BOX 1.1 How deep will the COVID-19 recession be?

"The short-term collapse in global output now underway already seems likely to rival or exceed that of any recession in the last 150 years." Kenneth Rogoff, Professor of Economics, Harvard University

"The scope and speed of this downturn are without modern precedent, significantly worse than any recession since World War II." Jerome Powell, Chair, The U.S. Federal Reserve System

Current projections suggest that the COVID-19 global recession will be the deepest since the end of World War II, with the largest fraction of economies experiencing declines in per capita output since 1870. Output of emerging market and developing economies (EMDEs) is expected to contract in 2020 for the first time in at least 60 years. The current global recession is also unique in that global growth forecasts have been revised down more steeply and rapidly than in any other recessions since at least 1990. The gradual nature of forecast downgrades in previous global recessions suggests that further downgrades may be in store as forecasters absorb new information about the evolution of the pandemic. As such, additional policy measures to support activity may be needed in the coming months.

The COVID-19 pandemic has led to a deep global recession. The pandemic, and the aggressive restrictions and voluntary restraints on human interaction adopted to contain it, have already led to massive downturns in advanced economies, and to increasing disruptions in EMDEs. Global growth forecasts have been downgraded at an unusually rapid pace over the past three months. The uncertain course of the pandemic, in the absence thus far of effective vaccines or treatments, has caused extraordinary economic uncertainty, including about the possible depth and duration of the global recession, and about how different countries will be affected.

Against this background, this box presents the first systematic comparison of the COVID-19 global recession with previous global recession episodes over the past 150 years. It addresses three questions:

- How does the depth of the COVID-19 recession compare with previous episodes?
- How does the current global recession differ from earlier episodes in different groups of economies?
- How does the evolution of growth forecasts during the current global recession differ from previous episodes?

Contributions. The box makes three contributions to earlier work on global recessions.[1] First, it puts the COVID-19 recession in historical context by analyzing the global recessions of the past 150 years. Second, it compares the performance of different groups of economies—advanced economies, EMDEs, low-income countries (LICs), and EMDE regions—during the current episode with their record in previous ones. Third, it compares the evolution of growth projections between the current and previous global recessions to shed light on the likely future trajectory of forecasts.

Methodology and database. The dates of global recessions are identified by two methods: a statistical method and a judgmental method.[2] The former method defines a global recession as a decline in annual global real GDP per capita. The latter method, similar to the one used for the United States by the Business Cycle Dating Committee of the National Bureau of Economic Research, considers whether there is strong evidence for a broad-based decline in key indicators of global economic activity in a given year. These two methods imply that a *global recession* is a contraction in global real GDP per capita accompanied by a broad decline in various other measures of global activity.[3]

Note: This box was prepared by M. Ayhan Kose and Naotaka Sugawara.

[1] Kose, Sugawara, and Terrones (2019) present a review of the relevant literature on global recessions, analyze how different shocks lead to global recessions, and examine the interactions between global and national cycles.

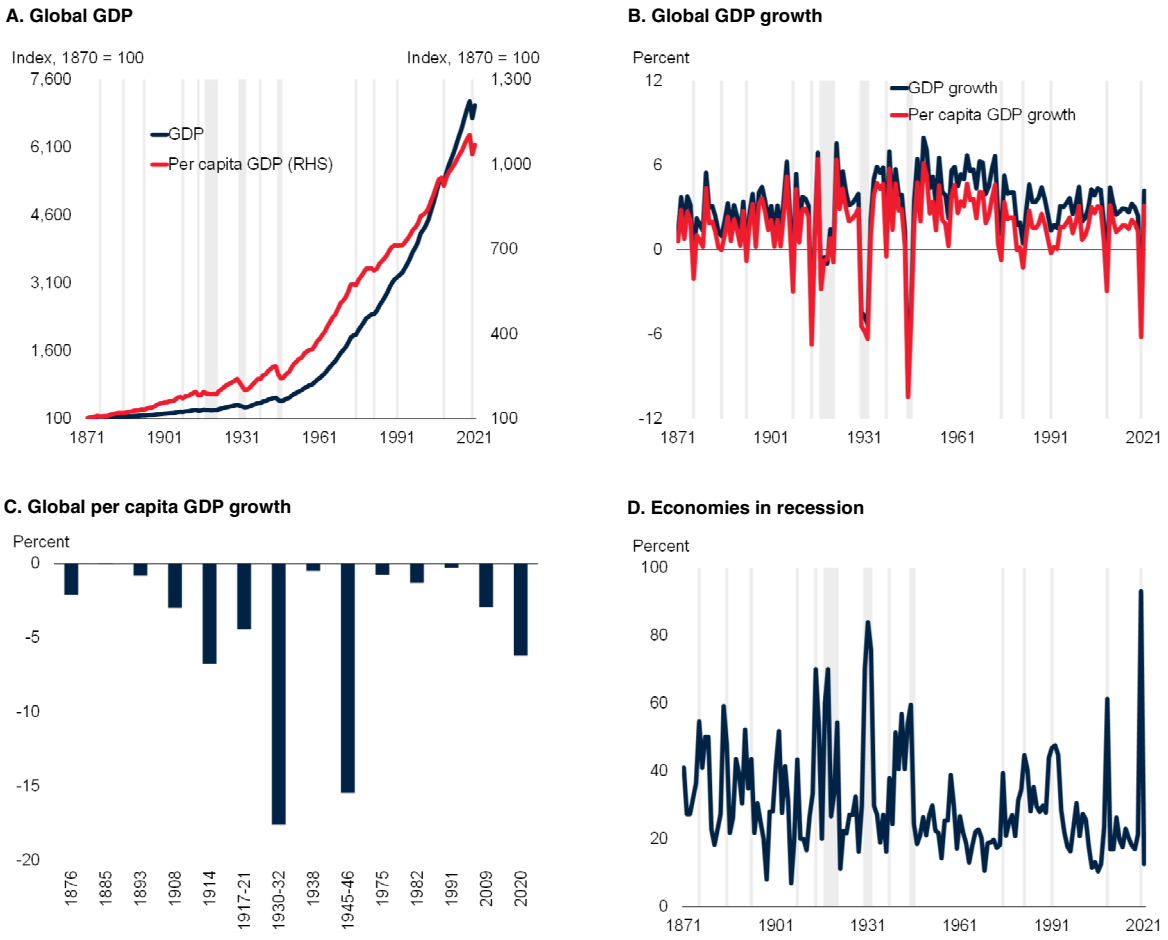
[2] Both methods follow the "classical" definition of a business cycle (Burns and Mitchell 1946), under which business cycle expansions are marked by increases in many measures of economic activity, and contractions by broad declines in activity. Both are widely used in the context of national business cycles, and often arrive at similar turning points (Claessens, Kose, and Terrones 2012).

[3] Some employ a definition of global recession that relies on a simple threshold (*The Economist* 2001, 2008; *Financial Times* 2020). The findings here suggest that it is misleading to employ a simple growth threshold (such as below 2.5 percent annual growth in global GDP) to identify global recessions. For example, if one assumes that a global recession takes place whenever world real GDP growth is less than 2.5 percent, there are a total of 54 years under this definition qualifying as global recessions over the period 1870-2020. Over 1960-2020, this definition leads to 16 global recessions.

BOX 1.1 How deep will the COVID-19 recession be? *(continued)*

FIGURE 1.1.1 Global recessions: 1870-2021

Since 1870, the global economy has experienced 14 global recessions. Current projections imply that the COVID-19 global recession will be the fourth deepest in this period and the most severe since the end of World War II. It is expected to involve per capita output contractions in an unprecedently high share of countries.



Source: Bolt et al. (2018); Kose, Sugawara, and Terrones (2019, 2020); World Bank.
Note: Data for 2020-21 are forecasts. Shaded areas refer to global recessions.
C. For multi-year episodes, the cumulative contraction is shown. The per capita growth contraction in 1885 was less than -0.1 percent.
D. Figure shows the proportion of economies in recession, defined as an annual contraction in per capita GDP. Sample includes 183 economies, though the sample size varies significantly by year.
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Multiple data sources are employed to construct annual world GDP series for a large sample of economies over a long period. The series covers up to 183 economies—36 advanced economies and 147 EMDEs—over the period 1870-2021, though the sample size varies significantly by year.[4] While the 1870-1959 period is critical in providing a historically richer perspective on global recessions, the analysis for this "historical period" is based on only the statistical method (i.e., using per capita GDP) because of data limitations. The study of global recessions during the "modern period" since 1960 relies on both the statistical

[4] The historical dataset covers the periods 1870-1949 (Bolt et al. 2018) and 1950-59 (Kose, Sugawara, and Terrones 2020). The number of countries in the sample increases over time. GDP series for 2020-21 are forecasts. The database also includes quarterly series that covers 106 economies over 1960:1-2019:4.

BOX 1.1 How deep will the COVID-19 recession be? *(continued)*

and judgmental methods and involves a wider range of measures of economic activity, including international trade, retail sales, employment, and oil consumption.

A historical collapse in global output

Another global recession after a decade. Since 1870, the world economy has experienced 14 global recessions: in 1876, 1885, 1893, 1908, 1914, 1917-21, 1930-32, 1938, 1945-46, 1975, 1982, 1991, 2009, and 2020 (Figures 1.1.1.A and 1.1.1.B). In each of these episodes, there was a contraction in global real per capita GDP. The historical period, 1870-1959, saw nine global recessions—at least one in each decade. While there was no global recession during the 1950s and 1960s, the following five decades saw a global recession again in almost every decade.

Deepest recession since World War II. Current projections suggest that the COVID-19 recession will involve a 6.2 percent decline in global per capita GDP, making it the deepest global recession since 1945-46, and more than twice as deep as the recession associated with the global financial crisis (Figure 1.1.1.C). Among the 14 global recession episodes of the past 150 years, it would rank as the fourth deepest (after the 1914, 1930-32, and 1945-46 episodes). The current global recession is expected to register an outright contraction in global GDP (of 5.2 percent) as did eight other episodes.

Duration: One and done? The current global recession is projected to last only one year: in other words, the growth rate of global per capita GDP is projected to turn positive in 2021. This is mostly consistent with experience of prior global recessions: although recoveries took longer to begin in a few deeper recessions prior to 1960, global recessions since then have lasted only one year in terms of annual data. The quarterly data show more variation in the duration of global recessions but the average is still about one year: the durations of the four previous post-1960 global recessions ranged between two quarters (1991 episode) and five quarters (1975 and 1982 episodes) with an average of about four quarters. Many private forecasters expect the COVID-19 global recession to last only two quarters, with major advanced economies returning to growth in the third quarter of 2020 after recording sharp contractions in the first and second quarters of the year.

The first driven solely by a pandemic. The COVID-19 recession is unique as it is the only such episode, at least since 1870, to have been triggered solely by a pandemic and the actions taken to contain it. The prolonged global recession of 1917-21 was partly driven by the 1918-20 Spanish flu pandemic but it also stemmed from the conclusion and aftermath of World War I (Barro, Ursúa, and Weng 2020). In 2009, the Swine flu pandemic was not a contributory factor to the global recession triggered by the financial crisis.

Previous global recessions were driven by confluences of a wide range of factors, including financial crises (1876; the 1930-32 Great Depression; 1982; 1991; 2009), large changes in monetary and fiscal policies (1938; 1982), sharp movements in oil prices (1975; 1982), and wars (1914; 1917-21; 1945-46).[5] During the modern era, the 1975 global recession was mainly the result of a steep increase in oil prices in 1973-74. The 1982 episode was triggered by a combination of factors, including monetary policy responses, particularly by the U.S. Federal Reserve, to the sharp increase in inflation, and the repercussions of the monetary tightening, including the Latin American debt crisis. The 1991 global recession was associated with financial disruptions and exchange rate crises in the European Monetary System and collapses in activity linked to the initial stages of the transition from central planning in many Eastern European countries.

Highest synchronization ever. The fraction of economies experiencing annual declines in national per capita GDP tends to increase sharply during global recessions (Figure 1.1.1.D). Current forecasts suggest that in 2020, the highest share of economies will experience contractions in per capita GDP since 1870—more than 90 percent, even higher than the proportion of about 85 percent of countries in recession at the height of the Great Depression of 1930-32.

Deep recessions in major country groups and regions

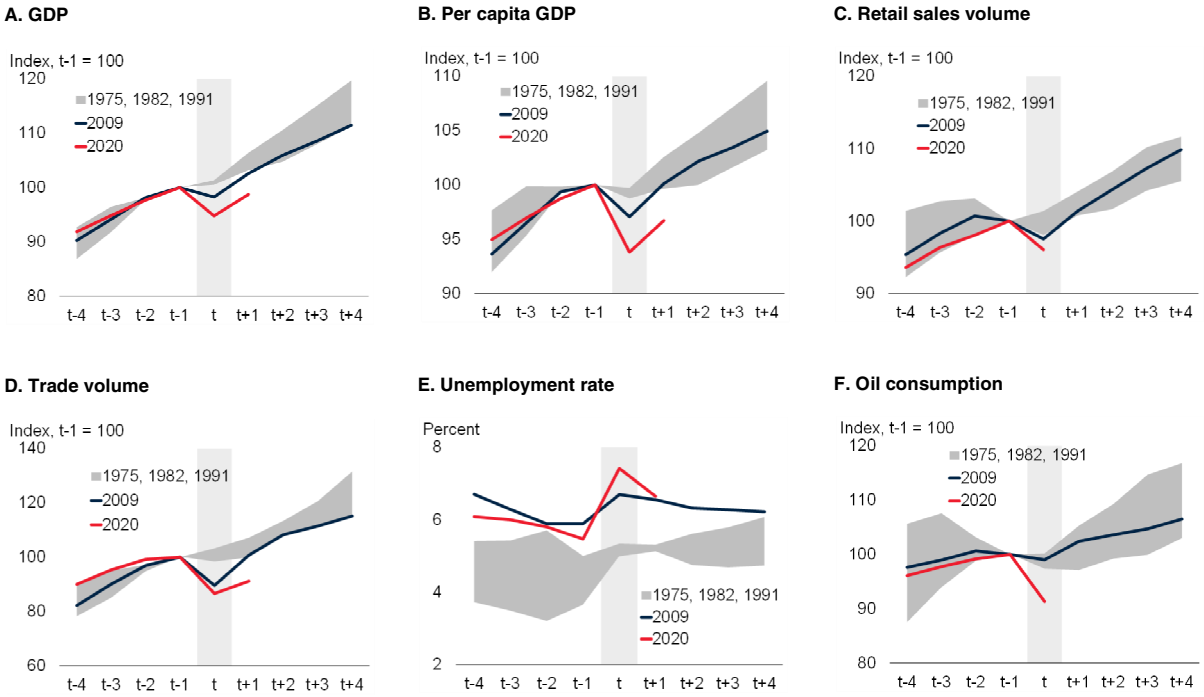
Its highly synchronized nature also means that the COVID-19 global recession will involve most advanced economies and EMDEs (Table 1.1.1). In 2020, both groups will experience the largest declines in their growth rates of the past sixty years. Advanced economies are expected to experience a 7 percent drop in output, while EMDEs will mark their first output contraction, by 2.5 percent, in at least the past sixty years. Per capita output growth in EMDEs will be 6.5 percentage points lower

[5] The events surrounding these episodes are discussed in detail by Allen (2009), Baffes et al. (2015), Eichengreen (2015), Fels (1951, 1952), Hamilton (2013), Knoop (2004), Kose et al. (2020), Kose and Terrones (2015), Reinhart and Rogoff (2009), Roose (1948), and Temin (1989). The sharp drop in global GDP recorded in 1946 reflects the readjustment to a peace-time economy after World War II (De Long 1996; Jones 1972).

BOX 1.1 How deep will the COVID-19 recession be? *(continued)*

FIGURE 1.1.2 Global activity during global recessions: 1960-2021

Current forecasts suggest that the COVID-19 recession will involve the sharpest deterioration in multiple measures of economic activity since 1960.



Source: Haver Analytics; International Energy Agency; International Monetary Fund; Kose, Sugawara, and Terrones (2019, 2020); Organisation for Economic Co-operation and Development; World Bank.
Note: Year "t" denotes the year of global recessions (shaded in light gray). The darker shaded area refers to the range of the three global recessions—1975, 1982, and 1991—with available data. GDP, per capita GDP, retail sales, trade, and oil consumption are index numbers equal to 100 one year before year "t" (i.e., t-1 = 100). Retail sales for 2020 are based on data for the first quarter and shown as a year-on-year percent change. It shows that retail sales declined by around 4 percent in 2020Q1. Unemployment rates for 2020-21 are based on forecasts by the International Monetary Fund in April 2020. Oil consumption for 2020 is taken from forecast data by the International Energy Agency in May 2020.
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than its long-term average during global expansions. These economies are expected to register a much weaker growth performance than in the global financial crisis partly because they entered the current episode with larger external and fiscal imbalances than they had a decade ago, so that they have less room for policy maneuver (Kose and Ohnsorge 2019).

LICs are projected to experience positive GDP growth this year, but at the lowest rate in the past 25 years. Since many of these economies are commodity exporters, in addition to the COVID-19 shock, they are being negatively affected by the sharp drop in prices of industrial commodities. The projected fall in their per capita income growth to -1.6 percent implies that they will see a substantial increase in poverty rates this year.

Although the magnitude will vary across EMDE regions, current projections indicate that all regions will experience sharp growth downturns, and five out of six are projected to fall into outright recession (Table 1.1.2). The majority of EMDE regions will experience the lowest growth in at least sixty years and all of them will see declines in per capita income. EMDE regions with a large number of commodity exporters will see especially deep contractions in 2020. For example, Latin America and the Caribbean is projected to suffer not only the largest growth decline of the six regions, but also its deepest recession of the past sixty years. The contraction in Sub-Saharan Africa is also expected to be the largest over the same period. The two other heavily commodity dependent regions, the Middle East and North Africa region and the Europe and Central Asia region, will also suffer deep recessions this year with

BOX 1.1 How deep will the COVID-19 recession be? *(continued)*

TABLE 1.1.1 Growth of GDP and per capita GDP in global recessions

	Global recession years						All years (1960-2020)	
	1975	1982	1991	2009	2020	Average	Non-recession	Full period
World								
GDP	1.1	0.4	1.3	-1.8	-5.2	-0.8	3.7	3.3
Per capita GDP	-0.8	-1.3	-0.3	-2.9	-6.2	-2.3	2.1	1.7
Advanced economies								
GDP	0.2	0.3	1.3	-3.4	-7.0	-1.7	3.3	2.8
Per capita GDP	-0.7	-0.3	0.6	-4.0	-7.3	-2.3	2.5	2.1
EMDEs								
GDP	4.2	0.9	1.5	1.8	-2.5	1.2	4.8	4.5
Per capita GDP	2.0	-1.2	-0.4	0.4	-3.6	-0.5	2.9	2.7
LICs								
GDP	0.0	1.0	-0.7	5.9	1.0	1.5	3.6	3.4
Per capita GDP	-2.4	-1.6	-3.6	3.0	-1.6	-1.2	0.9	0.7

Note: Percent changes in GDP and per capita GDP in respective groups are presented. "Non-recession" refers to all years excluding the five global recession years.

TABLE 1.1.2 Growth of GDP and per capita GDP in global recessions, by region

	Global recession years						All years (1960-2020)	
	1975	1982	1991	2009	2020	Average	Non-recession	Full period
East Asia and Pacific								
GDP	6.6	6.3	8.3	7.5	0.5	5.9	7.2	7.1
Per capita GDP	4.4	4.6	6.7	6.7	-0.1	4.5	5.6	5.5
Europe and Central Asia								
GDP	6.2	3.0	-5.8	-5.1	-4.7	-1.3	3.5	3.1
Per capita GDP	5.3	2.1	-6.2	-5.4	-5.0	-1.8	2.9	2.5
Latin America and the Caribbean								
GDP	3.8	-0.6	3.3	-1.8	-7.2	-0.5	3.8	3.5
Per capita GDP	1.4	-2.8	1.4	-2.9	-8.1	-2.2	1.9	1.6
Middle East and North Africa								
GDP	-1.3	-6.3	6.9	0.5	-4.2	-0.9	5.0	4.5
Per capita GDP	-3.9	-9.4	4.4	-1.6	-5.8	-3.3	2.5	2.0
South Asia								
GDP	7.5	3.8	2.3	4.8	-2.7	3.1	5.3	5.1
Per capita GDP	5.0	1.3	0.1	3.3	-3.8	1.2	3.2	3.1
Sub-Saharan Africa								
GDP	0.3	0.3	0.2	3.2	-2.8	0.2	3.7	3.4
Per capita GDP	-2.4	-2.6	-2.6	0.5	-5.3	-2.5	1.0	0.7

Note: Percent changes in GDP and per capita GDP in respective regions are presented. Only EMDEs are included. "Non-recession" refers to all years excluding the five global recession years.

BOX 1.1 How deep will the COVID-19 recession be? *(continued)*

per capita growth 7.9 percentage points lower than their historical average.

South Asia, a region composed entirely of commodity importers, will experience its first decline in GDP for more than forty years with per capita growth 7 percentage points below its long-term average. Although still suffering from a sharp decline in per capita GDP, output in East Asia and Pacific is expected to expand this year, as it did in previous global recessions. This outcome is mainly due to the expected recovery in China, which has already started relaxing its lockdown measures and shows early signs of a rebound in activity. However, the region will still end up with its weakest growth performance for more than 50 years because all other major regional economies will experience severe downturns this year.

Broad-based plunge in multiple sectors

The COVID-19 global recession is expected to be reflected in the sharpest contractions in six decades in many indicators of global activity (Figure 1.1.2). Most notably, while services-related activities were often relatively resilient during previous global recessions, high-frequency indicators suggest that the COVID-19 shock has led to a near sudden stop in a large swath of services, reflecting both regulated and voluntary reductions in human interactions that could threaten infection. Current forecasts suggest that, partly owing to an unprecedented weakening in services-related activities, global trade and oil consumption will see record drops this year, and the global rate of unemployment will climb to its highest level since at least 1965, when available data begin. In addition, industrial production and retail sales are likely to register record drops this year.

The current forecasts indicate that global economic recovery is expected to gain momentum next year, with a rebound in world output similar in gradient to those following prior global recessions, and global employment and oil consumption recovering strongly. However, this rebound would not be enough for output to return to its pre-recession trend level (Chapter 3). The delay in return to the trend level of global output is consistent with long-lasting hysteresis effects associated with deep recessions (Cerra, Fatás, and Saxena 2020; Ma, Rogers, and Zhou 2020).

Fastest and steepest growth downgrades

Since mid-March, the speed and size of downgrades in global growth forecasts have been remarkable. These downgrades have reflected record declines in high-frequency indicators of activity as many countries have implemented widespread mitigation measures to get ahead of the health crisis and as many people have undertaken voluntary "social distancing." To shed light on the likely future evolution of growth projections, the pattern of forecast downgrades this year is compared with those of previous global recessions. The analysis here employs forecasts published by Consensus Economics, a firm that surveys professional forecasters.[6]

The COVID-19 recession has seen by far the fastest and steepest downgrades in growth forecasts among all the global recessions for which the consensus forecast data are available—the recessions since 1990 (Figure 1.1.3.A). After staying above 2 percent in February, the 2020 global GDP growth forecast has been downgraded by around 6.6 percentage points since mid-March (Figure 1.1.3.B). As the health crisis has intensified, advanced economies have been subject to much larger forecast downgrades, with their 2020 growth forecasts being reduced in only thirteen weeks by around 8 percentage points (from early March to early June). EMDE growth forecasts for 2020 were also lowered, by about 6.1 percentage points, during the same period.

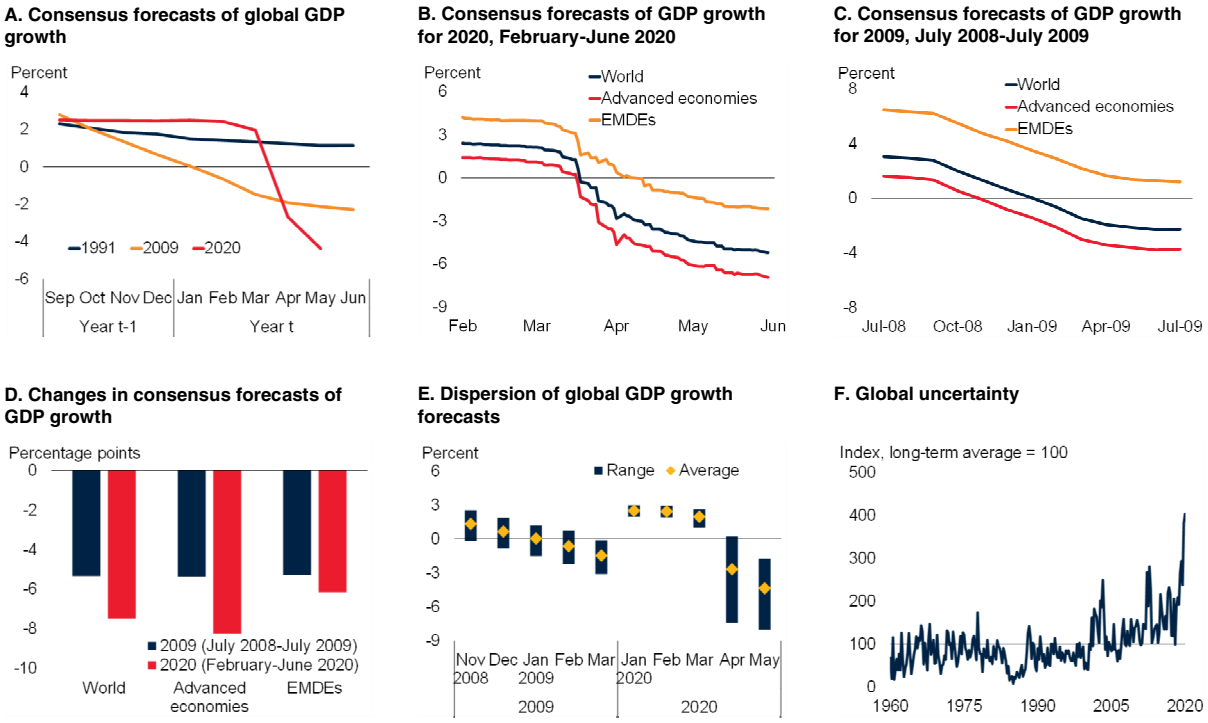
The speed and magnitude of the growth forecast downgrades for both advanced economies and EMDEs have been unprecedented, even compared to those that occurred around the 2009 global recession (Figures 1.1.3.C and 1.1.3.D). In particular, in the current global recession, GDP growth forecasts of three major economies (the United States, Euro Area, and China) were quickly revised downward by significantly more than in previous episodes. For example, the U.S. growth forecast has been downgraded by about 8.7 percentage points over the past three months while it was reduced by about 4 percentage points over 12 months during the 2009 episode. The COVID-19 recession has also seen a record increase in uncertainty surrounding global growth forecasts, measured by the dispersion of individual forecasts, since April as the health crisis deepened in advanced economies (Figure 1.1.3.E). The increase in forecast uncertainty reflects the record increase in worldwide uncertainty over the past

[6] As forecasts by Consensus Economics reflect perspectives of many forecasters using a wide range of methodologies, they tend to be more stable than projections made by a single entity. However, there are also a few shortcomings associated with their information content (Crowe 2010). The data sample covers high-frequency forecasts (daily, monthly) of up to 85 economies—33 advanced economies and 52 EMDEs—over the period 1990-2020.

BOX 1.1 How deep will the COVID-19 recession be? *(continued)*

FIGURE 1.1.3 Evolution of forecasts during global recessions

The COVID-19 recession has seen the fastest and steepest downgrades in growth projections among all the global recessions for which data for consensus forecasts are available, that is, since 1990. In previous such episodes, growth forecasts were gradually downgraded over periods much longer than that which has thus far elapsed in the current recession. Uncertainty around global growth forecasts has increased sharply as the health crisis has intensified over the past three months.



Source: Ahir, Bloom, and Furceri (2018); Consensus Economics; World Bank.

A. Year "t" denotes the year of global recessions. Data for 1991 are for advanced economies only due to data availability.

B. Average GDP growth for 2020, based on 59 economies (including 32 advanced economies and 27 EMDEs) for which data for consensus forecasts are available, weighted by GDP in constant 2010 U.S. dollars for 2019. Growth is computed each business day as a moving average of the latest revised forecasts. Horizontal axis shows month and day. Last observation is June 1, 2020.

C. Average GDP growth for 2009 (based on 84 economies, including 33 advanced economies and 51 EMDEs), weighted by GDP in constant 2010 U.S. dollars for 2008. The July 2008-July 2009 period is selected because of the relative stability of forecasts prior to and after this period.

D. Changes in consensus growth forecasts for 2009 and 2020, in percentage points. For 2009, changes represent differences in forecasts between July 2008 and July 2009 (based on the monthly surveys). For 2020, changes represent differences in forecasts between February 18, 2020, and June 1, 2020. Growth is computed each business day as a moving average of the latest revised forecasts.

E. Consensus global growth forecasts for 2009 and 2020 in denoted months. Ranges show the minimum-maximum of growth forecasts.

F. The index is computed by counting the percent of word "uncertain" (or its variant) in the Economist Intelligence Unit country reports. Long-term average refers to average over 1960-2020. Last observation is 2020Q1.

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three months (Figure 1.1.3.F). If the future trajectory of forecasts follows the typical pattern and worldwide uncertainty remains elevated, there may well be further downgrades in global growth in coming months.

Global recessions: From bad to worse?

The experience of past global recessions suggests that it takes time for forecasters to process incoming data and fully recognize the magnitude of recessions, which are rare episodes.[7] In previous global recessions, an initial adverse development was often followed by a series of disruptions

[7] Forecasters tend to be slow in internalizing adverse developments in their projections and are often unable to correctly predict in advance the duration of national recessions (Ahir and Loungani 2014; An and Loungani 2020; Aromí 2019). In light of the heightened uncertainty about the growth outlook, it is useful to examine alternative scenarios that can illustrate the range of likely growth outcomes in the near term. However, these scenarios are often adjusted in response to the changes in the baseline forecasts.

BOX 1.1 How deep will the COVID-19 recession be? *(continued)*

that spread worldwide through trade, financial, and confidence linkages. A sharp decline in global growth was ultimately an outcome driven by all of these developments. Forecasters gradually downgraded their projections as they better grasped the likely growth consequences of new developments.

The 2009 global recession provides a very good example of the evolving nature of these episodes and its implications for the trajectory of forecasts. The initial trigger for the global financial crisis was problems in certain segments of the mortgage markets in the United States, but dislocations emanating from these markets soon engulfed the entire U.S. financial system. The high degree of interconnectedness between U.S. and other financial markets then caused the crisis to spread to other advanced economies and some EMDEs. As these events progressed, global growth forecasts were downgraded steadily between September 2008 and July 2009.

As in previous global recessions, the early consequences of the initial shock—the pandemic in this case—may be followed by further adverse developments. It may take longer than expected to suppress outbreaks of COVID-19 in different parts of the world (Box 3.3). Initial disruptions triggered by the pandemic could lead to financial crises in vulnerable EMDEs. Moreover, the uniqueness of the COVID-19 global recession brings another challenge: professional forecasters and economists have a more limited understanding of the growth implications of a global recession driven by a pandemic, because of their very limited experience with them, than of previous global recessions, which were triggered by more run-of-the-mill financial and policy shocks.

Conclusion

The COVID-19 recession is unique in many respects. It is the first recession to have been triggered solely by a pandemic during the past 150 years, and current forecasts suggest that it will be the most severe since the end of World War II. The recession this year is likely to be the deepest one in advanced economies since the end of World War II, and the first output contraction in EMDEs in at least the past six decades. Importantly, it is also expected to trigger per capita GDP contractions in the largest share of economies since 1870.

The current episode is also unique because it has been accompanied by the fastest and steepest global growth forecast downgrades in recorded history. In previous global recession episodes, growth projections were gradually downgraded over a longer period as forecasters processed incoming data and reassessed the implications. If the past is any guide, there may be further downgrades in store as forecasters better understand the growth repercussions of this exceptional global recession. Further policy measures to support activity, in addition to the large-scale initiatives already introduced, may be needed in the coming months.

regions as travel restrictions and widespread losses of service sector jobs discourage labor migration and weigh on incomes of migrant workers (World Bank 2020b). In a number of EMDEs, banking system profitability is being eroded by a rise in nonperforming loans.

Commodity markets

Most commodity prices declined in the first half of the year because of the sharp fall in global demand (World Bank 2020c; Figure 1.9.A). Brent crude oil prices fell almost 70 percent from late January to mid-April, before retracing some of these losses in recent weeks (Figure 1.9.B). The decline in oil prices since January has been larger than in the aftermath of the September 11, 2001 attacks or during previous global recessions (Figure 1.9.C). Controls to slow the spread of the pandemic have resulted in a sharp fall in travel and transport, which accounts for two-thirds of oil consumption. Oil demand is expected to fall by 8.6 percent in 2020. Such a decline would be unprecedented, surpassing the previous record fall of 4 percent in 1980 (Figure 1.9.D).

Global oil production is also starting to fall, although at a slower pace than demand. In April, OPEC and its partners agreed to new production cuts, starting with a reduction of 9.7mb/d in May and June, and gradually tapering thereafter. Production in non-OPEC+ countries is also starting to decline. The U.S. Energy Information Administration expects U.S. production to fall by