

## Box B. Quantifying the global macroeconomic spillovers of illness and lockdown measures

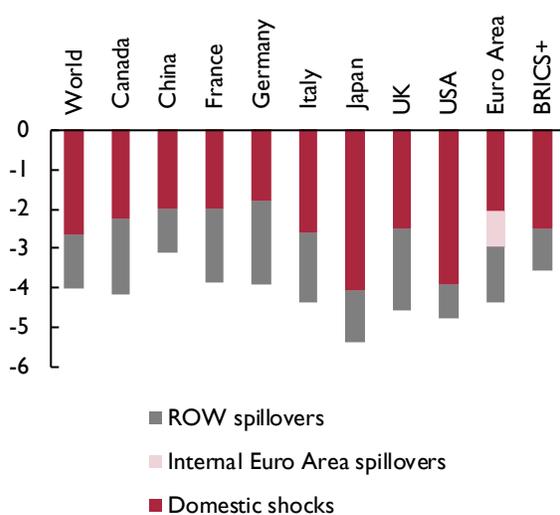
by Dawn Holland and Iana Liadze<sup>1</sup>

The Covid-19 pandemic has delivered a shock that is truly global in nature. Cases of the virus have been reported in nearly every single country and territory in the world. At least 135 countries across the globe, including all of the world’s largest economies, have introduced some form of containment measures or lockdowns.<sup>2</sup> The global nature of the shock has greatly amplified its economic consequences, with an abrupt drop in the movement of people, goods and services across borders, as well as an unprecedented withdrawal of capital from emerging markets (Institute of International Finance, 2020). The global disruption is driven partly by the direct impact of lockdown measures on cross-border flows, and partly by the drop in domestic demand within each country, which in turn has depressed demand for imported goods and services from the rest of the world. The two forces compound each other, and the losses suffered in each individual economy have been greatly exacerbated by spillovers from shocks faced in the rest of the world.

This Box seeks to quantify the order of magnitude of this amplification of the shock via global spillovers. The assessment is carried out through a series of scenario studies with the National Institute’s Global Econometric Model, NiGEM. We adopt, as our illustrative global scenario, the preliminary assessment of the possible economic impact of the coronavirus outbreak detailed in NiGEM Observations No. 18 (Hurst, *et al.*, 2020). This illustrative global scenario applies shocks to both the demand and supply sides in all countries and regions across the world. In order to isolate the economic impacts driven by domestic shocks from global spillovers driven by economic downturn in the rest of the world, the shocks in the illustrative scenario are run in one country/region at a time, creating a series of 51 individual country/regional scenarios. The loss of output in each country that can be attributed to global spillovers is then uncovered as the difference between the impact on GDP in the country-specific scenario from that in the global scenario. Total global spillovers are then calibrated as the sum of spillovers from each of the 51 individual scenarios.

Figure B1 decomposes the first-year impacts from the illustrative global scenario on GDP in major economies into the part attributable to domestic shocks and the part attributable to global spillovers. At the global level, spillovers amplify the magnitude of domestic shocks by roughly 60 per cent. In other words, if all countries around the world suffered a 1 per cent domestic shock, the global economy would be expected to contract by 1.6 per cent after accounting for spillovers. At a given point in time

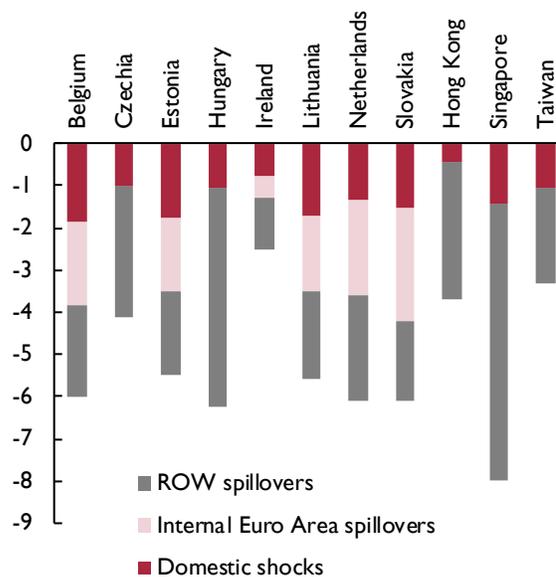
Figure B1. Decomposition of first-year GDP impacts



Source: NiGEM simulations.

Note: The aggregate impacts are aligned with Figure 1 in Hurst *et al.* (2020).

Figure B2. Small open economies: decomposition of first-year GDP impacts



Source: NiGEM simulations.

## Box B. (continued)

and for a given set of trade linkages, global spillovers are broadly linear with respect to demand within NiGEM, and the results can be scaled up accordingly. These results are broadly in line with those reported in BIS (2020), who suggest that output losses suffered in emerging market economies would be only between one-half to two-thirds as large if advanced economies had been spared from the shock.

In practice, some countries are more exposed to spillovers than others, for example, those that are more deeply embedded in global trade networks and supply chains, or those that are more closely connected to the countries that are suffering most acutely. In the Euro Area, the world's most integrated trading bloc, global spillovers more than double the impact of the domestic shocks, with nearly half of the spillovers coming from internal spillovers within the Euro Area and the remainder from the rest of the world. For many of the smaller, very open economies in Europe spillover effects dominate the domestic impacts, with spillovers accounting for more than double the magnitude of the domestic shock on its own (figure B2). The same holds true in East Asia for smaller economies that are deeply embedded into regional value chains, such as Hong Kong, Singapore and Taiwan.

On the flipside, mitigating macroeconomic policy measures across the world are also bringing positive economic spillovers. Emergency fiscal measures that have been introduced to date to soften the downturn in aggregate demand are expected to offset more than 2 percentage points of the potential decline in world GDP. The magnitude of global spillovers strengthens the call for coordinated policy action across the major economies, which can significantly amplify the effects of policy measures in individual countries.

The analysis in this Box measures global spillovers from the impact of illness and lockdown measures on domestic demand. In the current circumstances, these are likely to be exacerbated by the closure of borders and deeper disruptions to global supply chains. The World Trade Organization expects a drop of 13–32 per cent in global merchandise trade this year (WTO, 2020). The effects of such a shock would be felt very unevenly across countries, with the most severe impacts likely to fall on those that are deeply embedded in complex value chain linkages, such as the electronics and automotive sectors.

### NOTE

- 1 Thanks to Jagjit Chadha and Barry Naisbitt for helpful comments.
- 2 For details on the stringency of measures in each country see Hale *et al.* (2020).

### REFERENCES

BIS (2020)

Hurst, I., Liadze, I., Naisbitt, B. and Young, G. (2020), 'Updating the preliminary assessment of the possible economic impact of the coronavirus outbreak', NIESR, NiGEM Observation No.18.

Hale, T., Petherick, A., Phillips, T. and Webster, S. (2020), 'Variation in government responses to COVID-19', Version 3.0, Blavatnik School of Government Working Paper, 31 March, available at: [www.bsg.ox.ac.uk/covidtracker](http://www.bsg.ox.ac.uk/covidtracker).

Institute of International Finance (2020), 'Sudden stops in emerging markets', *Capital Flows Report*, 9 April.

WTO (2020)