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Another legacy of the COVID-19 pandemic: Income divergence

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Abstract

The uneven economic recovery from the pandemic-induced global recession of 2020 is expected to disrupt a multi-decade trend of per capita income convergence between advanced and emerging market and developing economies (EMDEs). This stands in contrast to the global recession following the global financial crisis. Should downside risks to the global recovery, in particular financial market stress, materialize, they are likely to set back growth in EMDEs more than in advanced economies in part because of the more limited policy space remaining in EMDEs, and would further widen per capita income divergence.

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1. Introduction

The recovery from the deep global recession triggered by the COVID-19 pandemic has been highly uneven across countries, leaving behind some of the poorest countries. Whereas advanced economies are recovering at a robust pace, and are expected to all regain their pre-pandemic real per capita income levels in 2023, almost two-fifths of emerging market and developing economies (EMDEs) are not expected to recover their pre-pandemic real per capita income levels by that time (World Bank, 2022).

This recovery is so uneven that it ends a multi-decade trend of per capita income convergence. This compounds the increase in within-country income inequality in EMDEs, where lower-income population groups have faced disproportionate income, job, and learning losses (Narayan et al., 2022).

To the extent that the next three years usher in a longer-term return to per capita income divergence among poorer and richer countries, it raises concerns about the world’s ability to achieve development goals. Conceptually, as implied by the Solow (1956) growth model, poor countries are expected to grow faster than rich ones because of higher returns to (scarcer) capital. Empirical support for this hypothesis has been mixed. In fact, early empirical works, such as Barro (1991) and Pritchett (1997), reported divergence in incomes between rich and poor countries. This lack of evidence for absolute convergence has led to the development of alternative hypotheses, including conditional convergence (Barro, 1991), club convergence (Quah, 1993), and the middle-income trap (Gill & Kharas, 2007, 2015). In a comprehensive recent review of the literature, Johnson and Papageorgiou (2020) conclude that over the whole of 1960–2010, there is limited evidence supporting absolute convergence.

Toward the end of this broad time span, however, others have identified periods of per capita income convergence. Patel, Sandefur, and Subramanian (2021) and Kremer, Willis, and You (2021) document evidence of convergence—albeit at a modest pace and in part driven by a slowdown among richer countries—from the mid-1990s and especially during the 2000s.

Does the pandemic now mark another turning point for global per capita income convergence? We take on this question from three angles. First, we examine the implications of the current global growth outlook for income convergence. Second, we examine how these implications compare with previous global recessions. Third, we explore the reasons for the post-pandemic per capita income divergence.

To date, the question of the pandemic’s impact on per capita income convergence has not been addressed empirically, except in Deaton (2021), who provides early evidence on global income inequality up to 2020. Here, we update the assessment of recent trends in per capita income convergence, and look ahead to the next two years. Given the uncertainty about the post-pandemic outlook, we examine not only the baseline scenario, but also two highly topical risk scenarios: disruptive pandemic resurgences and financial market stress as monetary policy begins to tighten in advanced economies. To our knowledge, this paper is the first to quantify a range of possible implications of the pandemic for per capita income convergence in the years to come.

We document several findings. First, the lagging recovery in EMDEs compared with advanced economies will turn a multi-decade trend of per capita income convergence before the pandemic into a period of per capita income divergence over 2021–23. Second, should one of the many risks to global growth materialize, EMDEs have limited policy room to respond, in contrast with advanced economies. As a result, the risk scenarios
explored here—especially financial market stress—would hurt lower-income economies disproportionately, which would further widen post-pandemic per capita income divergence.

Third, per capita income divergence in the recovery from the global recession of 2020 contrasts with the accelerated convergence in the recovery from the global recession of 2009 (after the global financial crisis). To a considerable degree, per capita income divergence reflects smaller policy stimulus in EMDEs than in advanced economies, larger informal sectors that were hard hit by the pandemic, lesser ability to harness digital technologies, and slower progress in vaccination.

This paper relies on GDP growth and population data from the World Bank’s World Development Indicators and Global Economic Prospects for up to 182 EMDEs and 36 advanced economies for 1965–2023. The projections for 2021–23 are drawn from the January 2022 edition of the Global Economic Prospects report (World Bank, 2022). Real GDP levels use 2017 PPP weights (from the International Monetary Fund’s World Economic Outlook). The terms real GDP and income are used interchangeably to simplify the discussion. The risk scenarios are modelled using the Oxford Economics Model as described in greater detail in Section 3.

Specifically, we look at three aspects of convergence. First, we compare the evolution of average per capita income growth in advanced economies and EMDEs. Second, we examine changes in the between-country Gini coefficient of real per capita GDP. This measure is intended to offer a more granular view of the dispersion of per capita income than the two broad country groups, and notably captures changes in the global per capita income distribution around its mode—that is, among middle-income countries. Third, we estimate the pace of unconditional convergence in a cross-country ordinary-least-squares regression of average annual per capita real GDP growth on initial per capita incomes.

The rest of the paper is organized as follows. Section 2 illustrates the implications of global growth prospects for per capita income convergence in EMDEs. Section 3 develops two downside risk scenarios and quantifies their implications for global per capita income convergence. Section 4 documents how per capita income convergence evolved around past global recessions. Section 5 explores the reasons for the disproportionate damage of the pandemic to EMDEs. Section 6 concludes.

2. Implications of the global growth prospects for convergence

2.1. Backdrop: Some convergence in the decade before the pandemic

Over the decade preceding the COVID-19 pandemic, during 2010–19, per capita incomes in the average EMDE grew somewhat faster, and in the average low-income country (LIC) significantly more slowly, than in the average advanced economy, as also pointed out by Patel et al. (2021); Figure 1). Consistent with this, the between-country Gini coefficient of per capita incomes declined modestly—less than 1 standard deviation of ten-year changes since 1970—over the pre-pandemic decade (Figure 2). Among EMDEs, however, there was wide heterogeneity such that average per capita income growth did not differ statistically significantly from advanced economies.²

² That said, over the pre-pandemic decade, per capita growth was considerably faster in the largest and most populous economies among EMDEs (China and India) than in smaller and less populous EMDEs. As a result, weighted average per capita income growth in EMDEs exceeded that in advanced economies by about 3 percentage points per year, respectively. This is regardless of the choice of weights, GDP-weighted at 2010–19 average market exchange rates and prices, GDP-weighted at 2017 purchasing power parity weights or population-weighted.
This lack of pronounced convergence for EMDEs as a group over the pre-pandemic decade reflected a steep slowdown in EMDE growth in a decade marked by a commodity price collapse, trade tensions, and bouts of financial market stress (Kose & Ohnsorge, 2020). These headwinds set back growth, particularly in EMDEs that relied heavily on commodity exports and were open to global trade and financial flows. These EMDEs had previously—from the mid-1990s to the global financial crisis—benefitted from a period of soaring trade, flourishing

Figure 1. Differentials in per capita income growth around the 2020 global recession. Note: Unweighted averages. Recovery is the cumulative change over the three years starting in the year after the global recession. A. Balanced sample for 36 advanced economies and 147 EMDEs for the baseline; for 36 advanced economies and 128 EMDEs for the pandemic resurgence scenario; and for 35 advanced economies and 49 EMDEs for the financial stress scenario. B. Balanced sample for 36 advanced economies and 21 LICs for the baseline; for 36 advanced economies and 18 LICs for the pandemic resurgence scenario; and for 35 advanced economies and 2 LICs for the financial stress scenario. Source: World Bank, authors’ estimates.

Figure 2. Cumulative change in Gini coefficient of per capita incomes around global recessions. Note: Gini coefficient of per capita income (at constant 2017 PPP). Global recessions defined as in Kose, Sugawara, and Terrones (2020). Recovery is the cumulative change over the three years starting in the year after the global recession. A. Balanced samples for each scenario: 36 advanced economies and 143 EMDEs for the baseline scenario; 36 advanced economies and 128 EMDEs for the pandemic resurgence scenario; and 35 advanced economies and 49 EMDEs for the financial stress scenario. B. Balanced samples for each global recession. 36 advanced economies and 21 LICs for the baseline scenario; 36 advanced economies and 18 LICs for the pandemic resurgence scenario; and 35 advanced economies and 2 LICs for the financial stress scenario. Source: World Bank, authors’ estimates.
global value chains, and a prolonged commodity price boom that fueled rapid income convergence.

In fact, the heterogeneity within the broad group of EMDEs was such that the pre-pandemic decade featured statistically significant unconditional per capita income convergence across countries. This is captured by the coefficient estimates of an ordinary-least-squares regression of average annual per capita real GDP growth during 2010–19 on the logarithm of per capita real GDP in 2009 (Table 1). A 30% higher initial per capita income was statistically significantly associated with about 0.1 percentage point lower per capita income growth.

### Table 1
Unconditional convergence, 2010–19 and 2021–23.

| Scenario                        | Preceding decade | Recovery | Number of observations |
|--------------------------------|------------------|----------|------------------------|
| Baseline                        | -0.328 **        | 0.444 ** | † 182                  |
|                                | 0.100            | 0.101    |                        |
| Downside: Pandemic resurgence   | -0.364 **        | 0.443 ** | ††‡ 167                |
|                                | 0.100            | 0.103    |                        |
| Downside: Financial stress      | -0.515 **        | 0.148    | ††‡ 84                 |
|                                | 0.125            | 0.145    |                        |

Source: Authors’ estimates.

Note: * indicates statistical significance at the 5% level, ** at the 1% level. Table shows coefficient estimates of OLS regression of per capita real GDP growth on the logarithm of per capita GDP (at 2010–19 average market exchange rates and prices) at the beginning of the 2020 global recession. "Preceding decade" indicates average annual per capita real GDP growth during the ten years ending in the year before the global recession. "Recovery" indicates average annual per capita real GDP growth during the three years starting in the year after the global recession. † indicates statistically significant difference between "Preceding decade" and "Recovery" at the 10% level. ‡ indicates a statistically significant difference between the downside scenario and the baseline scenario at the 10% level.

2.2. Global growth prospects

In its latest Global Economic Prospects report, the World Bank expects global growth to slow steeply, from 5.3% in 2021 to 3.1% in 2023 (World Bank, 2022). In advanced economies, growth will more than halve from 5.5% in 2021 to 2.3% in 2023 as pent-up demand dissipates and fiscal and monetary policy stimulus is unwound. Growth in EMDEs will also slow, from 6.3% in 2021 to 4.2% in 2023. Many EMDEs, and especially the poorest ones, are struggling with pandemic-related disruptions, conflict and political fragility, and easing prices for key export commodities. Rising inflation and record-high debt have already forced many EMDEs into policy tightening well before their economies have returned to their pre-pandemic output trends.

This slowdown leaves the recovery in EMDEs incomplete. By 2023, per capita incomes in nearly 40% of EMDEs will remain below their 2019 levels, whereas per capita incomes in all advanced economies will have regained their 2019 levels. Output (real GDP) in EMDEs as a group will remain 4% below their pre-pandemic output paths whereas output in advanced economies will have returned to its pre-pandemic output trend, more than reversing all the output losses due to the pandemic.
2.3. Implications for per capita income convergence

In fact, the recovery in EMDEs lags to such an extent that the per capita income convergence in the decade preceding the pandemic is now expected to turn into per capita income divergence over 2021–23. Per capita GDP growth in the average EMDE will lag 0.5 percentage point per year behind that in advanced economies (although with wide heterogeneity) and, in the average LIC, by a statistically significant 1.6 percentage point per year (Figure 1). As a result, the pre-pandemic modest decline in the Gini coefficient of per capita incomes will stall and the Gini coefficient will remain stable (Figure 2).

Per capita income growth will be significantly stronger in the larger and more populous EMDEs, especially China. As a result, GDP-weighted or population-weighted averages of per capita income growth in EMDEs will continue to exceed that in advanced economies by ½–1 percentage point per year, depending on the choice of weights. In contrast, among LICs, the largest and most populous countries are expected to witness below-average growth and hence lag even further behind advanced-economy per capita income growth.

Across individual countries, per capita incomes will diverge, with faster growth in higher-income countries. This is suggested by the statistically significant positive coefficient estimate from the unconditional convergence regression in Table 1. For every 30% higher initial per capita income, average annual per capita income growth during 2021–23 will be 0.1 percentage points faster.

3. Distributional impacts of risk scenarios

3.1. Scenario description

The World Bank’s baseline growth outlook for the next three years is subject to a range of risks. Most prominent among these are risks to growth from renewed severe COVID-19 outbreaks and financial stress. Two scenarios illustrate these risks. Both are quantified using the Oxford Economics Global Economic Model, a global semi-structural macro projection model. The model includes 81 individual country blocks, most of which are available at a quarterly frequency, with behavioral equations governing domestic economic activity, monetary and fiscal policy, global trade, and commodity prices (Oxford Economics, 2019). The scenarios are constructed for somewhat smaller sample sizes than the baseline scenario (128 EMDEs for the pandemic resurgence scenario and 49 EMDEs for the financial stress scenario).

3.2. Pandemic resurgence scenario

The world is still in the midst of the largest wave of COVID-19 outbreaks to date as the highly transmissible Omicron variant rapidly spreads. As Omicron infections abate, the possibility remains that new variants emerge that could overwhelm exhausted health care systems and force governments to extend or impose additional control measures. A reimposition of lockdown measures would dampen domestic economic activity if contact-intensive activities are sharply curtailed. While these restrictions could be short-lived, their simultaneous introduction in major economies would weigh significantly on global growth. The effects of severe Omicron outbreaks would likely be felt most acutely by those countries that can least afford a further slowing of growth—including EMDEs with limited policy space or a heavy reliance on tourism.
In this scenario, advanced economies and EMDEs are faced with unanticipated pandemic shocks to private consumption in the first quarter of 2022. These are scaled to one-tenth of the estimated shocks to domestic consumption in the first half of 2020. The significantly reduced magnitude of the shocks compared to 2020 reflects the sharp observed decline in the growth impacts of subsequent waves of COVID-19 in most countries. The negative shocks to domestic consumption in the first quarter of 2022 would be partly reversed in the second quarter. These rebounds are scaled to one-twelfth the rebound in the second half of 2020, assuming a somewhat less enthusiastic implementation of policy stimulus than in 2020.

Overall, such simultaneous pandemic-driven economic disruptions could reduce global growth by a further 0.2% point in 2022. While growth would only be reduced by 0.1 percentage point in advanced economies, it would be further reduced by 0.4% point in EMDEs, in part reflecting more limited policy space to cushion the pandemic’s impact.

3.3. Financial market stress scenario

Alternatively, the global recovery could falter in 2022 because of acute financial market stress (World Bank, 2021). In particular, sustained inflation pressures in the United States, generated by the rapid stimulus-driven increase in domestic demand growth absent large supply-side improvements, could threaten to de-anchor inflation expectations. The Federal Reserve could respond by quickly unwinding its quantitative easing program and raising policy rates starting in 2022, triggering a sharp re-pricing of risk on the part of financial markets and exacerbating already heightened macroeconomic vulnerabilities. Financial market volatility would spike in 2022Q1 and 2022Q2, with the VIX experiencing a rise on par with the financial market stress in early 2020, at the height of the COVID-19 crisis.

The sharp rise in global risk aversion would precipitate a persistent downward shift in global confidence. Major EMDEs would face significant adverse domestic confidence shocks in addition to negative spillovers from abroad via financial, trade, and commodity price channels. Increased debt servicing costs amid heightened rollover risks would force governments in many EMDEs, particularly in countries with limited fiscal space, to cut government consumption and delay investment projects. The magnitude of the fiscal consolidation shock is calibrated to match recent historical episodes of rapid fiscal consolidation in major EMDEs.

The macroeconomic effects of a sharp tightening of global financial conditions, as well as weaker consumer and business confidence, would compound the expected unwinding of global fiscal support. Growth in advanced economies would be 1.4 and 0.8 percentage point lower in 2022 and 2023, respectively, as a result. Relative to a baseline scenario, EMDE growth in 2022 and 2023 would be 1.6 and 1.4 percentage point lower, respectively, and the additional slowdown would cut across all EMDE sub-regions. Global growth would be reduced by 1.6 and 1.0 percentage points relative to the baseline scenario, respectively, in 2022 and 2023.

3 These shocks are calibrated to broadly match recent episodes of domestic economic weakness such as what occurred during the Taper Tantrum (2013Q2) and what happened during the global financial crisis for certain EMDEs.
4 For example, government consumption fell 5% in Brazil in 2020, 2.3% in India in 2004, 4% in Indonesia in 2015, 4% in Russia in 2015, and 1.2% in Mexico in 2019.
3.4. Implications for per capita convergence

Under the pandemic resurgence scenario, a large number of countries would be hit in a synchronized fashion, much as they were in early 2020. Its aggregate effect over 2022–23, however, would be limited, with a brief growth slowdown followed by a rapid rebound in all affected countries. As a result, the scenario would not materially change the pattern of convergence from the baseline scenario (Figure 1). Per capita income growth in the average EMDE would continue to fall behind per capita income growth in the average advanced economy by about ½ percentage point a year over 2021–23. The unconditional convergence coefficient would be virtually as high as in the baseline scenario, the main difference being in a somewhat smaller sample size (Table 1).

In contrast, the financial stress scenario would have broader implications for per capita income convergence. Per capita income growth in EMDEs would be hard hit as macroeconomic and financial vulnerabilities, such as record high debt and high inflation, restrict room for policy support and amplify the impact of sharply rising borrowing cost. In the average EMDE, the pace of per capita income divergence from the advanced-economy average would double to about 1 percentage point per year (Figure 1). In contrast, financial stress might damage per capita income growth in lower-income countries less than in higher-income countries since lower-income countries tend to be less exposed to shocks from global financial markets (Figure 1). For example, about one-third of government debt in the average LIC is on concessional terms and volatile portfolio capital flows are negligible (Kose, Nagle, Ohnsorge, & Sugawara, 2021). As a result, unconditional per capita income divergence expected under the baseline scenario across different countries would disappear in the financial stress scenario (Table 1).

4. The pandemic in historical context: convergence after past global recessions

The pandemic is not the first disruption to the global economy in the past eight decades, even if it may have been the biggest (World Bank, 2020). The pandemic-triggered global recession of 2020, however, differed materially from previous ones in the subsequent evolution of per capita income convergence.

The global economy has witnessed five global recessions since the Second World War: in 1975, 1982, 1991, 2009, and 2020 (Kose et al., 2020). These global recessions were associated with global per capita income contractions and typically either accompanied by or followed by financed crises: in 1975, the recession followed an oil crisis; in 1982, it followed U.S. monetary policy tightening (after yet another oil crisis); 1991’s recession was associated with exchange rate crises and deep economic contractions in the former Soviet Union; 2009 followed the global financial crisis; and the recession of 2020 was associated with the COVID-19 pandemic.

Global recessions in the 1970s, 1980s, and 1990s were preceded by a decade of diverging per capita incomes as advanced economy per capita income growth outpaced statistically significantly that in the average EMDE and, especially LIC (Figure 3). This changed in the 2000s when per capita income growth in the average EMDE kept pace with—and, in the larger and more populous EMDEs, far outpaced—advanced-economy growth before the 2009 global recession and outpaced advanced-economy growth before the 2020 global recession.5 In contrast,

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5 Weighted average per capita income growth in EMDEs outpaced that in advanced economies by more than 3 percentage points (regardless of the choice of GDP or population weights) in the decade before the 2009 global recession.
per capita income growth in the average LIC fell behind that in advanced economies in the decades leading up to all global recessions. Overall, the Gini coefficient across individual countries rose in the lead-up to the global recessions of the 1970s and 1980s but declined in the lead-up to the global recessions of the 2000s.

Global recessions were followed by recoveries (defined as the subsequent three years) that were typically marked by lower per capita income growth than in the pre-recession decade for advanced economies and LICs, but not for EMDEs more broadly. In recoveries from pre-pandemic global recessions, the income divergence (or lack of income convergence) between EMDEs or LICs and advanced economies that prevailed in pre-pandemic decades eased (1975, 1991) or turned into convergence (2009). For EMDEs, the exception to this pattern of easing divergence in recoveries was the 1982 global recession that was followed by a further growth slowdown and a series of financial crises in EMDEs; for LICs, the exception was the 1991 global recession, when LICs were mired in debt overhangs that took until the Heavily Indebted Poor Countries Initiative and Multilateral Debt Relief Initiative to be resolved (World Bank, 2022). The challenges among LICs also contributed to the increase in the Gini coefficient after the 1991 global recession.

Within these broad country groups, recovery paths varied widely. As a result, the unconditional convergence coefficient across individual countries did not differ statistically significantly from zero during recoveries from global recessions—until the 2009 global recession (Table 2).

The recovery from the 2009 recession differed materially from that of previous recessions. After the 2009 recession, the pre-recession convergence process deepened. The unconditional convergence coefficient strengthened and the Gini coefficient declined as per capita income growth in EMDEs and LICs rebounded faster than in higher-income countries (Table 2, Figure 2).

![Figure 3](https://example.com/figure3.png)

**Figure 3.** Differentials in per capita income growth around global recessions. Note: Unweighted averages. Global recessions defined as in Kose et al. (2020). Recovery is the cumulative change over the three years starting in the year after the global recession. * indicate statistically significant difference between advanced economies and LICs at the 5% level. A. Balanced samples for 30 advanced economies and 12 LICs for 1975 recession; 23 advanced economies and 15 LICs for 1982; 30 advanced economies and 18 LICs in 1991; 36 advanced economies and 20 LICs in 2009; and 36 advanced economies and 21 LICs in 2020. B. Balanced samples for 30 advanced economies and 67 EMDEs for 1975 recession; 23 advanced economies and 80 EMDEs for 1982; 30 advanced economies and 170 EMDEs in 1991; 36 advanced economies and 140 EMDEs in 2009; and 36 advanced economies and 147 EMDEs in 2020. Source: World Bank, authors’ estimates.
The recovery from the 2020 global recession—with its stronger per capita income growth in richer countries—resembles those after the recessions of the 1970s, 1980s, and 1990s. In fact, the effect is so pronounced that the unconditional convergence estimate suggests statistically significant income divergence, in a reversal of the pre-pandemic decade of statistically significant convergence.

The difference in per capita income convergence after the pandemic-induced global recession of 2020 from previous global recessions raises questions about the reasons for this particularly adverse impact on short-term growth prospects. The next section examines some of these. In particular, there were wide cross-country disparities in policy stimulus, the ability to harness digital technologies, sectoral composition of economies, and vaccination rates.

### Table 2
Unconditional convergence around global recessions.

| Preceding decade | Recovery   | Number of observations |
|------------------|------------|------------------------|
| 1975             | 0.496 **   | -0.0584                | 104   |
|                  | 0.182      | 0.205                  |       |
| 1982             | 0.244      | 0.136                  | 149   |
|                  | 0.135      | 0.261                  |       |
| 1991             | -0.0361    | 0.489                  | 170   |
|                  | 0.188      | 0.28                   |       |
| 2009             | -0.302 *   | -0.595 ** †‡           | 182   |
|                  | 0.13       | 0.144                  |       |
| 2020             | -0.328 **  | 0.444 ** †‡            | 182   |
|                  | 0.100      | 0.101                  |       |

Source: Authors’ estimates. Note: * indicates statistical significance at the 5% level, ** at the 1% level. Table shows coefficient estimates of OLS regression of per capita real GDP growth on the logarithm of per capita GDP (at 2010–19 average market exchange rates and prices) at the beginning of the period. 2020 data based on baseline scenario. "Preceding decade" indicates average annual per capita real GDP growth during the ten years ending in the year before the global recession. "Recovery" indicates average annual per capita real GDP growth during the three years starting in the year after the global recession.

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### 5. Aggravating factors in the COVID-19 pandemic

#### 5.1. Sectoral composition of economies

Policy makers around the world met the COVID-19 pandemic with widespread, repeated, and persistent lockdowns and social distancing measures. These have disproportionately affected services sector activities where person-to-person interactions are necessary, including tourism (Ohnsorge & Yu, 2021). In contrast, high-tech sectors such as pharmaceuticals,
ecommerce, cloud computing, and electronics, which employ more highly skilled and highly paid workers, have flourished on the back of increased demand for their products.

As a result, economies with large informal sectors have struggled while those with large high-tech sectors have recovered quickly. In LICs, where informal economic activity is particularly widespread, more than 70% households reported income losses in the World Bank’s household phone surveys during 2020, and 36% reported work stoppages or job losses (World Bank, 2022). Even in the broader group of EMDEs, over 60% of households reported income losses and almost one-third of the households in EMDEs reported job losses or work stoppages during 2020.

5.2. Telecommuting and the digital divide

Widespread digitalization has allowed firms and households to shift toward online transactions and telecommuting. Digital platforms have allowed small businesses to lower operating costs and reach a larger customer base; mobile platforms have enabled government assistance such as cash transfers to reach a wider population. Advanced economies generally have a greater share of jobs in sectors that can be performed from home than low-income countries. In the pandemic, this factor led to greater cross-country income inequality (Gottlieb, Grobovšek, & Poschke, 2020; Hatayama et al., 2020). At the same time, even in advanced economies only a minority of jobs can be performed from home: for instance, in the United States only 37% of jobs can be done remotely (Dingel & Neiman, 2020).

The “digital divide” was exacerbated by less accessible high-speed internet and telecommuting technologies for low-income countries and households (Chiou & Tucker, 2020). The digital divide increases risks that per capita income divergence in the immediate aftermath of the pandemic will persist because it exacerbates the cross-country, and even within-country, inequality in access to quality education opportunities.

5.3. Mitigating policies

All country groups deployed a large number of policy measures to support adversely affected population groups, with cash and in-kind transfers; support for utility payments and other financial obligations; social insurance policies; and active labor market policies. However, the magnitude of the policy support differed widely between advanced economies and EMDEs. Between March and September 2020, governments in advanced economies spent 7.4% of GDP, on average, on fiscal support for households and firms in response to the pandemic (Bundervoet, Davalos, & Garcia, 2021). This was almost double the amount spent by EMDEs (3.8% of GDP) over the same period and more than triple the amount spent by LICs (2.4% of GDP; World Bank, 2022).

In addition to smaller aggregate magnitudes of policy support packages, households’ and firms’ access to government support was limited. The findings from high-frequency phone surveys of households in 51 EMDEs in 2020 suggest that only 22% of households had received government support in the average EMDE, and only 12% of households in LICs. In surveys of firms in 50 EMDEs conducted in 2020, only one-quarter of firms reported receiving, or expecting to receive, public assistance—and only 7% of firms in LICs. Wage subsidies were the most common form of government support for firms; they had been granted to 15% of firms, on average. Other forms of support, including payments deferrals, tax reduction (exemptions), and access to credit and cash transfers had been received by 7% or fewer of the firms surveyed.
5.4. Unequal access to vaccines

Unequal access to vaccinations has been among the critical factors behind the uneven global economic recovery. In advanced economies over 75% of people have received at least one vaccine dose; in EMDEs and LICs, only 55% and 8% of people, respectively, have received at least one dose (World Bank, 2022).

6. Conclusion

After several decades of global per capita income convergence before the COVID-19 pandemic, the global economy is now heading into a period of divergence. This accompanies an increase in within-country inequality that some studies expect for EMDEs, based on particularly severe income losses and employment disruptions suffered by lower-income households, low-skilled and informal workers, and women. The period of income divergence after the global recession of 2020 contrasts with developments after the 2009 global recession, which was followed by a rapid EMDE rebound.

The expected period of per capita income divergence after the pandemic has reflected wide cross-country disparities in policy stimulus, sectoral composition of economies, ability to harness digital technologies, and vaccination. And it may be perpetuated by wide cross-country disparities in learning losses. Early indications are that learning losses were considerably more pronounced in EMDEs and, especially LICs, than in advanced economies (World Bank, 2022). Since learning tends to be perpetuated across generations, these learning losses raise the specter of a prolonged period of per capita income divergence, reminiscent of the 1970s and 1980s.

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