Box 2.1

## GLOBAL ECONOMIC EFFECTS OF THE HEALTH CRISIS

Based on various simulations, this box illustrates the potential adverse effects of the COVID-19 pandemic and the measures to contain the spread of the virus on the world's main economic areas. In the simulations, emphasis is placed on identifying and quantifying the channels through which these effects are produced (domestic demand, tourism, financial and commodity markets, and supply-side disruptions), the economic policy response under way and the spillovers among countries.

At present, there is significant uncertainty surrounding the ultimate scale of the disruption that this episode may cause. This stems not only from the duration of the pandemic itself and the containment-measure and economic-policy-response implications, but also from the fact that several different economic shocks are simultaneously in play. First, the forced disruption of production has an adverse impact on supply. This phenomenon is amplified by the high level of integration of the manufacturing sector at the global level and may exert persistent effects on potential output. Second, the sharp contraction in demand is reflected in lower household consumption and a decline in business investment. Third, the global financial shock may also have sizeable adverse effects on financing conditions and on economic agents' wealth. This would afflict consumption and investment decisions. Fourth, the drop in commodity prices is detrimental to the countries producing these goods (although it has a positive impact on the income of consumers) and may give rise, as observed in recent months, to tensions in certain segments of the financial markets that are most exposed to fluctuations in commodity prices. Lastly, there are risks of these shocks creating a feedback loop that could depress economic activity on an ongoing basis. The uncertain outlook could reduce consumer spending and investment even after the health crisis itself, ultimately destroying businesses and jobs, increasing defaults and tightening certain economic agents' financing conditions. This could fuel a vicious circle and further prolong the crisis.

To illustrate the potential scale of the impact of the pandemic and the containment measures on economic activity, the results of a series of simulations performed on the basis of various hypothetical scenarios from NiGEM,[1] the global macroeconomic model, are presented below. This model's simplified framework captures mainly the channels operating through domestic demand, tourism, the effects of financial variables and commodity prices, although it also partially includes some supply-side effects. The simulations assume that economic policies react according to conventional historical patterns,[2] although the budgetary measures adopted and announced that are detailed in Section 3 of this chapter are also included.

Three hypothetical scenarios, dubbed "limited", "persistent" and "prolonged confinement", are considered. They differ in terms of the assumed duration of the period of confinement, the speed at which demand is assumed to recover and the possibility that global financial conditions may tighten. The technical assumptions of the exercise are detailed in Table 1. These scenarios assume that the crisis pervades all geographical areas and that the pandemic's direct adverse effects are confined to 2020 H1; however, there continues to be significant uncertainty surrounding the pandemic's future pathway, as argued in Section 2.1 of this chapter. The first two scenarios consider a lockdown lasting a total of eight weeks, whereas in the case of the "prolonged confinement" scenario, the stricter containment measures last up to twelve weeks. These durations are assumed consistently across all the simulated economies, given the difficulty of identifying specifically the severity of the restrictions on people's freedom of movement and business activity, in addition to the timing of their implementation and easing by the authorities, which has varied significantly across jurisdictions. As regards the speed of the recovery, in the "limited" scenario, a more dynamic profile for activity associated with a swift recovery in the financial conditions and in major purchases postponed during the lockdown is taken into consideration. This would materialise from the end of Q2. However, the other two scenarios include further adverse effects, stemming from the possibility that the initial decline in activity ultimately proves more persistent due to a potential tightening of financial conditions, making some of the pandemic's contractionary elements last longer. The scale of the shocks applied to these scenarios is calibrated using the data available on the decline in activity in China in 2020 Q1, the drops observed in the financial and commodity markets as at

1 Documentation on the model, devised by the National Institute of Economic and Social Research, is available at https://nimodel.niesr.ac.uk/.

2 Specifically, it is considered that monetary policy is endogenous based on a Taylor rule (and the unconventional measures make up for the negative nominal rates constraint) and that fiscal policy acts through automatic stabilisers (simultaneously maintaining a medium-term budget balance target).

mid-March and the trend in potential output witnessed following the global financial crisis triggered in 2008.

Based on the simulations performed, global growth would fall, compared with the outlook prior to the outbreak of the pandemic,[3] by around 7 pp, 9 pp and 12 pp in 2020 in the limited, persistent and prolonged confinement scenarios, respectively. The world economy would therefore shrink by -3.7%, -6.1% and -8.9%, respectively, in 2020 (see Chart 1).[4] The most adverse effects would arise through the domestic demand channel, followed by the collapse of the tourism sector, whereas the contractionary effects of the financial shock are smaller. By geographical area, the impact is somewhat more severe in emerging market economies than in advanced economies, owing to the domestic demand channel having a greater impact and a slightly contractionary effect associated with the drop in commodity prices, the producers of which

Table 1
SCENARIO CALIBRATION

| Shock | | Calibration | Scenario 1 Limited | | | Scenario 2 Persistent | | | Scenario 3 Prolonged confinement | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | China | Advanced economies | Other emerging market economies | China | Advanced economies | Other emerging market economies | China | Advanced economies | Other emerging market economies |
| Domestic demand | | Estimates of Chinese GDP growth in Q1: –10% quarter-on-quarter | –10% during the three months following the imposition of containment measures, 40% of the shock is recovered in the following quarter | | | –10% during the three months following the imposition of containment measures, domestic demand recovers slowly | | | –15% during the three months following the imposition of containment measures, domestic demand recovers slowly | | |
| Supply | | Potential GDP reduction in financial crises + fall in investment + hours worked | The fall in investment and hours worked affects potential GDP | | | Potential GDP is further affected by a financial crisis | | | | | |
| Tourism | | Severe restrictions on movement of people | –100% in 2020 Q2 and gradual recovery to 2021 Q3 | | | | | | | | |
| Financial markets | Stock markets | MSCI World Index since the start of the epidemic | –25% in Q2; rapidly returns to prior levels | | | –25% in Q2; returns to prior levels very slowly | | | | | |
| | Risk premium on investment | Corporate spread (average of investment grade and high yield) | +250 bp in Q2; rapidly returns to prior levels | | | +250 bp in Q2; returns to prior levels very slowly | | | | | |
| Commodities | | Oil futures market | Change in Brent crude prices implicit in the futures curve | | | | | | | | |
| Discretionary fiscal policy | | Budgetary measures adopted and announced | The budgetary measures considered are those detailed in Section 3.4 of this chapter. The average discretionary fiscal impulse is greater in the advanced economies than in the emerging market economies<br><br>2/3 are deployed in 2020 and 1/3 in 2021 H1<br>These measures have generally been implemented through transfers | | | | | | | | |

**SOURCE:** Banco de España.

3 The IMF's forecasts are used as reference, see *World Economic Outlook: Tentative Stabilization, Sluggish Recovery?*, IMF, January 2020.

4 The IMF forecasts that the pandemic's effect on global growth will amount to -6.3 percentage points in 2020, assuming that the strictest containment measures last a total of eight weeks and the restrictions are gradually lifted throughout 2020 H2, see, *World Economic Outlook: The Great Lockdown,* IMF, April 2020. In turn, the scenarios considered by the OECD reflect a drop in global GDP in 2020 of between 6 (single-hit scenario) and 7.6 (double-hit scenario) percentage points, see *OECD Economic Outlook, The world economy on a tightrope,* OECD, June 2020. Lastly, the World Bank's June projections consider that global growth will fall by 7.7 percentage points, see *Pandemic, Recession: The Global Economy in Crisis,* World Bank, June 2020.

generally belong to this group.[5] As regards the world's main economies, growth in the United States would suffer an adverse impact of 5.7 pp, 8.2 pp and 11.5 pp in each of the three scenarios, respectively. These declines are similar to those experienced in the euro area, of 6.3 pp, 8.4 pp and 11.2 pp, respectively. In turn, the impacts in China would stand at 5.6 pp, 7.7 pp and 10.1 pp, respectively. The real and financial spillovers[6] among the

Chart 1
GLOBAL IMPACT OF THE HEALTH CRISIS IN 2020

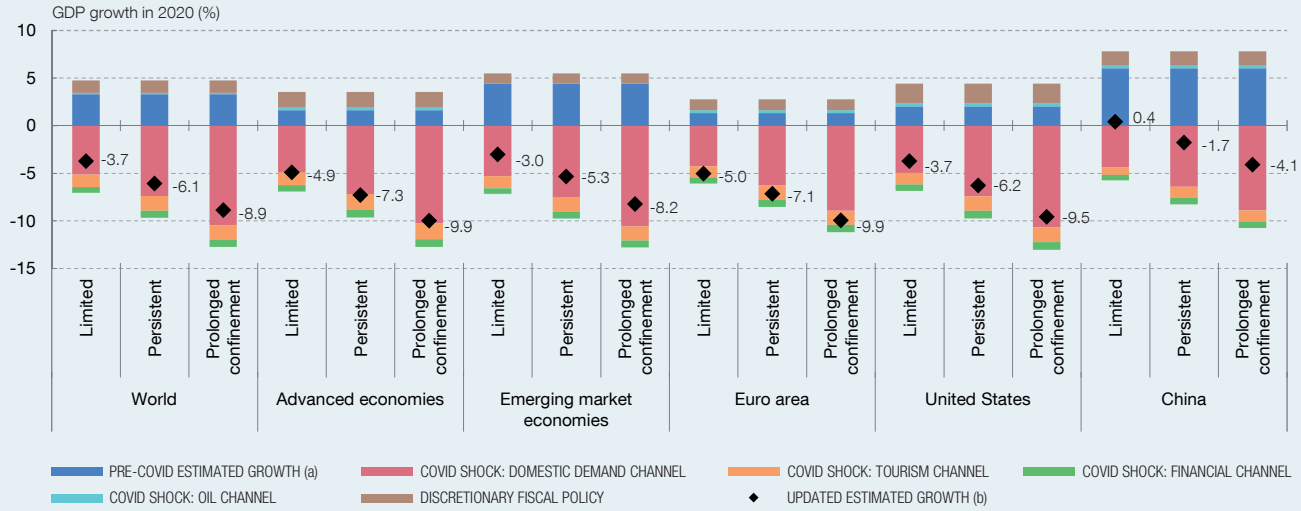



Chart 2
EFFECT OF THE SPILLOVERS AMONG ECONOMIES ON GDP GROWTH IN 2020

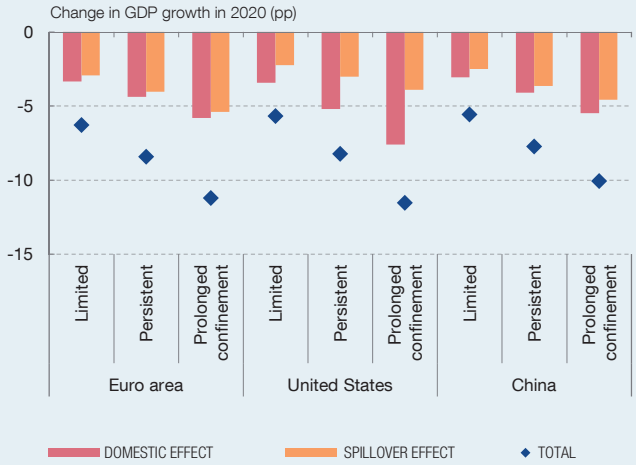
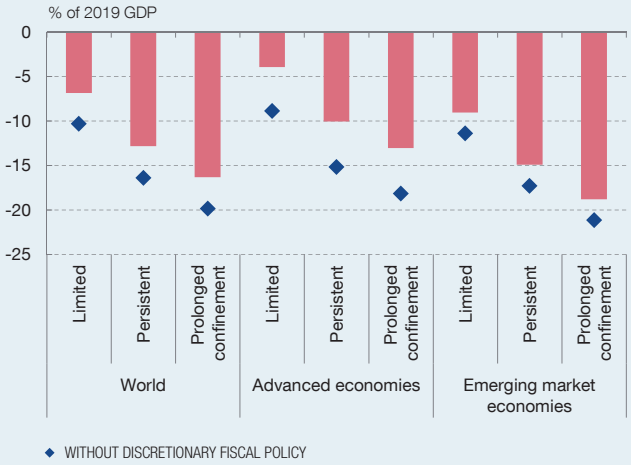



Chart 3
CUMULATIVE LOSS OF GDP BETWEEN 2020 Q1 AND 2021 Q4




**SOURCES:** Banco de España and IMF.

**a** The pre-COVID forecasts considered are those of the IMF published in the January 2020 WEO Update.
**b** Sum of the impact of the channels taken individually and the composition effect (interaction between channels).

5 Some factors could cause the impact on emerging market economies to be even more severe. First, in the simulations it is assumed that the drops in stock market indices and the increases in risk premia in the emerging market economies are identical to those in the advanced economies. It is also assumed that the emerging market economies have monetary policy leeway that is comparable with that of the advanced economies. Lastly, the model includes lower commodity price elasticity with respect to GDP than that estimated in the empirical literature for some commodity exporters. The drops in GDP could therefore be greater than those considered in this exercise.

6 These spillover effects are calculated as the difference between the impact on GDP considering all the economies in the model and the impact if the spillover of each economy to third countries is excluded.

various economies lie behind between one-third and almost one-half of these impacts on growth, and are higher in regions, such as the euro area, characterised by greater openness (see Chart 2). On the assumption that the health crisis and the measures to contain it are temporary in nature, economies would start to recover from 2020 H2; accordingly, the world economy would grow significantly in 2021. Nevertheless, the cumulative loss of income between 2020 and 2021 would stand, depending on the scenario, at between 7% and 16% of global GDP (see Chart 3).

Discretionary fiscal policy plays a decisive role when tempering the impact of the shock and supporting the recovery in activity following the health crisis. The budgetary measures adopted, common across the three scenarios, help to mitigate by approximately 1.2 percentage points the decline in global economic growth in 2020 (see Chart 1). The impact is stronger in advanced economies, due to the greater fiscal impulse deployed, than in the emerging market economies, which have less fiscal space. These measures help to limit the cumulative loss of global income in 2020 and 2021 by around 3.5 percentage points of GDP (see Chart 3).

The as yet limited information on activity in the current circumstances, the speed at which events are unfolding and the lack of comparable episodes in recent decades mean that these simulations are subject to an unusually high level of uncertainty. In particular, the duration of the pandemic and the medium-term implications of the containment measures for the economy are particularly uncertain. Should they remain in force beyond the timeframes considered in these simulations or should there be a significant renewed outbreak of the virus triggering the implementation of quarantine measures similar to those adopted in recent months, the adverse impact on the global economy would be even more severe.[7] Against this background, the coordinated application of economic policies, such as those deployed in recent months, is necessary to soften the adverse effects on households and businesses, and to put the global economy back on the path of sustained growth and job creation as soon as possible.

7 For illustrative examples of more adverse scenarios, with further outbreaks of the pandemic occurring in 2021, see *World Economic Outlook: The Great Lockdown,* IMF, April 2020.