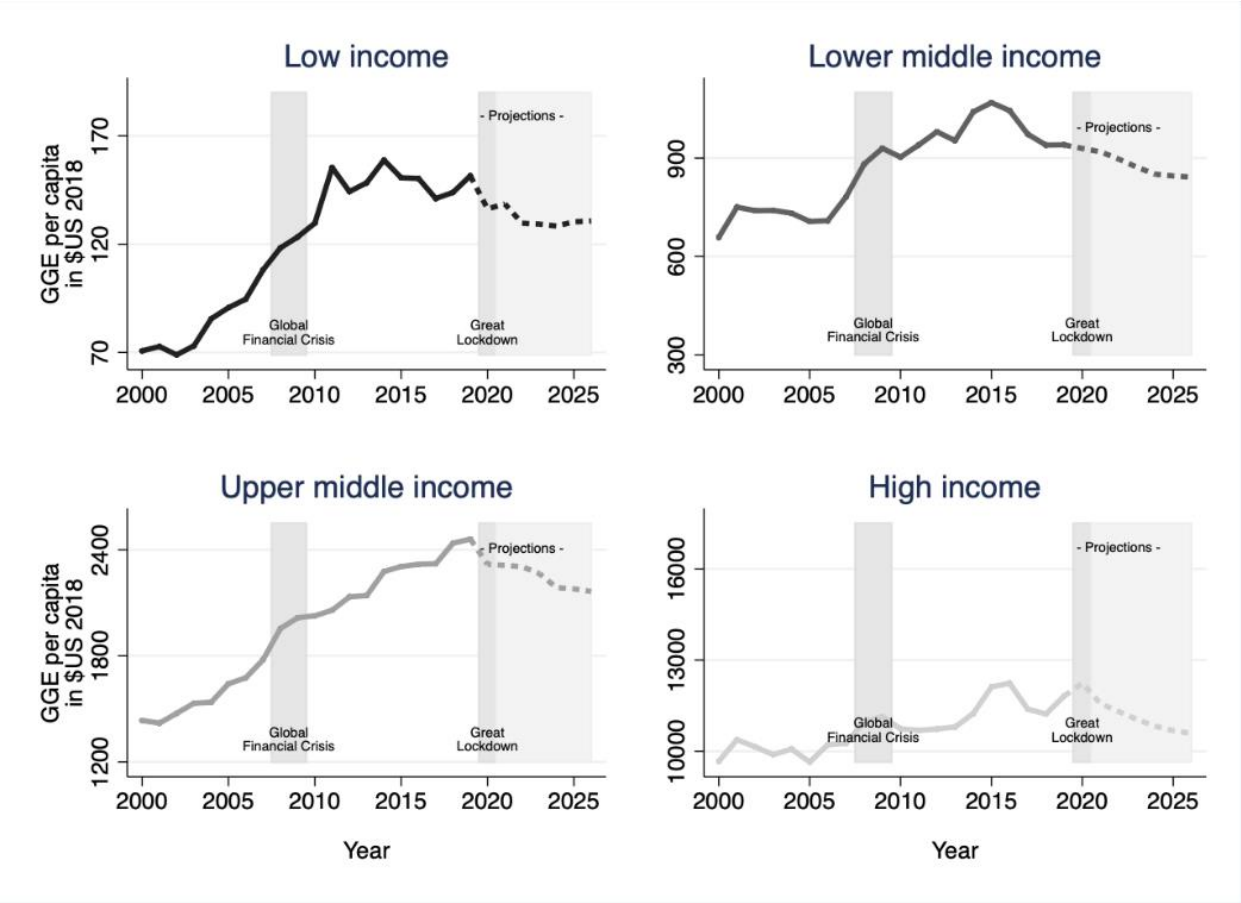
An added complication in close to two-third of GGE-growth countries is that debt service requirements will take up an increasing share of GGE, reducing the amounts that governments will be able to spend on activities to improve the immediate welfare of their populations.[12]

Non-GGE-growth countries

The 52 non-GGE-growth countries are in a considerably worse position (figure 8). Across all income classes, the average GGE per capita is expected to decline substantially over the period 2021-2026. For LICs, LMICs, and UMICs, it is also estimated to have already fallen in 2020. In HICs, it is expected to have increased in 2020, but projected to fall annually starting in 2021 and continuing through 2026.

Figure 8. Per capita general government expenditure (GGE), by income group, 2000-2026, 52 non-GGE-growth countries. (Constant 2018 US$)



Source: Data from (IMF 2021a).

[12] For two of 126 GGE-growth countries, debt service data are unavailable - Samoa (UMIC) and Singapore (HIC). Among the remaining 124 countries, 77 are predicted to see the debt-service-to-GGE ratio grow - on average from 5.8 percent in 2019 to 8.3 percent in 2026.

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Nevertheless, many of these countries will see some years of growth in GGE per capita, in particular in the early years of the forecast period. For example, in eight out of the 52 countries, per capita government spending levels in 2022 are expected to exceed pre-COVID-19 levels.[13]

In close to two-thirds of the 52 non-GGE-growth countries, debt-service requirements are expected to constitute an increasing share of GGE, with countries having even fewer resources to spend on strategies to improve the welfare of their populations.[14] In ten of the 52 non GGE-growth countries, debt challenges may be the main constraint on government per capita spending as they are expected to experience growth in both GDP per capita and GGR per capita, but falls in GGE per capita.[15]

HOW WILL THE COVID-19 CRISIS AFFECT HEALTH FINANCING?

In general, the higher a country's GDP per capita, the higher its health spending per capita. To illustrate, in 2018, the latest year for which country expenditure data from the WHO Global Health Expenditure Database are available, current per capita health spending averaged US$40 in LICs, US$124 in LMICs, US$439 in UMICs, and US$3,026 in HICs (WHO 2021b).[16]

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.

This section analyses the expected impact of the COVID-19 crisis on these three primary sources of health spending: government, household out-of-pocket, and external.

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, part is typically also channeled through government budgets.

As discussed earlier, in the 126 GGE-growth countries, general government expenditure is expected to rise above pre-COVID-19 levels by 2026. Most of these countries, however, will likely face years of

[13] Broken down by income groups, the eight countries are as follows. **LMICs**: Kiribati, Sao Tome and Principe, Timor Leste; **UMICs:** Jordan, Maldives; **HICs:** Bahamas, Iceland, New Zealand.

[14] For three of the 52 non-GGE-growth countries, debt service data are unavailable. These countries are Naura, Palau, and Turkmenistan (all HICs). Among the remaining 49 countries, 33 are expected to see their debt-service-to-GGE ratio grow, on average from 5.0 percent to 8.7 percent. This increase is not only the result of the decline in GGE per capita, but also increases in the debt per capita levels.

[15] For six of these ten countries, debt service as a share of GGE per capita is projected to steadily increase over the period to 2026 and for another two, it is projected to rise sharply in 2021 and 2022, before starting to slowly fall. In the remaining two of the ten countries, debt service exceeded ten percent of GGE per capita even before the crisis.

16. The System of Health Accounts 2011 separates health expenditures into "current" expenditures and "investment in health capital formation." Current expenditures comprise the final consumption of health care goods and services, "including personal health care (curative care, rehabilitative care, long-term care, ancillary services, and medical goods) and collective services (prevention and public health services as well as health administration), but excluding spending on investments" (OECD 2021).

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reductions in government spending. Many will also see the debt-servicing share of GGE per capita rise. But again, in these 126 jurisdictions, GGE per capita will rise overall and in many cases substantially exceed pre-COVID-19 levels in 2026. In contrast, the 52 non-GGE-growth countries are projected to experience falls in GGE per capita, with 2026 levels remaining below pre-COVID levels. On average, these countries are expected to face even more pronounced periods of government spending cuts and a greater rise in the debt-servicing share of GGE per capita. For the two country groups, the implications for government health expenditure (GHE) are quite different.

What priority for health?

In all countries, the impact of the expected changes in GGE per capita on 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 general government spending. In contrast, if governments give health higher priority in their spending, GHE per capita can rise, possibly even in years where GGE per capita falls.

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

Historically, 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 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 (Gottret, et al. 2009); (Hou, et al. 2013); (Maresso, et al. 2015); (Musgrove 1987); (Thomson, et al. 2015).

The current crisis differs from those 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 through deficit financing - although the response was more common among higher-income countries, with almost half of LICs and LMICs opting not to adopt this approach.

While data on actual health spending in 2020 will not be available for some time,[17] many countries also report that they took steps to increase the availability of funds for health in 2020, such as through supplementary budgets or access to emergency funds (Kurowski, Tandon, et al. 2020c) (WHO 2020a). Therefore, in the current crisis, many countries have likely adopted countercyclical health spending strategies in 2020. The question is what comes next, and how spending needs and capacities may differ for the two groups of GGE-growth and non-GGE-growth countries.

17 WHO's Global Health Expenditure data base is unlikely to include data on country health spending before the end of 2022.

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

Based on past patterns, and considering the specific nature of the current crisis, the evolution of government health spending per capita in the wake of the pandemic is projected under four 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[18]

- **Scenario 2: Status quo priority to health in government spending**. In scenario 2, the pre-pandemic share of health in government spending is held constant, and per capita government spending on health follows the trend in general government spending.[19]

- **Scenario 3: Pro-health spending**. This scenario assumes that the trend in per capita government health spending observed in the decade before COVID-19.[20] This is considered an optimistic scenario for the majority of countries where per capita GHE had been increasing between 2009 and 2019: optimistic because health spending continues to increase post-COVID-19 despite the 2020 falls in GDP and GGR; and especially optimistic for the 52 non-GGE-growth countries.[21] Higher spending levels under this scenario would allow the health sector to meet at least some of the continued spending needs associated with the pandemic in 2021 and beyond, and may also help countries progress further towards UHC.

- **Scenario 4: High-ambition spending**. Governments increase their health spending at the pre-COVID-19 rate, but also seek to partially compensate for lower household OOP health spending in the majority of countries where GDP per capita fell in 2020, and in those countries where GDP per capita is projected to fall from 2021. The rationale is that at least some of the lower OOPs represent a reduction in households' abilities to use needed health services because of the falls in household incomes associated with lower GDP per capita (see the next section).[22] This scenario is even more optimistic than the pro-health spending scenario 3 for the countries with projected medium-term falls in GDP per capita.

The implications of these scenarios are discussed first for the 126 GGE-growth countries and then for the 52 non-GGE-growth countries. The separate analysis for these two groups is important, given the central role of general government spending capacity in shaping countries' health-spending options.

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18. For details on the calculation of the elasticity of government health spending with respect to GDP per capita, see annex 1.
19. The pre-COVID-19 share reflects the average over the period 2016-2018 (see also annex 1).
20. The pre-COVID-19 trend reflects the average growth of GHE per capita during the years 2009-2018 (see also annex 1).
[21] For countries where the pre-COVID-19 trend was negative, the projections hold GHE per capita constant from 2019.
[22] To estimate lower household OOP health spending, OOP per capita for the years 2020 to 2026 is predicted based on IMF's pre-COVID (October 2019) GDP per capita growth projections and IMF's most recent (April 2021) GDP per capita growth projections. If predicted OOP per capita based on the most recent IMF data is lower than predicted OOP per capita based on pre-COVID IMF data, the difference is added to the projected government health expenditure (GHE) per capita in scenario 3. For details see annex 1.

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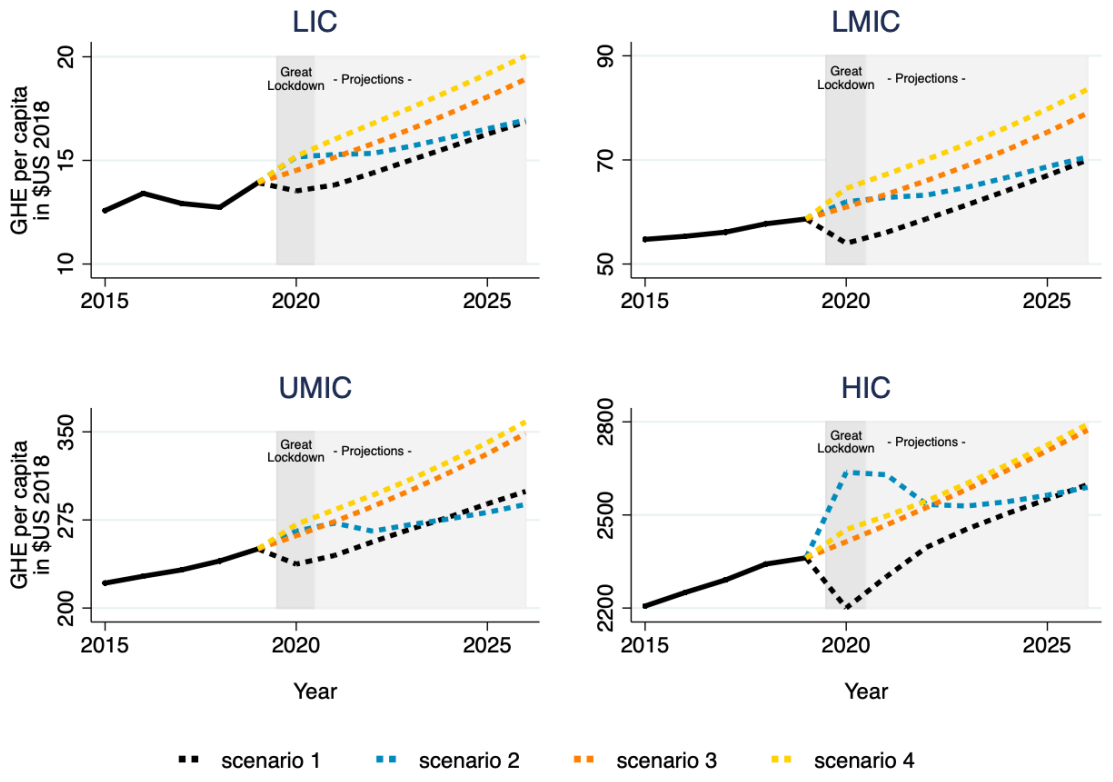
Government health spending prospects in the 126 GGE-growth countries

For the 126 GGE-growth countries, **scenario 1** shows a fall in government health expenditure (GHE) per capita in 2020 for all income groups, tracking the fall in GDP per capita in all income groups (figure 9). GHE per capita then starts to rise with the increase in GDP per capita from 2021.

Figure 9. Per capita government health expenditure (GHE), by income-group, 126 GGE-growth countries, 2015-2026. (Constant US$ 2018)



Source: Original calculations based on (IMF 2021a) and (WHO 2021b).

Scenario 2 suggests a rise of GHE per capita in 2020 for all income groups, driven by the increases in GGE per capita as part of the pandemic response. However, what follows is a fall in either 2021, 2022, or both, mirroring the drops in overall per capita government spending. The falls in GHE per capita are on average relatively minor in LICs and LMICs compared to the higher-income countries, particularly in HICs following the spending hikes in 2020.

Scenarios 3 and 4 show continual increases in GHE per capita. Scenario 3 and 4 GHE per capita projections exceed spending levels in the other scenarios for all income groups, except for HICs in the early years of scenario 2 (until 2023), where government spending substantially increases in response to the pandemic. A similar, though less strong effect is seen for the other income groups in 2020, with projected spending levels in scenario 2 exceeding spending levels in scenario 3, but not scenario 4. By 2026, however, per capita spending levels in scenarios 3 and 4 are substantially higher than in scenarios 1 and 2 in all income groups. The choices countries make have important implications for government health spending in 2026. For example, the average real GHE in LICs under scenarios 1 and 2 would be US$17 per capita, compared

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to US$19 under scenario 3 and US$20 under scenario 4. The difference between the scenarios becomes greater with increasing income levels: scenario 4 results in US$14 per capita additional spending in 2026 compared to scenario 1 in LMICs (US$70 versus US$84); in UMICs the difference is US$59 per capita (US$299 versus US$358); and in HICs, US$193 per capita (US$2,598 versus US$2,791).

Scenario trends and the priority given to health in the 126 GGE-growth countries

Despite the continual growth in GDP, GGR, and GGE per capita between 2021 and 2026, the 126 GGE growth countries still need to direct a substantially higher share of their government spending to health, above and beyond pre-COVID to achieve the progress implied in scenario 3 in 2026, levels (table 1). On average, countries will need to move from a pre-COVID-19 share of 11.7 percent of government spending flowing to health to a 13.5 percent share in 2026, an increase of close to two percentage points. The increase in LICs seems more feasible, especially compared to middle-income countries. The required increase in LICs is from 9.4 to 10.3 percent of government spending dedicated to health – a rise of less than one percentage point or, in relative terms, less than 10 percent. In comparison, the needed increase in LMICs is from 8.4 to 10.1 percent, an increase of close to 2 percentage points or, in relative terms, of more than 20 percent.

Table 1. What share of government spending for health? achieving a pro-health spending scenario (Scenario 3) in 126 GGE-growth countries, 2019-2026

Income group	**N**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2026 share minus 2019**
All countries	126	11.7	11.2	11.5	12.2	12.5	12.8	13.1	13.5	1.8
Low income	18	9.4	9.1	9.3	9.7	9.8	9.9	10.1	10.3	0.9
Lower middle income	32	8.4	8.4	8.7	9.0	9.3	9.5	9.8	10.1	1.7
Upper middle income	32	11.7	11.5	11.9	12.7	13.1	13.5	14.0	14.4	2.7
High income	44	14.9	13.9	14.2	15.1	15.5	15.9	16.2	16.6	1.7

Source: Author's calculations.

Government health spending prospects in the 52 non-GGE-growth countries

For the 52 non-GEE-growth countries, **scenario 1** implies a decline in government health spending per capita in 2020 for all income groups, along with the fall in GDP per capita (figure 10).[23] With the predicted return to economic growth in 2021, government health spending per capita then starts to rise. The growth is slow, however, and average spending reaches 2019 levels in LICs only in 2024 and in the other income groups not even in 2026.

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

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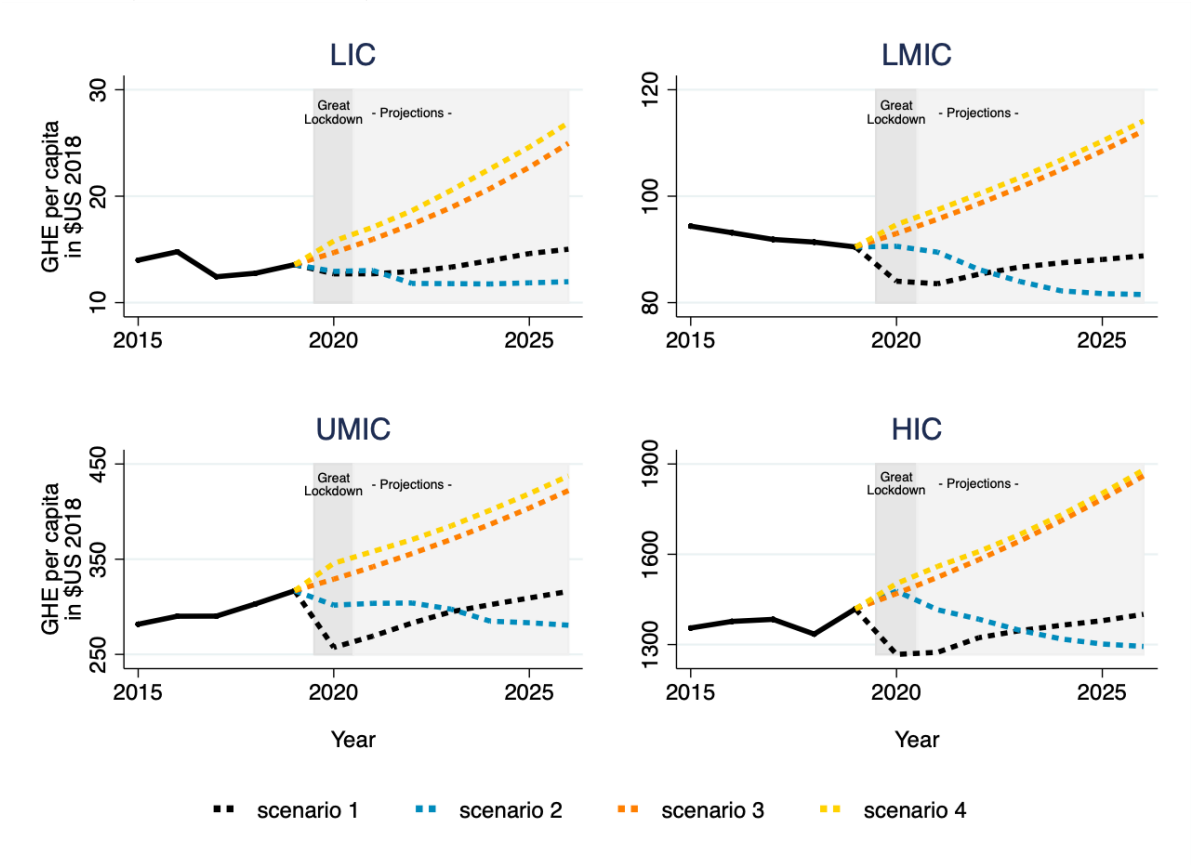
Figure 10. Per capita government health expenditure (GHE), by income group, 52 non-GGE-growth countries. (Constant 2018 US$)



Source: Original calculations based on (IMF 2021a) and (WHO 2021b).

Scenario 2 suggests a decrease in government health spending per capita for 2020 in UMICs, small increases for LICs and LMICs, and substantial increases for HICs. However, spending levels then fall, tracking the projected fall in GGE per capita to the end of the period. Spending levels under scenario 1 overtake those of scenario 2 in either 2022 or 2023, depending on the income group. From 2021, GHE per capita levels remain on average below 2019 spending for all income groups over the entire period.

Scenario 3 shows continual increases in spending, with spending levels exceeding those of scenarios 1 and 2 in all years: the only exception is in 2020, for HICs in scenario 2. There, the fiscal stimulus given in the majority of countries yields greater health spending than implied by holding the pre-COVID-19 rate of increases in GHE per capita constant.

Scenario 4 projects continual increases in the growth of government health spending per capita in excess of scenario 3. It provides an upper bound to the four scenarios in all country income groups.

Again, the choices countries make between the scenarios change the trajectory of health spending, in this case even more than for the 126 GGE-growth countries. Among non-GGE-growth countries, LICs would post their lowest 2026 level of per capita spending under scenario 2, at US$12 per capita, while scenario 4 results in 2026 spending levels of US$26 per capita. The absolute differences are greater with increasing income. In LMICs, scenario 4 results in US$32 per capita of additional spending compared to scenario 2 in

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2026 (US$82 versus US$114); in UMICs the difference is US$156 (US$281 versus US$437); and in HICs it reaches US$586 per capita (US$1,294 versus US$1,880).

Scenario trends and the priority given to health in the 52 non-GGE-growth countries

The non-growth GGE countries will have to massively increase the share of their government spending on health to achieve the spending targets of scenarios 3 and 4. The necessary increases will require shares of government spending dedicated to health in these countries to reach historical highs by 2026 that have been rarely reached even by high-income countries (table 2 and annex 3). On average, non-GGE-growth countries will need to rise the pre-COVID-19 share of 10.5 percent of government spending flowing to health to 17.2 percent in 2026, an increase of close to seven percentage points. In contrast to the GGE-growth countries, the increase among non-GGE-growth countries is highest in LICs: from 10.1 to 20.0 percent. This is a leap of close to 10 percentage points or, in relative terms, approximately 100 percent.

For the non-GGE-growth countries even to attain pre-COVID spending levels in 2026, the share of government spending allocated to health will have to increase on average across all income groups from 10.5 to 12.2 percent or 1.7 percentage points. The necessary increases range from 1.5 to 1.8 percentage points for the individual income groups.

Table 2. What share of government spending for health? achieving a pro-health spending scenario (Scenario 3) in 52 non-GGE-growth countries, 2019-2026

Income group	**N**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**Difference 2019 - 2026**
All countries	52	10.5	11.3	12.1	13.2	14.1	15.1	16.1	17.2	6.7
Low income	7	10.1	11.7	12.1	14.7	15.9	17.3	18.5	20.0	9.9
Lower middle income	17	8.1	8.6	9.2	9.9	10.7	11.5	12.4	13.5	5.4
Upper middle income	14	12.5	13.7	14.4	15.4	16.4	17.6	18.6	19.7	7.2
High income	14	11.7	11.9	13.1	14.1	15.1	15.9	16.9	18.0	6.3

Source: Author's calculations.

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Can lower-income countries mobilize the government resources to finance necessary investment to end the pandemic and prevent future global health crises?

Recognizing that the role out of COVID-19 vaccines is critical to end the pandemic, the global community has come together to set up and strengthen mechanisms to support countries in reaching vaccination coverage levels sufficient to disrupt virus transmission. As of July 2021, the COVID-19 Vaccines Global Access (COVAX) initiative offers 92 eligible low- and middle-income countries free vaccines to cover 30 percent of their populations (WHO 2021c).[24] To immediately vaccinate at least 70 percent of their people, governments would need to generate resources to cover the remaining 33 percent of their populations. To make up this share, countries are eligible to purchase vaccines from COVAX at an average cost of US$7 per dose.[25]

While the global roll out of COVID-19 vaccines is critical for the recovery from the current crisis, improvements in pandemic preparedness and response capabilities are crucial to prevent similar disasters in the future. Two independent panels set up in the wake of the COVID-19 catastrophe have stressed the common good nature of health security and called for a global financing architecture that enables all countries to close critical preparedness and response gaps (G20 2021); (WHO 2021d). More specific plans for such a global response to break the cycle of panic and neglect in financing health security are currently being developed including a new mechanism to help developing countries purchase more vaccines (World Bank 2021b).

With the larger part of the financial burden to end the transmission of the coronavirus and preventing future health disasters falling on countries individually, it begs the question whether lower income countries can raise the necessary resources. The next two sections compare the ability of governments to mobilize resources for health in the years ahead first with the costs of a COVID-19 vaccine roll out and then with the costs of strengthening and maintaining preparedness and response capabilities.

Vaccination

The cost to LICs and LMICs of a roll-out of the currently available vaccines, including the logistical costs of vaccine distribution, but excluding current levels of COVAX support total US$26.9 billion.[26] These costs correspond to 1.5 percent of the combined GGE of these countries expected for 2021, or less than 0.2 percent of the combined GGE of the G7 countries.

Low-income countries

The cost to LICs is roughly US$4.3 billion. On average, these costs compare to 5.1 percent of the expected general government spending in 2021, 64.2 percent of projected government health spending under scenario 2, and 60.9 percent of projected government health spending under scenario 3.

The comparison with the expected net growth in government health spending over levels in 2019 sheds further light on the affordability of the vaccine roll-out (table 3). In LICs under scenario 2, the expected

[24] COVAX is a collaboration of international partners to fund equitable access to COVID-19 tests, therapies, and vaccines in low- and middle-income countries (WHO 2021c). The proportion covered by COVAX is likely to grow over time as new donations are made.

[25] The amount any individual country will pay depends on several factors including the price that Gavi is able to negotiate with the manufacturers, which vaccine the country decides to procure and how much the procurement agent charges for shipping.

[26] Annex 4 presents the details of these calculations.

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net growth in government health spending in years 2021 and 2022 is likely to generate only 28.4 percent of the countries' share of the vaccine roll-out costs with only a single country generating sufficient incremental government health spending to meet the entire costs. The outlook is only slightly better for the subset of GGE-growth countries. On average, the additional health spending is projected to cover 39.5 percent of the countries' cost share. In contrast, non-GGE-growth countries are not projected to generate any incremental funds to finance the vaccine roll-out. In scenario 2, the expected net growth in government spending even over the entire forecast period (2021 to 2026) only constitutes a fraction of the costs of the vaccine roll out in LICs, reaching 62.7 percent.

Under scenario 3, the outlook for LICs only improves marginally. The expected net growth in health spending in years 2021 and 2022 is expected to cover 44.5 percent of the countries' share of the vaccine roll-out costs, and over the entire forecast period, 77.3 percent.

Lower middle-income countries

As a group, the cost of the vaccine roll-out to LMICs is approximately US$22.6 billion. Although a larger sum than in LICs, the costs will require on average a lower proportion of general government expenditure (1.5 percent), and the projected government health spending under scenario 2 (24.6 percent) and scenario 3 (22.4 percent) for 2021.

However, the ability of LMICs to finance the non-COVAX financed share of the vaccine roll-out costs is similarly constrained as in LICs when compared to the expected net growth in government health spending. Under scenario 2, the incremental government funds generated for health in 2021 and 2022 constitute on average only 42.7 percent of the countries' share of vaccine roll-out costs with only 13 countries raising incremental government funds that exceeds these financing needs. In the subset of GGE-growth countries, the average share of incremental government health spending is only slightly higher, 56.1 percent; in the non-growth-GGE countries, it reaches only 17.6 percent. Taking a longer-term perspective, the net growth in government spending for health over the entire forecast period of 2021 to 2026 compares to only 62 percent of the countries' share of the vaccine rollout costs.

Like for LICs, the outlook for LMICs only improves marginally under scenario 3. The expected net growth in health spending in years 2021 and 2022 is expected to cover on average 65.7 percent of the countries' share of the vaccine roll-out costs, and over the entire forecast period, 77.0 percent.

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Table 3: COVID-19 vaccination roll-out costs versus government spending capacity in LICs and LMICs

Country group	N	Costs [million US$ 2018]	GHE net growth as a share of vaccine costs Scenario II 2021 – 2022	GHE net growth as a share of vaccine costs Scenario II 2021 – 2026	GHE net growth as a share of vaccine costs Scenario III 2021 – 2022	GHE net growth as a share of vaccine costs Scenario III 2021 - 2026
LIC total	**25**	**4,260**	**28.4%**	**62.7%**	**44.5%**	**77.3%**
LIC GGE-growth	18	3,166	39.5%	87.1%		
LIC non-GGE-growth	7	1,094	0.0%	0.0%		
LMIC total	**49**	**22,598**	**42.7%**	**63.4%**	**65.7%**	**77.0%**
LMIC GGE-growth	32	19,786	56.1%	90.8%		
LMIC non-GGE-growth	17	2,812	17.6%	11.8%		

Source: Author's calculations.
Note: For scenario 3, the table includes only aggregate figures for LICs and LMICs, as the break-down into GGE-growth and non-GGE-growth countries is scenario 2 specific.

Pandemic preparedness and response

Little is known about the spending needs to strengthening and maintaining pandemic preparedness and response capabilities. The few available estimates vary widely, from one to two-digit dollar figures per capita in low and middle-income countries (World Bank. 2017) (World Bank 2019).

Working with the most conservative estimates, the cost to LICs and LMICs of strengthening and maintaining pandemic preparedness and response capabilities total approximately US$5.3 billion per year.[27] These costs correspond to 0.3 percent of the combined GGE of these countries expected for 2021, or, less than 0.03 percent of the combined GGE of the G7 countries.

Low-income countries

The combined cost to LICs to strengthen and maintain health security is an estimated US$ 885 million per year (table 4). On average, these costs compare to 1.1 percent of the projected general government spending in 2021. As regards to government spending on health, the costs total 13.3 percent under scenario 2, and 12.7 percent under scenario 3 for 2021.

Independent of the scenarios for future government health spending, the prospects of LICs to raise the funds needed to strengthen and maintain pandemic preparedness and response capabilities are severely constrained. In scenario 2, the expected growth in government health spending in 2021 (relative to 2019) is on average 55.4 percent of the annual preparedness and response costs. Only nine LICs are expected to generate incremental government funding for health that is sufficient to cover these costs in full. The outlook is only slightly better in the sub-set of GGE-growth countries – on average 66.1 percent; in contrast to the non-GGE-growth LICs, where it is on average only 27 percent. These prospects for LICs as a whole are expected to improve only slightly over time, with the incremental government spending on health expected to reach 63.5 percent as a share of the preparedness and response costs in 2026. By then

[27] Annex 4 presents the details of these calculations.

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though, the incremental government spending on health in non-GGE-growth countries will turn negative thought.

In scenario 3, the outlook for LICs is only marginally better, with the net growth in government spending as a share of the annual preparedness and response costs on average reaching 59.1 percent in 2021 and 78.3 percent in 2026.

Lower middle-income countries

The combined costs of strengthening and maintaining pandemic preparedness and response capabilities in LMICs is approximately US$4.4 billion per year. The costs compare to 0.3 percent of general government expenditure, and, in terms of government health spending, 4.8 percent under scenario 2, and 4.4 percent under scenario 3 in 2021.

Also for LMICs, the prospects to raise the additional funds needed to strengthen and maintain pandemic preparedness and response capabilities are highly constrained. In scenario 2, the incremental funds generated for health in 2021 constitute on average 50.1 percent of the annual preparedness and response costs. Only 19 countries are expected to raise additional government funds that are sufficient to cover the entire spending needs for preparedness and response. In the GGE-growth LMICs, the average share is slightly higher (66.7 percent); in the non-growth-GGE LMICs, it falls short of 20 percent. In the longer term, the prospects for LMICs improve only slightly with incremental government funding for health expected to reach on average 62 percent of the annual spending needs on health security in 2026.

Like for LICs, the outlook for LMICs only improves slightly under scenario 3. The expected increase in government spending in 2021 (over 2019) is expected to reach on average 72.8 percent of the health security spending needs in 2021, and 77.4 percent in 2026.

Table 4: Incremental annual health security costs versus government spending capacity in LICs and LMICs

Income Group	N	Annual costs [million US$ 2018]	GHE growth as a share of HS costs Scenario II 2021	GHE growth as a share of HS costs Scenario II 2026	GHE growth as a share of HS costs Scenario III 2021	GHE growth as a share of HS costs Scenario III 2026
LIC total	25	885	**55.2%**	**63.5%**	**59.1%**	**78.3%**
LIC GGE growth	18	658	66.1%	88.2%		
LIC non-GGE-growth	7	227	27.0%	0.0%		
LMIC total	49	4438	**50.1%**	**61.3%**	**72.8%**	**77.4%**
LMIC GGE-growth	32	3886	66.7%	93.9%		
LMIC non-GGE-growth	17	552	19.0%	0.0%		

Source: Author's calculations.
Note: For scenario 3, the table includes only aggregate figures for LICs and LMICs, as the break-down into GGE-growth and non-GGE-growth countries is scenario 2 specific.
GHE growth as a share of health security (HS) costs

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Troublesome choices

Lower-income countries will lack the spending capacity to make the critical investment to halt the transmission of the coronavirus and prevent similar, future crisis. The incremental funds available for health (relative to 2019 levels) in LICs and LMICs under the different GHE per capita scenarios will cover only a fraction of the countries' share of the vaccine roll out costs, even though the country share is likely to fall over time as new donations are made to COVAX. If the same incrementally available funds are exclusively deployed to improve preparedness and response, the situation is not much better. Combined, the costs of a vaccine roll out and investment in preparedness and response exceed the projected net growth in government health spending in all low- and lower middle-income countries.

This grim outlook holds true even for government health spending scenario 3, which, on average, assumes substantial increases in the prioritization of health in government spending. In non-GGE-growth countries, however, the necessary increases in the share of government expenditures on health to attain scenario 3 spending targets are immense and without any precedent.

Without a major ramp up of global funding for health, these prospects are likely to have two immediate consequences in lower-income countries: First, a sluggish scale up of vaccination coverage. And second, minimal, if any improvements in preparedness and response capacities.

Left without additional support, lower-income countries will face pressures to reduce their spending on other health areas and thus free up resources to finance the most urgent pandemic response activities. This option, however, is neither feasible nor desirable. To meet the spending needs for the vaccine roll-out and investments in preparedness and response capacities, governments of LICs would have to repurpose more than 50 percent of their current spending on health and, in LMICs, more than 20 percent. From a public finance perspective, such massive shifts in budgets are in the short and medium-term unfeasible. Moreover, they would have dramatic consequences for progress toward UHC, in countries where government health spending growth was insufficient to attain the health Sustainable Development Goals and targets even pre-COVID 19 (World Bank 2019; Gaspar et al. 2019).

Household out-of-pocket spending: Less is more?

Some countries relied heavily on household OOPs as a source of financing for health before the pandemic. In 2018, the share of OOPs in country health expenditure averaged 42.3 percent in LICs and 38.7 percent in LMICs (WHO 2021b).

As GDP per capita drops, household capacity to pay health expenses out-of-pocket typically falls. This then leads to a decline in utilization of health services that require payment, and sometimes to an increased use of free or subsidized services, if they are available. In the current crisis, this effect is aggravated by fear- and lockdown-related declines in health service utilization documented across many countries (WHO 2020b), (WHO 2020c). On the other hand, possible declines in government health spending may reduce the availability and quality of government services, spurring an increased need to use private health services – in which case OOPs might rise. Data on OOPs in health for 2020 will not be available for some time, and their collection may be further delayed because of the difficulty in conducting large household expenditure surveys during COVID-19.[28]

[28] As of 4 September 2021, WHO's Global Health Expenditure Database shows data up to 2018.

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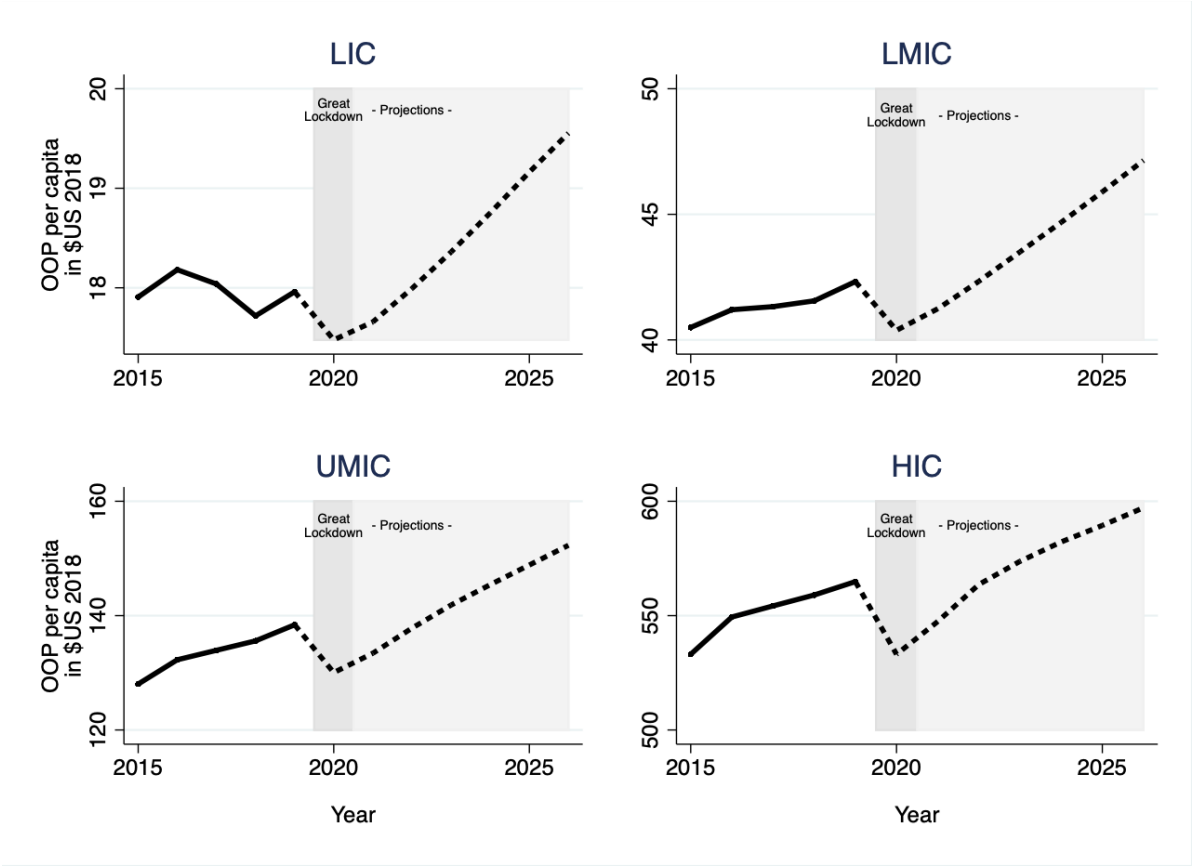
The projections of OOPs presented here are based on the historical elasticity of OOPs per capita to changes in GDP per capita across countries, estimated at 0.9.[29] This suggests that a 1 percent fall in GDP per capita would result in a decline in OOPs per capita of slightly less than 1 percent (0.9 percent), consistent with a recent study of the determinants of OOPs (Xu, Saksena and Holly 2011). This pattern is also consistent with findings from previous recessions suggesting that OOPs falls with declining GDP (Gottret, et al. 2009); (Musgrove 1987); (Xu, Saksena and Holly 2011).

Using this relationship, OOP spending per capita is expected to fall when GDP per capita falls – so in most countries it would have fallen in 2020 and would then increase in subsequent years (figure 11). Under these conditions, OOP spending per capita would reach pre-COVID-19 levels in LICs and LMICs in 2022. However, in UMICs and HICs, it will match earlier levels only in 2023.

Figure 11. Projected impact of the recession on household out-of-pocket (OOP) health payments to 2026



Source: Author's calculations based on (IMF 2021a) and (WHO 2021b).

Earlier, it was shown that the IMF projects that 40 countries will not see economic recoveries in 2021, but that their respective levels of GDP per capita will decline over the period 2021-2026. For these countries, the model would project that OOPs per capita would continue to fall.

[29] Methodological details are provided in annex 1.

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Usually, a decline in OOPs per capita would be seen as a positive sign, indicating increased financial protection in health (Saksena, Hsu and Evans 2014). In this case, it is more likely to represent a fall in households' ability to afford needed health services. Governments might choose to compensate for at least part of the reduced consumption by increasing their health spending, as described in scenario 4, but this will be difficult in the 52 countries where GGE per capita is projected to fall over the period 2019 to 2026.

Another complication is that 22 of the 52 non-GGE-growth countries are expected to see rises in GDP per capita over the period, but falls in GGE per capita, linked largely either to falls in GGR or to high or increasing debt-servicing requirements. In these countries, households will have the capacity to increase their OOP spending on health, but governments may well be reducing their health spending from prepaid and pooled sources. The danger is that levels of financial protection will fall in these countries.

External financing for health: a lifeline under threat

Many countries, mostly LICs and LMICs, relied heavily on external financing for health before the pandemic. Countries obtained that financing from bilateral or multilateral partners and foundations. In 2018, the last year for which country health expenditures derived from external sources are available, external financing accounted for over a quarter of current health spending in 25 countries, and over half of current health spending in five countries (WHO 2021b).

In many LICs and LMICs, growth in government health spending was insufficient to meet the health-related Sustainable Development Goals (SDG) goals and targets even prior to COVID-19 (World Bank 2019), (Gaspar, et al. 2019). Any reduction in external funding as a result of the impact of the pandemic in HICs would make it substantially harder for these countries to meet spending needs related to the pandemic and then progress towards UHC and the SDGs. On the other hand, increases in external funding could help offset the projected falls in general government expenditures from in lower-income countries in the years ahead.

The needs are particularly acute in the LICs and LMICs which are likely unable to meet the countries' share in the COVID-19 vaccine roll out and the investment needs to strengthen and maintain preparedness and response capabilities. The global recovery, let alone progress towards UHC and the health SDGs, is at risk without a rethinking of DAH to reflect these countries' needs.

The 2008-09 financial crisis did not immediately result in a decline in external assistance for health. In LMICs, per capita levels of external financing started to fall in 2014 and continued to drop until 2018, the last date for which data are available.[30] In LICs, the corresponding levels fell in 2012, then rose consistently through 2017, before falling again in 2018.

Certainly, the needs of lower-income countries are greater now than in 2008-09, not just because of the pandemic, but also because most of these countries fell into recession in 2020, while the earlier financial crises spared the poorest countries. HICs, the major source of bilateral aid, also have an interest in

[30] This paragraph refers to LICs' and LMICs' 2018 spending of external funding – for example, DAH – as reported in WHO's Global Health Expenditure Database for the countries included in the present analysis. The total amounts that donor countries and organizations report to the OECD Development Assistance Committee (whether commitments, disbursements, or country programmable aid), along with the estimates from the Institute for Health Metrics and Evaluation (IHME), are higher. This is because the OECD and IHME figures include funds classified by donors as development assistance, but which are spent in the donor countries themselves, rather than recipient countries.

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ensuring that COVID-19 is controlled not only within their own borders but also outside, which might lead to increases in their health-aid flows.

On the other hand, the current economic shock is affecting high-income countries more than other countries, with a much deeper recession than in 2008-09. Government borrowing in HICs has also risen substantially, leading to very high ratios of public debt to GDP. Earlier, it was shown that GGE per capita in HICs is projected to fall each year until 2024, only starting to rise again in 2025. This might result in wealthy countries' reducing their development assistance budgets: something that has already happened in the case of at least one major bi-lateral donor (Worley 2020).

It is also possible that HICs might reallocate a portion of the funds that were previously used for external assistance at country level towards investments whose payoffs for wealthy countries' own citizens may be easier to grasp, such as the creation of vaccines and effective COVID-19 therapies. While investment by HIC governments has been critical for the rapid development of a number of COVID-19 vaccines, shifting resources away from country support to fund such efforts could mean lower health expenditures in the poor countries that still rely on external financing.

The future direction of external funding remains unclear

It is hard to predict the trajectory of external funding. Current IMF projections, however, suggest that overall external funding in the form of grants to LIC and LMIC governments may have risen in 2020, but will then fall consistently, in per capita terms, each year to 2026. Similar patterns are projected for the individual countries in each income group.[31] Unless donor and recipient governments choose to allocate a higher proportion of on-budget external grant funding to health, external financing for health would also fall from 2021 onwards.

[31] These calculations do not include development assistance that is not channeled through government budgets, which can be quite significant in some countries.

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CONCLUSION: WIDENING HEALTH FINANCING RIFTS MEAN GROWING RISKS—FOR ALL COUNTRIES

This publication has updated and extended the analysis presented in 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. B. Evans, et al. 2021). The new results presented here show that, with COVID-19, rifts in the capacity of countries to finance health are widening. As they expand, these fractures threaten health and economic recovery for individual countries and the world as a whole. If many lower-income countries cannot afford the investment to control COVID-19, a global double recovery cannot succeed.

Today and in the months ahead, the world is likely to witness the fastest economic growth in the aftermath of any recession in the last 80 years. This swift turnaround in growth numbers, however, cannot hide the fact that a sustained global recovery from COVID-19 poses complex challenges that have yet to be resolved.

Important as they are, growth statistics tell only part of the recovery story. Governments' capacity to ensure strategic investment, notably in health, is vital for a successful rebound from COVID-19. Looking beyond growth data, the IMF's latest macro-fiscal projections show a contrasted picture regarding countries' capacity to maintain and build out crucial public investments in the period 2021 – 2026. During this time span, 126 countries are expected to increase their per capita government spending above pre-COVID levels. But in 52 countries, per capita government spending is projected to remain below the 2019 benchmark.

This distinction between GGE-growth and non-GGE-growth countries has salience for policy choices. Also important are forms of diversity within each of the groups. For example, both groups include both rich and poor countries. In addition—and crucially—in both groups, countries show diversity in the outlook across a wider range of fiscal parameters. Among both GGE-growth and non-GGE-growth countries, prospects vary substantially for the length and depth of periods during which governments are expected to cut their spending. Growing debt service requirements will also differentially constrain countries' ability to invest in the welfare of their populations.

Unaddressed, these disparities in fiscal outlook will leave countries even more divided in their ability to finance recovery from the COVID-19 health shock. When all these variables are considered, a stark rift between countries comes into focus. At one extreme are some higher-income countries in the GGE-growth group—countries whose already-strong health financing capacities are poised to grow further in the years ahead. At the other extreme are some lower-income countries in the non-GGE-growth group—countries whose health spending is historically weak and likely to lose further ground.

For most countries at the lower end of this spectrum, a return to past growth trends in per capita government spending on health is a herculean if not impossible task. For these countries to renew pre-pandemic trends, the share of per capita government spending they assign to health will have to reach historical highs, achieving levels rarely attained even in high-income settings.

Moreover, this exceptional commitment would still not be enough for these countries to reach their double-recovery goals. In the case of a return to past spending trends, growth in health spending in many of these countries will still be insufficient to deliver the investment necessary to end the current pandemic

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and prevent future ones. Analysis of spending needs and available resources for COVID-19 vaccines brings this tension into focus. Today, many lower-income countries face delays or outright failure in mobilizing sufficient funds for a timely, effective rollout of COVID-19 vaccines. Without those resources, countries will be unable to halt the transmission of the coronavirus and the emergence and propagation of new variants. Countries' capacity to invest in strengthening preparedness and response for future pandemics will likewise continue to fall short. The countries where these shortfalls initially manifest will not be the only ones to suffer. By undermining the health recovery in vulnerable countries, along with these nations' future capacity to maintain health security, the fracture between vaccine "haves" and "have-nots" threatens the global economic recovery from COVID-19 as a whole.

Emerging rifts in health financing capacities are likely to be even more far-reaching in their destructive effects. This is because they may force cash-strapped countries into toxic either/or choices in health investment. Funding emergency response and preparedness priorities at the cost of other essential health services would also pose grave risks for a full, sustained double recovery. The Global Financing Facility (GFF), which supports the continuity of essential health services as part of COVID-19 response efforts, has been sounding the alarm of the secondary health crisis for vulnerable populations. Already the initial COVID-19 health shock weakened coverage of non-pandemic health services in many settings, as health-system resources were emergently redirected to the pandemic response. In these countries, growth in government spending on health was often even prior to COVID-19 insufficient to meet the health SDGs goals and targets. Yet, progress toward UHC is critical for human capital development and a full return to inclusive growth.

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. The latest data indicate, however, that in many lower-income jurisdictions, choices are increasingly constrained, and the financing of a full health recovery from countries' own resources increasingly out of reach. Meanwhile, no signs have yet emerged of wealthier countries moving resolutely to break the stagnation in development assistance for health seen in the past decade.

Rifts in health financing capacity between countries were large before the pandemic—and they are widening further in its wake, creating a fault line that threatens the stability of the whole. No more than in the case of a geologic fault will the impacts of fresh upheavals be restricted to one side of the health financing divide. As individual countries suffer setbacks, the shock waves propagate, threatening to reverse hard-won gains elsewhere.

The good news is that, in contrast to geologic shifts, human action can narrow the health financing rift and prevent much of the destruction it could unleash. Coordinated action that benefits countries facing weak government spendingE growth in the years ahead will have positive effects that reach far beyond those countries' borders. The World Bank Group, IMF, WHO, and WTO Multilateral Leaders Task Force has called for urgent international support to step up measures. Only together, countries can bridge the health financing rifts to build a healthier, more secure, more prosperous future for all.

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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 2021a) and on health spending data from WHO's Global Health Expenditure Database (WHO 2021b). As WHO data are only available until the year 2018, GHE per capita in 2019 is inferred by assuming that a country's GHE/GGE ratio in 2019 equals its 2016-2018 average.

Scenario 1

To forecast GHE per capita during the years 2020-2026 this scenario uses the most recent IMF projections (IMF 2021b) 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:

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

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 2020-2026 when combined with current GHE per capita levels and IMF forecasts of GDP per capita.

Data were available for 184 countries between 2000 to 2026 table A 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: implying that each percentage change in GDP per capita is, on average, associated with a change in public health expenditures per capita of about 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 variation in GHE per capita is captured by variation in GGE per capita. 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 close to 0.7, indicating that on average public health expenditures move in the same direction as the general government budget (though less than proportionally), 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).[32] This

[32] 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.

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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***	1.30***	1.17***
	(0.02)	(0.02)	(0.02)
Interaction of log of per capita GDP and contraction		0.03***	0.00
		(0.01)	(0.01)
Log of government spending share of GDP			0.73***
			(0.02)
Interaction of log of government spending share of GDP and contraction			0.05**
			(0.02)
Contraction indicator		-0.21***	-0.13*
		(0.06)	(0.07)
Observations	3,405	3,405	3,382

Scenario 2

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 calculated as the average share of the years 2016-2018. Multiplication of this share with IMF's projected government share of income and GDP per capita produces the GHE forecasts.

Scenario 3

In this scenario governments are either able to maintain positive trends in GHE per capita growth or stop negative trends. Trends in GHE per capita are defined as the average annual growth rate during the years 2009-2018. Out of the 178 countries 23 showed a negative growth trend. For example, South Sudan, Greece, or Jordan saw shrinking GHE per capita during this time period. To forecast health spending in this scenario it is assumed that positive trend growth continues after the year 2019 or – in case of a negative growth trend – that 2019 levels of GHE per capita remain constant. IMF projections play no role in this scenario.

Scenario 4

Here governments maintain positive GHE per capita growth trends and, if necessary, also compensate for a fall in OOP per capita spending that is the result of the COVID pandemic. As OOP per capita values are not available for the years 2019-2026 it is necessary to predict them. Similar to scenario 1 panel fixed effects regression is combined with IMF's GDP per capita growth projections to forecast OOP per capita during the years 2019-2026. If predicted OOP per capita based on IMF's pre-COVID (October 2019) GDP per capita growth projections is higher than predicted OOP per capita based on IMF's current (April 2021)

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GDP per capita growth projections, the difference is equated to the COVID-related fall in OOP per capita and added to the GHE per capita projections from scenario 3.

As before, the contraction indicator and its interaction term were included in the regression specification to accommodate an asymmetric relationship in times of GDP per capita decline. Parameters are estimated using a panel fixed effects regression model. Table A 2 presents the regression results. The income elasticity of OOP with respect to GDP is estimated at about 0.9 (column 1). Inclusion of the contraction indicator leaves the coefficient essentially unchanged (column 2). When combined with OOP per capita levels in 2019 and the two different IMF forecasts of GDP per capita growth from October 2019 and April 2021, the estimated income elasticity of OOP per capita spending produces two different OOP per capita forecasts for the years 2020-2026. GHE per capita projections in this scenario amount to the sum of projected GHE per capita in scenario 3 and the difference – if positive – between the October 2019 and April 2021 OOP per capita projections.

Table A1. 2. Panel fixed effects regression results for estimating income elasticity of OOP spending for health

Log of OOP per capita	(1)	(2)
Log of per capita GDP	0.87***	0.88***
	(0.02)	(0.02)
Interaction of log of per capita GDP and contraction		-0.01
		(0.01)
Contraction indicator		0.12**
		(0.06)
Observations	3,402	3,402

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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 is expected to fall 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 GGR is expected to have fallen more than GDP in 2020, leading to a fall in GGR/GDP in all income groups. The ratio will then start to rise again, exceeding the pre-COVID-19 ratio in 2021 in LICs, but not reaching the pre-pandemic ratio even by 2025 in the other country income groups.

Table A2. 1. Projected shares of government revenue in GDP by country income group, 2019-2026

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	178	30.6	29.9	30.0	29.8	29.9	29.8	29.7	29.5
Low income	25	20.2	19.7	20.4	20.6	20.8	20.9	21.0	20.9
Lower middle income	49	26.7	25.8	25.2	25.2	25.2	25.2	25.2	25.1
Upper middle income	46	30.2	29.1	30.0	29.4	29.5	29.3	29.1	28.8
High income	58	38.9	38.3	38.3	38.0	38.0	37.8	37.7	37.5

Source: IMF, World Economic Outlook, October 2020

GGE. On average, GGE per capita is projected to be substantially higher in 2020 than in 2019 despite falls in GGR (figure 6 in the main text). In 2021, GGE per capita is projected to slightly increase on average in LICs, LMICs, and UMICs before falling in 2022, and then steadily increasing from 2023 onwards. For HICs, falls are expected annually from 2021-2023 before GGE per capita starts to rise.

The implications for GGE/GDP are shown in Table A2 2. GDP is expected to start rising again in all income groups in 2021. The fall or slight increase in per capita GGE combined with the rise of GDP means that GGE/GDP falls in 2021 and 2022. Subsequently, even though GGE begins to rise again, it is projected to rise more slowly than GDP, meaning that after 2020, GGE/GDP would continually fall in all income groups.

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
All countries	178	32.7	36.4	35.7	33.9	33.2	32.6	32.2	31.9
Low income	25	22.9	24.6	24.5	23.2	22.8	22.5	22.4	22.2
Lower middle income	49	29.7	31.8	31.5	30.9	30.2	29.5	29.2	28.9
Upper middle income	46	32.6	35.8	35.7	33.6	32.8	32.2	31.7	31.5
High income	58	39.5	45.9	44.1	41.5	40.5	39.9	39.4	38.9

Source: IMF, World Economic Outlook, October 2020

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Table A2. 3. Projected shares of government expenditure in GDP by country income group, 2019-2026, 126 GGE-Growth Countries

Country groups	**N**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
All countries	126	31.1	35.4	34.9	33.2	32.7	32.3	32.0	31.8
Low income	18	20.2	22.8	22.6	21.8	21.6	21.6	21.5	21.4
Lower middle income	32	25.1	27.6	27.3	26.7	26.3	26.2	26.1	25.9
Upper middle income	32	32.9	36.4	36.8	34.5	34.0	33.5	33.1	32.9
High income	44	38.6	45.4	44.1	41.5	40.8	40.2	39.8	39.5

Source: IMF, World Economic Outlook, October 2020

Table A2. 4. Projected shares of government expenditure in GDP by country income group, 2019-2026, 52 Non-GGE-Growth Countries

Country groups	**N**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
All countries	52	36.5	39.0	37.8	35.9	34.5	33.3	32.7	32.1
Low income	7	29.9	29.2	29.5	26.8	25.9	25.0	24.8	24.3
Lower middle income	17	38.3	39.7	39.6	38.9	37.4	35.8	35.1	34.5
Upper middle income	14	31.9	34.6	33.2	31.4	30.2	29.1	28.6	28.1
High income	14	42.3	47.5	44.3	41.2	39.6	38.7	38.0	37.1

Source: IMF, World Economic Outlook, October 2020

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ANNEX 3. IMPLICATIONS OF THE GOVERNMENT HEALTH SPENDING SCENARIOS

Part 1 - 126 GGE-Growth 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
All countries	126	3.8	3.7	3.7	3.8	3.8	3.8	3.9	3.9
Low income	18	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0
Lower middle income	32	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2
Upper middle income	32	3.9	3.8	3.8	3.9	3.9	3.9	4.0	4.0
High income	44	5.7	5.5	5.6	5.7	5.7	5.7	5.8	5.8

Scenario 2

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	126	3.8	4.3	4.3	4.0	4.0	3.9	3.9	3.9
Low income	18	1.9	2.2	2.2	2.1	2.1	2.1	2.0	2.0
Lower middle income	32	2.2	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Upper middle income	32	3.9	4.2	4.3	4.0	4.0	4.0	3.9	3.9
High income	44	5.7	6.7	6.5	6.1	6.0	5.9	5.8	5.8

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	126	3.8	4.1	4.2	4.2	4.2	4.3	4.3	4.4
Low income	18	1.9	2.1	2.1	2.1	2.1	2.2	2.2	2.2
Lower middle income	32	2.2	2.4	2.4	2.5	2.5	2.5	2.6	2.7
Upper middle income	32	3.9	4.2	4.3	4.4	4.5	4.5	4.6	4.8
High income	44	5.7	6.2	6.1	6.1	6.1	6.2	6.2	6.3

Scenario 4

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	126	3.8	4.3	4.3	4.3	4.3	4.4	4.4	4.5
Low income	18	1.9	2.1	2.2	2.2	2.3	2.3	2.3	2.4
Lower middle income	32	2.2	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Upper middle income	32	3.9	4.4	4.5	4.5	4.6	4.7	4.8	4.9
High income	44	5.7	6.3	6.2	6.2	6.2	6.2	6.3	6.4

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Part 1 – 52 Non-GGE-Growth 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
All countries	52	3.9	3.8	3.8	3.8	3.8	3.9	3.9	3.9
Low income	7	2.8	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lower middle income	17	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Upper middle income	14	3.9	3.7	3.8	3.8	3.8	3.8	3.8	3.9
High income	14	5.1	4.9	4.9	5.0	5.0	5.0	5.0	5.0

Scenario 2

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	52	3.9	4.3	4.1	3.9	3.7	3.6	3.5	3.4
Low income	7	2.8	2.9	2.9	2.5	2.4	2.4	2.3	2.3
Lower middle income	17	3.4	3.6	3.5	3.4	3.3	3.2	3.1	3.1
Upper middle income	14	3.9	4.3	4.1	3.9	3.8	3.6	3.5	3.5
High income	14	5.1	5.7	5.4	5.0	4.8	4.7	4.6	4.5

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	52	3.9	4.5	4.6	4.7	4.9	5.0	5.2	5.5
Low income	7	2.8	3.1	3.4	3.6	3.8	4.0	4.2	4.5
Lower middle income	17	3.4	3.7	3.9	4.0	4.1	4.2	4.3	4.5
Upper middle income	14	3.9	4.7	4.8	4.8	4.9	5.1	5.3	5.5
High income	14	5.1	5.7	6.0	6.1	6.3	6.5	6.8	7.1

Scenario 4

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	52	3.9	4.6	4.8	4.9	5.0	5.2	5.4	5.6
Low income	7	2.8	3.3	3.6	3.8	4.1	4.3	4.5	4.8
Lower middle income	17	3.4	3.8	4.0	4.0	4.1	4.3	4.4	4.6
Upper middle income	14	3.9	4.9	5.0	5.0	5.1	5.3	5.5	5.7
High income	14	5.1	5.9	6.2	6.2	6.4	6.6	6.9	7.2

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Part 2 - 126 GGE-Growth 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
All countries	126	11.7	10.1	10.3	10.9	11.2	11.4	11.5	11.7
Low income	18	9.4	8.5	8.5	8.8	8.9	9.0	9.1	9.3
Lower middle income	32	8.4	7.5	7.6	7.9	8.0	8.1	8.2	8.4
Upper middle income	32	11.7	10.3	10.5	11.1	11.4	11.6	11.7	11.9
High income	44	14.9	12.3	12.9	13.9	14.3	14.5	14.7	14.9

Scenario 2

income	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	126	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Low income	18	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Lower middle income	32	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Upper middle income	32	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
High income	44	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
All countries	126	11.7	11.2	11.5	12.2	12.5	12.8	13.1	13.5
Low income	18	9.4	9.1	9.3	9.7	9.8	9.9	10.1	10.3
Lower middle income	32	8.4	8.4	8.7	9.0	9.3	9.5	9.8	10.1
Upper middle income	32	11.7	11.5	11.9	12.7	13.1	13.5	14.0	14.4
High income	44	14.9	13.9	14.2	15.1	15.5	15.9	16.2	16.6

Scenario 4

income	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	126	11.7	11.6	12.0	12.6	13.0	13.3	13.6	13.9
Low income	18	9.4	9.6	9.9	10.3	10.4	10.6	10.7	10.9
Lower middle income	32	8.4	8.9	9.3	9.7	9.9	10.2	10.5	10.8
Upper middle income	32	11.7	12.0	12.5	13.3	13.6	14.0	14.5	14.9
High income	44	14.9	14.2	14.4	15.3	15.7	16.1	16.4	16.8

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Part 2 – 52 Non-GGE-Growth 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
All countries	52	10.5	9.5	9.8	10.6	11.1	11.5	11.8	12.0
Low income	7	10.1	10.2	9.8	11.2	11.6	12.1	12.5	12.7
Lower middle income	17	8.1	7.6	7.8	8.3	8.6	8.9	9.1	9.4
Upper middle income	14	12.5	11.1	11.6	12.3	12.9	13.4	13.8	14.2
High income	14	11.7	10.0	10.5	11.3	12.0	12.3	12.5	12.8

Scenario 2

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	52	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Low income	7	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
Lower middle income	17	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Upper middle income	14	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
High income	14	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7

Scenario 3

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	52	10.5	11.3	12.1	13.2	14.1	15.1	16.1	17.2
Low income	7	10.1	11.7	12.1	14.7	15.9	17.3	18.5	20.0
Lower middle income	17	8.1	8.6	9.2	9.9	10.7	11.5	12.4	13.5
Upper middle income	14	12.5	13.7	14.4	15.4	16.4	17.6	18.6	19.7
High income	14	11.7	11.9	13.1	14.1	15.1	15.9	16.9	18.0

Scenario 4

Country groups	N	2019	2020	2021	2022	2023	2024	2025	2026
All countries	52	10.5	11.8	12.6	13.7	14.7	15.7	16.7	17.8
Low income	7	10.1	12.4	12.9	15.6	16.9	18.3	19.6	21.1
Lower middle income	17	8.1	8.9	9.5	10.3	11.0	11.9	12.8	13.9
Upper middle income	14	12.5	14.4	15.2	16.2	17.2	18.4	19.5	20.6
High income	14	11.7	12.3	13.7	14.4	15.4	16.2	17.2	18.3

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ANNEX 4. VACCINATION ROLL-OUT COSTS AND HEALTH SECURITY COSTS

This annex explains the assumptions that underlie the calculation of the costs of the COVID-19 vaccination roll-out and the costs of strengthening and maintaining preparedness and response capabilities (health security).

To calculate the financial resources that countries require to finance the **roll-out of COVID-19 vaccines,** the first step is to distinguish between the countries that are eligible to participate in the COVID-19 Vaccines Global Access (COVAX) initiative and the remaining countries. The 92 countries that are currently supported by the COVAX initiative do not need to pay the costs of purchasing the vaccines for the first 30 percent of their population (WHO 2021c). Taking into account additional vaccine donations to COVAX countries that have recently become available, the population share that currently receives free vaccines is estimated to reach, on average, 37 percent[33].

Assuming that countries seek to vaccinate 70 percent of their 2021 populations (based on numbers from IMF's April 2021 World Economic Outlook database to be consistent with the other sources of data used in the main report – (IMF 2021c), currently countries would need to find the resources to finance 33 percent of the population after the COVAX contribution.

The COVAX countries are anticipated to purchase a vaccine dose for the average price of $7[34] and most COVID vaccines require two doses. The exact amount any individual country will pay depends on a number of factors including the price that Gavi is able to negotiate with the manufacturers, which vaccine the country decides to procure and how much the procurement agent charges for shipping. Non-COVAX countries need to finance vaccines for the entire 70 percent of their populations and are anticipated to be able to acquire each dose from COVAX for an average price of $10.55.

When rolling out the COVID-19 vaccines to the population delivery costs ensue that differ from country to country and are generally not covered by COVAX. This means that currently all countries need to finance the vaccine delivery themselves. World Bank estimates suggest that the average incremental costs of vaccine delivery will be $1.39 in low-income countries, $1.66 in lower middle-income countries, and $1.97 in upper middle-income and high-income countries to deliver a vaccine dose[35]. Finally, to account for unavoidable wastage during the roll-out it is assumed that all costs increase by 10 percent.

In summary, the vaccine roll-out cost calculations are based on the following assumptions:

- Countries aim to vaccinate 70 percent of their 2021 populations
- To vaccinate one person two doses of a vaccine are needed
- COVAX countries need to find the resources to purchase vaccines covering 33 percent of their populations (at $7 per dose), non-COVAX countries need to purchase vaccines for 70 percent of their populations (at $10.55 per dose)
- Countries need to meet their own vaccine delivery costs to the population: $1.39 in LICs, $1.66 in LMICs and $1.97 in UMICs and HICs
- Wastage increases dose and delivery costs by 10 percent.

[33] The population share is likely to fall over time as new donations are made to COVAX.
[34] Vaccine price is based on (WHO 2021e).
[35] Delivery costs are based on a study (WHO 2021f) that estimated vaccine delivery costs in the 92 countries currently supported by the COVAX initiative. Grouping by income category and taking averages produces the delivery costs used in the vaccination roll-out cost calculations.

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The calculation of **health security costs** is complicated because it depends not only on the countries' current preparedness and response capabilities, but also on countries' price levels and dependence on imports. Nevertheless, estimates based on pre-COVID-19 Joint External Evaluation (JEE) Assessments of country needs to strengthen preparedness suggest that the additional costs might be as low as $0.5 to $1.0 per capita per year (World Bank. 2017). To balance out the likely higher costs in countries with fragile health systems currently and the lower costs of some countries with more developed preparedness capacity, the estimates here are based on the more conservative figure of an additional $1.5 per person annually to bring health systems in low- and lower middle-income countries to an acceptable level of preparedness.

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