



Box E:

QB4 – October 2020

This Box content is extracted from the Quarterly Bulletin – Q4 2020

Short-Term Economic Outlook in a Severe COVID-19 Scenario

By Stephen Byrne, Thomas Conefrey, Niall McNerney, Gerard O'Reilly and Graeme Walsh.

The uncertainty surrounding the future path of COVID-19 means that it is important to consider alternative scenarios for the economy. This Box considers the implications of a *severe* COVID-19 scenario as an alternative to the *baseline* forecasts in this *Bulletin*. While the *baseline* forecasts assume that the virus is broadly successfully contained, the *severe* scenario envisages a strong resurgence of the pandemic, leading to the restoration of widespread and stringent containment measures for a more prolonged period. The sustained efforts to prevent the spread of the virus in the *severe* scenario would continue to significantly dampen activity across sectors of the economy until a medical solution becomes available.

Introduction

The elevated uncertainty surrounding the impact of the COVID-19 pandemic on the future path of the Irish economy warrants the consideration of alternative scenarios. In the Bank's July 2020 *Quarterly Bulletin* and in Conefrey *et al.*, (2020), two scenarios were presented – *baseline* and *severe*.¹ The

¹ Conefrey, T. McNerney, N., O'Reilly, G. and Walsh, G. (2020), "Recovery paths from COVID-19 and the impact of policy interventions", Central Bank of Ireland Quarterly Bulletin, Vol. 2020, No. 3, Signed Article. The scenario analysis published in the July 2020 *Bulletin* built on earlier similar work published in April. See *Quarterly Bulletin* 2020, Box C, "Assessing the Macroeconomic Implications of COVID-19 using Scenario Analysis." Available at: <https://www.centralbank.ie/docs/default-source/publications/quarterly-bulletins/qb-archive/2020/quarterly-bulletin---q2-2020.pdf#page=13>

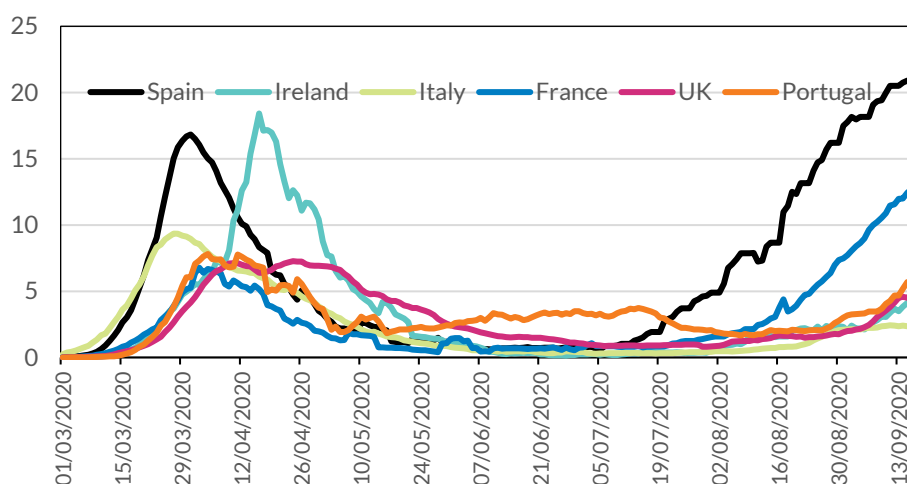


updated *baseline* projections are presented in the main chapter of this *Bulletin*. This Box provides an update of the *severe* scenario as described in the July *Quarterly Bulletin* given the new *baseline* projections.

As illustrated in Figure 1, the containment measures introduced in March and April were effective in suppressing the virus which facilitated a subsequent easing of the measures during the summer. Recently, however, case numbers have started to increase, prompting concerns about a potential resurgence of the virus and the possible re-imposition of restrictions. The latest baseline projections in the *Quarterly Bulletin* allow for sporadic flare-ups of the virus leading to localised lockdowns but where the economy broadly remains open.

This Box outlines a *severe* scenario in which the virus is more difficult to contain than assumed in the *baseline* forecast, which leads to a deeper and more persistent impact on the Irish economy. This adverse scenario is consistent with a second wave of the virus requiring more widespread and stricter lockdowns than assumed in the *baseline*. The severe scenario would see more prolonged restrictions related to social distancing and foreign travel. Due to the high level of uncertainty about the future path of the virus, it is not possible to precisely specify when a large-scale second wave may occur or additional waves. However, our calibration of the scenario assumes that it occurs within the next three quarters.

Figure 1: Number of confirmed cases per 100,000 population



Note: Daily data, 7-day moving average.

Source: European Centre for Disease and Control.



Assumptions

To generate the *severe* scenario, we implement a series of shocks in our macroeconomic models and then use the results from this simulation exercise to inform the preparation of the *severe* scenario projections.² The final projections incorporate the model results and some judgement-based assessment. The shocks we model encompass the real, financial, domestic and international dimensions of the economy and affect both the supply and demand for Irish goods and services. Importantly, as mentioned above, they capture the potential impact of a continuation of containment measures and a large-scale resurgence of the virus in the short term.

The inability to contain the virus and the absence of an imminent vaccine dampens growth prospects in Ireland's trading partners. Our *severe* scenario assumes the international economy continues to experience a protracted period of weak growth, which lowers demand for Irish exports. The decline in activity internationally is modelled by reducing spending by households and firms across countries. The *severe* scenario assumes a large decline in external demand that persists over the following two years. This is primarily due to the necessity to maintain or re-impose widespread containment measures, which curtails recovery in Ireland's trading partners. Our assumptions are consistent with the *severe* scenario outlined in ECB (2020) in which euro area foreign demand falls by approximately 15.5 percent in 2020. In that scenario, euro area GDP remains approximately 6 percent lower than the *baseline* forecast by the end of 2022.³ Furthermore, trade in intermediate goods is assumed to fall substantially due to the disruption to supply chains. The lack of availability of close substitutes for these inputs in the short term reduces output in sectors that use these inputs intensively.

The uncertainty surrounding the epidemiological evolution of the virus itself affects conditional expectations of the potential future path of the economy. In particular, financial markets reacted strongly to the initial outbreak of the virus, with significant increases in risk premia and credit spreads. While the policy actions of central banks have largely succeeded in reversing these increases (Igan et al, 2020), a scenario in which the virus leads to a prolonged continuation of containment measures is assumed to lead to a further repricing of risks.⁴ The rise in risk premia and concerns about the strength of private sector balance sheets also affects the real economy by raising the user cost of capital for firms and the cost of credit for households.

² We estimate the impact of our assumptions about the international economic and financial environment using the National Institute for Economic and Social Research's (NIESR) global model, NiGEM. In the second step, we incorporate these international shocks in to the Central Bank's model of the Irish economy, COSMO.

³ ECB (2020). "Alternative scenarios for the euro area economic outlook". Box 3, ECB Staff Macroeconomic Projections, September. Available at:
https://www.ecb.europa.eu/pub/projections/html/ecb.projections202009_ecbstaff~0940bca288.en.html#toc6

⁴ Igan, Deniz, Divya Kirti, and Soledad Martinez Peria (2020). "The Disconnect between Financial Markets and the Real Economy". IMF *Special Notes Series on COVID-19*, August.



In terms of the domestic economy, the *severe* scenario assumes a larger fall in the output of the non-traded sector. This arises from the maintenance of more widespread restrictions that reduce the productivity of the sector. These restrictions further weaken consumption and fixed investment, as limits on gatherings and inward travel and social distancing requirements increase the costs of production, for example on construction sites, and severely constrain levels of economic activity. We assume that the large fall in production and demand in some parts of the non-traded sector of the economy is only gradually recovered over the next two years. The subdued nature of the recovery in the non-traded sector means that the recovery in the labour market is also significantly weaker than in the *baseline*. Moreover, the deeper and more sustained contraction in the economy reduces household income and corporate profitability, which feeds back into lower consumption and investment.

While not directly modelled in this scenario, our assumptions about the persistence of these shocks implicitly capture potential hysteresis effects that could affect the trajectory of output over the medium to long term. Hysteresis mechanisms can lead to structural changes in the economy so that temporary adverse shocks can have a persistent or scarring impact on subsequent growth (Cerra et al, 2020).⁵

Scenario Results

Table 1: Macroeconomic Projections under the *Baseline* and *Severe* Scenarios

	Baseline			Severe		
	2020	2021	2022	2020	2021	2022
GDP (Δ%)	-0.4	3.4	4.7	-1.1	-0.3	3.4
Underlying Domestic Demand (Δ%)	-7.1	1.6	4.8	-8.5	-1.3	3.7
Unemployment rate (%)	5.3	8.0	7.5	6.4	12.5	10.1

Source: Own calculations.

Table 1 presents the projections for key macroeconomic variables under the *severe* scenario over the period 2020 to 2022. The *baseline* projections are also shown for reference. The difference between

⁵ In the case of the labour market, this can be due to the loss of firm-specific human capital, to the increase in hiring and search costs stemming from the severing of worker-firm matches, and to the erosion of skills from long-term unemployment. Hysteresis can also arise through the corporate investment channel, as a prolonged contraction reduces profitability, weakens firms' balance sheets, and raises the real option of postponing investment due to the pro-cyclical increase in economic uncertainty. The rise in public debt as a result of the automatic and discretionary fiscal responses to the pandemic could have a persistent dampening effect on demand by constraining future government expenditure and by raising saving among non-liquidity constrained households, which may expect higher future tax rates (see Conefrey *et al.*, (2020) for a discussion of these effects).

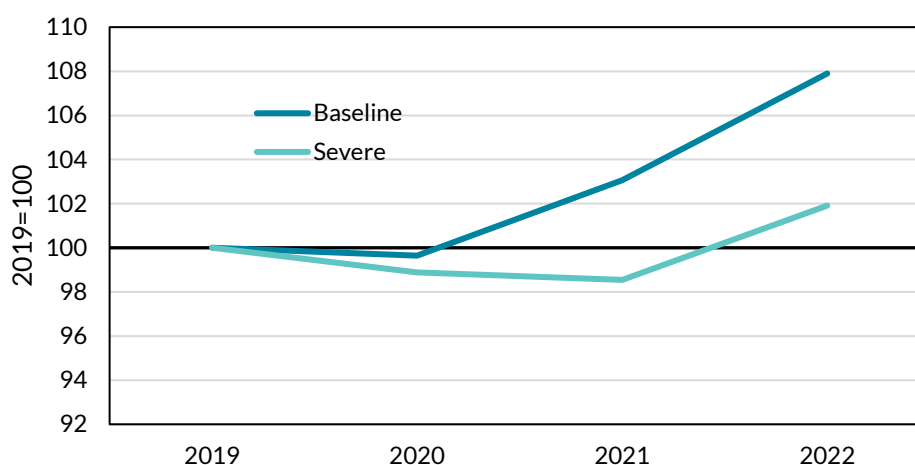


the scenarios captures the impact of the additional shocks we impose on the *baseline*, as outlined in the previous section.

The economic recovery from the pandemic is projected to be much stronger in the *baseline* than in the *severe* scenario. Output begins to recover next year in the *baseline* as economic activity starts to normalise. The economy experiences relatively strong growth towards the end of the projection horizon due to the improved external environment and pent-up demand in the domestic economy. In the *severe* scenario, however, the economy continues to contract next year.

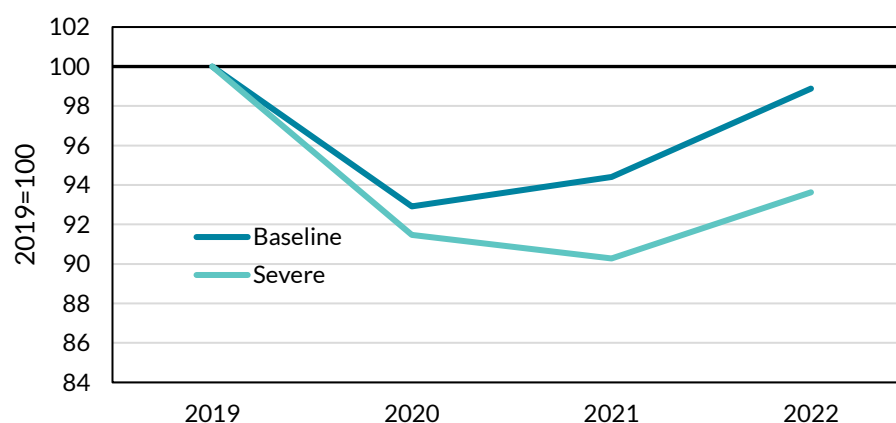
Figure 2 shows the growth path of GDP in each scenario. While the economy does begin to recover in 2022 in the *severe* scenario, growth is from a lower level than in the *baseline* and thus much stronger subsequent growth would be needed if GDP were to return to its pre-COVID trend path.

Figure 2: GDP under the *Baseline* and *Severe* Scenarios (2019=100)



Source: Own calculations.

Figure 3: Underlying Domestic Demand under the *Baseline* and *Severe* Scenarios (2019=100)



Source: Own calculations.



Both scenarios show how the domestically-oriented sectors of the economy are more severely affected by the pandemic than the aggregate economy. This reflects the impact of the containment measures that limit the output of sectors associated with social consumption, sectors dependent on foreign travel, and sectors in which social distancing restrictions reduce productivity. While underlying domestic demand contracts strongly in 2020 in both scenarios, the recovery is earlier and much more pronounced in the *baseline*. The delayed recovery in the *severe* scenario reflects the assumptions about the severity and persistence of containment measures which reduce consumption and investment. Although household savings have risen sharply during the pandemic, these savings buffers are not sufficient to prevent the continued decline in consumption next year in the *severe* scenario.

Figure 3 presents the level of underlying domestic demand in the *baseline* and *severe* scenarios relative to its level in 2019. In particular, it shows how the differences in growth rates in each scenario compound to generate a significant divergence in levels over the projection period. By the end of 2021, domestic demand is six per cent below its 2019 level in the *baseline* scenario, but almost ten per cent lower in the *severe* scenario. Consumption and investment growth does return in 2022 in the latter but from a much lower level and at a rate that is slower than in the *baseline*. At the end of 2022, domestic demand has almost reached its 2019 level in the *baseline scenario*, but is still six per cent below the 2019 level in the *severe* scenario. This is consistent with the presence of structural factors that continue to constrain demand.

Finally, Table 1 illustrates the severe and protracted impact that the restrictions associated with the COVID-19 virus could have on the labour market. The unemployment rate is four percentage points higher in 2021 in the *severe* scenario than in the *baseline*. While unemployment starts to fall in both scenarios in 2022, the unemployment rate remains above ten percent in the *severe* scenario. Even in the *baseline*, the fall in unemployment is relatively small and is therefore still elevated when compared to its pre-COVID level. As discussed, labour markets are particularly vulnerable to hysteresis mechanisms taking hold when the economy is hit by a persistent shock. Moreover, these mechanisms often dominate so that the recovery in employment tends to lag behind the recovery in output (Cerra et al, 2020).⁶

Caveats

An important caveat to our analysis concerns the inherent difficulty of mapping epidemiological phenomena to economic outcomes. Prior to the onset of the COVID-19 virus, structural macroeconomic models typically did not incorporate the impact of public health shocks on the aggregate economy. The pandemic has generated a burgeoning literature on modelling the economic impact of the virus, including the development of models that integrate SIR models from epidemiology

⁶ See Cerra, Valerie, Antonio Fatas and Sweta Saxena (2020). “Hysteresis and the Business Cycle.” Mimeo.



into a macroeconomic modelling framework.⁷ However, given the novelty of the virus, it is too soon to ascertain whether these models accurately capture the interaction between the public health and economic dimensions of the pandemic.

It should also be noted that the *severe* scenario only includes policy measures that have been announced by government and central banks. If fiscal and monetary authorities responded to the *severe* scenario with new additional policy supports then the impact on the economy would be less than shown here.

Conclusion

The COVID-19 virus initiated a public health shock that has already generated substantial economic and financial disruption. In this Box, we have outlined a *severe* scenario in which a resurgence of the virus, along with a protracted continuation of the associated containment measures, causes material and persistent damage to the Irish economy.

The impact of the virus on the economy is determined by the transmission of shocks through a number of channels. First, the scenario assumes that the failure to suppress the virus leads to prolonged weakness in the global economy which reduces external demand for Irish exports. Second, trade in intermediate goods falls substantially due to the disturbance to supply chains, thereby reducing the productive capacity of the economy. Third, the rise in uncertainty about the distribution of future paths for the economy, as well as concerns about weakening private sector balance sheets, leads to a rise in risk premiums and a tightening of credit conditions. Finally, the domestic non-traded sector of the economy suffers a further contraction due to extension of containment measures which severely constrain activity in that sector.

A particularly pernicious aspect of the *severe* scenario is the potential for hysteresis effects to become embedded in certain sectors. Hysteresis mechanisms can have a scarring impact on the economy so that its productive capacity is permanently lowered. It is important to note that many of the fiscal measures that have been introduced by fiscal and monetary authorities across countries in response to the pandemic have been specifically designed to mitigate the risk of this occurring. In particular, furlough and job retention schemes, credit guarantees and direct financial supports preserve job matches and enhance firms' access to liquidity.

However, while the scale and breadth of these policy interventions have been largely unprecedented, a central implication of the *severe* scenario outlined in this Box is that further measures would likely be needed if the economy were to eventually return to its pre-COVID output path.

⁷ See, for example, Acemoglu, Chernozhukov, Werning & Whinston (2020) "A Multi-Risk SIR Model with Optimally Targeted Lockdown" <https://www.nber.org/papers/w27102>