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World Economy after the Pandemic—Alternative Long-term Scenarios

Chapter 4

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Introduction and General Trends

This chapter focuses on recent developments in the world and presents scenarios for the global economy emerging from the COVID-19 pandemic and through 2060, with a primary focus on Emerging and Developing Economies (EMDEs). For future scenarios, it uses the Centennial growth model as a basis.

In the period 2000–19, the average annual rate of growth for EMDEs at 5.6 per cent was almost four percentage points higher than that of Advanced Economies (AEs) at 1.9 per cent. However, in the period 2014–19, with a slowdown in the rate of growth to 1.2 per cent for AEs, and 3.5 per cent for EMDEs, the difference was only of about two percentage points. Furthermore, except for Emerging Asia and, to a lesser extent, Developing Europe, per capita income for Emerging economies grew by less than that of AEs. The world growth path was abruptly and traumatically interrupted by the emergence of COVID-19, and world GDP will reach the levels expected before the onslaught of the virus, only with a considerable lag. Currently, predicted behaviour of productivity, labour growth, and investment will likely not be as expected before the COVID-19 pandemic. Still, the long-term trend of the EMDEs gaining a greater share of the global GDP will continue.

Furthermore, beyond the current slowdown, as more residents of EMDEs join the middle class, they will have greater impact on the world economic structure and governance. Nonetheless, the path to the future will not be uniformly distributed. Emerging Eastern Asia, and more specifically China, is not expected to show a decline in growth with respect to earlier projections/scenarios. Other regions, and more markedly Latin America, the Middle East and Sub-Saharan Africa, will see a much lower rate of growth.

The current pandemic has had a major impact on economic performance in both AEs and EMDEs. Economic consequences equivalent to those born out of the pandemic have not been experienced since WWII. Even with the massive and growing vaccination effort, the economic crisis is taking time to revert, and the recovery is far from smooth. The adverse impact on both the level and structure of production, and thus on relative incomes, is having far-reaching social and political implications. The impact of recent events and policies on international trade and cooperation are, and will likely remain, significant. In this regard, it is important to note the following facts:

1. Output losses for the world for the period 2020–22 with respect to what was projected in late 2019, could amount to a total of US$18 trillion.
2. For EMDEs, losses could be 17 per cent of 2019 GDP.
3. These output losses are unlikely to ever be recovered.

4. The unemployment rate in advanced economies rose to 6.5 per cent in 2020, to the highest level in the last thirty years, but has come down, and may reach 5.8 per cent in 2022, with an expected continued subsequent decline.
5. EMDEs debt stands at 64 per cent of GDP, the highest in this century.
6. There is a potential to slow or even reverse the convergence between rich countries and emerging market economies that has contributed to the reduction of poverty.

Thus, despite the observed recovery and underlying trends, the path ahead cannot be taken for granted. The strong performance of earlier years was largely the result of a combination of factors, such as opening up to trade worldwide, greater mobilization of domestic and external resources, a steady improvement in education levels and infrastructure services, the effects of the demographic (population growth) dividend, the acquisition of new technologies, the increased role of global value chains, and for many, the commodity boom of the 2000s (reversed in 2012–13 and aggravated by the pandemic in its initial phase, although commodity prices are now experiencing an increase), and, importantly, stronger institutions. This shock has the potential to slow or even reverse some of these trends that have contributed to the reduction of poverty.

Even so, the short-term prospects indicate a solid recovery. As discussed in the most recent IMF World Economic Outlook of October 2021,[1] and by the Organisation for Economic Co-operation and Development (OECD) in a separate report, issued in September 2021,[2] a year and a half into the COVID-19 pandemic, growing vaccine coverage generates some optimism, although there are marked concerns about the unevenness of both the rate of vaccination and economic performance. The contraction of activity in 2020 was unprecedented in living memory in its speed and synchronized nature. Although difficult to pin down precisely, International Monetary Fund (IMF) estimates suggest that the contraction could have been three times as large without the enormous policy support.

After an estimated contraction of –3.1 per cent in 2020, the estimates are the global economy grew by 5.9 per cent in 2021, and will moderate to 4.9 per cent in 2022, indicating a slight downward revision from earlier estimates. The OECD came out with a slightly more conservative estimate of 5.7 per cent growth in 2021, with a slowdown to 4.5 per cent in 2022. These estimates indicate that world output has exceeded pre-pandemic levels, even though they clearly have not reached the projected levels expected prior to 2020. While remaining upbeat about the prospects for growth, risks remain of a considerable downside on account of the different rates of health recovery, the breakdown in net international value chain, a tightening in the labour markets and the consequent increase in the rate of inflation in most countries.

According to the IMF, global growth is expected to moderate to 3.3 per cent by 2026—reflecting projected damage to supply potential and pre-pandemic forces, including an ageing-related slowdown in labour force growth in AEs and some EMDEs. Thanks to the policy response, the COVID-19 recession has had limited impact on AEs, but EMDEs have been hit harder and are expected to suffer more significant medium-term losses. Output losses have been large for countries that rely on tourism and commodity exports and for those with

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1. The estimates and projections are based on the IMF WEO of October 2021. Revisions to these numbers may have appeared after completion of this study in late 2021.
2. 'Interim Report', OECD Economic Outlook 2020, no. 2, September 2021.

limited policy space to respond. Many of these countries entered the crisis in precarious fiscal situations and with less capacity to mount major health care policy responses or to support livelihoods. The projected recovery follows a severe contraction that has had particularly adverse employment and earnings impacts on the young, women, workers with relatively lower educational attainment and the informal sector. Income inequality has increased significantly because of the pandemic. About 100 million more people are estimated to have fallen below the threshold of extreme poverty in 2020 compared to pre-pandemic projections, aggravated by serious disruptions in education, with only a moderate subsequent reversal. Evidence suggests that inequality between and within countries has increased due to the pandemic, a trend that is likely to continue in the near future (Fajgenbaum et al. 2021). Risks around the short-term projection are on the downside. Slower-than-anticipated vaccine rollout has allowed the virus to mutate further. Financial conditions are likely to tighten rapidly, as inflation expectations increase more rapidly than anticipated. A double hit to EMDEs from pandemic dynamics and tighter external financial conditions would set back their recovery and result in slower growth, offset only in part by the recovery of commodity prices, particularly metals and fuels. However, these increases may reverse as specific bottlenecks in AEs are corrected.

Price pressures for a significant part reflect unusual pandemic-related developments and transitory supply-demand mismatches, although the pressures in the labour markets in AEs are likely to persist. Inflation is expected to remain higher than in the pre-pandemic ranges in most countries through 2022, and it is considerably uncertain if prices will decelerate significantly in later years. Elevated inflation is also expected in some EMDEs, related in part to high food prices, but also considerable macroeconomic imbalances. Central banks are now expected to tighten monetary policy, even if slowly. Price pressures may become persistent and central banks may need to take pre-emptive action.

Future developments will depend on the path of the current health crisis, the effectiveness of policy actions to limit persistent economic damage while rebuilding macroeconomic sustainability and the evolution of international financial conditions and commodity prices. Policymakers may have to prioritize policies to strengthen social protection, ensuring adequate resources for health care and broad education support, in addition to resources to address climate change, among other challenges. Where elevated debt levels limit scope for action, effort should also be directed at creating fiscal space through improved revenue policies and management, reducing wasteful subsidies and tightening expenditure controls.

There is no single policy path for all countries, especially regarding progress toward normalization. Hence, countries need to tailor their policy responses to the stage of the recovery, and structural characteristics of the economy. While the transition remains a main policy goal, countries will need to remain focussed on longer-term challenges to strengthen total factor productivity. In addition to the required work by major central banks and multilateral institutions, hard work is required to navigate the external financial conditions in emerging markets and the impact diverse country policies have on capital flows. Strong international cooperation will remain vital for achieving these objectives and ensuring that emerging market economies and low-income developing countries continue to narrow the gap between their living standards and those of high-income countries. This coordination includes achieving adequate worldwide vaccine production and distribution, providing help for financially constrained economies to gain

sufficient access to international liquidity to continue their process of growth and convergence and resolving issues underlying current trade and technology conflicts.

The strength of the recovery is projected to vary significantly across countries, depending on access to medical action, policy support, exposure to cross-country spillovers, movements in terms of trade and specific characteristics at the time of entering the crisis (Figure 4.1 and Table 4.1). Thus, by early 2022, China could effectively have approached the same path as before the pandemic surge, although affected by new supply and policy constraints. Meanwhile, most of the rest of the world will be at the same level of output as the pre-pandemic level, but below the previously estimated trajectory, and clearly with a lower per capita income in most countries.

Figure 4.1: GDP 2017–23
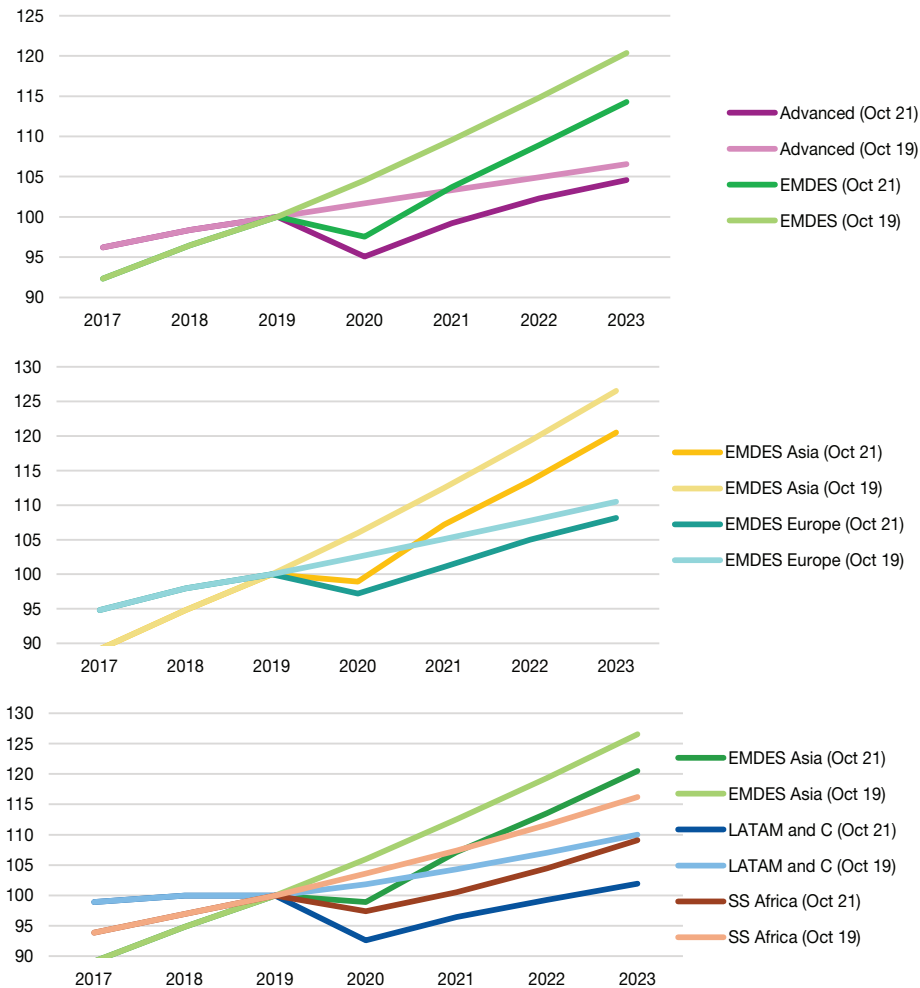
Source: Centennial Group 2021

Table 4.1: World Economic Outlook projections (per cent change)

	Estimates			Projections
	2019	2020	2021	2022
World Output	2.8	−3.1	5.9	4.9
Advanced Economies	1.6	−4.5	5.2	4.5
Emerging Market and Developing Economies	3.7	−2.1	6.4	5.1
Emerging and Developing East Asia	5.7	1.0	6.8	5.7
South Asia	4.4	−5.9	8.3	8.0
Emerging and Developing Europe	2.5	−2.0	6.0	3.6
Latin America and the Caribbean	0.1	−7.0	6.3	3.0
The Middle East and Central Asia	1.4	−2.8	4.1	4.1
Sub-Saharan Africa	3.2	−1.7	3.7	3.8

Source: IMF 2021b and Centennial Group 2021

Among major AEs, only the US will have recovered and increased output beyond the levels of 2019, as would be the case for the non-G7 AEs as a group. By contrast, the rest of the G7 countries would only recover over the course of 2022.

Among EMDEs, Emerging and Developing Asia shows strong although slower recovery. Emerging Europe has rebounded, although Russia will likely only reach 2019 levels of output in 2022. Sub-Saharan Africa also recovered in 2021, although its largest economies will take longer, particularly in the case of South Africa. The Middle East and Central Asia will have recovered by 2022. Finally, the region that had been lagging behind all others prior to the pandemic, Latin America and the Caribbean, is recovering faster than previously estimated, helped by improved growth prospects in Mexico, Brazil and, to a lesser extent, Argentina, offset by the stagnation of Venezuela. These growth patterns have major effects in the medium and long run as discussed below.

A quantification of the short-term losses resulting from the pandemic noted above illustrates the magnitude of the economic costs of COVID-19. In this regard, it is important to note the following facts:

1. Losses may be much higher for Emerging and Developing Asia with the exclusion of China (37 per cent of the relevant GDP), mainly on account of India (45 per cent) but also reflecting the impact on the ASEAN-5 group (31 per cent), both constituting the bulk of non-China Asia GDP.
2. Losses for China could be in the order of US$1.6 trillion, or 11 per cent of the GDP.
3. The losses for Latin America could be in the order of 20 per cent of the GDP, 17 per cent for Sub-Saharan Africa, and 15 per cent for the Middle East, while for all advanced countries, the losses could amount to some 9 per cent of the GDP.

Development in the Twenty-first Century

A review of the recent performance of the EMDEs points out a continuation of the process of reduction in poverty that prevailed for so many years, although interrupted by the pandemic crisis. The rate of growth of the EMDEs increased from 3.5 per cent during the period 1981–90 to 5.6 per cent a year during the last decade of the twentieth century. It then rose again during the period 2001–12 to 6.2 per cent. The rates of growth were not uniform, but the trend was observed in all regions (Figure 4.2). The rate of growth of the AEs declined over the last decade of the twentieth century and averaged 1.7 per cent a year during the period 2001–12, seriously affected by the Great Recession of 2008–09. Therefore, the share of EMDEs in total world GDP, in PPP terms rose from 33 per cent in 1980 to 39 per cent in 2000 and to 51 per cent in 2012, although smaller at market prices.

Figure 4.2: Comparative GDP growth by regions and periods
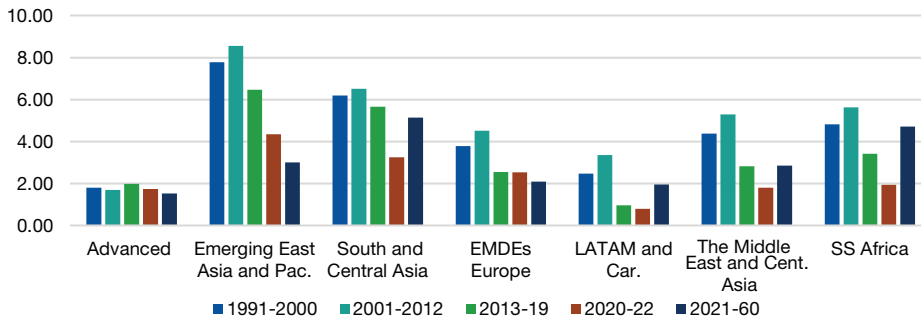
Source: Centennial Group 2021

By contrast, the AEs' rate of growth increased, even if slightly, in the period 2013–19, to about 2 per cent a year, while that of emerging economies declined markedly, from 6.2 per cent in the period 2001–12 to 4.5 per cent, largely as commodity exporters suffered declines in their terms of trade as prices fell. By that time, the share of EMDEs in total GDP in PPP terms had increased to 55 per cent compared to 51 per cent in 2012, showing a deceleration compared to previous periods, even though the share has and will continue to increase.

As noted, performance was not uniform throughout the period among regions, with primary producing regions like Sub-Saharan Africa, Latin America and the Middle East and Central Asia having slowed down much more markedly than Developing Asia. Within the Emerging and Developing Asia category, South Asia did not fare as well as East Asia, being at nearly 2 per cent lower for both the 1980–2000 and 2000–20 average growth rates (Appendix Figure 4.5). Performance has also varied between the regions in terms of the levels of per capita income and in terms of human development.

As of 2019, the last year before the pandemic, per capita income of the AEs was about US$46,500 ($52,000 in PPP terms), relative to an income of US$65,200 for the US, which is used as the benchmark with the same market and PPP income. AEs are followed by Emerging Europe with US$10,000 ($26,000 PPP); Latin America and Caribbean with US$7,900 ($15,500

PPP); Developing Asia with US$5,400 ($11,100 PPP); the Middle East and Central Asia with US$4,600 ($11,300 PPP); and Sub-Saharan Africa with US$1,600 ($3,900 PPP).

The relative level of PPP per capita income improved significantly in the case of the Developing Asia region, increasing from 9 per cent of advanced countries per capita income early in the century to 21 per cent in 2019. It grew from 32 per cent to 50 per cent for Emerging Europe, although the reduction in the gap is smaller in current terms.

Because these regions did well, they lifted the overall performance of the EMDEs as a whole relative to the AEs by 7 percentage points in PPP terms, and slightly less in current terms. In sharp contrast, the rest of the EMDEs (Latin America, the Middle East and Central Asia and Sub-Saharan Africa) saw a small increase in their relative position in current terms, and more strikingly almost no change in PPP terms for Africa, and a decline for Latin America and the Middle East. For the period since 2014—the base period for *The World in 2050*—only Asia has reduced the gap in PPP terms, with all other regions showing a retreat, keeping the ratio for all EMDEs to AEs virtually constant. As discussed in Chapter 14, the losses may well reflect the relative behaviour of commodity prices.

These developments are reflected in terms of the share of world GDP. Latin America accounted for 8 per cent of global GDP in 1980 and 6.5 per cent in 2000. After rising to 8 per cent subsequently, it declined to about 5 per cent by 2020, losing significantly in importance in the world economy (Figure 4.3). Meanwhile, Emerging Asia's share of world GDP, while stable at somewhat more than 6 per cent in the last twenty years of the twentieth century, rose to 20 per cent in 2014 and to 26 per cent in 2020. All other emerging regions increased their participation (except in the 90s), partly driven by high demographic growth and improved terms of trade through 2014–15 but declined in relative participation since then. In contrast, the AEs saw their participation in world GDP (at market prices) decline from more than 75 per cent to 67 per cent in 2010 and to 61 per cent by 2020. Equivalent changes occurred in PPP terms, with the share of EMDEs rising from 37 to 56 per cent of the total in 2014–15 and to 58 per cent in 2020, mostly driven by Asia.

Figure 4.3: Regional share in global GDP—2010 and 2020
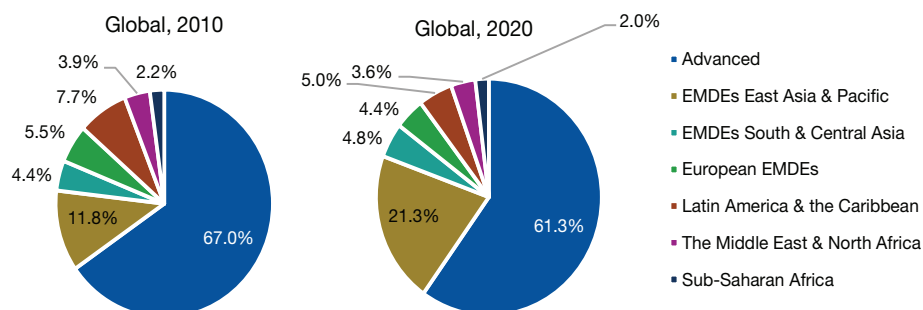
Source: Centennial Group 2021

Another way to highlight the divergence of performance within the EMDEs is to look at changes over time in the share of individual regions of EMDEs' total GDP. While Latin America accounted for 32 per cent of EMDEs' GDP in 1980, its share of total EMDEs' output had dropped to only 9 per cent in 2020. By contrast, Emerging Asia's share rose from 27 per cent to 57 per cent, led by China but reflecting high growth for India, South Korea, Taiwan and ASEAN countries. Emerging Europe rose slightly, but all other regions declined.

It is also important to note the behaviour of per capita income for the different regions relative to 2010—at the end of the Great Recession. Since then, Emerging Asia and to a much lesser extent, Developing Europe, have witnessed sustained increases in per capita income, even with a one- or two-year reversal in 2020–21—an event in common with all other regions (Figure 4.4). AEs saw modest but also steady increases. While the other three regions were characterized by declining or stagnant incomes, at least since the middle of last decade, Latin America has clearly been the worst performer during the period.

Figure 4.4: Per capita GDP by region (2010=100)
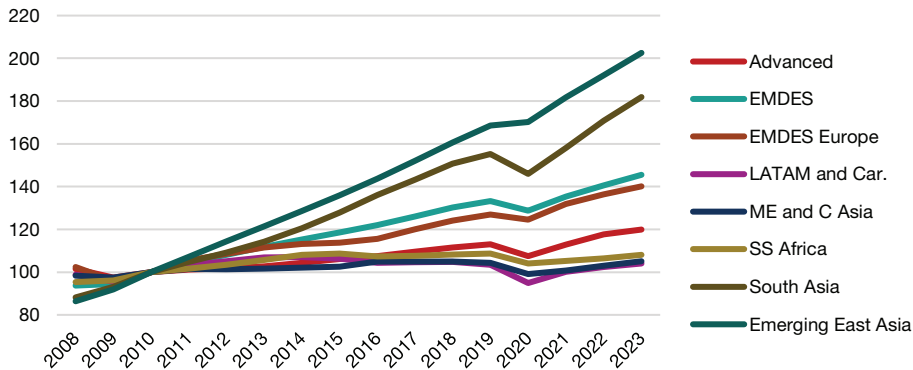
Factors Affecting Regional Performance

Asia's strong performance can be explained by many factors, such as much higher savings and investment rates, greater openness, better human capital development, and other actions reflected in stronger global competitiveness and 'cost of doing business' rankings. However, in addition to relative weaknesses in these areas, Latin America, Africa and the Middle East have also continued to suffer from other structural weaknesses, a possible lack of a long-term vision, and a generally weaker macroeconomic policy framework, even as inflation has tended to be contained. All these factors have led to, amongst other indicators, relatively poor growth in total factor productivity (see Table 4.2), with particular concern regarding Latin America, the Middle East and, to a lesser extent, Sub-Saharan Africa, precluding rapid convergence.

Differences in the savings and investment rates are another important factor in explaining differing growth performance around the world. With the highest per capita income, the AEs are likely to have a greater propensity towards consumer spending, resulting in low levels of savings and investment. However, it can be observed that the emerging regions, with the clear

exception of Emerging East Asia and, to a much lesser extent, the Middle East and North Africa, have also suffered from low savings and investment (Figure 4.5). These low investment rates, combined with poor productivity (TFP) growth, have resulted in sluggish growth rates compared to fast-growing East Asia.

The relative progress of different regions is again reflected in the behaviour of the Human Development Index produced by the United Nations Development Programme (UNDP), which considers economic, educational and health performance. In the last thirty years, all regions have improved; however, East Asia has done particularly well, in addition to Emerging Europe and Central and South Asia—these cases started from lower levels (Figure 4.6). The laggards in terms of improvement are again the Middle East and Latin America, with Sub-Saharan Africa in an intermediate position between the two other groups.[3]

Produced by the World Bank until 2020, the Ease of Doing Business (EDB) Index, while subject to controversy in terms of some of the countries' behaviour, provides a strong case for relative regional positions. While countries in the Latin American and the Middle Eastern regions benefit from relatively high income, their lacklustre performance is clearly associated with the low relative EDB ratings for the two regions, as is the case for Sub-Saharan Africa.

Table 4.2: Total factor productivity growth

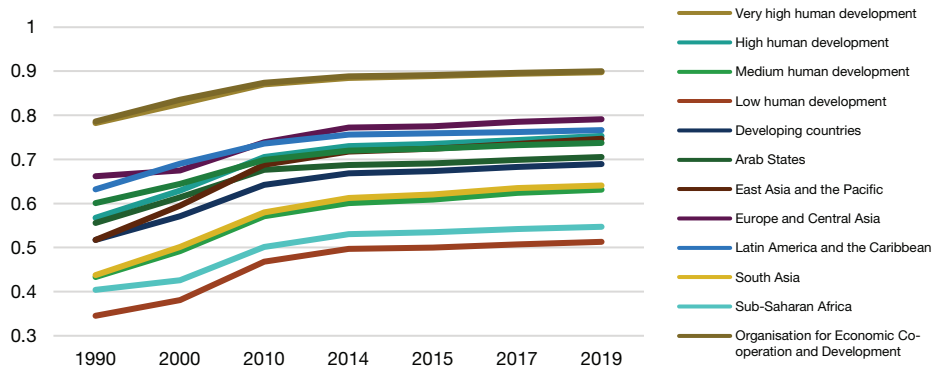| Region	TFP
Advanced	0.79
EMDEs Asia	3.94
EDMEs Europe	2.36
LATAM CA	-0.06
ME & C Asia	0.56
Sub-Saharan Africa	1.22

Source: Centennial Group 2021

Figure 4.5: Savings and investment by region (2010–19)
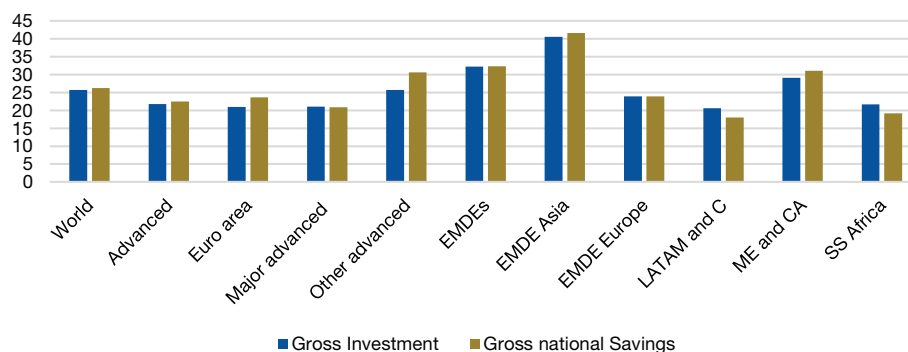

Source: Centennial Group 2021

3. The Human Development Index (HDI) is a composite statistic of life expectancy, education and per capita income indicators, which is used to rank countries into four tiers of human development.

Figure 4.6: Human Development Index (1990–2019)

Legend:
- Very high human development
- High human development
- Medium human development
- Low human development
- Developing countries
- Arab States
- East Asia and the Pacific
- Europe and Central Asia
- Latin America and the Caribbean
- South Asia
- Sub-Saharan Africa
- Organisation for Economic Co-operation and Development

Source: Human Development Report Office 2020

Figure 4.7: Ease of doing business scores by region
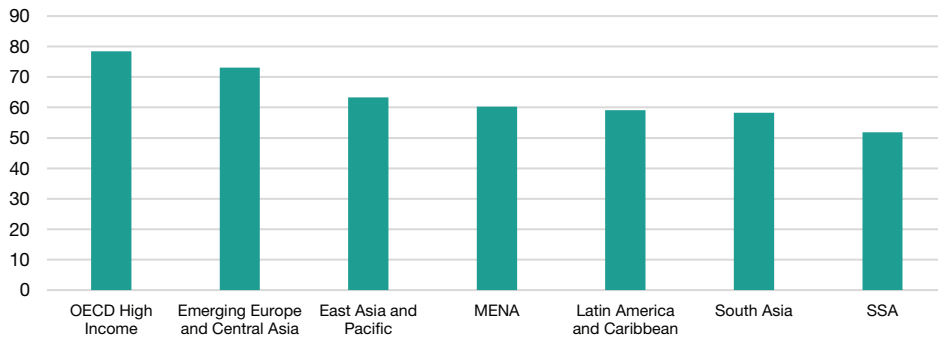
Source: World Bank 2021b

Equivalent resultscan be extracted from the Global Competitiveness Index for 2019 (the last index produced in that format) of the world Economic Forum, although with a different country classification, as it includes OECD countries in the geographical groupings. On that basis, East Asia comes first, being the most dynamic region, followed by Europe and North America, and in third place, Eurasia (Figure 4.8).

As was indicated in *The World in 2050*, while the pace and trajectory of different regions and countries in the EMDEs cannot be summarized easily because countries' economic and political conditions varied widely, there have been positive policy trends. In most cases by now, there has been a significant improvement in macroeconomic policies, even with some back-tracking; there have been robust financial systems, and, of equivalent and related importance, until recently, there was a sharp reduction in the prevailing rate of inflation, accentuated by the initial effect of the COVID-19 pandemic. While this is especially true for Latin America and the Middle East, patterns are observed in the other regions, including Sub-Saharan Africa, where countries were the last to embrace macroeconomic and structural reforms and to build modern

Figure 4.8: Global Competitive Index, median score (2019)
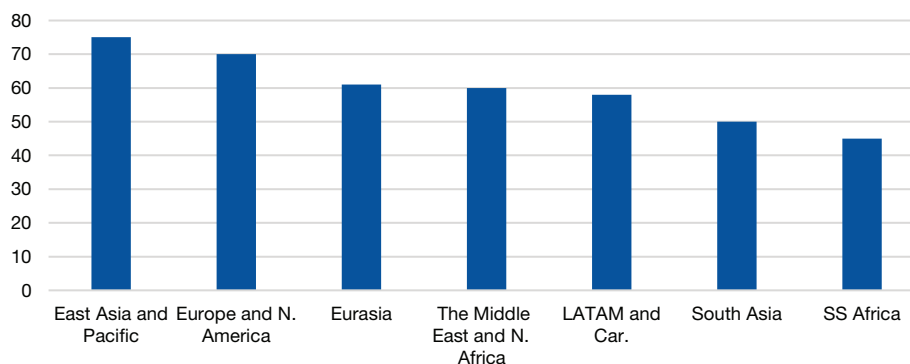
Source: World Economic Forum 2019

institutions. In 2021, however, there was a reversal in inflation on account of the disruptions in supply in the international value chain, unexpected shortages in the available workforce in advanced countries, and other structural difficulties, which resulted in a sharp price increase in many commodities, mostly metals and fuels.

Because of generally favourable conditions, countries appeared to have emerged from their previous pattern of non-convergence. As discussed, starting in the early 2000s, the average annual GDP growth rate of Emerging Asia, Africa, Latin America and the Middle East rose rapidly, in large part for the three latter regions due to the decade-long improvement in terms of trade, caused by the super commodity cycle that extended through 2012. As noted earlier, as the impulse coming from China weakened and terms of trade declined, growth in the emerging markets declined through 2019, while the rate of growth of AEs rose.

As a result, the growth rate differential of EMDEs with respect to that of the AEs narrowed from its peak of more than 5 per cent between 2007–09 to 2.5 per cent in the period 2013–19, a level comparable to the beginning of the twenty-first century. The differential is estimated to narrow significantly further, for the period 2020–22, to 1.4 percentage points. Even though the spread may increase somewhat subsequently, this may put in doubt the plausibility of continued significant changes in the relative shares of world output, at least in the near term. These developments, including the pandemic, raise questions about the long-term growth prospects of the global economy in general and of EMDEs more specifically.

One important consideration in terms of the capacity to adapt is that the increase in domestic public borrowing by AEs has and will continue to absorb significant resources. This, together with previous significant public borrowing and consequently higher risks among emerging economies, limits capital flows to these countries in the future. Furthermore, China's domestic spending revival is resulting in a narrowing of its current account surplus and thus, its ability to lend. These circumstances point to a problematic recovery in the medium term and increased poverty.

Even with these difficulties, several regions are converging. The average annual GDP growth rate of Emerging Asia—particularly Emerging East Asia—and Emerging Europe has remained strong, and convergence remains a strong possibility for those areas, but, as discussed, less

so for the other regions. In any event, world GDP growth has decelerated and growth of most EMDEs has slowed in parallel. The performance of the AEs showed that their growth has recovered, albeit slowly, since 2010 (Figure 4.2), especially in the US, the UK, Germany and many northern European nations (plus Japan, though to a more modest degree and more unevenly).

In these circumstances, emerging economies will need to deal with several correlated but identifiable effects. AEs and some emerging economies have been able to counteract the sharp decline in activity through lockdowns and related business disturbances because of their deep fiscal resources, as well as through their robust financial markets. The ability of most EMDEs to take equivalent actions has been limited by both fiscal constraints and their narrow domestic and closed foreign financial markets. This has resulted in the reduced effectiveness of countercyclical actions, with possible inflationary and balance of payments consequences. The sharp initial decline in global demand has hit primary producers extremely hard, although there has been a recent strong recovery. All this brings to the fore questions about the plausibility of continued significant changes in the relative shares of world output, at least in the near term.

Medium- and Long-term Outlook

This section presents scenarios up to 2060, based on the global growth model that has been widely used by the Centennial Group.[4] This is a long-term model, and, therefore, its results and projections are stylized; they are not intended to predict the future exactly but rather to provide a context for policymaking and reform (Kohli, Alberto and Arnold 2012). Centennial Group's long-term models explore alternative scenarios for the global economy, with a focus on the outlook for EMDEs. The model has been adapted to reflect the developments described above and considers the fact that during the last few decades, there has been a decline in the growth of the global productivity frontier. The latest scenarios generated by the model suggest that, as result of the pandemic, the world economy will incur an accumulated loss of at least one year of output in the next twenty years and that, even with the strong growth revival of 2021, global GDP will not be on track to go back to the pre-pandemic trendline. Asia will remain the most dynamic region, and Latin America, the Middle East and Europe will suffer the most from the recent events. Finally, independent of the effects of the pandemic, there is a slowdown in the long-term global productivity growth, particularly for the commodity dependent regions, as discussed earlier.

The new growth model results consider the effect of the COVID-19 pandemic compared to an alternative no-COVID-19 exercise based on 2019 projections. It includes a significant convergence reclassification of countries, based on the indicators used in the model, plus consideration of the Resilience Index and the World Bank classification of states in high- or medium-intensity conflict. Based on the current run, summarized in the tables and figures of the next few pages, the world should recover relatively quickly, as supported by the projections of the WEO and others.

The study presents three scenarios—central, strong policy and poor policy—to allow for a simple and clear presentation, but are not intended to constitute definitive projections. The scenarios revolve around a 'central' scenario considered most plausible for the global economy, based on current circumstances. A crucial assumption under this scenario is that the global

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4. The medium- and long-term projections are based on the October 2021 IMF WEO.

productivity frontier (the US economy) will improve at an average annual rate somewhat below 1 per cent. It had been about 1 per cent for the past 100 years or so, but has experienced a decline in more recent years. In that sense, it is far from certain that the US will remain the determinant of the productivity frontier in the next forty years, as some countries in Asia—China in particular—may take this role. The model further assumes that only the AEs that have per-formed well in the past twenty years will continue to move at the same pace as the US and similarly that EMDEs that have a record of successful convergence in the past will continue to converge in the future as well. The model presents another scenario for the EMDEs called 'strong policy'. Under the strong policy scenario, the global productivity frontier improves at a faster rate than under the central scenario. In all other aspects besides the increased productiv-ity frontier growth, the advanced economies' performance remains broadly the same, but policy performance of EMDEs improves significantly. A third 'poor policies' scenario combines two simultaneous adverse developments: many EMDEs fall into the middle-income trap because of their inability to maintain a reasonable policy regime and the global productivity growth rate slows to only 0.6 per cent per year (as strongly argued by some cautious experts). While this scenario is defined as pessimistic, it cannot be ruled out. In fact, without progress towards addressing the climate crisis, and without a solution to income distribution issues, a pessimistic scenario may become more likely.

Central Scenario

The central scenario for the global economy suggests that there will be a continued increase in the participation of EMDEs in world GDP. Under the central scenario, post-COVID-19 annual GDP growth on average would be 2.9 per cent for the period 2022–40 and 2.75 per cent for 2021–60, about in line with the no-COVID-19 projections (Table 4.3 and Figure 4.10). Per capita income could grow at a rate of 2.1 per cent a year. Today's EMDEs would grow at an average annual rate of 3.6 per cent, in comparison to a rate of growth of 1.6 per cent for today's advanced economies. The average rate of growth for Sub-Saharan Africa would be in the order of 4.7 per cent, and that of Emerging Asia would be 4.0 per cent. Disaggregating Emerging Asia, growth in East Asia would begin to slow to 3.5 per cent and growth in South Asia would begin to recover from its previous poor performance and average 5.0 per cent (Appendix Figure 5). The rate of growth of GDP in Emerging Europe would be 2.2 per cent, somewhat above AEs, in Latin America 2.1 per cent, and in the Middle East 3.0 per cent. Except for Sub-Saha-ran Africa, and marginally Latin America, the world would experience a lower average annual growth rate during the period through 2060 than during 2001–20, characterized by the Great Recession and the pandemic (Table 4.4).

By 2060, the global economy will more than triple in size, reaching US$276 trillion at 2018 prices and market exchange rates (US$409 trillion in PPP terms). The world will be significantly wealthier, with the global per capita income averaging close to US$28,700 (US$41,000 in PPP terms) as compared to about US$12,200 (US$18,100 in PPP terms) in 2021. Additionally, there will be dramatic improvements in the income levels and living standards of people who live in countries currently referred to as 'developing'.

For today's advanced countries, GDP per capita in terms of PPP (at 2018 prices) would rise from US$56,800 in 2021 to US$104,100 by 2060, with a growth rate of 1.5 per cent per year. For EMDEs, per capita GDP would increase from US$11,400 to US$34,000; this entails an

Table 4.3a: Income and income per capita, PPP 2018

Region	Scenario	GDP (US$ mill PPP 2018)			Annual Percentage Change
		2020	2040	2060	2020–60
World	Central	127942	243950	409457	3.0%
	Strong Policy		287945	607778	4.0%
	Poor Policy		205226	253686	1.7%
Advanced Economies	Central	54020	79323	110109	1.8%
	Strong Policy		88213	130365	2.2%
	Poor Policy		73531	86121	1.2%
Emerging East Asia and the Pacific	Central	31213	71555	122089	3.5%
	Strong Policy		83488	167689	4.3%
	Poor Policy		54345	61655	1.7%
Emerging South and Central Asia	Central	13337	40224	93140	5.0%
	Strong Policy		48172	137905	6.0%
	Poor Policy		29308	40507	2.8%
European Emerging Economies	Central	10106	16742	23949	2.2%
	Strong Policy		18909	30458	2.8%
	Poor Policy		14588	16724	1.3%
Latin America & Caribbean	Central	9303	14934	20968	2.1%
	Strong Policy		20987	45367	4.0%
	Poor Policy		13801	16925	1.5%
The Middle East and North Africa	Central	6028	11389	19784	3.0%
	Strong Policy		14049	31330	4.2%
	Poor Policy		10458	14780	2.3%
Sub-Saharan Africa	Central	4069	10066	25951	4.7%
	Strong Policy		14359	64295	7.1%
	Poor Policy		9068	17435	3.7%

Source: Centennial Group 2021

average growth of 2.8 per cent. Latin America and the Caribbean would go from US$15,400 to US$27,8000. This would mean that the difference in income levels between the region and the rest of the EMDEs would be significantly narrowed. However, at market prices, income gaps would be maintained. In 2021, advanced countries are estimated to have a per capita

Table 4.3b: Income and income per capita, PPP 2018

Region	Scenario	GDPPC (US$ PPP2018)			Annual Percentage Change
		2020	2040	2060	2020–60
World	Central	16613	26891	40965	2.3%
	Strong Policy		31741	60806	3.3%
	Poor Policy		22622	25380	1.1%
Advanced Economies	Central	50654	71736	94019	1.6%
	Strong Policy		79775	118194	2.1%
	Poor Policy		66497	78083	1.1%
Emerging East Asia and the Pacific	Central	14748	32069	56684	3.4%
	Strong Policy		37417	77855	4.2%
	Poor Policy		24362	28626	1.7%
Emerging South and Central Asia	Central	6564	16708	36301	4.4%
	Strong Policy		20010	53749	5.4%
	Poor Policy		12174	15788	2.2%
European Emerging Economies	Central	25862	44013	67513	2.4%
	Strong Policy		50049	85861	3.0%
	Poor Policy		38613	47145	1.5%
Latin America & Caribbean	Central	14581	20543	27812	1.6%
	Strong Policy		28869	60174	3.6%
	Poor Policy		18984	22450	1.1%
The Middle East and North Africa	Central	16925	24500	35706	1.9%
	Strong Policy		30222	56543	3.1%
	Poor Policy		22497	26675	1.1%
Sub-Saharan Africa	Central	3837	5949	10737	2.6%
	Strong Policy		8487	26603	5.0%
	Poor Policy		5360	7214	1.6%

Source: Centennial Group 2021

income of US$52,000 and would move to US$89,000. EMDEs would go from US$5,400 to US$20,700, with Emerging East Asia going from US$11,000 to US$49,000 and South Asia going from US$2,000 to US$16,500.

4

Over time, the rate of growth of the global economy will decline as countries are expected to converge toward the global best practice and as population growth rates decline worldwide (with the exception of Sub-Saharan Africa) (Figure 4.9).

In 2060, as many as fifty-three countries will have GDP per capita higher than the average income of the AEs today, and eighty will be above the average income of France, Italy, Japan, Spain and the UK today, even though the list of richest countries will not be significantly changed. The distinctions between AEs and EMDEs that were so clear half a century ago, will have diminished radically. Perhaps even more importantly, as many as 5.5 billion, or 57 per cent of the world's expected total population of 9.6 billion in 2060, will live in these eighty countries; somewhat over 1 billion people, or 14 per cent of the world's population.
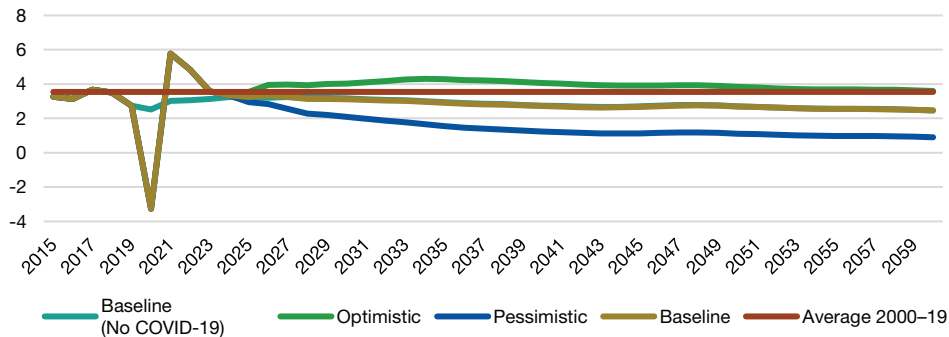
By 2060, Emerging Asia will account for just over half (52 per cent) of global output at market exchange rates (54 per cent on a PPP basis) under the central scenario. China, India and Indonesia will lead the way in this process. Asia's economic share will be more in line with

Table 4.4: Comparative GDP growth 2001–20 and 2021–60

Country Group Name	2001–20	2021–60
world	3.4	3.0
Advanced	1.5	1.8
EMDEs	5.2	3.5
Emerging East Asia and the Pacific	7.8	3.5
South & Central Asia	6.2	5.0
EMDE - Europe	3.4	2.2
Latin America and the Caribbean	2.0	2.1
The Middle East and Central Asia	4.0	3.0
Sub-Saharan Africa	4.5	4.7

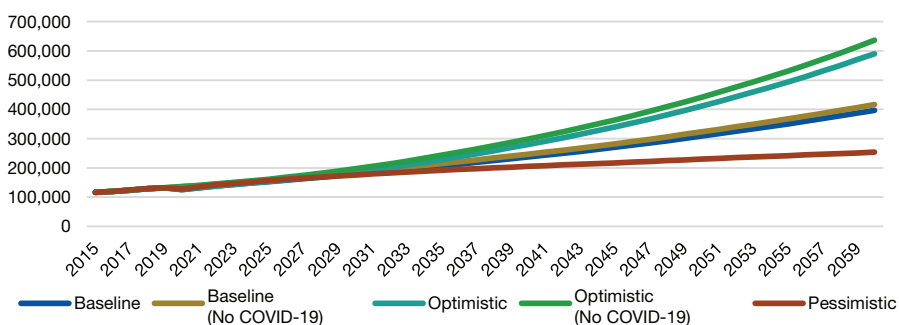Source: Centennial Group 2021

Figure 4.9: World GDP growth

Source: Centennial Group 2021

its share of world population, though Emerging Asia's per capita income in 2060 will remain well below of that of the countries defined as advanced today.

Emerging East Asia will account for about 47 per cent of global growth between 2021 and 2060, today's AEs for another almost 25 per cent and South Asia for 15 per cent. The rest of the world will contribute only 13 per cent of global growth, unless the other regions step up their economic performance, particularly Latin America, the Middle East and Sub-Saharan Africa, as postulated in the strong policy (optimistic) scenario outlined below, or China and India decelerate, as presented in the pessimistic scenario. Even so, the shock from the COVID-19 pandemic and its traumatic human and economic effects are unlikely to disappear over time. However, based on the current run, with results summarized in the tables and figures of the next few pages, the world is recovering to pre-pandemic levels quickly.

Post-COVID-19 annual GDP growth on average would be 3.2 per cent for the period 2021–40 and 1.8 per cent for 2021–60, slightly above the no-COVID-19 run due to the recovery of output after 2020. However, output will remain lower in the post-COVID-19 period than what the scenarios suggested for a no-COVID-19 situation. On average, the level of GDP after COVID-19 for the period 2020–40 would be 1.4 per cent lower than in the no-COVID-19 scenario, and 1.6 per cent for the period 2020–60, with a catch up in 2022–24 (Figure 4.10).

Figure 4.10: World GDP (PPP)

Source: Centennial Group 2021

As an example, in the baseline scenario, in 2021, GDP is 5.6 per cent less than in the no-COVID-19 scenario; whereas in 2030, it is just 1 per cent lower, and in 2040, it is 1.3 per cent lower. In any event, the cumulative loss will be significant. The present value of the loss of GDP over the period 2020–40 would be equivalent to 28 per cent of 2019 GDP, and 59 per cent over the period 2020–60, although considerably lower than estimates made earlier.[5]

The shares of each region in global GDP are not expected to change significantly with respect to no-COVID-19 projections. The largest economy is expected to be China in the baseline and the optimistic scenarios, with the US as the second largest economy, and India as the third largest. The US would remain the largest economy in 2060 under a globally more

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5. Present value estimates have been carried out using the average rate of growth as the relevant (for simplicity) discount rate. Other discount rates can be used and would give similar results.

pessimistic scenario. Japan would be the fourth largest economy, except under the optimistic scenario, where Indonesia surpasses Japan and Brazil. Other emerging economies would tend to take higher positions in the optimistic scenario, while the more traditional rich countries would keep their relative positions under the more pessimistic scenarios (see Appendix Table 1 for GDP MkFX rankings and values).

Per capita income on a PPP basis does not show major surprises, with Ireland, Singapore, Luxembourg, Switzerland, the US, Malta and Norway showing very high levels of income. A surprise in the model is Guyana, which is currently benefitting from the identification of significant oil reserves[6] (the per capita GDP values can be found in Appendix Table 2 ranked by PPP levels).

GDP and TFP growth will be more marked (as expected) among both East and Southern Asian emerging economies (Appendix Figure 3a and 3b), including China, India, and Indonesia, among larger countries, even though at a lower rate than in the period 2001–20 for East Asia. Lower rates of growth of TFP would be expected for Central and Eastern Europe and Central Asia. The AEs will experience a somewhat higher growth of TFP from the first twenty years of the twenty-first century, as will be the case for the three commodity exporter regions. In the latter case, this may be on account of no implicit impact of lower terms of trade, as discussed in Chapter 14, and challenges confronting commodity-exporting countries. However, there is no catching up with the levels of TFP of the advanced countries, as was the case in the no-COVID-19 estimates. Regional per capita income ranking would experience some significant shifts in relative terms. East Asian EMDEs (mainly China and Southeast Asia) will have effectively surpassed all other EMDE regions. In turn, under the central scenario, they would surpass Latin America by the late 2040s and the Middle East by the end of the projection period (Figure 4.11).
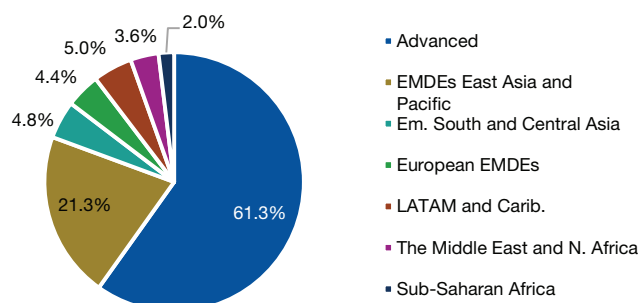
Figure 4.11: GDP per capita (PPP) by region
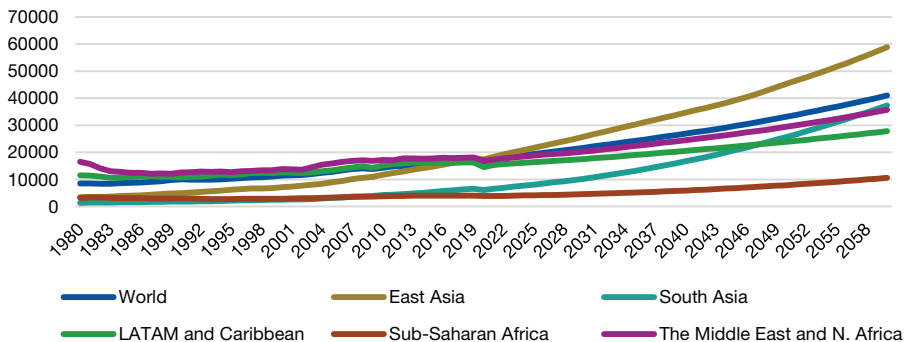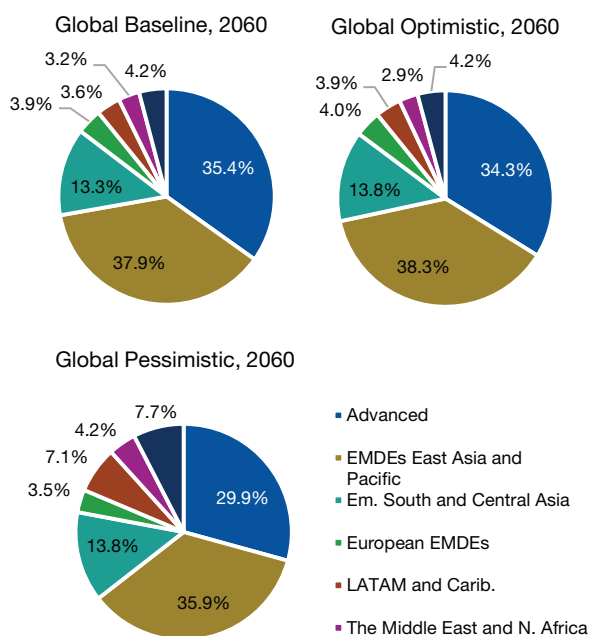

Source: Centennial Group 2021

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6. There is a likely overestimation for the country, as the effect of the oil findings will not be expected for the full period of the scenarios.

Figure 4.12: Share of global GDP by region (2020)

- Advanced
- EMDEs East Asia and Pacific
- Em. South and Central Asia
- European EMDEs
- LATAM and Carib.
- The Middle East and N. Africa
- Sub-Saharan Africa

Source: Centennial Group 2021

Figure 4.13: Share of global GDP by region and scenario (2060)

Global Baseline, 2060

Global Optimistic, 2060

Global Pessimistic, 2060

- Advanced
- EMDEs East Asia and Pacific
- Em. South and Central Asia
- European EMDEs
- LATAM and Carib.
- The Middle East and N. Africa

Source: Centennial Group 2021

Comparison of 2016, Pre-COVID-19, and Current Scenarios

A crucial issue that comes out of this exercise is that beyond the slowdown in growth caused by COVID-19, both the pre-pandemic and the post-pandemic projections show a significant decline in the prospective rate of growth for most of the regions of the world with respect to the projections incorporated into *The World in 2050*. Using a slightly different classification

than the one used above to conform with the projections made at that time, we can see that all regions show a decline in the rate of growth for the period 2015–50, except for Emerging East Asia, which remains basically unchanged, and Emerging Europe, which shows an increase in more recent estimates (Figure 4.14). The regions with the largest negative adjustments are Latin America, the Middle East and North Africa and Sub-Saharan Africa, all hit by declines in terms of trade and thus in estimated TFP, as discussed in Chapter 14, with smaller projected declines for South and Central Asia and for advanced countries. To some extent, the difference in the projections reflects the actual performance of the world economy between 2015 and 2020 and the expected recovery from the pandemic in the next few years. To observe the possible differences in the scenarios in the medium- and long-term projections, we provide a comparison of the GDP growth rates for the period 2030–50, included in the 2016 scenario as well as the pre-COVID-19 and post-COVID-19 estimates (Figure 4.15). It can be observed that declines in the growth rates are observed for East Asia and for the three commodity-intensive regions, with a slight decline in the case of South and Central Asia; a slight increase after COVID-19 for the advanced countries can also be observed. Effectively, the current scenarios adjust for the terms of trade bias and provide a more realistic assessment, based on the newly available information. It should also be noted that the new projections incorporate a reclassification of several countries from 'convergers' and 'half-convergers' to lower categories, based on the experience in the last ten years.

Figure 4.14: GDP (PPP), projected growth rates: Projected 2016, projected pre-COVID-19 and projected post-COVID-19
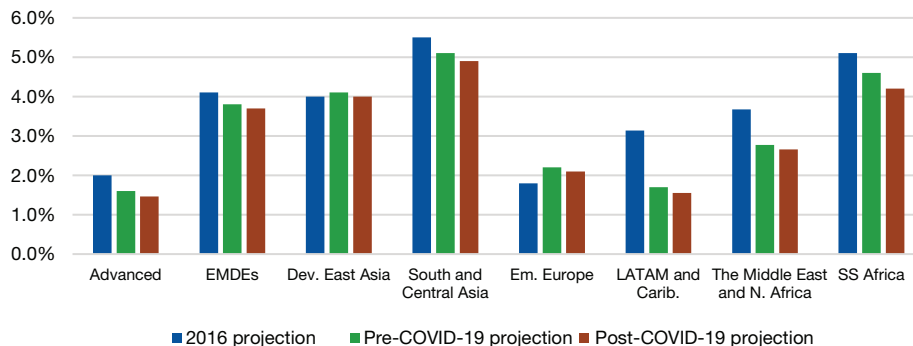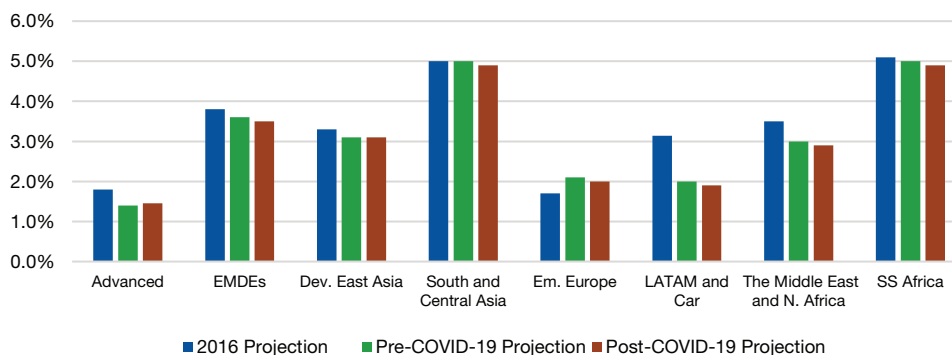

Source: Centennial Group 2021

Strong Policy (Optimistic) Scenario

The strong policy scenario differs from the central scenario by quantifying effects of three key 'what if' questions. The first is: what would be the outcome if most EMDEs became fast-growing 'convergers'? The second is: what would be the impact of this convergence occurring at a faster rate than that assumed under the central scenario? This, of course, assumes that the current 'non-convergers' will successfully adopt the adequate policies and institutional reforms

Figure 4.15: GDP (PPP), projected growth tates: Projected 2016, projected pre-COVID-19 and projected post-COVID-19 (2030–50)

■ 2016 Projection ■ Pre-COVID-19 Projection ■ Post-COVID-19 Projection

Source: Centennial Group 2021

needed to unleash a rapid catch-up process and accelerate productivity-driven growth. The third is: what would be the impact of faster global productivity frontier growth?

Under this scenario, the average rate of growth of the EMDEs group will increase from an average annual rate of 3.6 per cent in the central scenario to 3.9 per cent. By 2060, the difference for the relevant economies becomes highly significant. By the end of the period, the resulting global GDP will also be almost 59 per cent higher than in the central scenario. While GDP per capita in EMDEs will almost triple from its 2021 level under the central scenario (jumping from US$11,400 to US$33,900), it will increase nearly four-fold reaching US$55,500 under the strong policy scenario. The increase would be significant for the advanced countries, with an income of US$125,000 instead of US$94,000 under the baseline scenario.

Though the regional differences will remain significant, they will become less pronounced. This is because the largest contributors to growth in Asia are already 'convergers'—China, India, Indonesia, and others. By contrast, growth in the less-dynamic regions under the central scenario (Africa, the Middle East and Latin America) is much higher in this more optimistic scenario (Table 4.3, and Appendix table 3a). What is important to keep in mind is that this scenario is consistent with good policies throughout. More importantly, for this scenario to materialize, productivity and, more specifically, technological change, will be of the essence. Chapter 13, discussing the Productivity Conundrum, explores the current conditions and extraordinary prospects for the world if conditions allow. The chapter suggests that there has been an uptick in the global productivity growth. If this trend persists over the longer term, then the probability of the optimistic scenario being realized would increase, as global productivity growth has substantial influence on the overall world economic growth. However, not all regions will benefit automatically. Thus, country policies will remain critical. Otherwise, there may be even greater divergence between the innovators, for example, in East Asia, and the lagging EMDEs.

The Poor Policies and Low Productivity Growth (Pessimistic) Prospects

The global 2060 outcomes could be dramatically worse if domestic policies prove inadequate in most EMDEs (particularly in the cases of China, India and the rest of the Asian

emerging economies) and if the rate of global productivity growth were to slow down dramati-cally. The latter would be the result of poor policies, climate change and the required offsetting investments, and the impact of conflicts related to inequality, not to speak of possible armed conflicts. Specifically, global warming already has and will continue to have destructive effects on the stock of capital and human well-being, that will require significant remedial spending and additional investment to preclude or reduce the potential losses in potential GDP in the world and particularly among emerging and poor economies. Events like a new pandemic or equivalent natural disasters are an additional cause of reduction in potential GDP growth. Moreover, these events can be envisaged to occur in the future, but cannot be predicted with any degree of certitude, thus increasing uncertainty. Moreover, there is the risk of increasing impediments to trade, regional tensions and financial crises, as have occurred in the past. Finally, global armed conflicts have been absent for three-quarters of a century, but there is no guarantee that a new one may not emerge, with catastrophic consequences, well beyond the scenarios presented here.

Under the pessimistic scenario, preliminary results suggest the average annual world GDP growth could be 1.5 per cent or 1/4 percentage points lower than in the central scenario (Table 4.3). The fall would be particularly harsh in the case of Asia, with a decline in the rate of growth by 2.7 percentage points, followed by a decline of 1.3 percentage points for Africa. However, all regions would suffer. In absolute terms, overall world GDP would be 38 per cent lower than in the central scenario and less than half of the estimate for the strong policy scenario. The range of possible results is a function of the assumptions about country policies and about the global productivity frontier, but it clearly shows the dramatically different impacts of good and poor policies as well as the importance of the rate of growth in global productivity. While this sce-nario is labelled pessimistic, existing trends in policies and political events, plus the deepening climate crisis, may make this outcome more likely than would have been expected in the past.

Concluding Remarks

The main message resulting from the new run is that the central scenario envisions a future where countries remain on a somewhat lower trajectory than they have followed in the past, but to remain on their trajectory, countries will need to work hard as they catch up with the more developed economies. The challenges of improving their underlying productivity and com-petitiveness are daunting. It will require overcoming significant obstacles—political, social and institutional—that have worsened with the COVID-19 shock and its structural consequences.

The strong policy scenario remains unlikely, given recent experience, except for possible progress in factor productivity. This scenario will require all developing regions to emulate the past record of East Asia, which is actually weakening for its more advanced countries. Achieving this scenario will require great discipline and dedication to economic development on a massive scale, particularly because over the long haul, commodity exporters cannot expect sustained improvements in their terms of trade—a key factor in their earlier and transient success. Still, the possibilities envisaged in the more optimistic scenarios are significant, and should be sought, subject to unexpected natural or human-caused disasters.

The likelihood of a more pessimistic outcome is high and is a warning that countries can also move in an adverse direction, failing to learn lessons and stagnating or even falling below their own record. In the end, success or failure is more dependent on domestic actions and

inaction, and not the result of exogenous events—uncontrollable but expected, if positive, or excluded from the planning horizon, if negative.

Appendix 4.1: Additional Figures

Table A4.1a: GDP 2020–2040–2050

2020 - Baseline	GDP (MkFX)	World Share	2020 - Baseline	GDP (MkFX)	World Share
United States	20,283	24.6%	Brazil	2,583	3.1%
China	14,432	17.5%	France	2,548	3.1%
Japan	4,898	5.9%	United Kingdom	1,830	2.2%
Germany	3,731	4.5%	Russia	1,596	1.9%
India	2,631	3.2%	Korea	1,590	1.9%

2040 Baseline	GDP (MkFX)	%, World GDP	2040 - Optimistic	GDP (MkFX)	%, World GDP	2040 - Pessimistic	GDP (MkFX)	%, World GDP
China	41366	26.1%	China	47462	25.4%	United States	29530	22.6%
United States	31724	20.0%	United States	34635	18.6%	China	26697	20.5%
India	9083	5.7%	India	10604	5.7%	India	5939	4.6%
Japan	5741	3.6%	Japan	6809	3.6%	Japan	5335	4.1%
Germany	5189	3.3%	Germany	5860	3.1%	Germany	4829	3.7%
United Kingdom	4356	2.8%	United Kingdom	5102	2.7%	United Kingdom	4046	3.1%
France	3680	2.3%	France	4224	2.3%	France	3421	2.6%
Canada	2848	1.8%	Brazil	4058	2.2%	Canada	2659	2.0%
Korea	2706	1.7%	Indonesia	3829	2.1%	Korea	2248	1.7%
Indonesia	2587	1.6%	Canada	3252	1.7%	Italy	2197	1.7%

2060 Baseline	GDP (MkFX)	%, World GDP	2060 Optimistic	GDP (MkFX)	%, World GDP	2060 Pessimistic	GDP (MkFX)	%, World GDP
China	85593	31.0%	China	114570	27.4%	United States	36596	23.2%
United States	43772	15.9%	United States	51703	12.4%	China	28134	17.9%
India	28925	10.5%	India	41331	9.9%	India	8359	5.3%
Japan	6432	2.3%	Indonesia	13726	3.3%	Japan	5377	3.4%
Germany	6339	2.3%	Brazil	10150	2.4%	Germany	5306	3.4%
United Kingdom	5962	2.2%	Japan	9902	2.4%	United Kingdom	4972	3.2%
Indonesia	5736	2.1%	United Kingdom	8651	2.1%	France	3949	2.5%
France	4726	1.7%	Germany	8323	2.0%	Canada	3324	2.1%
Canada	3963	1.4%	Mexico	7623	1.8%	Indonesia	2972	1.9%
Nigeria	3892	1.4%	Nigeria	7434	1.8%	Australia	2774	1.8%

Source: Centennial Group 2021

Table A4.1b: GDP 2020–2040–2050

2020 - Baseline	GDP per capita (PPP)	2020 - Baseline	GDP per capita (PPP)
Luxembourg	114,550	United Arab Emirates	64,813
Ireland	94,239	Brunei	63,660
Singapore	92,934	Norway	63,483
Qatar	87,377	United States	61,272
Switzerland	70,703	Iceland	58,068

2040 Baseline	GDP per capita (PPP)	2040 Optimistic	GDP per capita (PPP)	2040 Pessimistic	GDP per capita (PPP)
Ireland	169106	Ireland	170959	Ireland	156430
Luxembourg	132902	Qatar	138514	Luxembourg	129441
Singapore	124989	Singapore	138263	Singapore	116858
Qatar	123138	Luxembourg	134854	Qatar	116208
Guyana	94725	Switzerland	99544	Guyana	94814
Switzerland	89837	Guyana	98300	Switzerland	83517
United States	86522	Norway	95623	United States	80540
Norway	85014	United Arab Emirates	95299	United Arab Emirates	79793
United Arab Emirates	84582	United States	94462	Malta	79016
Malta	83600	Brunei	92103	Norway	78986

| 2060 Baseline	GDP per capita (PPP)	2060 Optimistic	GDP per capita (PPP)	2060 Pessimistic	GDP per capita (PPP)
Ireland	233655	Ireland	209540	Ireland	194076
Singapore	162798	Singapore	190688	Guyana	143467
Qatar	146650	Qatar	189033	Singapore	136868
Guyana	145297	Luxembourg	152556	Luxembourg	128093
Luxembourg	141983	Guyana	145743	Qatar	124806
Switzerland	114202	United Arab Emirates	141506	Switzerland	95378
United States	111783	Switzerland	141010	Malta	95092
Malta	111749	Norway	140090	United States	93457
Norway	108960	Iceland	134972	United Arab Emirates	91968
United Arab Emirates	108258	United States	132035	Norway	90892

Source: Centennial Group 2021

Figure A4.1: Major countries GDP (MkFX) Global baseline 2012–15
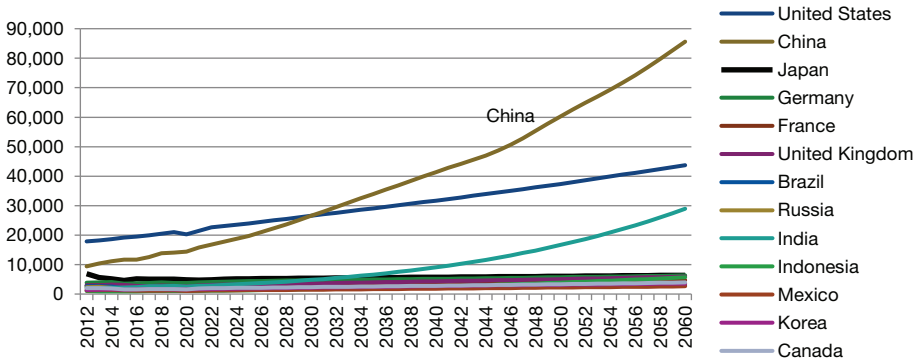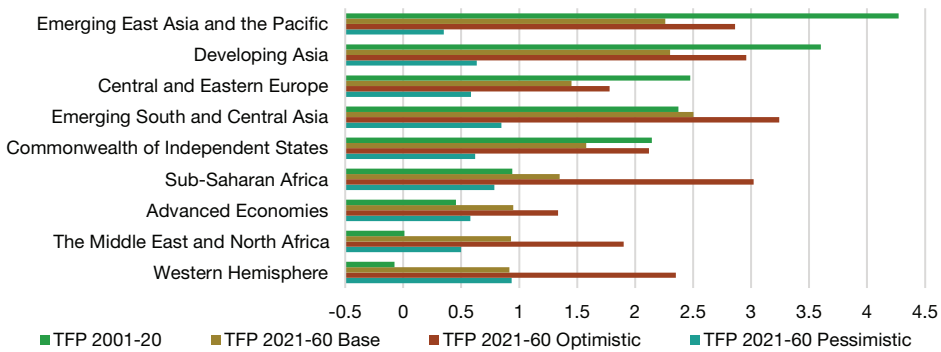

Source: Centennial Group 2021

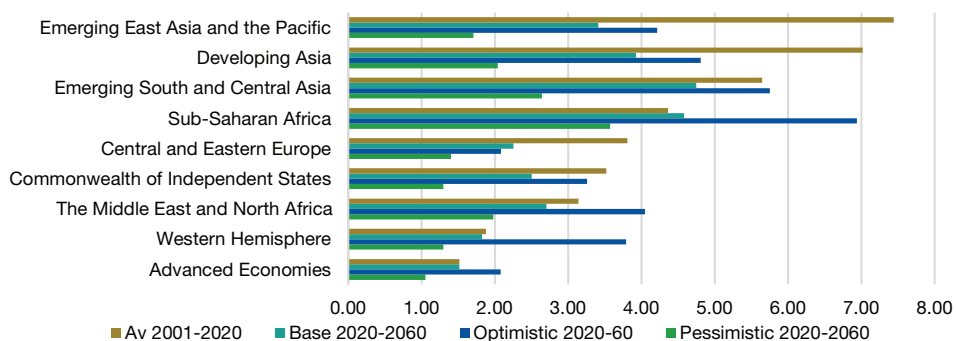## Figure A4.2: Major countries, excluding USA, PRC and India GDP (MkFX)
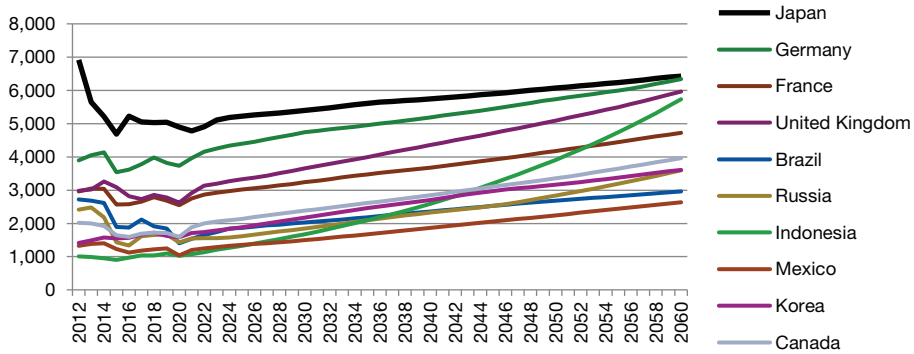
Source: Centennial Group 2021

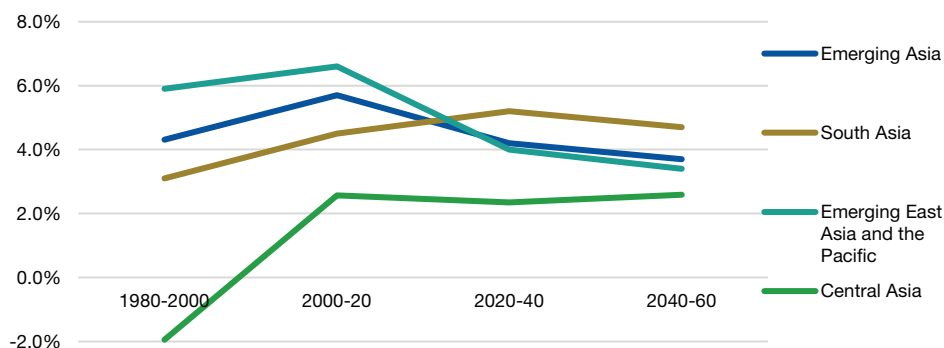## Figure A4.3: Average GDP growth, 2001–20 and 2020–60 scenarios

Source: Centennial Group 2021

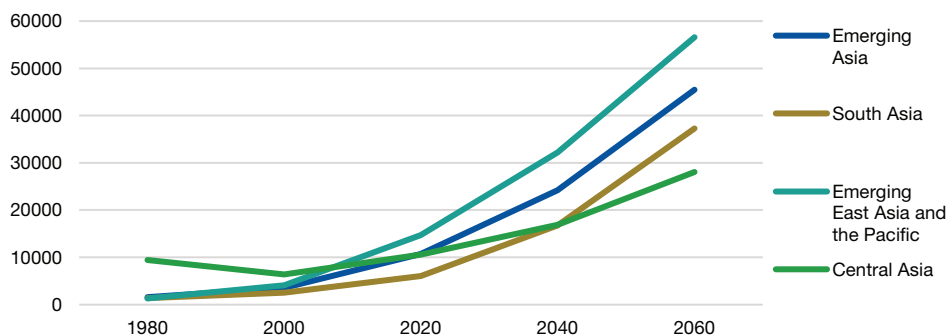## Figure A4.4: Average TFP growth, 2001–20 and 2020–60 scenarios

■ Av 2001-2020	■ Base 2020-2060	■ Optimistic 2020-60	■ Pessimistic 2020-2060

Source: Centennial Group 2021

Figure A4.5: Asian sub-regions growth rate—GDP per capita

Source: Centennial Group 2021

Figure A6.: Asian sub-regions GDP per capita (USD 2018)

Source: Centennial Group 2021