Chapter 2

Endorsement and Assessment of the Macroeconomic Forecasts

2. Endorsement and Assessment of the Macroeconomic Forecasts

Key messages

- After a period of consistently strong economic growth in Ireland lasting over six years, there has been a very sharp economic downturn due to the Covid-19 pandemic and resulting containment measures. This has already caused an unprecedented loss of employment and activity beginning in March 2020, leading to a broad unemployment rate (including Pandemic Unemployment Payment recipients) of more than 28 per cent in April.

- In the recent Stability Programme Update (*SPU 2020*), the Department of Finance's forecasts imply a fall in real national income (GNI*) of 16 per cent in 2020, followed by a partial recovery in 2021. This is a more severe decline than *SPU 2020* forecasts for gross domestic product or gross national product. The Department's forecasts imply that a full recovery to the pre-crisis level will not take place until 2022. *SPU 2020* forecasts one year ahead, unlike the normal five-year horizon. The Council endorsed the *SPU 2020* macroeconomic forecasts as being within an endorseable range, noting the wide range of outcomes that are possible.

- In this *Fiscal Assessment Report*, the Council sets out three scenarios for the Irish economy to 2025. A Central scenario is based on the same assumptions as *SPU 2020*, where scarring effects on firms and workers slow the path to recovery. A Mild scenario assumes a faster recovery following a more favourable suppression of Covid-19. The Severe scenario assumes new lockdowns are required due to further waves of Covid-19. Each of these scenarios results in permanent output losses to the Irish economy, and while not exhaustive, they illustrate a wide range of outcomes is possible given the uncertainty caused by Covid-19.

- This chapter further analyses recent high-frequency indicators of credit and debit card spending and retail sales, and notes possible upside risks to personal consumption compared to *SPU 2020* forecasts. However, risks are tilted to the downside, including a potential Hard Brexit in 2021 and disruptions to global trade.

2.1 Introduction

The Covid-19 pandemic and required policy measures have led to a very sharp economic downturn and major shock to many sectors of the economy. From an outlook at the start of the year for steady growth, low unemployment, and overheating risks, the situation has changed very abruptly and continues to evolve rapidly. With citizens in Ireland and its trading partners locked down to contain the spread of the virus, there has been an exceptionally sharp and deep slowdown in economic activity and over a quarter of the workforce is currently inactive.

In recognition of the challenges faced by Member States, the European Commission granted temporary flexibility and required that Stability Programme Updates only forecast current-year outcomes, with supply-side variables also not required in the publication.[14] The Department of Finance has nonetheless published a broad set of forecasts for both 2020 and 2021 in *SPU 2020*, which is welcome. In future, it will be important to return to the normal practice of forecasting five years ahead. The *SPU 2020* macroeconomic forecasts were endorsed by the Council in early April. The Council recognises the wide range of possible short-term outcomes, and the forecasts have also been noted by the Department as heavily contingent on core assumptions, particularly in relation to the duration of the Covid-19 disruption.

Given the high uncertainty and wide range of possible outcomes, the primary focus in this chapter is on our scenario analysis covering 2020–2025. While health and economic outcomes could follow very different paths, the scenarios provide a basis for understanding the economic and budgetary position. The Central scenario uses the same assumptions as the *SPU 2020* macroeconomic forecasts of a managed de-containment and extends this to 2025. A Mild scenario illustrates possible outcomes of a swifter improvement in health and economic conditions, while a Severe scenario traces out the impact of worse public health outcomes that would require further lockdowns in the autumn.

The chapter also looks at forecasting GNI*, which provides a better picture of the underlying economy in Ireland than the widely used gross domestic product (GDP) and gross national product (GNP), which are distorted by multinational activities.

[14] While *SPU 2020* did not include supply-side estimates, see Chapter 1 for the Council's estimates based on domestic measures of economic activity, which seem to be giving plausible results.

2.2 Endorsement of *Budget 2020* Forecasts

The Council's most recent endorsement exercise of the Department's macroeconomic forecasts was undertaken in April 2020 (see Appendix A for the endorsement timeline details).[15] The Department's provisional macroeconomic forecasts were completed on 6th April amidst the powerful and rapid economic shock due to the Covid-19 pandemic.

The short-term macroeconomic forecasts produced by the Department, and contained in *SPU 2020* for 2020 and 2021, were judged as being within an endorseable range, taking into account the methodology and plausibility of the judgments made. The Council also noted the very high degree of uncertainty regarding the spread, containment measures and global impacts of the pandemic.

The endorsement process entails three aspects: the appropriateness of the methodology used; the pattern of recent forecast errors; and comparisons with the Council's benchmark projections and other forecasts.

Methodology

The Council is satisfied that the Department's approach to macroeconomic forecasting broadly conforms to that of other forecasting agencies both in the general approach and with respect to how Covid-19 impacts have been modelled.

Given the scale and unusual nature of the immediate shock to the economy due to Covid-19, the standard model-based approach to forecasting was used only to construct a counterfactual starting point for what would have happened in the absence of Covid-19. The estimated impacts of the Covid-19 and Brexit shocks were then subtracted from this counterfactual to generate the *SPU 2020* projections.

The Covid-19 impacts were estimated by primarily using judgement for the impacts of confinement restrictions on activity in granular expenditure components of gross domestic product, along similar lines to the approach taken in Keogh-Brown *et al.* (2010). As a cross-check, the Department carried out a similar approach applied to

[15] The statutory function is detailed in Fiscal Council (2013) and Fiscal Council (2014a). Benchmark projections prepared by the Secretariat form a key part of the endorsement process. An important input into the preparation of the benchmark projections involves rounds of discussions with other external forecasters. Due to Covid-19 restrictions, and the rapidly changing nature of the impacts of the pandemic on the economy, these discussion rounds did not take place.

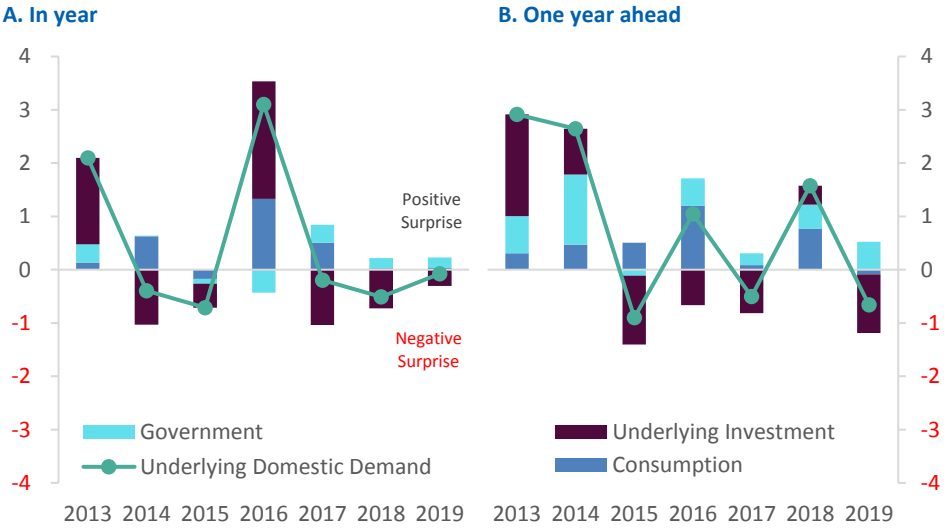
sector output and calibrations based on the COSMO structural model of the Irish economy (Bergin *et al.*, 2017); this analysis indicated a severe contraction in 2020 especially in non-traded sectors with a fall of over 20 per cent in 2020. Given the unprecedented nature of the shock, assessing likely impacts based on differences in restrictions and the relative size of sectors has been the main approach used by forecasters.

Pattern of Recent Forecast Errors

Looking back at forecast errors over recent years usually provides some useful context about current forecasts. Forecast errors for underlying domestic demand have generally been small since 2013, as shown in Figure 2.1, though there may be some positive bias in one-year ahead forecasts for personal and government consumption. However, as the Covid-19 shock is a major break with recent economic behaviour, this pattern of errors is less informative about likely forecast errors in 2020 and 2021.

Figure 2.1: Underlying domestic demand forecast errors

Percentage points



Sources: CSO; Department of Finance; and Fiscal Council workings.

Comparison with Other Projections

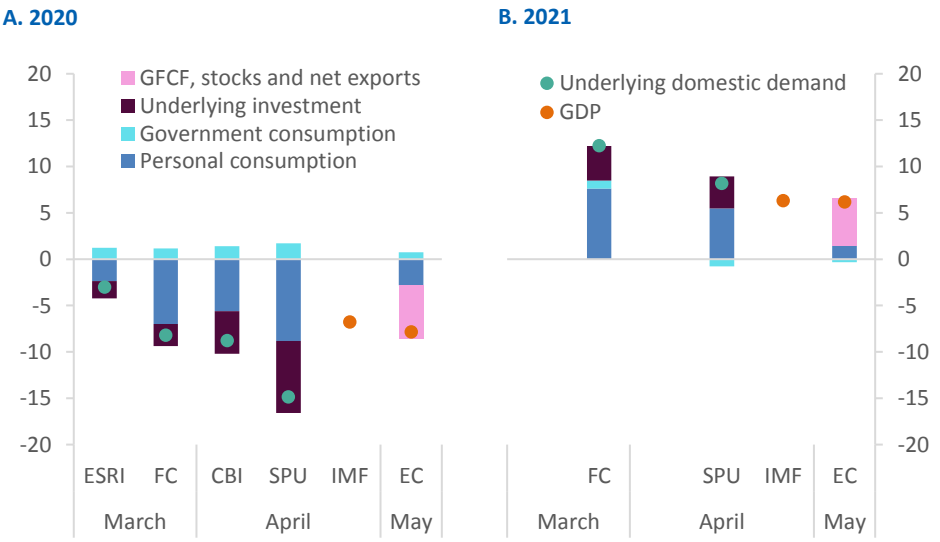
Comparison across forecasts can be a useful way of assessing their robustness. However, the speed of the Covid-19 crisis makes this less informative as forecasts heavily reflect the information available when they were made, rather than the differences in the underlying approach. Nevertheless, it can provide some insight about economic analysis of this unprecedented event. The latest forecasts generally factor in more recently available information. Recent forecasts for the Irish economy

were published in March, April, and May, in a period of very rapid change in circumstances both globally and specifically in Ireland.

Figure 2.2 compares recent short-term forecasts for economic growth in 2020 (panel A) and 2021 (panel B, where available). All forecasts compared here expect negative growth in underlying domestic demand and GDP in 2020, with personal consumption and underlying investment contracting and with higher government consumption offsetting this fall somewhat. *SPU 2020* forecasts a weaker outcome than other official forecasts for 2020, particularly for investment. While *SPU* 2020 was based on broadly similar assumptions about Covid-19, the projections put a strong emphasis on scarring effects from the initial shock. Forecasts for Ireland and many other countries made by the European Commission in May were relatively positive compared to other forecast exercises at that time.

Figure 2.2: Recent forecasts of economic growth

Percentage-point contributions and year-on-year percentage change in volumes



Sources: Economic and Social Research Institute (ESRI), *Quarterly Economic Commentary, Spring 2020*; Central Bank of Ireland (CBI), *Quarterly Bulletin No 2 2020*; Department of Finance (SPU), *SPU 2020*; International Monetary Fund (IMF), *World Economic Outlook, April 2020*; European Commission (EC), *European Economic Forecast, Spring 2020*; and Fiscal Council (FC) workings.
Note: For the *Spring 2020* QEC, the forecast change in modified investment for 2020 is taken as equal to the change in underlying investment.

The Council's benchmark projections are a key input to the endorsement process and allow the Council to work through the issues in each forecast round. The numbers are presented in Appendix B. These were completed in March, somewhat before the *SPU 2020* forecasts and when the Covid-19 crisis was unfolding rapidly, and the forecasts were made using real GNI* as the preferred measure of aggregate demand, rather than GDP or GNP.

2.3 Assessment of the *SPU 2020* Macroeconomic Forecasts, Scenarios to 2025 and Risks

The economic outlook is highly uncertain as a result of the Covid-19 crisis and a wide range of paths is possible this year and further ahead. *SPU 2020* sets out forecasts for 2020 and 2021 only, and a number of indicative top-down profiles for the recovery.

However, it is useful to have a picture of the range of future macroeconomic outcomes at least five years ahead to guide economic and budgetary policies over the medium term. This section assesses the outlook and *SPU 2020* forecasts for 2020 and 2021, sets out three scenarios for the economy to 2025, and assesses the risks. Given the fast-moving situation, analysis in this chapter considers some of the available high-frequency data, including credit and debit card spending and retail sales. The implications of Ireland's large modified current account surplus in recent years for the speed of possible economic recovery over the medium term are also discussed.

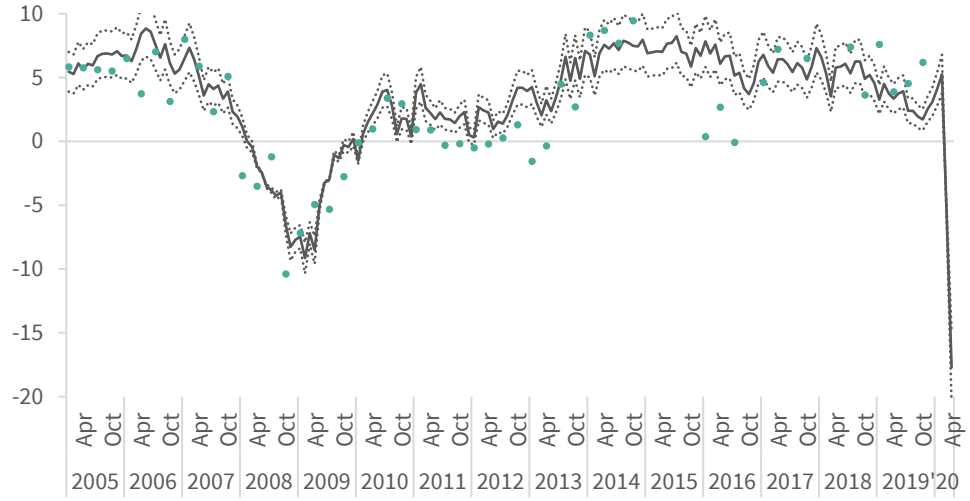
SPU 2020 Short-term Forecasts

For 2020, *SPU 2020* assumes at least three months of containment measures spanning the end of the first quarter and most of the second quarter, followed by a gradual recovery with some remaining distancing measures. The forecasts also anticipate some behavioural changes leading to weak consumer confidence, scarring effects on vulnerable firms, and possible hysteresis in the labour force (i.e. parts of the labour force affected by Covid-19 may require further training before returning to work in an economic recovery). As a result, a key assumption in the forecasts is that output does not return to its end-2019 level until at least 2022.

The restrictions to activity due to Covid-19 have already caused a large fall in demand, as many people in the labour force are unable to go to work. Domestic and external demand are expected to recover with the lifting of containment measures; however, this will occur gradually. Early evidence for the large fall in demand is presented in Figure 2.3. Based on the relationship with composite *Purchasing Managers' Index* data, this shows an estimated year-on-year fall in real GDP of between 15–21 per cent in April—broadly in line with early data from other countries.

Figure 2.3: PMI-implied growth in Ireland's GDP fell 15–21 per cent in April

Year-on-year percentage change in volume



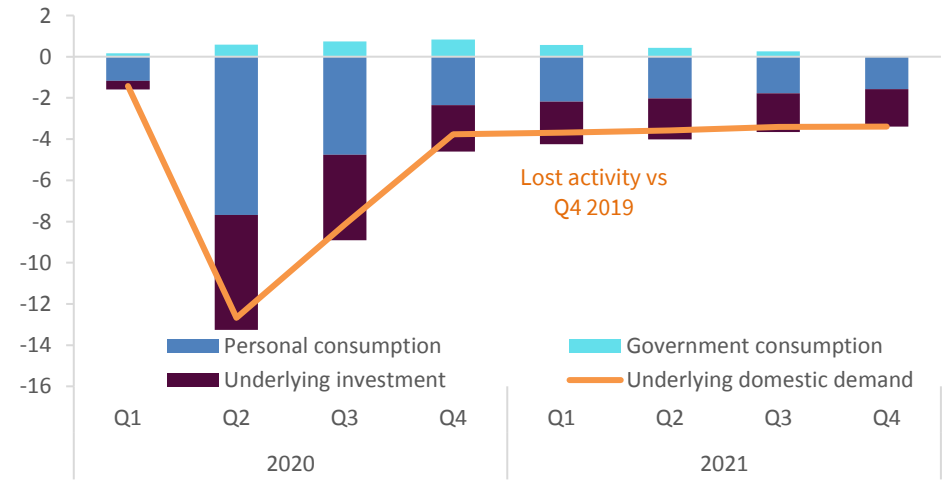
Sources: IHS Markit; and Fiscal Council workings.

Notes: Notes: Based on historical relationship between real GDP growth and composite PMI data for Ireland. 95% confidence interval shown. Historical real GDP growth for quarters shown by green dots.

The anticipated impact of Covid-19 in *SPU 2020* on underlying domestic demand results in a substantial predicted fall of close to 15 per cent in 2020, and a partial recovery of 8.2 per cent in 2021 (see Figure 2.2). Figure 2.4 presents the estimated losses to underlying domestic demand by quarter. The reductions in activity are concentrated in the second and third quarters of 2020, however output is lower in all quarters compared to the starting level and a counterfactual scenario where the Covid-19 shock did not take place.

Figure 2.4: *SPU 2020* forecasts over €12 billion of lost activity in Q2 2020

€ billion in 2017 constant prices, *SPU 2020* compared to the Q4 2020 seasonally adjusted level



Sources: Department of Finance, *SPU 2020*; and Fiscal Council workings.

Note: Seasonally adjusted underlying investment for Q4 2019 is estimated with manual seasonal adjustment of aircraft.

For 2020, *SPU 2020* forecasts a negative impact from end-2019 on underlying domestic demand due to Covid-19 of €26 billion (in 2017 prices). This implies close to €16 billion in lost personal consumption expenditure and €12 billion in lost underlying investment, partly offset by €2.3 billion of higher government consumption (see Box B in Chapter 1). For 2021, *SPU 2020* forecasts underlying domestic demand to remain €14 billion below its end-2019 annualised level.

The impacts of Covid-19 on the **labour market** have been without precedent in Irish experience. The unemployment rate for April 2020 including the Pandemic Unemployment Payment (PUP) recipients reached 28.2 per cent, up from 15.5 per cent in March and less than 5 per cent before the crisis. A further half a million workers are not included in this measure under the Temporary Wage Subsidy Scheme, which compensates firms for each employee in receipt of up to €450 per week. While the PUP recipients may not all be included in the Labour Force Survey's definition of unemployed, the lack of employment activity that is taking place clearly implies a huge shortfall in output and earnings for the economy overall. The Department forecasts that transfers by the Government are closing half of the €11 billion shortfall in market incomes.

Employment is forecast in *SPU 2020* to fall temporarily by close to half a million jobs in the second quarter, before partially recovering in the third quarter, as containment restrictions ease and people can return to work. This would be equivalent to a year-on-year decrease of 17 per cent. For the full year, *SPU 2020* forecasts an average fall in employment of 9.3 per cent. As many of those affected are employed in lower productivity sectors, the impact of these job losses on aggregate output is more limited than in the case of a more broad-based downturn affecting all sectors more evenly. Large reductions in employment are expected in sectors such as construction, wholesale and retail trade, transport, accommodation and food service activities, real estate activities, and arts, entertainment and recreation.

Table 2.1 sets out forecasts of key macroeconomic indicators contained in *SPU 2020*. Real GNI*, based on nominal GNI* deflated with the GNP deflator, implies a fall of 16.1 per cent in 2020—a more severe contraction than for GDP or GNP.

Table 2.1: *SPU 2020* macroeconomic forecasts

Percentage change in volume, unless stated

	2019[a]	*2020*	*2021*
Demand			
GNI* (implied)[b]	2.1	-16.1	7.1
…of which (contributions)			
Underlying domestic demand[c] *(p.p.)*	*2.8*	*-12.9*	*7.2*
Change in stocks (p.p.)	*0.2*	*-0.2*	*0.0*
Adjusted net exports[c] *(p.p.)*	*-0.9*	*-3.0*	*-0.1*
Underlying domestic demand	3.2	-14.9	8.2
GDP	5.5	-10.5	6.0
Personal consumption	2.8	-14.2	8.7
Government consumption	5.6	9.1	-3.2
Underlying investment[b]	2.2	-41.0	26.3
Exports	11.1	-7.7	7.5
Underlying imports[b]	13.6	-9.8	9.6
Labour market			
Population	1.3	0.7	0.9
Labour force	2.0	0.0	0.6
Employment	2.9	-9.3	5.5
Unemployment rate (% labour force)	5.0	13.9	9.7
Prices (year-on-year percentage change)			
HICP	0.9	-0.6	0.4
Personal consumption deflator	2.1	-0.1	0.7
GDP deflator	1.5	1.2	1.5
GNP deflator	2.0	1.2	1.4
Nominal value			
Nominal GNI*	4.1	-15.5	8.6
Nominal GNI* (€ billion)	205.6	174.6	189.6
Nominal GDP	7.2	-9.4	7.6
Nominal GDP (€ billion)	347.2	314.6	338.7
Modified current account (% of GNI*)	6.3	4.7	4.5

Sources: CSO; Department of Finance; and Fiscal Council workings.

Notes: [a] Denotes latest outturns from the CSO, where available.

[b] Derived from nominal GNI* in *SPU 2020* deflated with the GNP deflator. These figures are based on earlier nominal GNI* figures provided by the Department for *SPU 2020*. The estimates were corrected in a later version of the report, yet the differences are relatively minor. Using the forecast approach in Box E would imply -16.7 per cent real GNI* growth in 2020, and 7.6 per cent in 2021.

[d] Contributions to real GNI* growth rates in percentage points. Adjusted net exports are exports net of underlying imports (excluding aircraft and intangibles), net factor income from abroad, factor income of re-domiciled PLCs, depreciation on aircraft leasing, R&D service imports and trade in IP.

Personal consumption expenditure in *SPU 2020* is forecast to fall in the second quarter of 2020 to around three quarters of its Q4 2019 level, and then to rebound. Nevertheless, the level in 2021 will only be around 90 per cent of its normal level.

Although some households will be affected by reduced incomes as a result of Covid-19 containment measures, the extent of this impact is mitigated by the Government's income support schemes, as discussed in Chapters 1 and 3.

Many households will increase savings as a result of enforced lower consumption expenditure and higher precautionary savings. The Department forecasts that the household savings ratio will exceed 19 per cent in 2020 and 16 per cent in 2021. However, such a high annual savings ratio is unprecedented for Irish households, exceeding the 14 per cent peak during the global financial crisis. As discussed in Box C, this could imply upside risk to the *SPU 2020* consumption forecasts, in particular for households that have not had their incomes decline by Covid-19.

Box C: Prospects for consumer spending could be better than in official forecasts

This box analyses recently published high-frequency and other data relevant to household consumption, including the retail sales index and credit and debit card spending. These signs so far point to a sharp decline in total expenditure by households, especially in April.

Retail sales data for March published by the CSO show a sharp overall decline. Five of the thirteen sectors covered were especially badly hit, falling by 28–55 per cent: bars; clothing; motors; books, newspapers and stationery; and department stores.

The aggregate series excluding motors and bars typically accounts for 45 per cent of retail sales in March. Excluding motors and bars, year-on-year growth in the volume of other sales was 2.8 per cent in March—helped especially by sectors such as food (+17.6 per cent) and household equipment (+12.7 per cent). This result is close to the 4–5 per cent year-on-year increases observed on average since 2016. The fact that it performed reasonably well likely reflects stockpiling by consumers prior to the imposition of stricter containment measures later in the month.

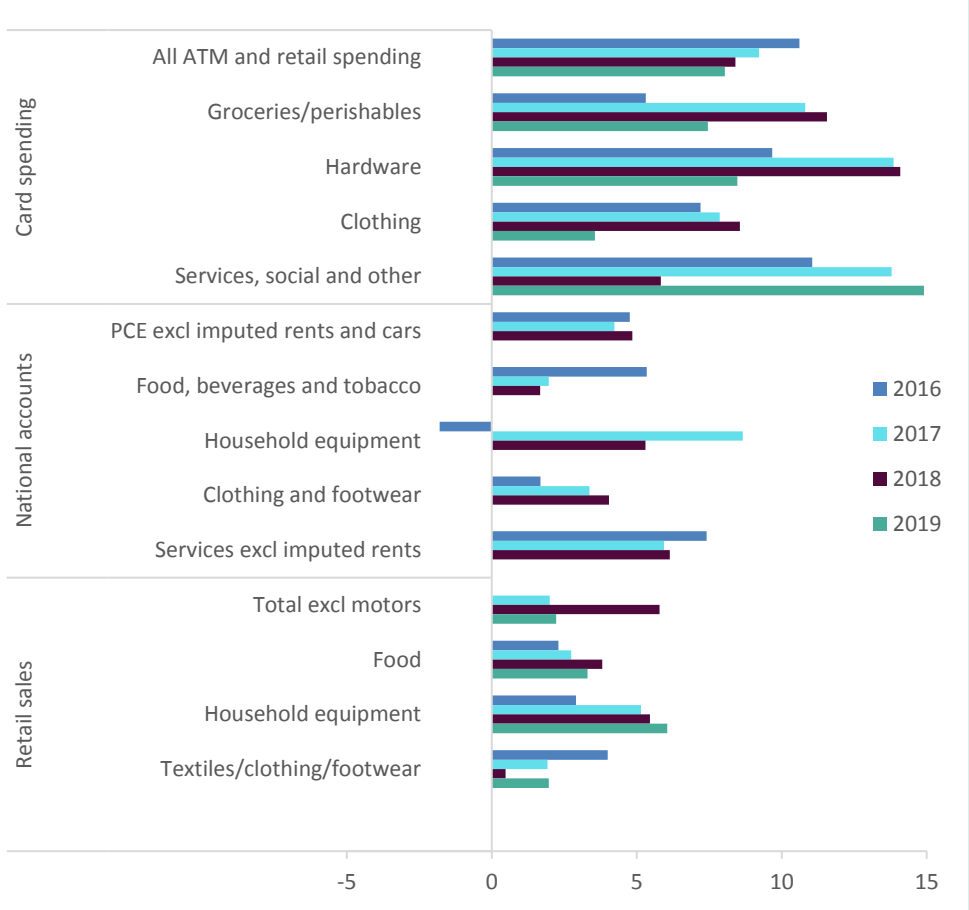
In April, the Central Bank of Ireland began publishing weekly updates to daily credit/debit card statistics. Monthly data showed a modest 2.4 per cent year-on-year reduction in total card spending in March, although the daily trend worsened as the month progressed and escalating Covid-19 containment measures were enacted (see Figure 1.4B). However, April data currently point to a much larger year-on-year fall of 35 per cent.

Some substitution from such spending to debit cards is likely due to Covid-19 restrictions encouraging the use of contactless payment, and many households having less need for credit card usage due to lower overall consumption and higher savings. The Q1 2020 data also show that a majority of the total increase in all non-ATM card spending is explained by e-commerce; this share could rise further as retailers with closed premises continue to trade online, and consumers adjust their purchasing habits.

Figure C.1 compares trends in values of certain categories with broadly similar descriptions in common for each of card spending data, personal consumption expenditure in the national accounts, and retail sales. The comparison shows that card spending annual growth rates have generally been higher than those of the national accounts and retail sales data. As shown below, this is due to a narrower coverage of spending in card statistics.

Figure C.1: Card spending growth rates are higher than those of PCE or retail sales

Year-on-year percentage change in value



Sources: CSO; Central Bank of Ireland; and Fiscal Council workings.

Table C.1 compares total spending represented by each category for card spending and personal consumption.

Table C.1: Card spending by category is less broad than personal consumption

€ billion annual average for 2015–2018, and percentage

	Card spending, € bn	PCE excl imputed rent and cars, € bn	Non-card spending in PCE, € bn	Coverage ratio, percentage
Food/groceries	8.8	17.4	8.5	51.0
HH equip	3.8	4.5	0.7	84.8
Clothing	2.7	3.5	0.9	75.6
Other retail	5.3	13.4	8.1	39.4
Services	23.0	43.2	20.1	53.4
ATM	19.1	*NA*	*NA*	*NA*
Total	62.8	81.9	19.1	76.6

Sources: CSO; Central Bank of Ireland; and Fiscal Council workings.

Note: Rounding may affect additivity. For PCE, other retail excludes cars, and services excludes imputed rents.

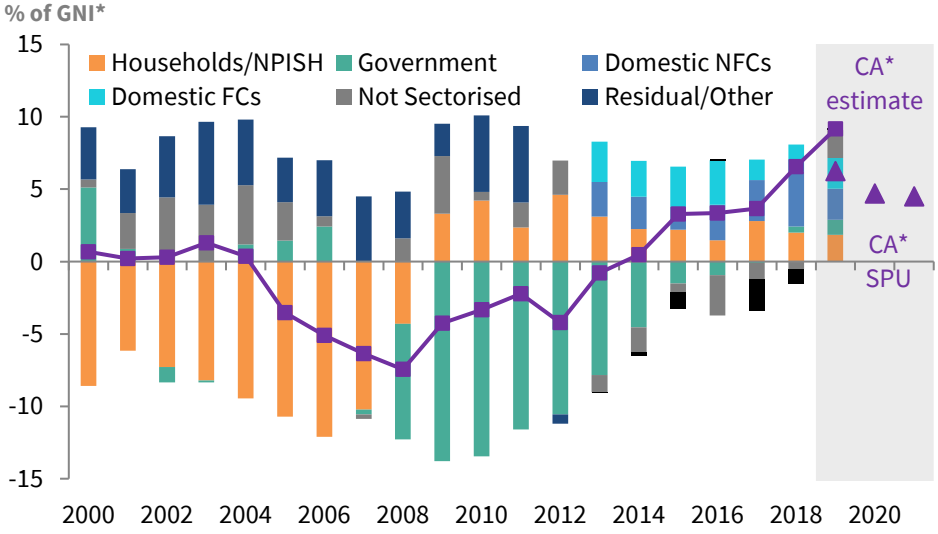
While the shares of non-ATM spending categories are similar to those of personal consumption expenditure excluding imputed rent and cars, the card spending data is less broad in coverage for each category. This partly reflects spending on these categories using ATM cash that is not captured in the card statistics breakdown by category.

The non-ATM category with the largest gap to the total is services, which amounts to over half of all spending and includes items such as accommodation/rent and utilities outlays. As many of these payments are more likely to be made by bank transfer/direct debit/standing order rather than using a card directly, this explains much of the lower services coverage.

As a result, the decline in overall consumer spending could be lower than that observed in the card spending. In the Council's scenario analysis, presented in Box D, personal consumption expenditure is projected to fall in year-on-year terms in the second quarter of 2020 by 21 per cent (Mild scenario), 29 per cent (Central), and 30 per cent (Severe). Should card spending continue to rise in May and June, this could indicate that the Mild scenario is closest to being realised, at least in the short term.

The institutional sector data on savings net of investment, combining as the modified current account (CA*), suggest there is capacity for Irish households to recover strongly in the absence of prolonged containment measures, or significant scarring for the labour force and businesses due to the Covid-19 pandemic. An important difference between the expected fall in economic activity in 2020 and the 2008 recession is the sustainability of prior economic growth. CSO data suggest savings less investment stayed positive in 2019 across domestic sectors for a second consecutive year. As shown in Figure 2.5, CA* may have exceeded 9 per cent of GNI* in 2019; the *SPU 2020* estimate of 6 per cent is also a substantial surplus.

Figure 2.5: Domestic net-savings balances remained positive in 2019



Sources: CSO; and Fiscal Council workings.
Note: The 2019 modified current account (CA*) figure is a Council estimate based on CSO guidance and known balances from the institutional sector accounts. Domestic savings are estimated by assuming that the change in NFC savings mainly relates to foreign-owned NFCs, and that domestic gross capital formation closely matches underlying investment in 2019.

The strength of aggregate household net savings at the beginning of the year could help the pace of economic recovery once the containment measures due to Covid-19 can be relaxed. The household savings ratio is forecast in *SPU 2020* to nearly double to over 19 per cent in 2020. This suggests there could be capacity for Irish households to increase consumption in future years, despite possibly higher precautionary savings, but helped by a strong financial position prior to Covid-19.

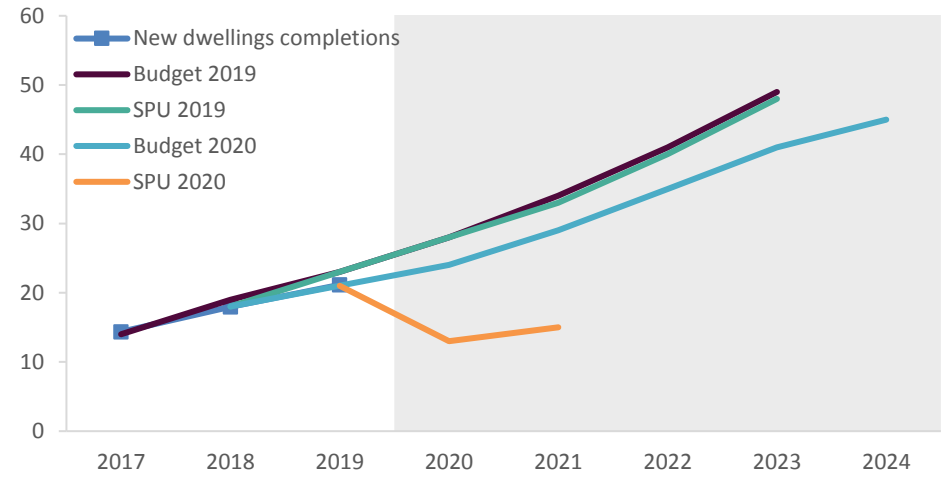
However, wealth effects and the distribution of household savings also have important implications for a recovery in consumption. Recent research by the Central Bank of Ireland (2020), based on the CSO's *Household Financial and Consumption Survey 2018* (CSO, 2020a), found that close to one in four households were employed in sectors that are at highest risk of income losses due to Covid-19. Furthermore, the median household for this group have low financial buffers—just 3 per cent of gross annual income in liquid assets compared to 6 per cent for all households. As a result of lower financial buffers, the capacity for a significant number of households to increase consumption in a recovery may be limited.

Government consumption in *SPU 2020* is set to grow by mor than 9 per cent in volume terms in 2020 as a result of higher health spending and other government activity to manage the impact of Covid-19—see Chapters 1 and 3 for detailed analysis of these policy measures. In 2021, government consumption is forecast to fall 3.2 per cent.

By contrast, **underlying investment** is projected to fall by more than 40 per cent in 2020 in *SPU 2020*. This is due to an anticipated near-standstill level of activity in building and construction in the second quarter, temporarily driving investment 70 per cent below its starting level and resulting in just 13,000 new dwelling completions in 2020 (see Figure 2.6). This implies just over 8,000 completions after the first quarter, around half the rate for the same period in 2019 and lowest annual level since 2016. House-building is expected to remain at these fairly low levels even as containment measures ease.

Figure 2.6: Downward revisions to forecasts of new dwelling completions

Thousands



Sources: CSO; Department of Finance; and Fiscal Council workings.
Note: Shading relates to forecast years.

Underlying machinery and equipment is expected to be durably weakened as firms forego planned investments as a result of heightened uncertainty and containment measures that may have forced temporary closure. In a recent survey of businesses conducted in mid-April, the CSO (2020b) found that close to one quarter of enterprises in Ireland had ceased trading either temporarily or permanently. Construction firms were the worst affected with only one in three continuing to trade. 44 per cent of all firms expected half their normal turnover at most for May 2020. While the Department's anticipated impacts are severe, there is moderate upside risk given a phased return to activity for outdoor workers began in mid-May, including construction workers. However, there are also risks of insolvency for domestic construction firms due to negative commercial and housing market developments—e.g. commercial property may be affected by increased work-from-home capability.

External demand is expected to be adversely impacted by large output falls in Ireland's main trading partners in 2020, along with limited output capacity by exporting firms while Covid-19 containment measures remain in place. A 7.7 per cent reduction in total exports volume is forecast in *SPU 2020*. The forecast reduction would likely be more adverse if not for Ireland's measured exports being dominated by certain sectors that could possibly expand despite the pandemic, such as pharmaceuticals, ICT, medical devices, and computer hardware. However, the Department anticipates that exports related to aircraft leasing and contract manufacturing activity will fall substantially this year, given most airline travel has

been grounded and the impact of virus containment measures in China on global manufacturing supply chains. Exports of tourism and travel are also expected to be severely reduced, and Brexit could further weaken the outlook over coming years.

The impact of such large declines in measured exports on aggregate demand is expected to be largely offset by a decline in underlying imports, which excludes aircraft and intangibles due to their concentration with foreign-owned multinational firms. This is due to the significant import contents of Ireland's final demand—that is, underlying domestic demand and exports. However, the effective import content of final demand in GNI* is likely to be considerably lower than for final demand in GDP (Box E). This is because much that is exported from Ireland by multinational firms requires inputs with high-import content, and profits from these sales ultimately accrue to other countries. As a result, the offset due to lower imports is likely to be far smaller for GNI* than for GDP.

Macroeconomic Scenarios to 2025

A very high degree of uncertainty applies to any short-term economic forecast at present. While the *SPU 2020* forecasts include a brief discussion of more-adverse scenarios for GDP and their implications for the general government balance, this *Fiscal Assessment Report* provides further context for the range of risks to the forecast by developing three scenarios to 2025: Mild, Central, and Severe. These are presented in Box D.

These scenarios cover a wide range of health, policy and economic outcomes. Given high uncertainty, the likelihood of the scenarios is impossible to assess in a meaningful way.

Box D: Three Macroeconomic Scenarios to 2025

There is exceptional uncertainty surrounding the economic outlook related to the Covid-19 shock. This box explores three scenarios. The three scenarios are (1) a Mild scenario where policy measures are more successful and lasting damages are kept to a minimum, (2) a Central scenario constructed using the same assumptions in *SPU 2020*, and (3) a Severe scenario where the recovery is protracted and marred by repeat lockdowns and wider financial distress. We extend these forecasts to 2025.

The Macroeconomic Scenarios

The scenarios we consider are quite different in nature.

The Mild scenario can be understood as one where containment measures are lifted relatively quickly and "hysteresis" effects (the lasting impacts or scarring from the initial shock) are much more limited than is assumed in the Department's projections. Employment rebounds quickly once lockdown measures are lifted, with two-thirds of jobs lost being recovered by Q3 2020 and a further 20 per cent by the end of the year. This would be broadly consistent with a view that policy measures to sustain businesses through the crisis, and progress towards treating/containing the virus, are more successful than assumed and that activity returns to normal at a quicker pace, unconstrained by precautionary saving or other behavioural responses by households and businesses.

By comparison, the Central scenario shows about half of the job losses occurring in Q2 2020 persisting into subsequent quarters and even through 2021. The Central scenario assumes that confinement measures are eased as planned by the Government, but some restrictions remain in place for some time.

For the Severe scenario, we explore the possibility that further waves of the virus—that is a rise and fall in transmissions of the virus again at later dates—result in further lockdown measures being enacted in line with past experience of "second waves" of infections (Figure D.1). The intermittent lockdowns could mean similar job losses in later quarters (Q4 2020 and Q2 2021) and more lasting impacts over the long run.

Figure D.1: A Severe scenario might see further surges in cases

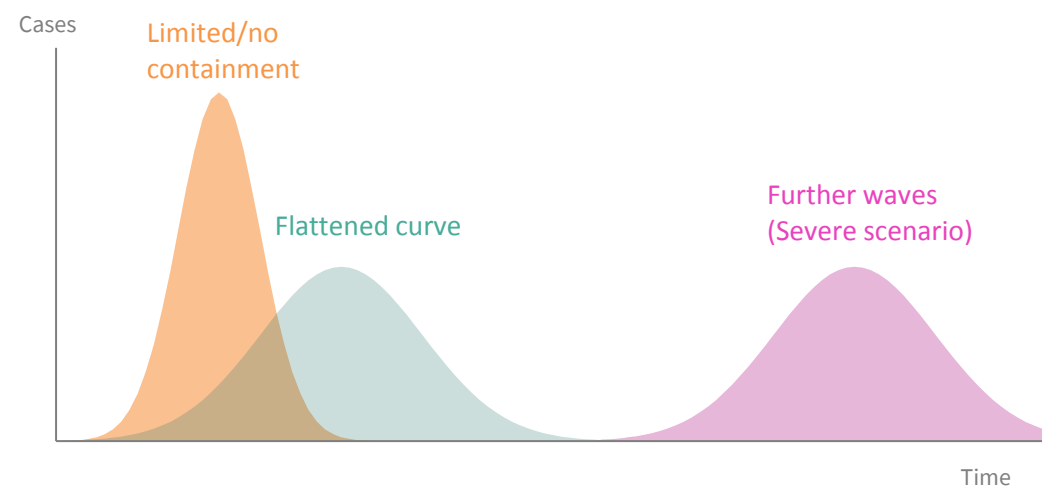


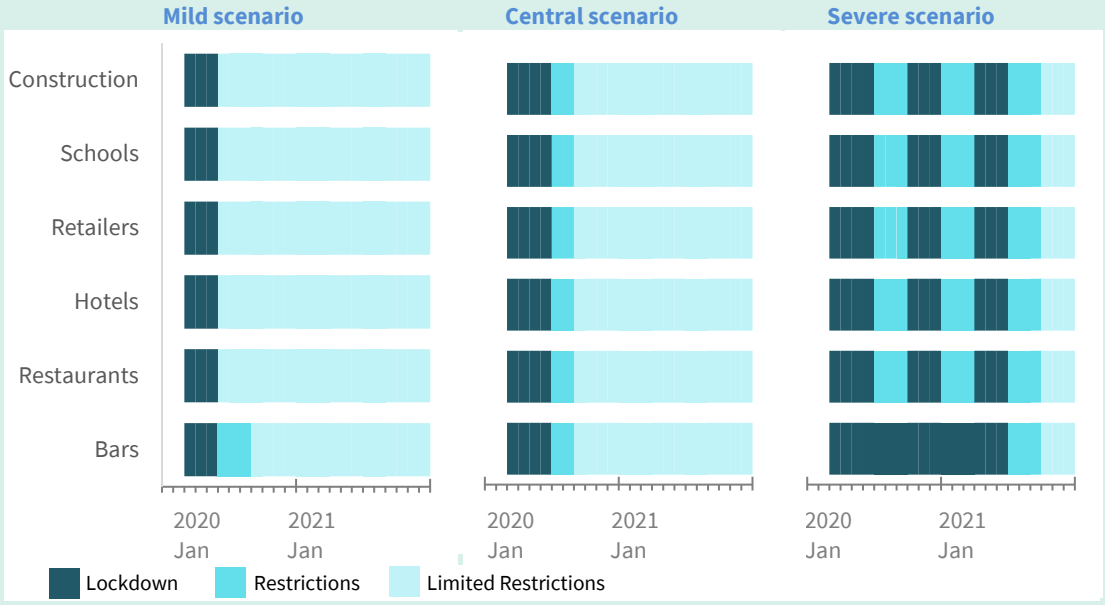
Table D.1 shows the main assumptions underpinning the three scenarios. Key to these scenarios are the assumptions about containment measures. We consider containment measures primarily in terms of the impacts on consumer spending, personal disposable income, construction and other business investment areas. It is therefore useful to think carefully through the assumptions on containment measures for key relevant areas (Figure

D.2). School closures, for instance, could impact 851,000 workers based on data for the numbers of working individuals with children. Bars could face more lasting impacts than other "social" economic activities. Though lockdown measures may be lifted, social distancing and other requirements might persist long after the lockdown has ceased.

Table D.1: Key assumptions for the scenarios

	Central scenario	Mild scenario	Severe scenario
Broad description	Government's *SPU 2020* forecasts assume a sharp contraction in Q2 2020, followed by a very protracted recovery.	Slightly milder initial contraction and faster recovery. More successful containment measures, economic supports, and progress on treatments.	Sharp initial contraction. Protracted recovery marred by repeat lockdowns and wider financial distress.
Containment measures	Strict lockdown measures last one quarter (Q2 2020). Containment measures are then relaxed over the summer.	Strict lockdown measures end in May, with limited measures remaining into Q3 2020.	Strict containment measures last until July 2020. Then intermittent lockdowns (Q4 2020 and Q2 2021) required to stem subsequent transmission increases.
Employment losses	Job losses of about 475,000 (-20%) in Q2 vs trend; half the job losses are still not recovered by Q4 2021.	Job losses of about 475,000 (-20%) in Q2 vs trend; but fewer (33%) of these losses last into Q3; down from 10% thereafter.	Job losses of about 620,000 (-26%) in Q2 vs trend and in subsequent lockdown quarters; four-fifths of job losses persist outside lockdowns.
Recovery	Economy only recovers to pre-crisis (Q4 2019) levels by Q4 2022.	Economy recovers to pre-crisis (Q4 2019) levels by Q3 2021.	Economy does not recover to pre-crisis (Q4 2019) levels until Q3 2023
Potential output	Growth reverts to previous projections of about 2.5 to 3% per annum over the medium term.	Growth reverts to previous projections of about 2.5 to 3% per annum over the medium term.	Permanent scarring on growth; remains closer to 2% per annum over the medium term.

Figure D.2: Assumptions on containment measures



Notes: "Lockdown" means that the sector is required to close. "Restrictions" means the sector is open but with restrictions on size of gatherings and requirements for social distancing. "Limited restrictions" means

that the sector is open and that restrictions on size of gatherings and requirements for social distancing are fully loosened, but with scope for reintroduction.

The Approach Used

To develop the macroeconomic scenarios, we first produce a replica of the official government forecasts and extend them under similar assumptions to construct the Central scenario. We start with a counterfactual no-Covid-19 forecast (the January 2020 projections from the Department of Finance, 2020b). The nature of the restrictions in each scenario and the assumptions about the response vary in severity. We scale up or down the relevant shocks to underlying domestic demand consistent with our assumptions about containment measures and the extent of how persistent economic damages will be.

Consumer spending: We first impose shocks to incomes. These shocks are consistent with our assumptions for school closures, job losses, replacement rates, infection rates, time lost to work per illness (two weeks), prophylactic absences (30 per cent of employed for two weeks), mortality rates, and wages by sector. Next, we shock individual areas of consumption to varying extents consistent with how vulnerable areas are considered to be. For example, alcoholic beverages including pubs; recreation services; transport equipment; public transport; clothing; and household equipment are assumed to be among the worst affected with losses of at least 50 per cent.[16]

Investment: We assume that building and construction sites are closed for the lockdown periods and open otherwise. The associated reduction in hours worked is assumed to lead to equivalent percentage reductions in construction output. For machinery and equipment spending, we assume that declines are associated with the reduction in forecast external demand using standard elasticities (Conroy and Casey, 2017).

Government consumption: We assume that this is the same as forecast in *SPU 2020*—see Box I in chapter 3 for further details on possible fiscal impacts of the different scenarios.

Trade: Exports are assumed to evolve in line with changes in external demand, with adjustments made to this for the scenarios being consistent with our changes to underlying domestic demand. In other words, weaker underlying domestic demand is assumed to be mirrored by a similar weakening of demand among trading partners.

We calibrate all the shocks to be consistent with the official *SPU 2020* projections for the purposes of the Central scenario. The overarching approach is similar to that adopted in Keogh-Brown *et al.* (2010) and by the Department.

A wide range of outcomes is possible

The scenarios cover a wide range of different outcomes. For Mild, underlying domestic demand would recover to its pre-Covid-19 level by mid-2021. This is a faster recovery than in *SPU 2020*. In the Central scenario, output takes a further year to recover, and a further two years in the Severe scenario. These outcomes result in a permanent loss of output of 4, 10 and 15 per cent for the Mild, Central and Severe scenarios respectively, compared to the level it would have reached in the absence of Covid-19.

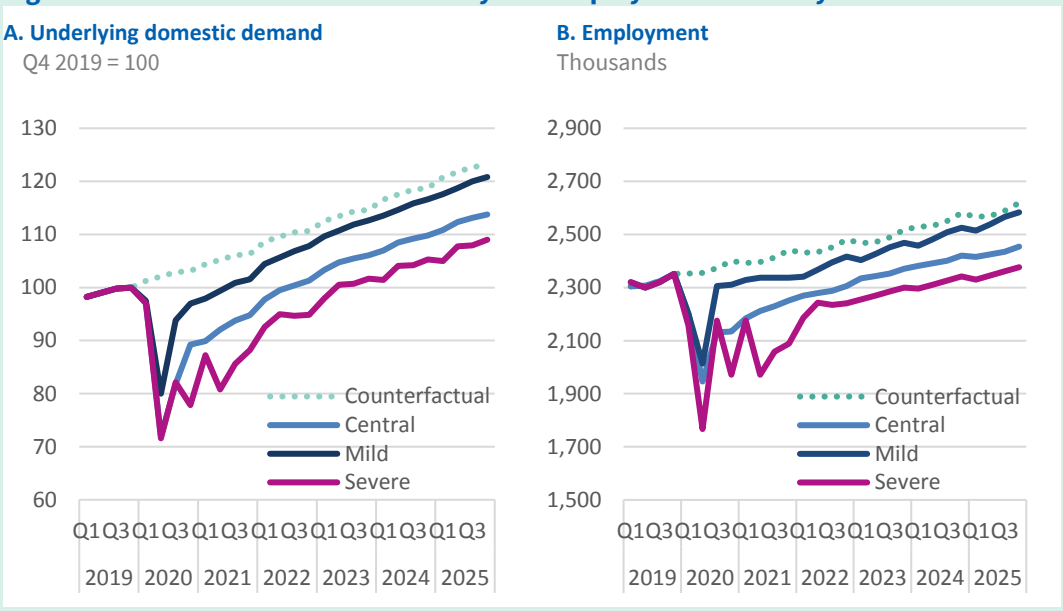
Employment outcomes also vary significantly across the scenarios with different rates of unemployment. In the Mild scenario employment makes a full recovery by 2022, whereas the Severe scenario would result in employment remaining below its Q4 2019 level until the latter half of 2023, as with underlying domestic demand. Permanent employment losses compared

[16] See Table 14 of the CSO's National and Income Expenditure Annual results at: https://statbank.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=N1814&PLanguage=0

to a future level in the absence of Covid-19 would be 11 per cent for the Severe scenario, and 7 per cent for the Central scenario.

In each scenario, it is likely that permanent losses in activity and employment will result from the Covid-19 shock. As discussed in Chapter 1, besides causing a shock to demand, the economy's long-run potential level and growth rate might be negatively impacted by Covid-19. Although this is difficult to estimate, three key factors of production could be impacted including productivity, labour supply, and investment in capital, and on balance the Council assesses that long-run growth is likely to be somewhat lower following the Covid-19 shock. Impacts could include mismatch in skills for segments of the labour market, loss of capital in businesses and firm destruction, missed investment, and lower inward migration.

Figure D.3: Permanent losses to activity and employment are likely



Sources: CSO; Department of Finance; and Fiscal Council workings.

Table D.1 summarises activity and employment levels for the three scenarios explored.

Table D.2: Mild and Severe scenarios provide a plausible range for activity levels

	2020	2021	2022	2023	2024	2025	Permanent loss, %
Underlying domestic demand, Q4 2019 = 100							
Central	85	93	100	105	109	113	10.1
Mild	92	100	106	111	115	119	4.1
Severe	82	85	94	100	104	107	14.6
Employment, thousands							
Central	2,103	2,219	2,286	2,351	2,399	2,433	7.1
Mild	2,208	2,335	2,380	2,437	2,493	2,551	3.0
Severe	2,018	2,074	2,226	2,278	2,319	2,353	10.7

Sources: Department of Finance, *SPU 2020*; and Fiscal Council workings.
Note: Permanent losses are calculated as the percentage difference to counterfactual following Q4 2019.

The scenarios detailed above are indicative for outcomes that are considered plausible. However, as noted in Box A in Chapter 1, there is continuing uncertainty surrounding the future path of Covid-19 and prospects for vaccines. As such, the scenarios presented here are not exhaustive, and do not cover all possible paths for economic activity in Ireland.

Furthermore, there is high uncertainty on the economic effect of any medical path. For example, the scenarios do not include a possible spill-over into a banking or financial crisis, and the more adverse macroeconomic implications this would involve.

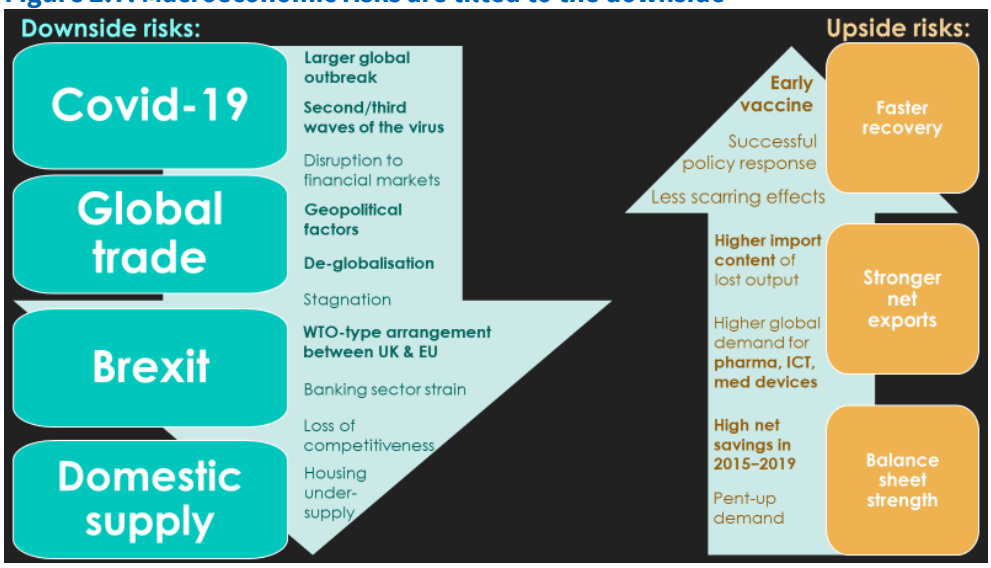
Macroeconomic Risks

Uncertainty around the macroeconomic outlook is high. Relative to the *SPU 2020* forecast and the Central scenario here, risks are tilted to the downside, driven by a more adverse direct economic impact of Covid-19, including the possibility of second/third waves of Covid-19 in Ireland due to containment measures proving unsuccessful. Other downside risks include a possible hard Brexit beginning in 2021, the possible relocation of multinational firms' activities out of Ireland, global trade tensions, and de-globalisation resulting in lower external demand. As a small open economy, Ireland is particularly exposed to global economic conditions which have turned sharply negative as a result of Covid-19. The realisation of such external downside risks would be expected to result in a slower economic recovery over the coming years.

However, there are also upside risks to the forecasts, as noted in *SPU 2020*. These mainly include a vaccine (or effective treatment) becoming available earlier than currently anticipated, a lower than expected degree of scarring affecting firms and employment in the Irish economy, and outperformance of net exports.[17] Another potential cause of outperformance for economic growth is the large modified current account surplus that had increased steadily throughout Ireland's recovery from the global financial crisis. This means that Irish households and firms began 2020 with significant net savings, and these could be employed more rapidly than anticipated in *SPU 2020* when a post-Covid-19 recovery becomes possible. Figure 2.7 summarises the downside and upside risks facing the Irish economy.

[17] Outperformance of net exports could occur due to strong exports in key sectors with activities in Ireland, such as pharmaceuticals, information-communication technologies, and medical devices.

Figure 2.7: Macroeconomic risks are tilted to the downside



Sources: Department of Finance, SPU 2020; and Fiscal Council workings.
Note: Size of arrows indicates subjectively assessed combined impacts and likelihoods.

The Council has previously noted that Ireland's external trade variables have been difficult to forecast accurately, given the distortions caused by multinational firms. The consequences of this issue are further developed in Box E, which notes that the composition of gross domestic product (GDP) and gross national product (GNP) result in headline economic growth rates that are often overstated relative to a more relevant measure of aggregate demand, such as modified gross national income (GNI*). The issue arises due to the overweighting of net exports.

Box E: Forecasting real GNI* growth rates in place of GDP and GNP

Despite well-documented distortions to Ireland's gross domestic and national product (GDP and GNP), described by the Economic Statistics Review Group (ESRG, 2016) and in previous Council publications, growth rates in GDP and GNP remain widely used as the main forecast variables for the Irish economy for both domestic and international forecasters.

GNI* is more relevant as a measure of the incomes and activity of Irish people and better reflects the domestic tax base. The Central Bank, Department of Finance and Fiscal Council have placed greater emphasis on GNI*, in line with the ESRG recommendations—although *SPU 2020* puts more emphasis on GDP in calculating fiscal ratios.

Since 1996, GDP and GNP growth rates have been higher than GNI* growth rates in all but six years.[18] This was especially evident during the global financial crisis (2007–2012), when cumulative falls in GDP and GNP were 7 and 12 per cent respectively, whereas GNI* fell by 19 per cent.

[18] For 1995–2012, real GNI* can be approximated by deflating nominal GNI* with the GNP deflator. This correlates closely to the GNI* deflator for data that are published (2013–2018), and the CSO has advised that is also indicative for earlier years.

This difference is due to the distorted net exports component. In the absence of published series for adjusted exports and imports that are consistent with GNI*, this box provides an overview of a methodology for forecasting GNI* for 2019–2021 based on approximations of GNI*-based exports and imports.[19] This approach finds that whereas the import content of multinationals' activity in the Irish economy is very high, it is much lower for domestic activity.

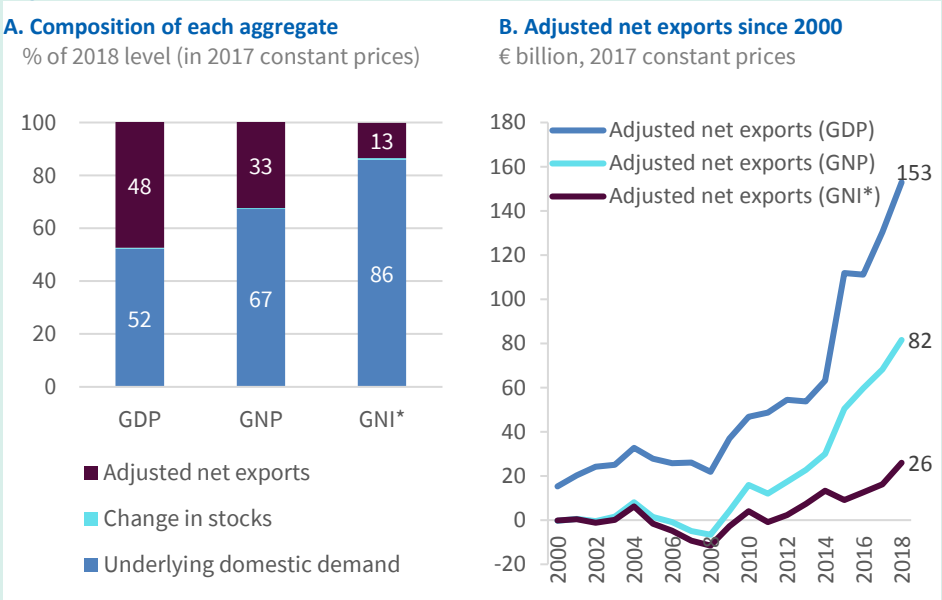
Domestic demand has a high share of aggregate demand when using GNI*

Expenditure on GDP and GNP each comprise final domestic demand (C+G+I), changes in stocks, and net exports—exports net of imports for GDP, less net factor income for GNP.

Ireland's net exports included in GDP and GNP are heavily impacted by undistributed profits of multinationals.[20] As a consequence, it is useful to focus on underlying domestic demand. This excludes import-heavy aircraft and intangibles from investment as they are mainly related to foreign-owned multinational entities, and provides a relevant measure of domestic demand (Fiscal Council, 2018e).

One implication is that measured GDP and GNP both understate the domestic demand share in output compared to GNI*. As shown in Figure E.1A, the underlying domestic demand share is far higher for GNI*.

Figure E.1: GDP and GNP understate the share of domestic demand in total output



Sources: CSO; and Fiscal Council workings.
Note: Adjusted net exports for GDP includes underlying net exports. For GNP, it is reduced by net factor income from abroad; this is equivalent to the current account with aircraft and intangibles investments added back in (since they are excluded from underlying domestic demand). For GNI*, adjusted net exports is further reduced by net factor income of redomiciled PLCs, and depreciation on aircraft leasing, R&D services imports and trade in IP. An additional category covering the statistical discrepancy (and subsidies less taxes for GNI*) has been omitted from panel A.

Ireland's measured exports have exceeded GDP since 2011, and they have long been dominated by sales of multinational firms. The impact of exports on GDP is partly offset by the

[19] Although full-year data for 2019 are available for GDP and GNP, there is as of yet no CSO outturn available for GNI*. This will be published in the *National Income and Expenditure 2019* report.

[20] A rapid increase in "contract manufacturing" since 2015 caused a level-shift in net exports, and onshoring of IP has also artificially inflated both GDP and GNP—see Connolly (2017) for details.

import content of exports, including royalties (services) and intermediate inputs, e.g. chemicals and computer parts (goods).

GNI* further adjusts for the direct impact of multinationals; adjusted net exports amounted to just €26 billion in 2018, below €82 billion for GNP and €153 billion for GDP (Figure E.1B).

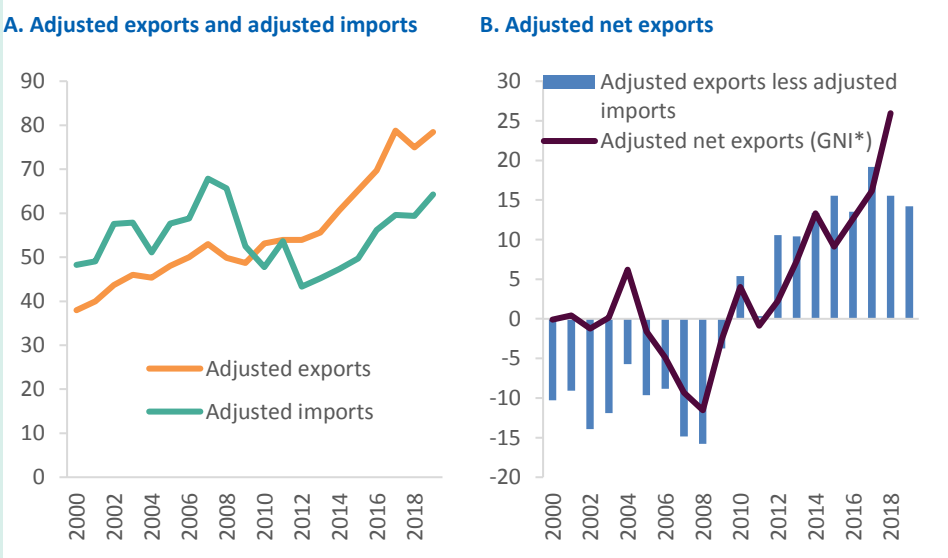
Forecasting real GNI* with adjusted exports and adjusted imports

The Council has previously forecast nominal GNI* using a GNP forecast and assuming that a constant depreciation share of new investments in intangibles and aircraft are subtracted as factor income of multinational firms (Fiscal Council, 2019c). Real GNI* can then be obtained by deflating with a forecast of the GNP deflator. *SPU 2020* forecasts apply a similar approach in forecasting nominal GNI*, and combined with the GNP deflator, this implies real GNI* growth in 2019 of 2.1 per cent, falling to –16.1 per cent in 2020, and recovering to 7.1 per cent in 2020.

An alternative approach involves approximating historical series for adjusted exports and imports that are consistent with adjusted net exports in GNI*. These series can be used to estimate the adjusted-imports content of final demand under GNI*. Adjusted exports on the same basis can also be forecast using its relationship with explanatory variables such as the demand for imports in Ireland's main trading partners, and the real effective exchange rate (Conroy and Casey, 2017).

Figure E.2: Adjusted exports less adjusted imports evolves similarly to adjusted net exports in GNI*

€ billion, 2017 constant prices



Sources: CSO; and Fiscal Council workings.
Note: Adjusted exports and adjusted imports exclude categories of goods and services that are considered to be dominated by multinational firms.

To approximate historical series for adjusted exports and imports that are consistent with GNI*, firstly underlying imports (excluding aircraft and intangibles) can be combined with net factor income from abroad. Next, external trade in goods and services that is likely to be

dominated by multinational firms is excluded.[21] The rationale for this is that such activities are likely to have high broad-import contents, whether due to costly raw materials or large royalties or profit remittances; i.e. multinationals' profits should have less bearing on GNI* than GNP or GDP.[22]

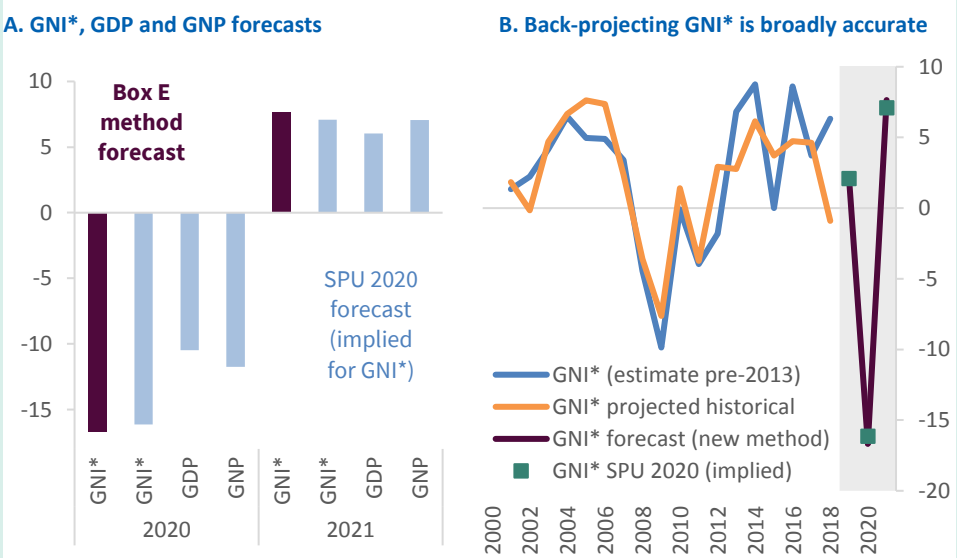
The remaining "non-multinational-firm" items are shown in Figure E.2A. As panel B shows that adjusted exports less adjusted imports and adjusted net exports included in GNI* have evolved similarly for 2000–2018, these adjusted exports and adjusted imports may be relevant to forecasting real GNI*.

The figures show a growing adjusted trade deficit prior to the global financial crisis, reflecting net borrowing from abroad. Since 2011, this has transformed into a persistent trade surplus—despite the severity of the Covid-19 shock, this trade surplus is not eliminated.

Although the approximations of adjusted exports and imports are inexact and exclude some activity that is included in GNI*, the share of adjusted net exports demand in GNI* will remain appropriately modest relative to aggregate demand using this approach. A further advantage is that unlike the Council's previous methodology, it does not depend at all on forecasts of aircraft or intangibles.

Figure E.3: GNI* growth is likely to underperform GDP and GNP growth in 2020

Year-on-year percentage change in volume



Sources: CSO; Department of Finance, *SPU 2020*; and Fiscal Council workings.

Note: The GNI* projection in panel B uses outturn data for underlying domestic demand, the change in stocks and statistical discrepancy, and projects adjusted net exports forward from 2000 using the change in adjusted net exports. The estimated historical series for adjusted net exports is shown in Figure E.2B.

[21] Using three-digit level Standard International Trade Classification groups for goods, and balance-of-payments categories for services, the following components can be excluded based on the likelihood that multinational firms dominate exports and imports. For merchandise: contract manufacturing, some chemicals and related products (SITC items 515, 541, 542, 551, and 598), some machinery and transport equipment (752, 759, 776, and 792), and professional, scientific and controlling apparatus (872). For services: insurance, financial services, computer services, royalties/licences, and business services other than R&D and operational leasing. R&D and operational leasing business services are not excluded here as intangibles investments have already been excluded from adjusted imports, and aircraft (792) have been excluded from both adjusted exports and adjusted imports. However, a more granular breakdown for services trade would be necessary to exclude less of the activities of domestic-owned firms in these sectors.

[22] Where nominal series are used, they are converted into volumes using relevant trade deflators.

For adjusted exports over 2001–2019, the elasticities with respect to imports by Ireland's main trading partners and the real effective exchange rate are 0.75 and –0.24, respectively. Taking adjusted imports as a share of final demand, the import content for 2000–2019 has been reasonably stable with an average of 0.27 and a standard deviation of 0.03. A final demand forecast multiplied by 0.27 equates to adjusted imports.

To maintain consistency with the historical GNI* series, the forecast change in adjusted net exports can be added to the previous year's adjusted net exports in GNI*. Applying this to the 2018 GNI* outturns, there are near-identical forecasts to those implied by *SPU 2020* for 2020 and 2021, as shown in Figure E.3A. Compared to the *SPU 2020* forecasts for GDP and GNP, both forecasts of GNI* in 2020 indicate a more severe contraction of around –16 per cent.

In Figure E.3B, the historical relationship between GNI* and a projection based on this methodology is shown. The projection begins in 2001 and uses outturns for underlying domestic demand, the change in stocks, and statistical discrepancy, but applies the change in adjusted exports less adjusted imports. Although the relationship was stronger prior to the global financial crisis, published real GNI* growth rates for 2013–2018 have been volatile. With the exception of 2018, which is an outlier due to weaker adjusted exports—although it is also a reflection of limitations in the methodology, especially with regard to services—the projected series provides a more plausible profile for recent economic growth in Ireland.