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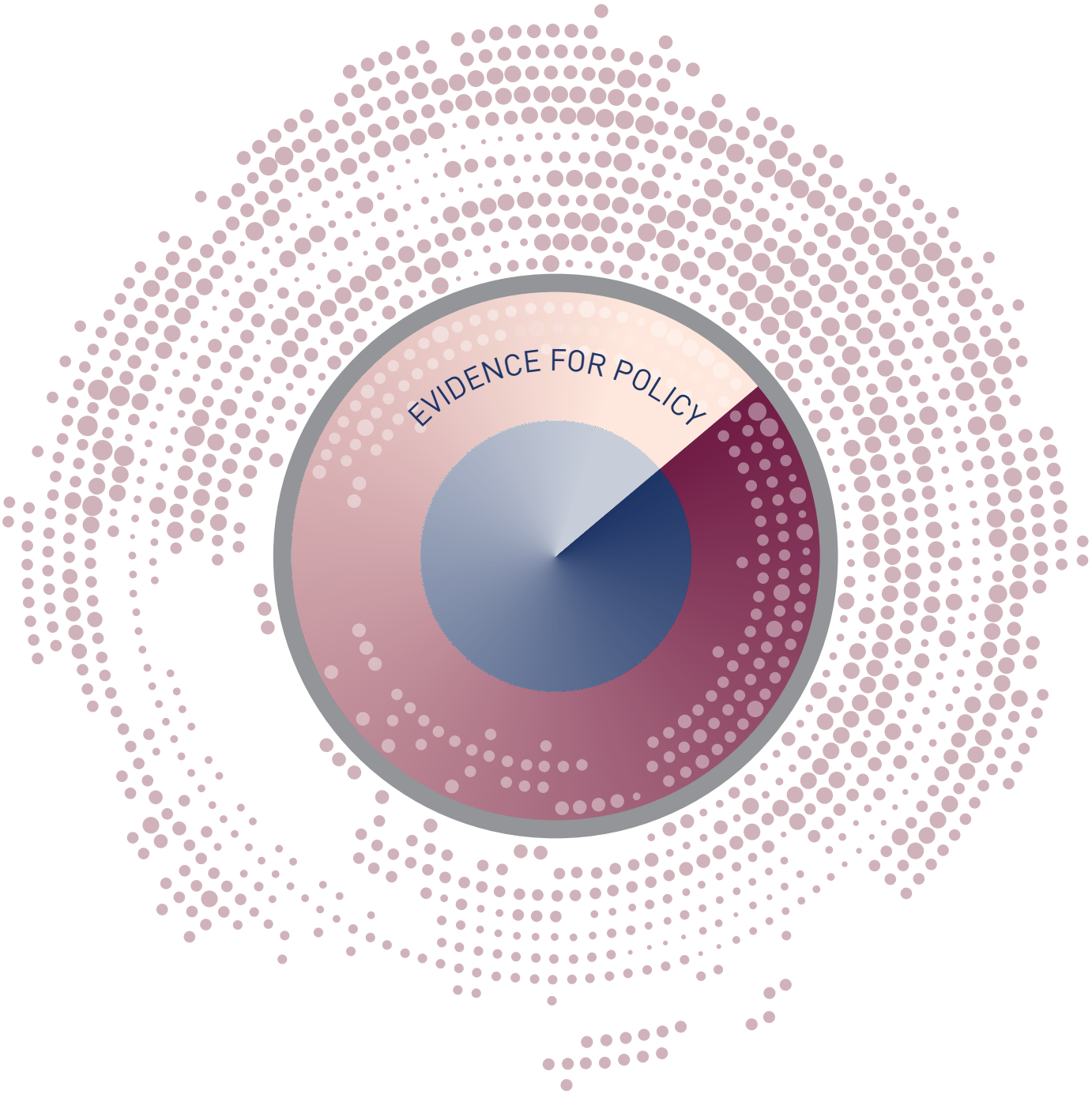
QUARTERLY ECONOMIC COMMENTARY

WINTER 2020

KIERAN MCQUINN, CONOR O'TOOLE, MATTHEW ALLEN-COGHLAN AND CATHAL COFFEY



ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

QUARTERLY ECONOMIC COMMENTARY

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Winter 2020

The forecasts in this *Commentary* are based on data available by 04 December 2020

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Special Articles are published in the *QEC* in order to foster high-quality debate on various aspects of the Irish economy and Irish economic policy. They are subject to refereeing prior to publication.

Research Notes are short papers on focused research issues. They are subject to refereeing prior to publication.

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RESULTS SUMMARY TABLE

	2019	2020	2021 – Deal	2021 – No Deal
Output (Real Annual Growth %)				
Private Consumer Expenditure	3.2	-9.0	11.7	10.7
Public Net Current Expenditure	6.3	9.1	2.0	2.0
Investment	74.8	-13.6	5.8	3.6
Exports	10.5	4.6	6.0	1.0
Imports	32.4	-5.3	8.0	4.1
Gross Domestic Product (GDP)	5.6	3.4	4.9	1.5
Gross National Product (GNP)	3.4	0.3	4.3	1.1
Labour Market				
Employment Levels ('000)	2,322	1,949	2,072	2,059
Unemployment Levels ('000)	121	435	351	363
Unemployment Rate (as % of Labour Force)	5.0	18.4	14.5	15.0
Public Finances				
General Government Balance (€bn)	1.3	-22.6	-18.5	
General Government Balance (% of GDP)	0.4	-6.2	-4.6	

The Irish Economy – Overview

- While COVID-19 continues to exert a contractionary impact on the Irish domestic economy, it is clear that most sectors registered a significant recovery in output in Q3 2020. Consumption and investment witnessed a substantial rebound in activity after the impacts of the general lockdown in Q2 2020 while exports continued to grow through the third quarter.

- The presence of a six-week Level 5 lockdown in Q4 2020 will have a further contractionary impact on domestic sources of growth. However, it is now clear that the Irish economy will register output growth for the present year. We expect GDP to increase by 3.4 per cent in 2020.

- Notwithstanding this somewhat surprising result, the legacy of the COVID-19 shock is still substantial and is likely to impact the domestic economy and labour market for some time. The unemployment rate, which had averaged around 5 per cent at the start of the year, is now set to be 20 per cent by the year end. In a Special Article in this *Commentary*, Doorley et al. (2020) considers the COVID-19 income supports, the impact of Budget 2021 and potential reforms as the impacts of the pandemic unwind.

- For 2021 we assume there will be another six-week Level 5 lockdown in the first half of the year. This follows the easing of Government restrictions for the Christmas period in Q4 2020. However, we also assume that a vaccine is rolled out extensively amongst the general population from Q3 2021 onwards. Therefore, economic activity will be assumed to return to normal during the latter half of 2021. In this case the unemployment rate will average 15 per cent and GDP is expected to increase by 4.9 per cent.

- Our expectation for 2021 is for a Brexit free trade agreement to be operational from January. However, we have also prepared a separate set of forecasts for 2021 where such a deal does not exist. In this case, the growth rate of the domestic economy could drop to 1.5 per cent. Irrespective of whether there is a free trade agreement or not, changes due to Brexit in the new year are likely to result in increases in prices for certain household items.

- Given the increased cost of the pandemic to the public Exchequer, the present *Commentary* devotes a significant amount of attention to fiscal related issues. A Box by Allen-Coghlan and McQuinn examines the sustainability of Irish debt levels under plausible future growth scenarios, while a Special Article by Allen-Coghlan, McQuinn and Varthalitis examines the impact on domestic growth that the ECB can have by alleviating the

financial burden of the crisis for the domestic economy. A second Box by McQuinn discusses the implications for Irish corporation tax receipts of the change in the US political administration.

- Finally, a Research Note in the *Commentary* by Allen-Coghlan and Varthalitis compares and contrasts the impact that the pandemic and the global financial crisis have had on the Irish economy.

The Domestic Economy

OUTPUT

Key Points

- *For 2021 we assume a vaccine is successfully rolled out for the latter half of the year and a Brexit trade deal is in place.*
- *A six-week Level 5 lockdown is also assumed to occur in the first half of 2021.*
- *Overall, Irish GDP is set to increase by 3.4 per cent in the present year and 4.9 per cent in 2021.*
- *If no trade deal exists between the UK and the EU, GDP will grow by 1.5 per cent in 2021.*

Forecast scenarios

The final quarter of the present year has seen two countervailing developments in terms of the ongoing impact of COVID-19; one is the impact of a second or Level 5 lockdown for six weeks in Q4 2020 and the second is the optimism concerning the development of a vaccine for the virus.

We reflect these two developments in our scenario analysis for the Irish economy as follows:

1. For 2020, we conduct one forecast, which now allows for a Level 5 lockdown in the fourth quarter of the year.
2. For 2021 we assume a further six-week Level 5 lockdown in the first half of 2021. However, we then allow for the roll-out of a vaccine for the latter two quarters of the year.
3. The 2021 scenario assumes that a comprehensive trade deal is struck between the United Kingdom and the European Union. However, we also present results if no such agreement is reached. As with the previous *Commentary*, we draw heavily upon the work of Daly and Lawless (2020)[1] and a Box in the Autumn *Commentary* by Bergin et al. (2020).

Overall, 2020 will see the most profound decline in domestic sources of growth for the Irish economy on record. Both consumption and investment are forecast to witness falls of approximately 9 and 14 per cent respectively. Unemployment, which had at the start of year averaged less than 5 per cent, is now set to average

[1] Daly, L. and M. Lawless, 2020. 'Examination of the Sectoral Overlap of Covid-19 and Brexit Shocks', Papers WP677, Economic and Social Research Institute (ESRI).

18 per cent for the year. This constitutes a dramatic reversal of recent Irish economic trends.

However, for 2020, our forecasts now indicate that the Irish economy, in GDP terms, will grow by 3.4 per cent. This upward revision to the GDP forecast is due to the export sector, which has registered an exceptional performance in the present year. As noted in the previous *Commentary*, this has been heavily influenced by a relatively small number of firms in the pharmaceutical and computer services sectors. The severity of the shock to household expenditure and domestic investment activity is closely in line with our previous considerations.

For 2021, following the outcome observed in 2020, a Level 5 lockdown is assumed to occur in the first half of 2021. However, a vaccine is also assumed to be successfully rolled out amongst the general population for the latter half of the year. Despite the presence of the six-week Level 5 lockdown in the first half of 2021, we expect to see a significant recovery in domestic sources of growth with consumption, in particular, registering growth of just under 12 per cent. The export sector is also likely to consolidate its 2020 performance and increase by 6 per cent next year. Overall, this results in output growth of 4.9 per cent in 2021.

Under an alternative scenario, where no deal is reached between the UK and the EU and as a result a WTO arrangement occurs, we follow the analysis in the previous *Commentary* and expect domestic economic growth to be significantly impacted in the short term. As outlined in a Box in the Autumn *Commentary* by Bergin et al., the impact of there being a No-Deal Brexit has significant negative implications for the economy which tend to accumulate over the longer term. Following a similar analysis in the Spring *Commentary* by Economides and McQuinn (2019), our analysis indicates that Irish GDP will only grow by 1.5 per cent in 2021 in the event of a no-deal between the UK and the EU.

DEMAND

Key Points

- *Consumption expenditure rebounded rapidly in Q3 2020 having fallen by over one-fifth in Q2 2020.*
- *Level 5 restrictions in Q4 2020 will limit the recovery in consumption but the moderation is not expected to be as severe as the first lockdown.*
- *With an effective vaccine becoming available in the second half of 2021, a strong recovery in consumption can be expected as households unwind excess savings.*

Household sector consumption

Understanding the trajectory of household spending has become extremely difficult since the onset of the COVID-19 pandemic. Traditionally a relatively stable relationship exists between spending and household incomes and wealth. However, the combination of public health restrictions (limiting expenditure choices), labour market shocks from the economic fallout and other behavioural changes (such as precautionary savings or the avoidance of activities where transmission may occur) pose difficulties in accurately plotting a course for spending at the present time.

Understanding the relative impact of these factors is critical in assessing how spending may evolve in the face of rolling levels of public health measures. A further complicating factor in forecasting consumption patterns is the adaptability of households and firms to use more COVID-friendly purchasing methods such as online and click and collect.[2]

The initial lockdown period, with the strictest public health measures to date, was associated with a fall in consumption in Ireland of over 20 per cent in Q2 2020 year-on-year. When coupled with the fall in Q1 2020, the drop in consumption in Ireland was one of the largest falls in a European context (O'Toole, 2020).[3] However, the resumption of economic activity in the third quarter of 2020 led to a rapid rebound in spending, with consumption down approximately 5.7 per cent year-on-year in Q3 2020. Figure 1 presents the trend in consumption in Ireland. The pronounced drop and recovery in spending is clearly evident.

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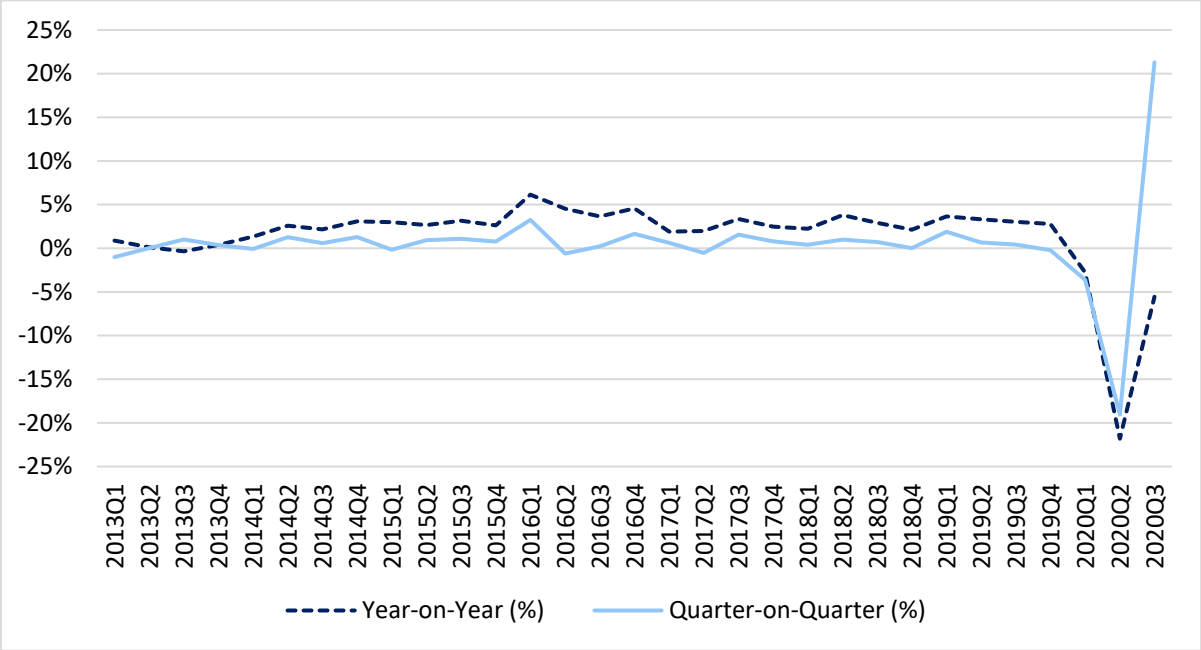
2 Indeed, recent CSO data indicate that in April 2020 online sales as a percentage of turnover increased from circa 6 per cent to just under 20 per cent. While it moderated over the summer period, it has increased from 6.2 per cent in September 2020 to 8.2 per cent in October. The overall level masks higher usage in non-food expenditure.

3 O'Toole C. (2020). 'The lockdown tale of two economies in Ireland: How big tech and pharma bucked the trend', Research Note in *Quarterly Economic Commentary,* Autumn.

FIGURE 1 QUARTERLY PERSONAL CONSUMPTION ON GOODS AND SERVICES – CONSTANT MARKET PRICES AND SEASONALLY-ADJUSTED – GROWTH RATES



Source: Central Statistics Office.

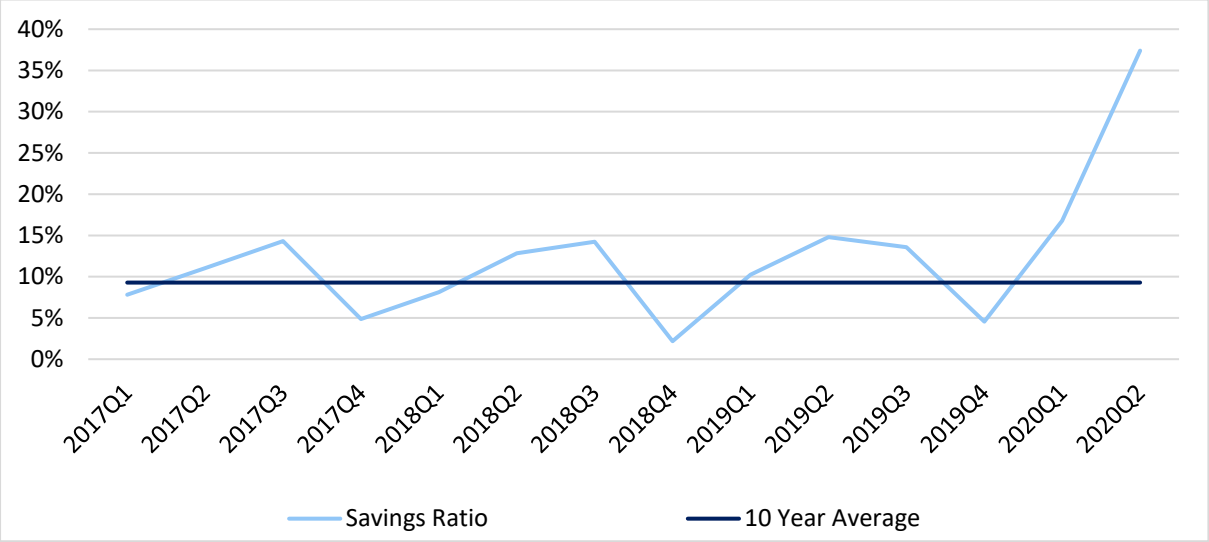
While household spending dropped dramatically in Q2 2020, household incomes did not fall to the same extent (see Beirne et al., 2020[4] and Coffey et al., 2020);[5] this is due to a combination of the new pandemic-related income supports for those becoming unemployed coupled with the fact that many sectors were unaffected by the pandemic. This has led to a major increase in the savings ratio to over 35 per cent in Q2 2020 (Figure 2). The ten-year average rate was just under 10 per cent, which highlights the extraordinary change which occurred in Q2 2020. With public health restrictions limiting the consumption bundle available to households it is not surprising that savings increased markedly. Recent research by FitzGerald (2020)[6] notes the possibility of these savings providing a potential stimulus to the domestic economy when public health restrictions are lifted. Two key issues which arise in that context are; what goods and services will households use these funds for, and at what speed will households consume the excess savings?

4 Beirne K., K. Doorley, M. Regan, B. Roantree and D. Tuda (2020). *The potential costs and distributional effect of COVID-19 related unemployment in Ireland*, Budget Perspectives 2021, Paper 1, April. Economic and Social Research Institute (ESRI).

5 Coffey, C., K. Doorley, C. O'Toole and B. Roantree (2020). *The effect of the COVID 19 pandemic on consumption and indirect tax in Ireland*, ESRI Budget Perspectives 2021, Paper 3.

6 FitzGerald, J. (2020). 'The Effects of Government Policy on Personal Savings', *Quarterly Economic Commentary*, Summer 2020 (ESRI).

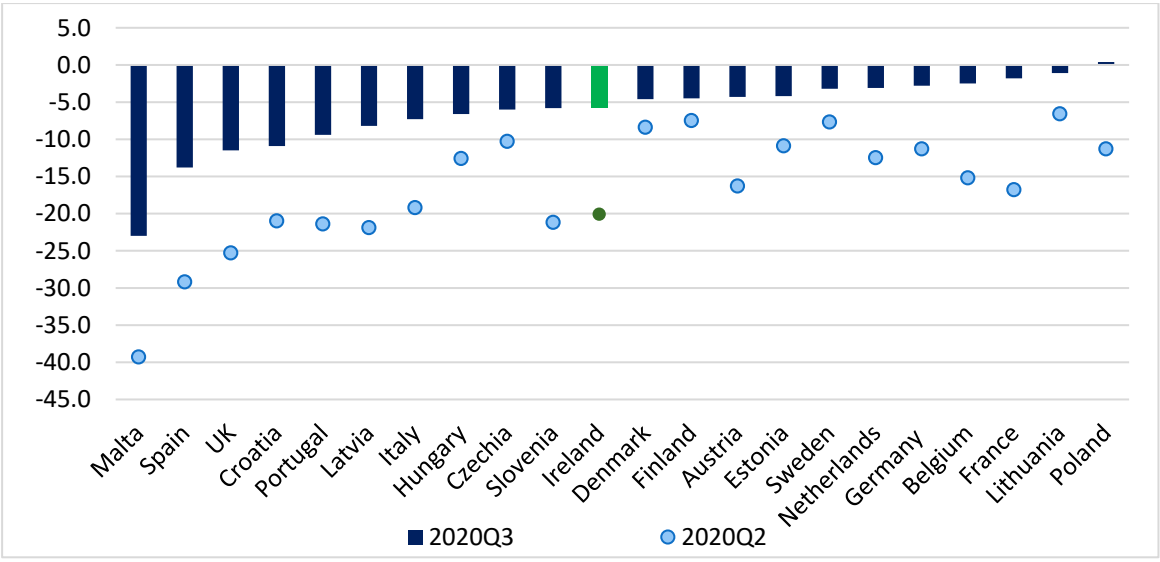
FIGURE 2 EVOLUTION OF THE GROSS SAVINGS RATIO IN IRELAND



Source: Central Statistics Office. Savings rate is calculated as the difference between gross disposable income and final consumption expenditure from the institutional accounts scaled by gross disposable income.

Figure 3 provides some context for the recovery in domestic consumption by presenting the year-on-year changes across Q2 and Q3 2020 for Ireland and selected other European economies. Naturally, the scale of the consumption decline was dependent on the severity of the public health restrictions, the degree to which incomes and the labour market adjusted (and were supported by policy), the severity of the disease outbreak and the relative changes in households' own behaviour. These cross-country data show that the Q3 2020 performance in Ireland was in the mid-range of other European countries.

FIGURE 3 YEAR-ON-YEAR CHANGE IN CONSUMPTION FOR SELECTED EUROPEAN ECONOMIES



Source: ESRI Analysis of Eurostat data. Series: Final consumption expenditure of households, chain linked volumes (2010), seasonally- and calendar-adjusted data.

Despite the rapid and severe decline in expenditure in the first and second quarter, real time indicators of expenditure such as retail sales data demonstrate the sustained and strong recovery as the economy was reopened. Table 1 presents the year-on-year change in retail sales by item for the period March to October 2020. While nearly all spending categories declined between March and May (with the exception of expenditure on food and beverages), a strong rebound is evident from June through until the end of September 2020. The re-introduction of stricter public health measures in October 2020, when the country moved to Level 5 on the Government's Living with COVID-19 plan, likely led to a slowdown in spending. Notwithstanding this, on an annualised basis, expenditure remained higher in October 2020 than in the same period in the previous year.

What is clear from the evidence in relation to the tighter restrictions in October 2020 is that the most recent lockdown is leading to a very different outcome in terms of the composition of retail sales relative to the April-June 2020 period. Indeed, while all non-food items in retail sales experienced a decline in April and May 2020, the second lockdown (as evidenced by October data which cover a period of the Level 5 lockdown) has led to a drop in only certain non-food items such as sales in department stores, clothing and textiles, bars and automotive fuel. The fact that other retail activities such as hardware stores were able to remain open has allowed expenditure in these areas to be maintained. Year-on-year changes in the different items can be seen in Table 1 with the colour coding indicating the magnitude of the decline and the recovery. Three different outcomes can be observed across the different items; sales of food and related products have increased markedly since the pandemic and have remained high; retail sales of entertainment and hospitality activity have been permanently reduced and only experienced a moderate recovery over the summer; and other activities such as expenditure on household equipment and other non-durable consumption items has witnessed almost a complete recovery in sales.

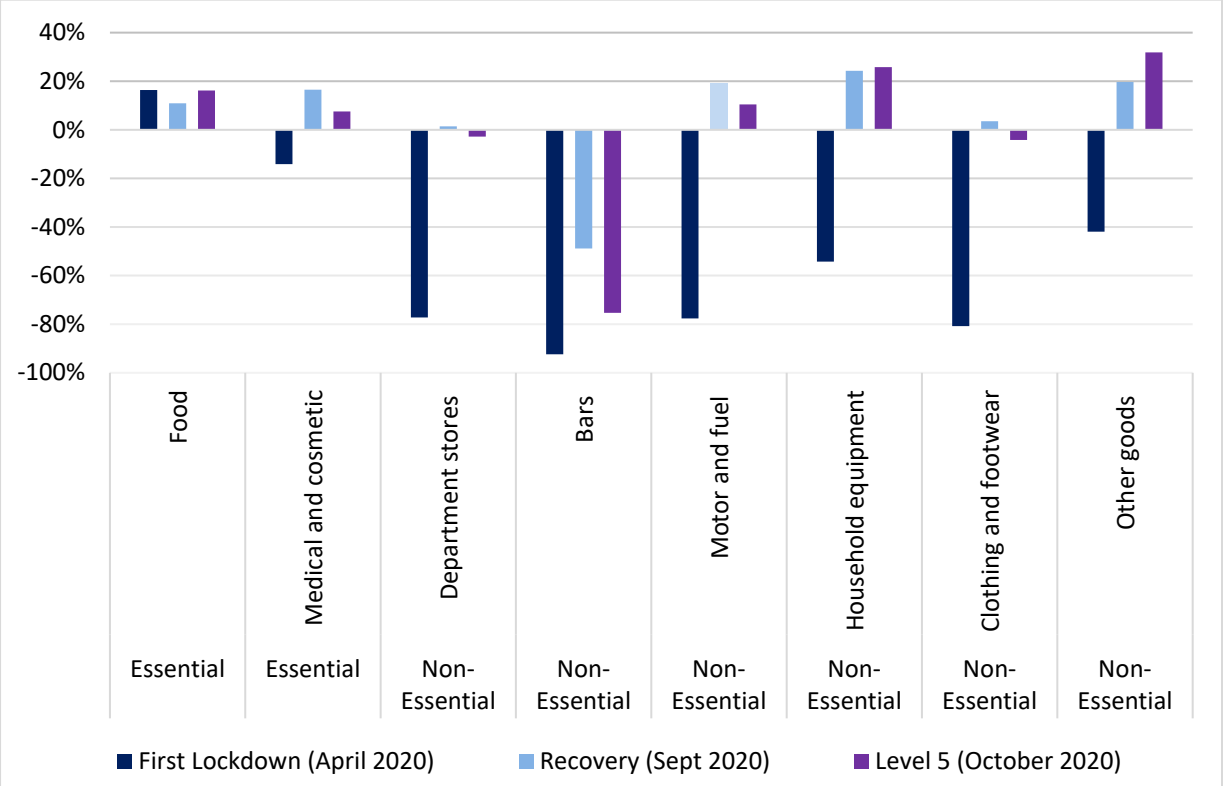
TABLE 1 YEAR-ON-YEAR CHANGES IN RETAIL SALES (SEASONALLY-ADJUSTED VOLUMES) BY MONTH

	March	April	May	June	July	August	Sept	October
Motor trades	-30%	-81%	-50%	4%	15%	14%	18%	6%
Department stores	-28%	-78%	-54%	-15%	-15%	-4%	6%	-3%
Retail sale of automotive fuel	-15%	-50%	-37%	-17%	-11%	-6%	-10%	-21%
Bars	-58%	-92%	-92%	-82%	-48%	-40%	-50%	-75%
All retail businesses	-11%	-44%	-25%	4%	9%	9%	11%	8%
Retail sale of food	18%	17%	17%	16%	10%	10%	11%	16%
Household equipment	12%	-50%	-20%	20%	23%	26%	30%	31%
Textiles, clothing and footwear	-47%	-82%	-79%	-17%	2%	-2%	3%	-7%
Books, stationery and other goods	-5%	-44%	-3%	19%	16%	14%	16%	32%
Medical and cosmetic articles	14%	-15%	-11%	3%	2%	8%	17%	7%

Source: CSO Retail Sales Data.

The differing trends moving through the first lockdown, reopening and then second lockdown can be further highlighted by exploring the peak to trough falls in retail sales in Figure 4. The figures presented are the change relative to February 2020. The trough is in April 2020, the peak is in September 2020 and October is when the Level 5 lockdown was re-introduced. It is clear that while the recovery was broad based, the changing composition of the more recent restrictions has ensured that the drop-off in consumption in October was not as extreme. This may also be due to the increased ability of both households and firms to adapt to the restrictions in addition to the more targeted measures for sectoral closures. However, the lockdown only occurred for part of October, and data for November 2020 – when available – will provide more insight into the Level 5 impacts as these restrictions were in place for the entirety of this month.

FIGURE 4 RECOVERY IN RETAIL SALES ACTIVITY (FALLS RELATIVE TO FEBRUARY 2020)



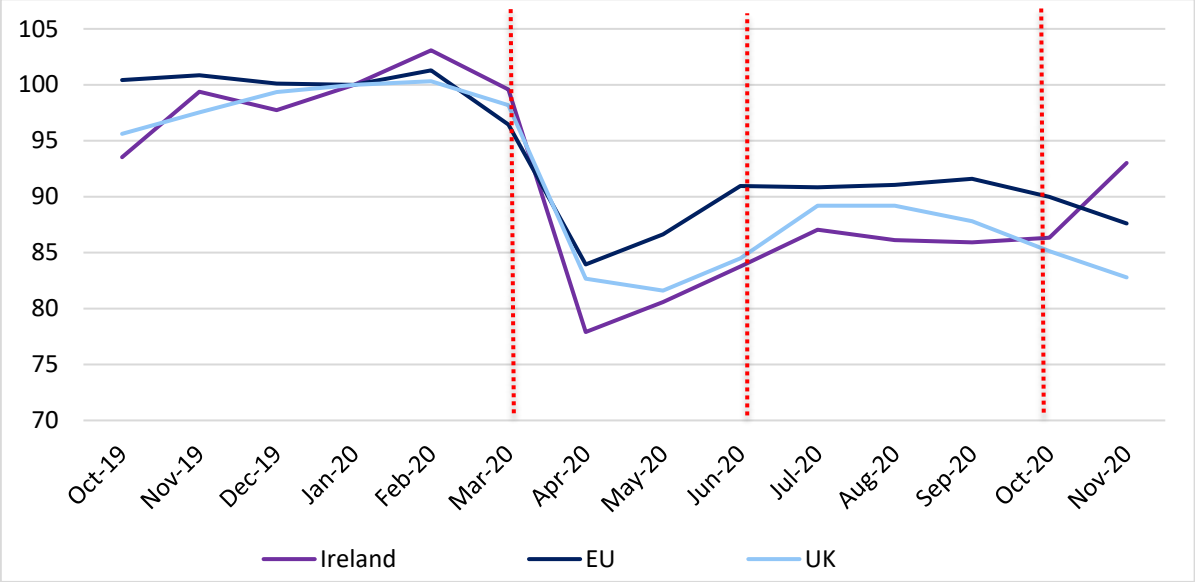
Source: ESRI Analysis of CSO Retail Sales Data. Seasonally-adjusted volumes data used.

To provide further insight into the determinants of consumer spending for 2020, we explore recent trends in consumer sentiment. The figures below provide trends in consumer sentiment for Ireland, the UK and the EU27 for the period July 2019 to November 2020. The index takes the value of 100 in January 2020. The onset of the pandemic is associated with a rapid and extensive drop in consumer confidence as households were subject to the restrictions and the associated economic shocks. Relative to the rest of the EU and the UK, the fall in consumer confidence in Ireland

was greater (relative to January 2020) and the recovery has been considerably more muted. Indeed, consumer confidence in August 2020 dipped below the July level which likely reflects the increased public discourse concerning the pick-up in infections observed from August onwards.

The beginning of the second wave of infections and associated restrictions at the end of September/beginning of October 2020 saw sentiment dip back in other countries. Remarkably, Irish sentiment rose dramatically in November which is somewhat surprising given the imposition of Level 5 restrictions.

FIGURE 5 CONSUMER SENTIMENT INDICATORS: IRELAND, UK AND REST OF EU (JANUARY 2020 = 100)



Source: European Commission data and ESRI calculation.
Note: The positive/negative balances from the EU COF series are transformed by adding 100. We then set the base to 100 in January 2020 with growth relative to this point i.e. ((Yt/YJan2010) -1)*100.

Consumption forecasts

In order to provide a 'bottom up' figure for consumption for the fourth quarter of 2020 which reflects the trend in expenditure and consumer sentiment documented above, we follow a similar approach to that developed in Coffey et al. (2020) and McQuinn et al. (2020) and link the consumer spending activity at an itemised level mainly to developments in the CSO retail sales data and the Central Bank credit card data. Selected other data sources including the Household Budget Survey are also used in the process.[7] This leads us to expect a year-on-year change in consumption for 2020 of -9 per cent.

[7] More details on the methodology are available on request. The data used run up to the end of October 2020.

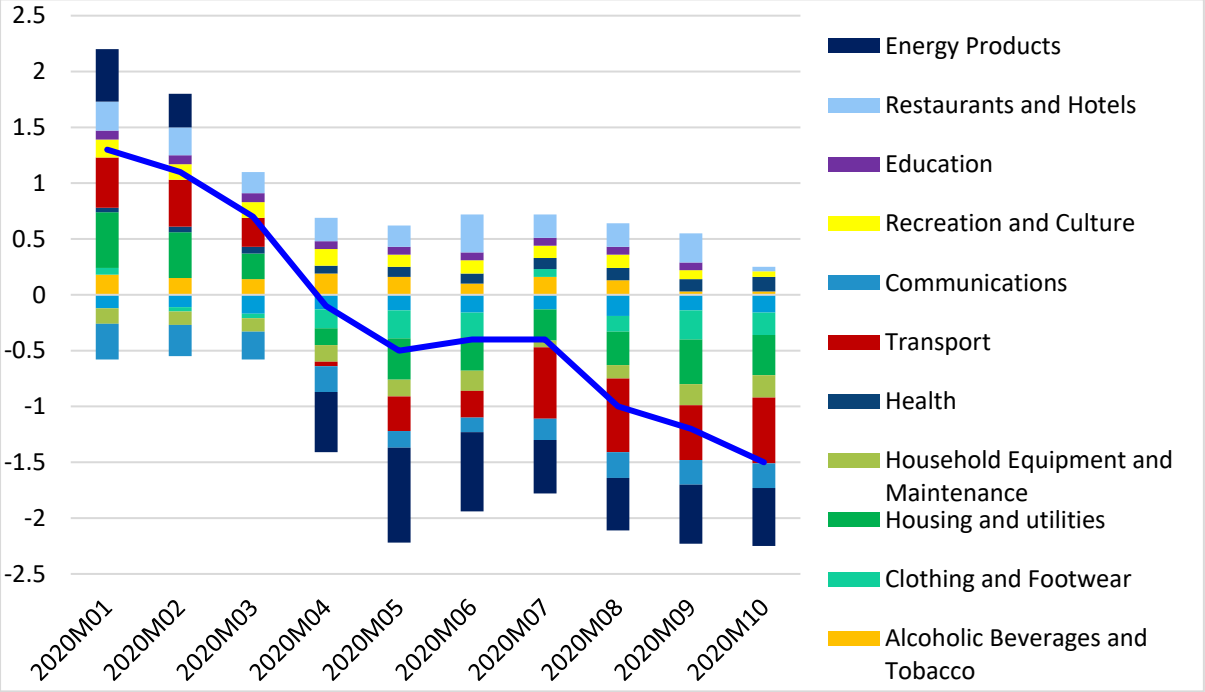
Plotting the trajectory for 2021 is more challenging given the ongoing uncertainty around the level of infections and lockdown severity that may be required ahead of any widespread roll-out of the vaccine. Our baseline assumption is that a six-week period of strict public health measures will be required at some stage during the first half of 2020. We then assume a broad-based recovery in the third and fourth quarters of next year on the assumption that an effective vaccine is distributed broadly in the population. In this scenario, incomes grow modestly through next year and households adjust their savings rate downwards, particularly over the latter half of the year. We assume a drop in the savings rate to 15 per cent in Q3 and 12.5 per cent in Q4. This results in consumption growth rate for next year of approximately 11.7 per cent. In the event of a No-Deal Brexit, we follow Bergin et al. (2019)[8] and assume that the level of consumption will be 0.9 percentage points lower than if a deal were to exist. Our consumption forecast under a no-deal is therefore 10.7 per cent.

Developments in consumer prices

Since the onset of the pandemic there has been a consistent drop in consumer prices. At the outset of the pandemic, it was uncertain as to whether prices would rise due to the likely supply-side shocks of the pandemic or fall due to a likely reduction in consumer demand. The year-on-year change in the Consumer Price Index is -0.2 per cent on average for the first ten months of 2020. Figure 6 displays the trend in the overall (all items) CPI inflation rate and the contribution to the change made by the main subcomponents. It is clear a marked downward trend in inflation occurred concurrent with the pandemic. The inflation rate was -1.5 per cent in October 2020. The main items putting downward pressure on prices were transport prices, energy costs, housing and utilities. It therefore appears that overall, in terms of the impact on consumer prices, demand shocks have predominated over supply-side shocks to date. However, these effects may change as the economy recovers.

8 Bergin, A., P. Economides, A. Garcia-Rodriguez and G. Murphy (2019). 'Ireland and Brexit: modelling the impact of deal and no-deal scenarios', *Quarterly Economic Commentary*: Special Articles.

FIGURE 6 CONSUMER PRICE INFLATION: CONTRIBUTION TO CHANGE IN CPI BY COMPONENT: YEAR-ON-YEAR % CHANGE



Source: CSO and ESRI calculations.

Looking forward to 2021, the impact of Brexit on consumer prices is likely regardless of whether a deal or no-deal outcome occurs, in particular through the food products that are imported from the UK. Previous research by Lawless (2018)[9] suggests that a hard Brexit would increase the cost of living for all households in Ireland by between 2-3 per cent. The increase would be greater for lower income households due to the higher share of food products in their expenditure basket. However, the rise in prices is likely to be affected by exchange rate movements between the euro and sterling; a rise in the euro vis-à-vis sterling would make UK imports cheaper and may offset product inflation due to tariff or non-tariff cost frictions. The exchange rate effects have been considered in a Box in a previous *Commentary*, (Box 1 'Exchange rate pass-through – EUR/GBP' in McQuinn et al., Autumn 2019).

[9] Lawless, M. and E. Morgenroth (2018). 'Brexit and Irish Consumers', *Quarterly Economic Commentary*: Special Articles.

TRADED SECTOR

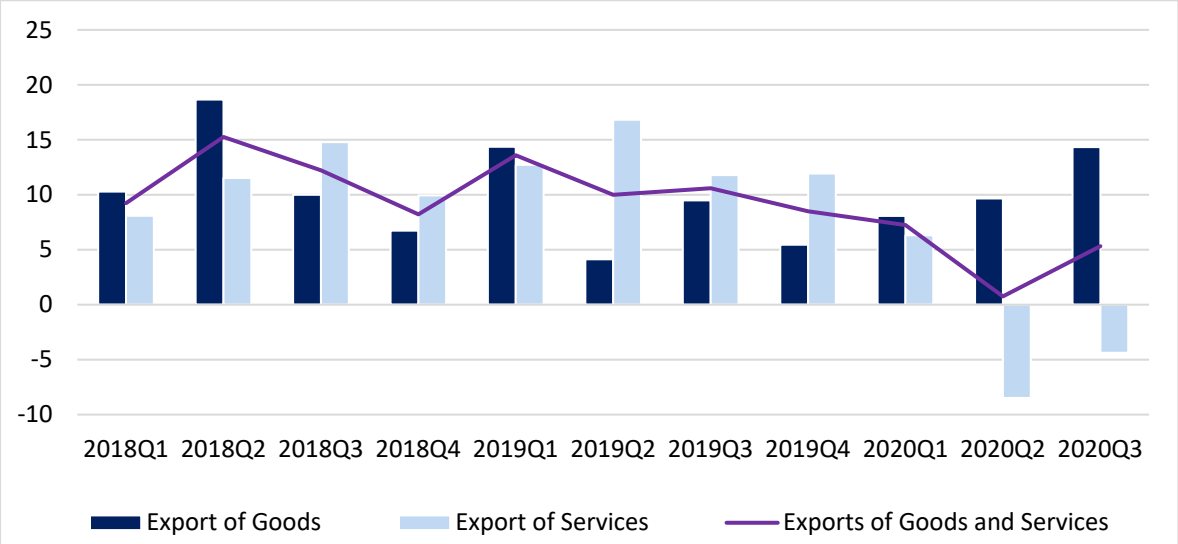
Key Points

- *Exports continued to grow strongly in Q3 2020 following robust growth in the previous quarter.*
- *The main drivers of export growth have been medicinal and pharmaceutical goods and ICT which have grown strongly throughout the pandemic.*
- *Irish exports are forecast to register strong growth in 2021 as the economies of our main trading partners recover next year.*
- *However, this growth would be significantly hampered by a No-Deal Brexit.*

The robust performance of the Irish traded sector was the reason why Irish GDP declined by less than most other European economies in Q2 2020. Despite the adverse impact of the pandemic on the economies of our main trading partners over this period, the volume of Irish exports continued to grow, increasing by 0.8 per cent in the second quarter compared to the same period the previous year. This was driven by strong growth in Irish goods exports which increased by 9.7 per cent.

The resilience of the traded sector has again been evidenced in Q3 2020 with exports increasing by 5.3 per cent annually. Again, this was driven by the strong growth of goods exports which increased by 14.3 per cent. Though annual growth in services exports remained negative, the magnitude of the decline improved to -4.4 per cent in Q3 from -8.5 per cent in Q2.

FIGURE 7 SEASONALLY-ADJUSTED EXPORTS: YEAR-ON-YEAR GROWTH (VOLUME, %)

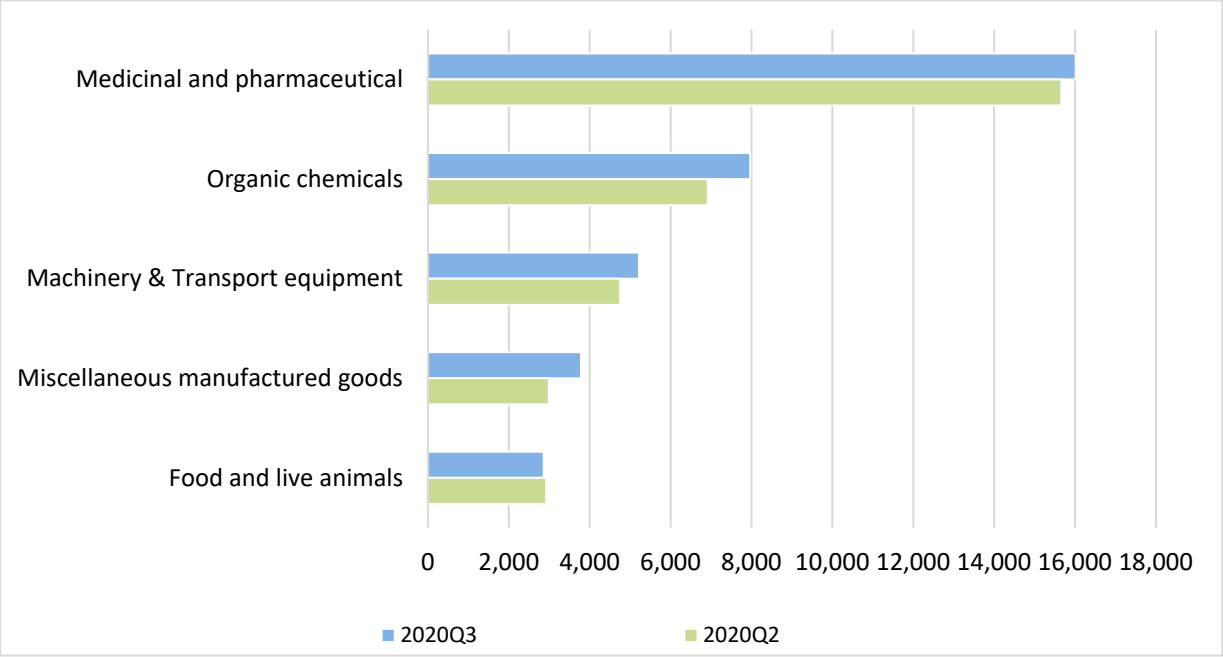


Source: Central Statistics Office.

O'Toole (2020) highlighted that one of the primary reasons for the robustness of Irish exports in Q2 2020 was the strong performance of medicinal and pharmaceutical products which account for the largest share of goods exports. Figure 8 shows that exports of this commodity group have continued to increase in Q3, up by 2.3 per cent compared to the previous quarter and 17.8 per cent compared to Q3 2019. While the strong growth of this commodity sector is undoubtedly a positive for the Irish economy, the fact that this sector is dominated by a small number of multinational corporations means that the Irish economy as a whole is particularly vulnerable to the individual performance of a relatively small number of companies.

However, unlike in Q2 the strong export growth in Q3 appears to be broader based with exports across a range of commodity groups increasing over the period. Between Q2 and Q3 the three next largest groups of goods exports, Organic chemicals, Machinery and transport equipment, and Miscellaneous manufactured goods each grew by 15.2, 9.7 and 26.6 per cent respectively.

FIGURE 8 MERCHANDISE EXPORTS BY COMMODITY GROUP (VALUE, € MILLION)



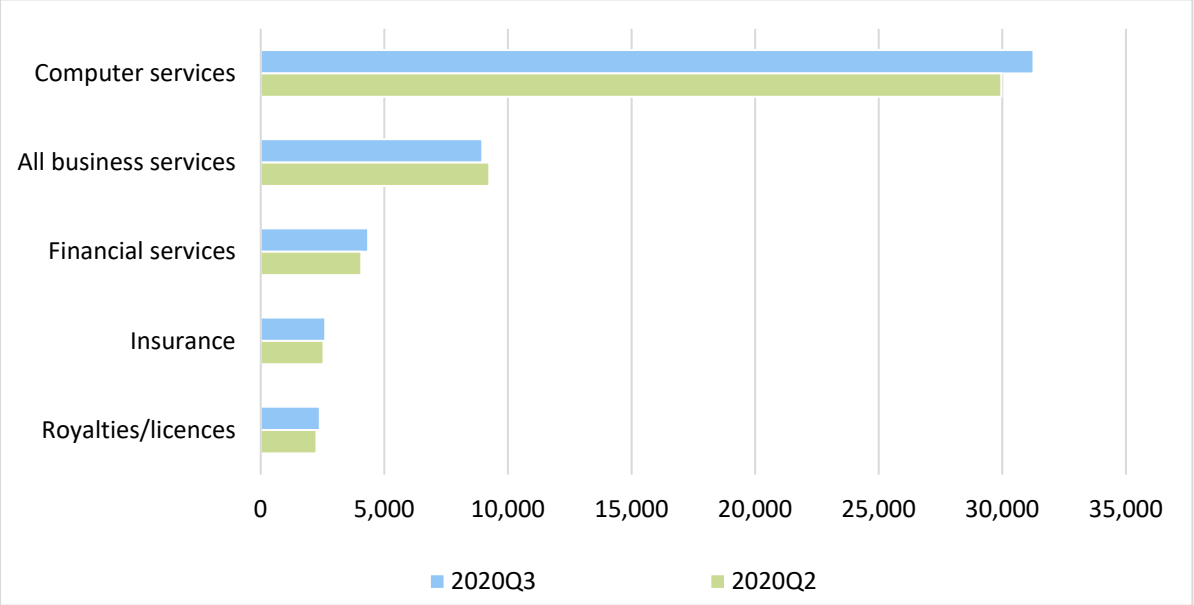
Source: Central Statistics Office.

While service exports, as a whole, declined over the third quarter, the largest component of service exports recorded further growth. Computer services, which accounted for 53 per cent of total service exports in 2019, grew by 4.3 per cent in Q3 compared to Q2 and 9.9 per cent compared to the same period the previous year. As shown in Figure 9 the performance of service exports is largely determined

by the performance of the computer services sector. Like the pharmaceutical sector, the computer services sector in Ireland is highly concentrated. This exposes the Irish economy to considerable company-specific idiosyncratic risk.

While business services declined by 3.1 per cent in Q3 relative to Q2, the next three largest service export components registered positive growth. Financial services, Insurance and Royalties/Licenses each increased by 6.9, 2.6 and 6.1 per cent respectively.

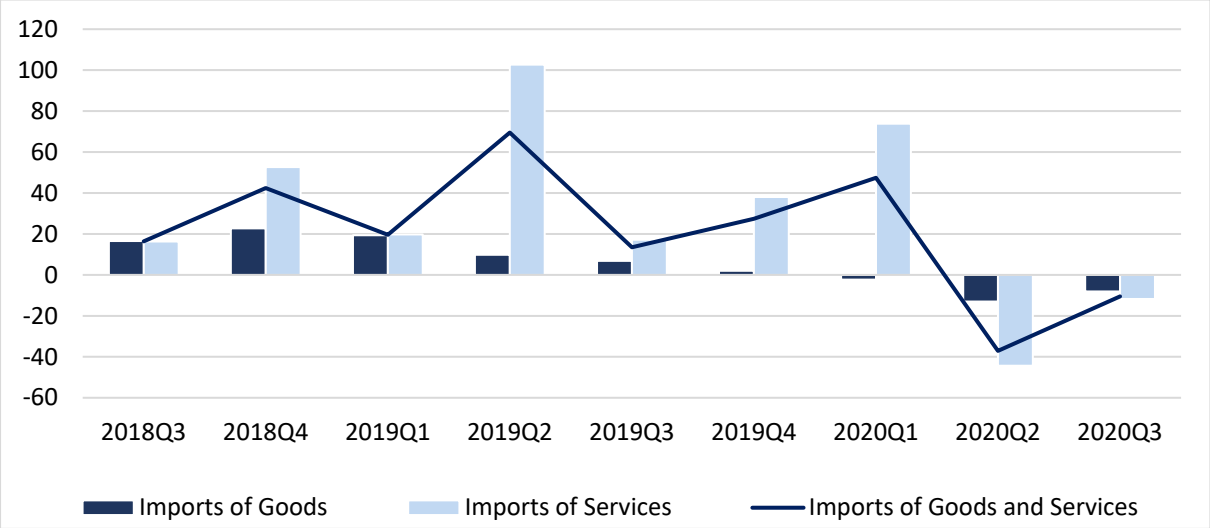
FIGURE 9 SERVICE EXPORTS BY COMPONENT (VALUE, € MILLION)



Source: Central Statistics Office.

Figure 10 shows that annual import growth remained negative in Q3 2020 as imports of both goods and services declined over the period. Compared to Q3 2019 imports were down by 10.5 per cent, with goods imports declining 8.1 per cent and services declining by 11.7 per cent. Although the magnitudes of these declines are significantly lower than Q2, it is likely that the importation of intellectual property and aircraft related to leasing were distorting the data over this period.

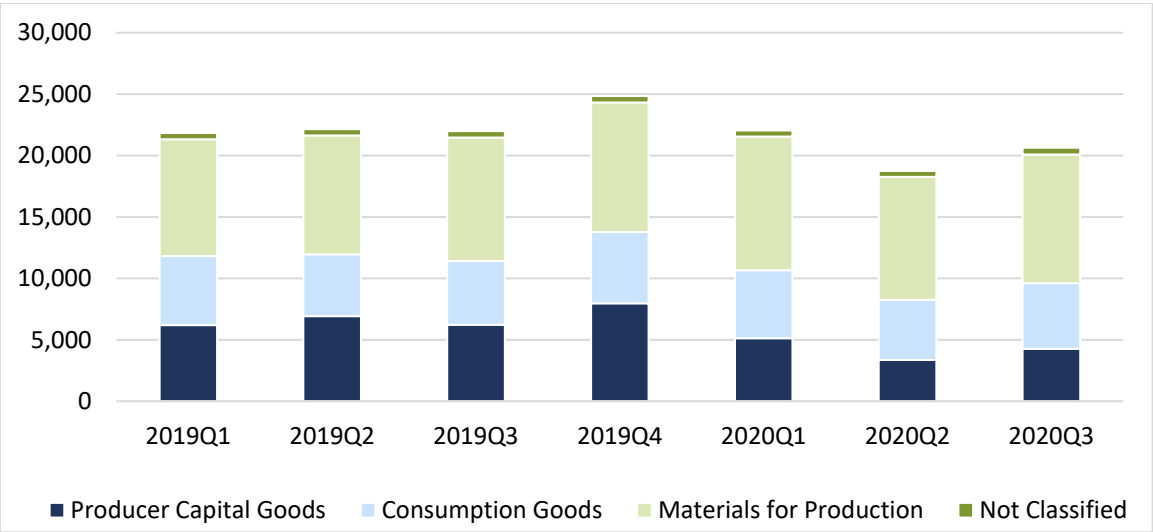
FIGURE 10 SEASONALLY-ADJUSTED IMPORTS: YEAR-ON-YEAR GROWTH (VOLUME, %)



Source: Central Statistics Office.

Figure 11 shows merchandise imports by main use. In Q3 2020 the majority of merchandise imports fell under the category of materials for production (goods that are imported for use in the production process of Irish firms). Despite declines in economic activity over the second quarter of this year, imports of this category of goods continued to grow by 3.3 per cent. This positive growth trend continued into Q3, increasing by 4.1 per cent year-on-year. This may be related to the strong performance of goods exports over the same period with these imports necessary for increased production. The largest decline in merchandise imports over this period has been in producer capital goods which declined by 51.5 per cent in Q2 and 31.4 per cent in Q3. This reflects the fall in investment by Irish firms over this period. The annual growth in consumption goods also fell in Q2, down by 2.8 per cent but in Q3 these imports grew positively by 3.0 per cent.

FIGURE 11 MERCHANDISE IMPORTS BY MAIN USE (VALUE, € MILLION)

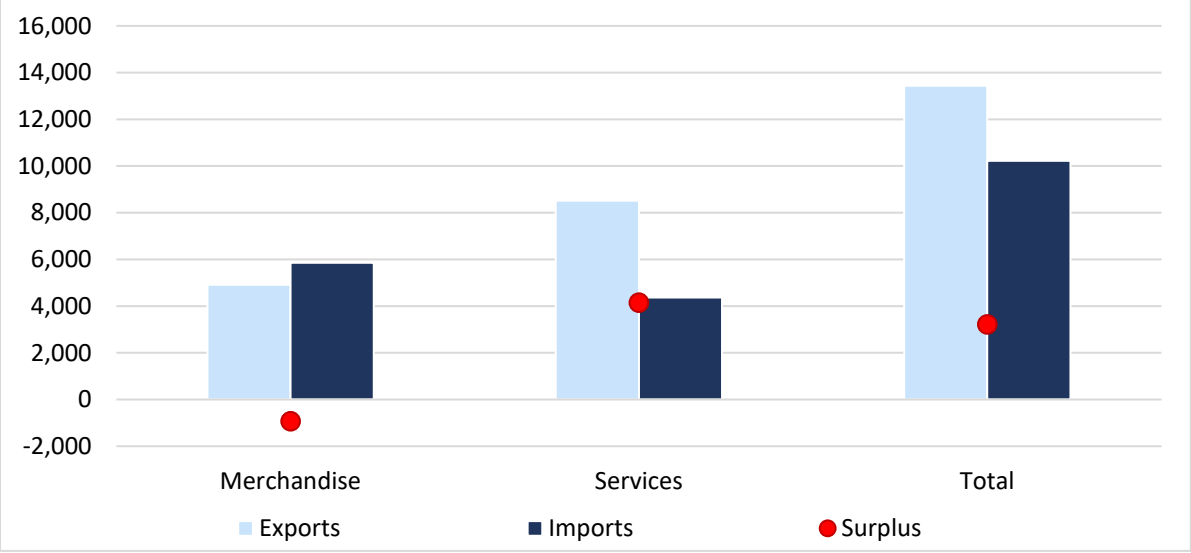


Source: Central Statistics Office.

At the time of writing the EU and UK remain locked in negotiations about a future trade deal post the current transition period. The outcome of these negotiations will have significant repercussions for bilateral trade between Ireland and the UK. Work by Lawless and Morgenroth (2019)[10] estimates the impact of a no trade deal Brexit on the bilateral trade flows between the UK and EU Member States. In their analysis, in which they apply WTO tariffs to trade between the UK and EU, they estimated that Irish goods exports to the UK could decline by 31 per cent (4 per cent of total Irish exports) in the event of a no-deal, while imports from the UK could decline by 28 per cent (1.5 per cent of total imports). These results were based on the increase in tariffs that would result from a no-deal outcome. However, additional factors such as administrative and legal issues that would also result from a no-deal would also act as a barrier to trade between the two countries.

Figure 12 shows Irish trade with the UK in Q2 2020. Over this period the value of merchandise imports from the UK was greater than exports resulting in a trade deficit of €0.9 billion. Exports of services to the UK were greater than imports resulting in a surplus of €4.1 billion. Overall, Irish exports to the UK were greater than imports resulting in a trade surplus of €3.2 billion.

FIGURE 12 TRADE WITH THE UK IN Q3 2020 (VALUE, € MILLION)



Source: Central Statistics Office.

[10] Lawless, M. and E.L.W. Morgenroth (2019). 'The product and sector level impact of a hard Brexit across the EU', *Contemporary Social Science*, 14:2, 189-207, DOI: 10.1080/21582041.2018.1558276.

The strong performance of exports witnessed in Q3 is expected to continue into Q4 of this year. As a result, total exports for 2020 are expected to increase by 4.6 per cent for the year. As the vaccine is rolled out globally next year and the economies of Ireland's largest trading partners are expected to record positive growth, Irish exports should continue to grow positively. As a result, export growth for 2021 is forecast at 6.0 per cent. However, significant downside risk remains in place for next year in the form of Brexit and weaker than expected recovery in international demand.

On the back of declining imports over the first three quarters of 2020, total imports for the year are expected to decline by 5.3 per cent. As exports, investment and consumption all pick up next year, imports are also forecast to increase up to 8.0 per cent for 2021.

If a no trade deal outcome were to prevail between the United Kingdom and the European Union, we again follow Bergin et al. (2019) and assume that the level of exports and imports would be 5 and 4 percentage points lower than would otherwise be the case. In that scenario, exports would increase by 1 per cent in 2021, while imports would grow by 4 per cent.

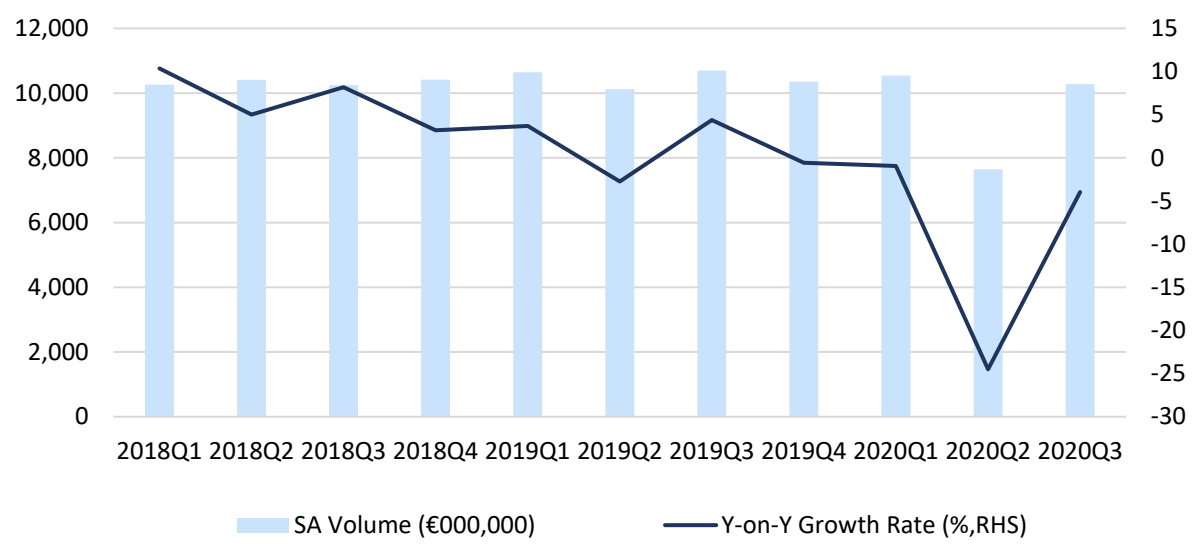
INVESTMENT

Key Points

- *Modified investment declined by 4.0 per cent annually in Q3 compared to -24.5 per cent in Q2.*
- *We expect approximately 18,500 housing completions in 2020 and 19,500 in 2021.*
- *Investment forecast to decline by 13.6 per cent in 2020 and grow by 5.8 per cent in 2021.*

Overall gross domestic fixed capital formation (GDFCF) declined by 13.0 per cent in Q3 2020 compared to the same period the previous year. While this decline in investment is significant, it is substantially less than the 70.6 per cent decline in GDFCF in Q2. However, given the well-publicised distortionary impact that investment in intellectual property and aircraft leasing can have on GDFCF, in Figure 13 we show modified GDFCF. This measure of investment explicitly excludes both of these distortionary items and provides a better gauge of underlying trends in national investment.[11] During Q2 2020, when the country was in the strictest phase of lockdown, modified GDFCF declined by 24.5 per cent compared to the same period the previous year. This growth rate picked up significantly in Q3 with the year-on-year rate increasing to -4.0 per cent. Over this period, building and construction activity declined by 12.1 per cent year-on-year, which was an improvement from the 33.8 per cent decline in Q2.

FIGURE 13 MODIFIED GROSS DOMESTIC FIXED CAPITAL FORMATION

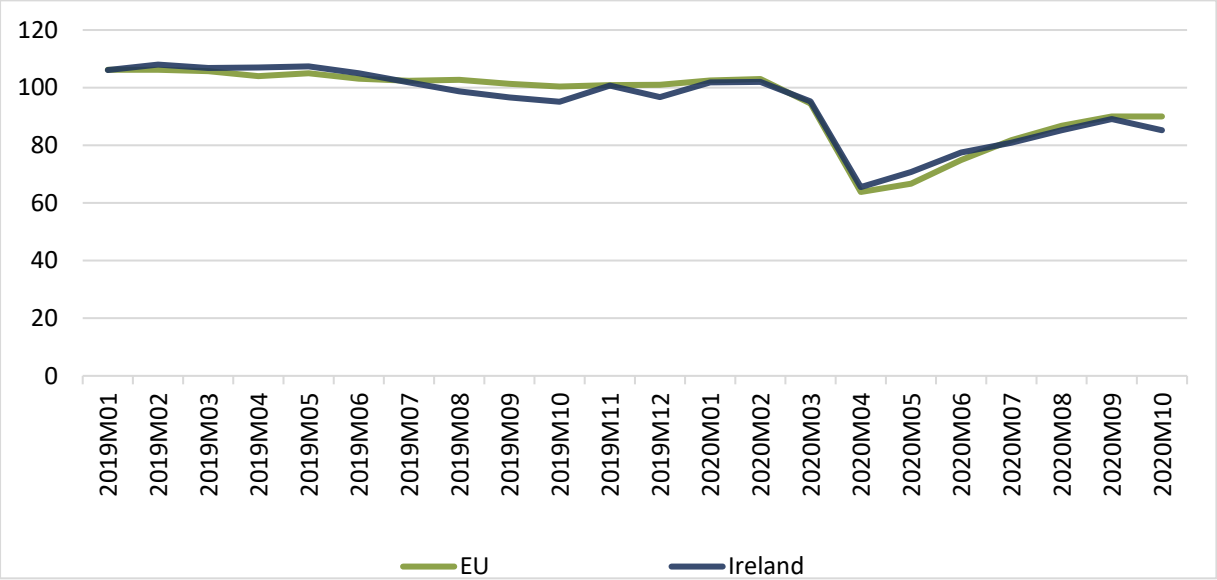


Source: Central Statistics Office.

[11] For more detail on these distortionary effects see: https://www.cso.ie/en/media/csoie/newsevents/documents/seminars/globalisationinireland/Aircraft_and_Intellectual_Property_in_our_Economic_Accounts_-_Christopher_Sibley,_CSO.pdf.

To gain insight into how business confidence has been impacted by the pandemic this year, we draw on the European Commission's Economic Sentiment Indicator. This is a weighted composite index which is made up of five sectors; industry (40 per cent), services (30 per cent), consumers (20 per cent), retail (5 per cent) and construction (5 per cent). Figure 14 shows that the index for Ireland declined steeply in March and April as the first lockdown was put in place. As the restrictions were gradually rolled back, sentiment began to increase, reaching its highest level in September relative to the prior six months. However, the most recent data for October indicate that confidence has started to decline again, coinciding with the stricter lockdown measures that were put in place during this month. Due to the long-term nature of capital expenditure, a decline in sentiment is likely to correspond with a decline in investment spending.

FIGURE 14 ECONOMIC SENTIMENT INDICATOR



Source: European Commission.

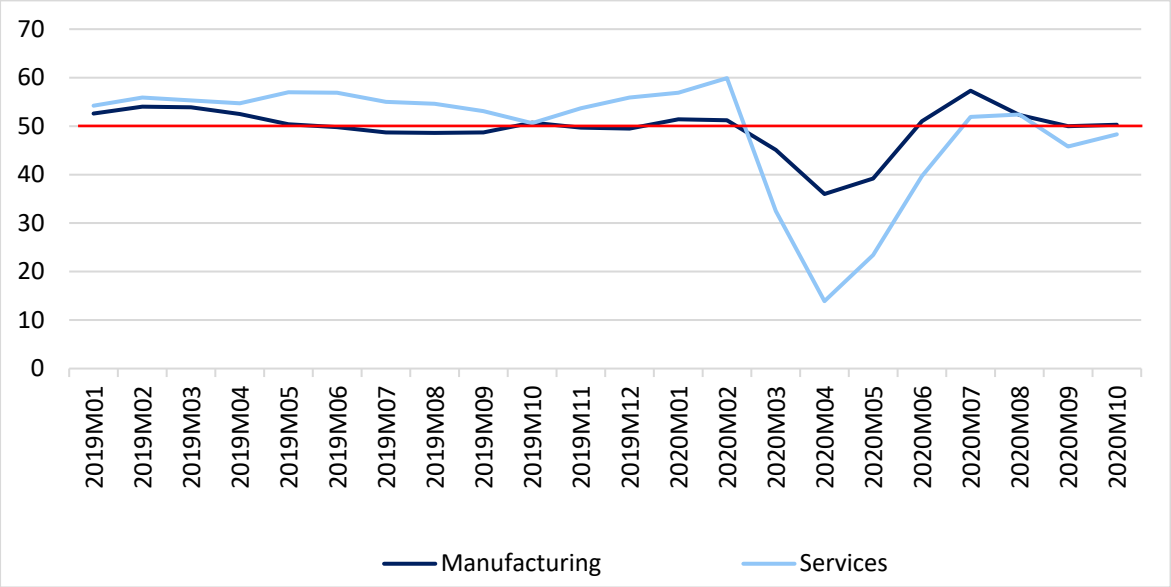
Figure 15 shows the Purchasing Managers Index (PMI) for both the manufacturing and services sectors. This Index is based on a monthly survey of senior executives at private market companies across five fields, namely, supplier deliveries, inventories, order backlogs, new orders and employment levels. The indices give an indication of underlying business conditions and sentiment in a particular sector. An index value over 50 indicates an expansion in the sector relative to the previous month, while a value below 50 indicates a contraction.

The steeper decline in the services index relative to manufacturing in Q2 indicates that this sector of the economy was more negatively impacted by the initial lockdown introduced in March. While the manufacturing index declined by 30 per

cent in April relative to February, the index for services declined by 77 per cent. The services sector also took longer to recover, with the index not increasing above 50 until July in comparison to June for the manufacturing sector.

With the re-introduction of stricter lockdown restrictions in September/October, it is the services sector which again has fared worse in terms of the PMI. In both months, the index has been below 50 indicating a contraction on the previous month while the manufacturing sector has maintained expansion. The larger impact on the services sector reflects the difficulty for firms in this sector reaching their consumers when the administrative closures are in place. In contrast, under most phases of the public health restrictions, manufacturing firms can continue to produce and sell goods to consumers albeit at a reduced capacity.

FIGURE 15 PURCHASING MANAGERS INDEX



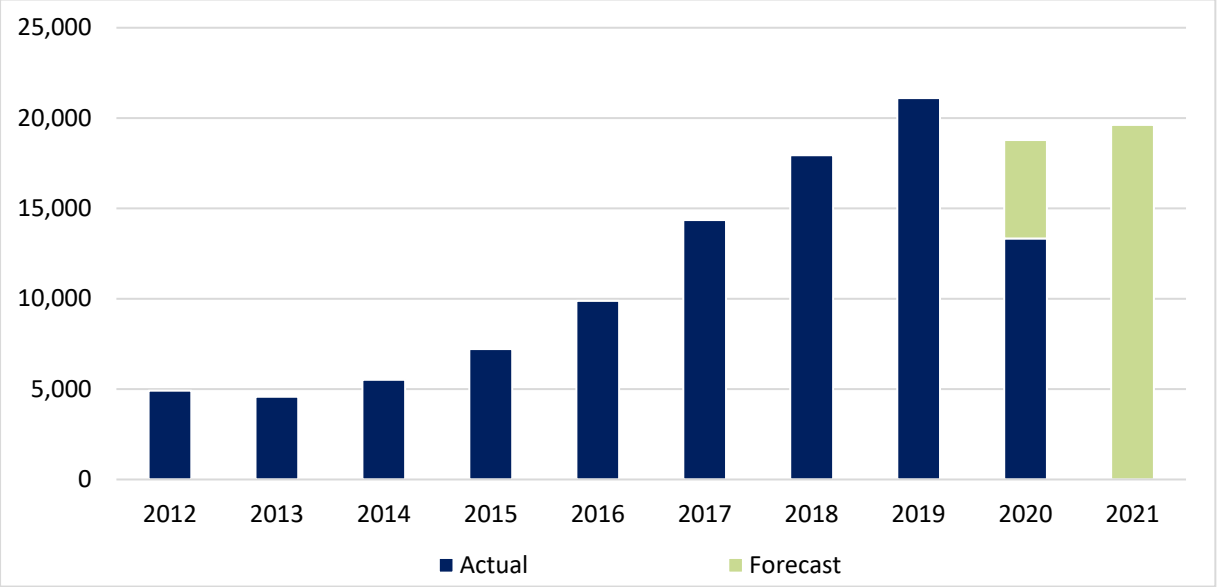
Source: Central Statistics Office.

Housing completions

In Q3 2020 there were 5,118 new residential completions, a 9.4 per cent decline on the same period the previous year. While any decline in housing completions is unwelcome given the ongoing issue of undersupply in the market, the scale of the decline is significantly less than that experienced in Q2 when the initial lockdown restrictions were in place. For six weeks over this period all work on construction sites was prohibited as part of the administrative restrictions. As a result, there were just 3,247 completions in the country in Q2 2020, a decline of 32.6 per cent on the same quarter the previous year. However, the 'Level 5' lockdown restrictions brought in October deemed construction work as being an essential service, with work continuing on residential sites. While construction work can continue under these restrictions, the COVID-related health protocols are likely to

have an adverse impact on housing supply as they likely reduce the level of efficiency on construction sites. Given the reduced level of activity throughout the year, we now forecast there will be just over 18,500 new completions in 2020.

FIGURE 16 HOUSING COMPLETIONS

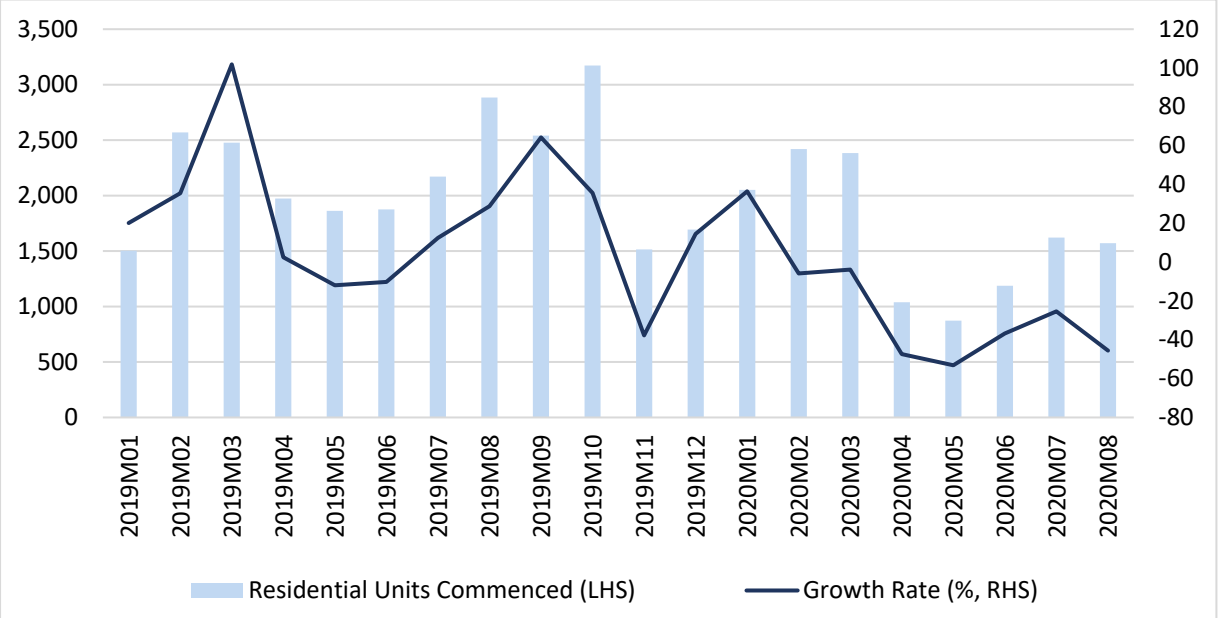


Source: Central Statistics Office.

In the event of a vaccine becoming widely available in the country next year it is likely that there will be a significant reduction in both unemployment and uncertainty. As noted in Allen-Coghlan et al. (2020),[12] this may result in significant upward pressure on housing demand through the latter part of 2021. While changes in the demand side of the housing market are likely to occur quite quickly, Allen-Coghlan et al. (2020) argue the impact on the supply side of the market will likely take longer to pass through. Initial evidence of this can be observed in the residential commencements data (Figure 17) which show that since the initial lockdown was brought in in March there has been a marked decline in the number of new commencements. Over this period the annual growth rate of residential commencements has been in negative territory, with the most recent data for August showing the number of new commencements is down by 45 per cent relative to the same period the previous year. In light of this slowdown, our forecast for the number of new completions has been modified downwards for 2021 and we now expect there to be 19,600 completions in 2021.

12 Allen-Coghlan, M., K. McQuinn and C. O'Toole (2020). 'Assessing the impacts of COVID-19 on the Irish property market: An overview of the issues' *Quarterly Economic Commentary,* Autumn: Special Articles.

FIGURE 17 RESIDENTIAL COMMENCEMENTS



Source: Housing Agency.

In light of the stricter lockdown restrictions that were put in place in October of this year, investment activity is expected to decline in Q4 relative to Q3. As a result of this and the decline in investment we have seen over the first three quarters of the year, total investment for 2020 is expected to fall by 13.6 per cent. Our underlying assumption for next year is that public health restrictions will remain in place through the first half of the year. This includes the implementation of a strict lockdown for six weeks akin to that which was in place over October/November. As a result, business sentiment is expected to remain low over the first half of next year and a significant number of firms will be forced to cease trading. However, our second assumption for next year is that a vaccine will be widely available over the second half of 2020 and as a result investment is expected to improve dramatically over this latter period. As a result, we expect investment to grow by 5.8 per cent in 2021. Under a no-deal arrangement between the EU and the UK, we believe investment would increase at the lower rate of 3.6 per cent.

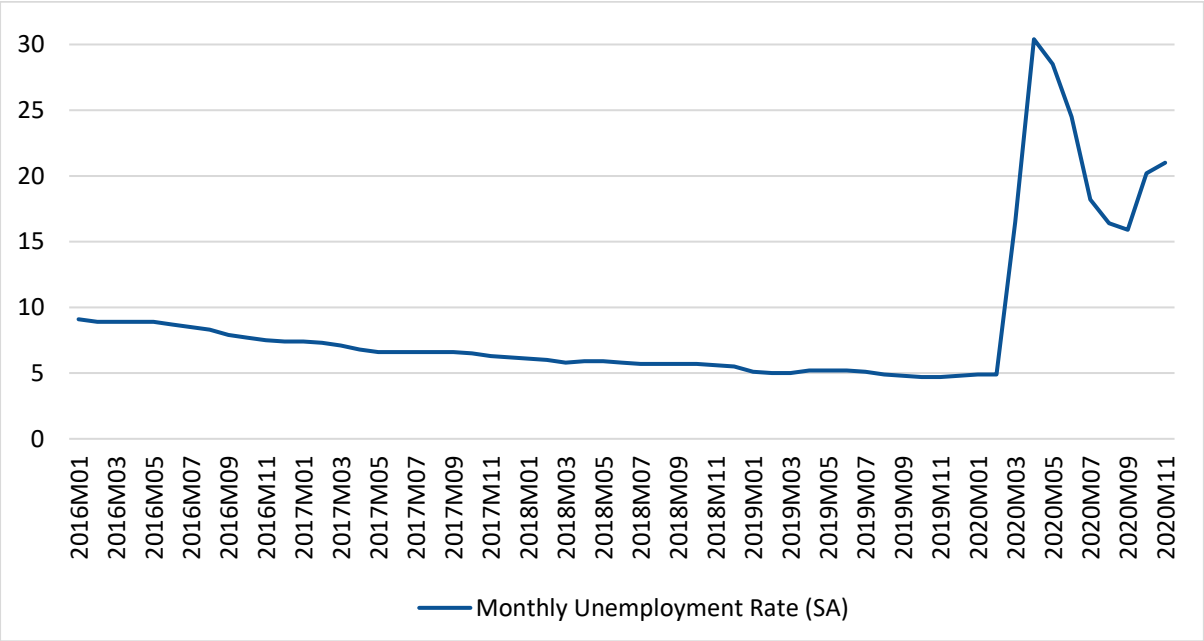
LABOUR MARKET

Key Points

- *Unemployment rate was 21 per cent in November 2020.*
- *Over 352,000 people were claiming the PUP at the end of November.*
- *Employers received EWSS payments for approximately 268,600 qualifying employees in November.*

The COVID-19 pandemic has had a substantial and unprecedented impact on the Irish labour market. In November 2020 the COVID-adjusted unemployment rate was 21 per cent. The significant fluctuations in the unemployment rate this year mainly reflect the impact that the tightening and loosening of public health restrictions has had on businesses. The unemployment rate was at its lowest in February at 4.9 per cent while it peaked at 30.4 per cent in April, the period in which the strictest public health measures were in place. The progressive loosening of restrictions over the summer was accompanied by a steady decline in the unemployment rate from May to September. In line with the reintroduction of more stringent public health restrictions, the unemployment rate increased by 5.1 percentage points from September (15.9 per cent) to November (21 per cent). Figure 18 shows the monthly unemployment rate from January 2016 to November 2020.

FIGURE 18 UNEMPLOYMENT BY MONTH (%)

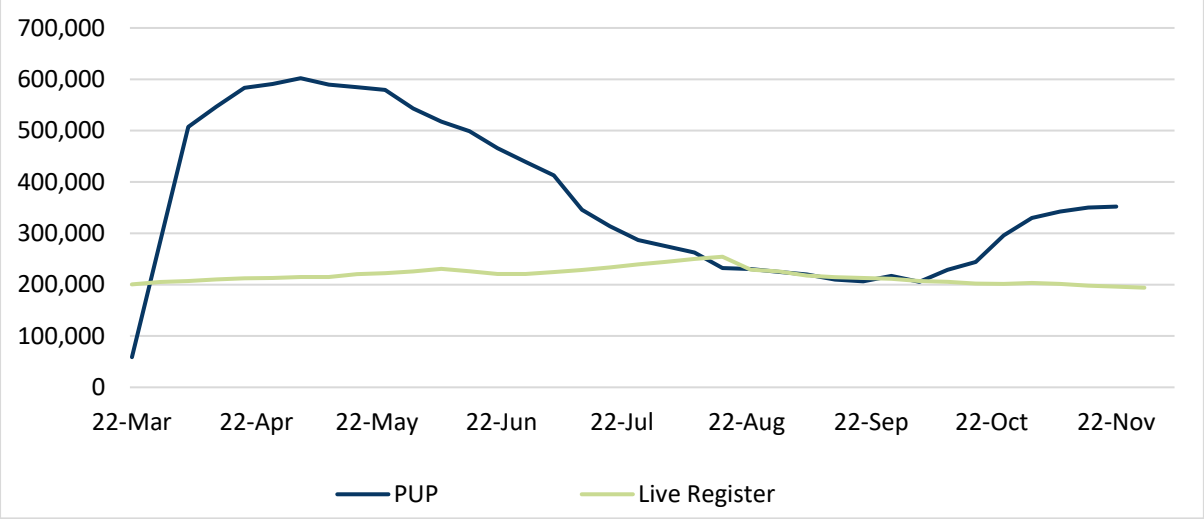


Source: Seasonally-Adjusted Monthly Unemployment Rate Series and the COVID-19 Adjusted Monthly Unemployment Rate Series. Central Statistics Office.

Note: The COVID-19 Adjusted Monthly Unemployment rate is used from March 2020 onward, rather than the traditional Monthly Unemployment Rate.

Looking at the number of individuals on the Live Register and in receipt of the Pandemic Unemployment Payment (PUP) on a weekly basis can provide further insight into the impact of the pandemic and the public health measures on the number of people without work. The number of individuals in receipt of the PUP peaked at just over 600,000 individuals in early May. As the restrictions were eased there was a general decline in the number of those in receipt of the PUP between the end of May and the beginning of October. The number of those in receipt of the PUP fell by 65.9 per cent (396,500 people) between the peak during the week ending 3 May and the week ending 4 October. With the return of more stringent public health restrictions in late October, the number of those in receipt of the PUP increased, and by 24 November approximately 352,100 people were in receipt of the payment. It is also interesting to note that 23.3 per cent of those in receipt of the PUP in Q3 2020 did not expect to return to the same job, while the remaining 76.7 per cent expected to or had already returned to the same job.[13] Figure 19 shows the number of individuals in receipt of the PUP or on the Live Register by week from March to November.

FIGURE 19 NUMBER OF PEOPLE ON THE PUP AND LIVE REGISTER BY WEEK



Source: Central Statistics Office and Department of Social Protection.
Note: The initial stay-at-home order came into effect on 28 March. Phase 1 of 'The Roadmap for Reopening Society and Business' began on 18 May, while Phase 2 and Phase 3 began on 8 June and 29 June respectively. Phase 3 was extended and before Phase 4 was implemented the 'The Roadmap for Reopening Society and Business' was replaced by the 'Resilience and Recovery 2020-2021: Plan for Living with COVID-19' on 15 September. The entire country was under Level 2 restrictions initially. A higher level of restrictions was subsequently applied in Dublin, Cavan, Monaghan and Donegal before the entire country was moved to Level 5 from midnight on 21 October.

Previous *Commentaries* have documented how some sectors have been more adversely affected than others by the pandemic and how the job losses have disproportionately affected younger people, and this remains the case. Of those in

[13] For more details see CSO, *Labour Market Insight Bulletin, Series 3 Q3 2020.* Available at: https://www.cso.ie/en/releasesandpublications/br/b-lfs/labourmarketinsightbulletinseries3q32020.

receipt of the PUP on 24 November, 29.2 per cent were from the Accommodation and food sector, 16.3 per cent were from the Wholesale and retail trade/repair of motor vehicles sector, and 8.9 per cent were from the Other sector category which includes, for example, hairdressers and beauty salon workers. These three sectors alone account for 54.3 per cent of those PUP recipients. In terms of age, 22.8 per cent of those in receipt of the PUP on 24 November were between 25 and 34 years of age with a further 25.5 per cent under 25.

The PUP is no longer paid at the flat rate of €350. There are now four payment levels (€350, €300, €250 and €203) based on the amount previously earned. Of those in receipt of the PUP on 24 November, 44.9 per cent received €350 while the remainder of recipients were relatively equally distributed across the other three payment levels. Of those who previously worked in the Accommodation and food sector, 57.9 per cent were receiving a PUP payment of less than €350 and this highlights the concentration of low paid workers within this sector. Table 2 shows the number of people in receipt of the PUP on 24 November broken down by age and payment level respectively.

TABLE 2 BREAKDOWN OF PUP RECIPIENTS BY AGE AND PAYMENT LEVEL

Age (Years)	Number ('000)	Percentage	Payment (€)	Number ('000)	Percentage
<25	89.7	25.5	**350**	158.2	44.9
25-34	80.4	22.8	**300**	64.5	18.3
35-44	76.4	21.7	**250**	64.2	18.2
45-54	60.2	17.1	**203**	65.3	18.6
55+	45.4	12.9	**Total**	352.1	100.0
Total	352.1	100.0			

Note: Figures refer to those in receipt of the PUP on 24 November 2020.
Source: *Payments Awarded for COVID-19 Pandemic Unemployment Payment and Enhanced Illness Benefit – Statistics*. Published on 23 November by Department of Social Protection.

Naturally, the level and composition of those employed has also been affected. According to the Labour Force Survey there were an estimated 2,289,000 people at work in Q3 2020. This figure may not represent the full impact of the COVID-19 pandemic on the Irish labour market as it has been determined using strict classification criteria set by the ILO. To address this problem, a COVID-19 adjusted estimate of employment has been produced. The CSO estimates that 2,078,058 persons aged 15 and over were in employment in September 2020 (the end of Q3).[14] This figure represents a fall of 10.4 per cent when compared to the level of employment in Q3 2019 but is 16.5 per cent higher than the COVID-adjusted level

[14] For more information see: https://www.cso.ie/en/releasesandpublications/er/lfs/labourforcesurveylfsquarter32020.

of employment at the end of Q2 in June (1,783,567 persons). The CSO has also produced a COVID-adjusted level of employment for October 2020 – 1,965,209 persons. This is 5.4 per cent lower that than the level in September and reflects the increase in the number of people being supported by the Pandemic Unemployment Payment.

Many of those still working are being supported by a wage subsidy scheme. These schemes allow employees, whose employers were negatively impacted by the pandemic, to be supported directly through their employer's payroll system. The Temporary Wage Subsidy Scheme (TWSS) ran from 26 March 2020 to 31 August 2020. An estimated 360,000 employees were being directly supported by the scheme when it closed in August. The total cost to the Exchequer of operating the TWSS for its duration was approximately €2.8 billion (Revenue Commissioners, 2020). The Employment Wage Subsidy Scheme (EWSS) replaced the TWSS from 1 September 2020 although the TWSS and the EWSS operated in parallel throughout July and August. The EWSS provides a flat-rate subsidy to qualifying employers based on the number of eligible employees on their payroll. The scheme was expected to run until 31 March of next year, but the Government has announced that supports to employers will continue until the end of 2021 (Revenue Commissioners, 2020).[15]

While the TWSS was active, approximately 125,100 people regained employment and transitioned from the PUP to the TWSS. Approximately 23,200 individuals supported by the TWSS lost their jobs and transitioned from the scheme to the PUP. Approximately 242,400 individuals moved from the TWSS to non-TWSS employment.[16] This shows the significant role the wage subsidy scheme has played in helping individuals retain/regain their jobs during the pandemic. Approximately 221,200 employees that were on the TWSS in August were on the EWSS in October. EWSS payments were made for 348,400 eligible employees in October and 268,600 eligible employees in November. This fall is largely explained by the fact that approximately 75,100 employees who were on the EWSS in October appeared on the PUP in November. Figure 20 shows the number of individuals on the TWSS from March to August and the number of qualifying employees for whom the employer received an EWSS payment thereafter. An analysis of the fiscal cost of these measures is contained in a Special Article to this analysis (Doorley et al., 2020).

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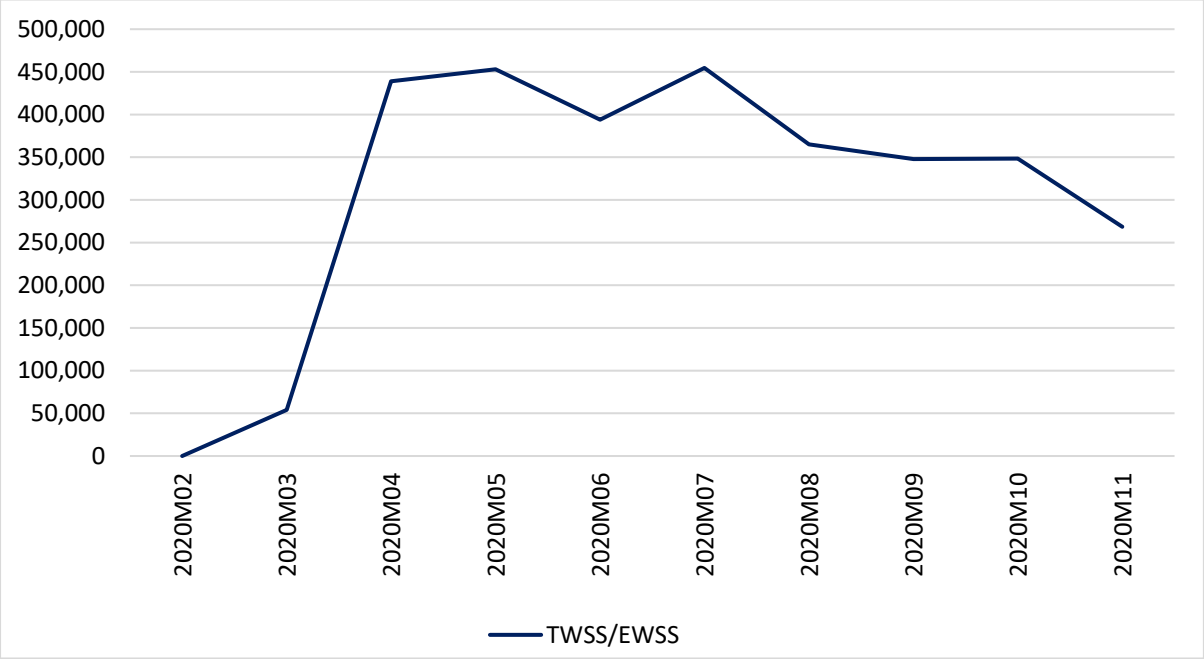
15 Revenue Commissioners (2020). Co*vid-19 Support Schemes – Preliminary Statistics,* Published on 3 December. Available at: https://revenue.ie/en/corporate/information-about-revenue/statistics/number-of-taxpayers-and-returns/covid-19-wage-subsidy-scheme-statistics.aspx.

16 For more details see: https://revenue.ie/en/corporate/information-about-revenue/statistics/number-of-taxpayers-and-returns/covid-19-wage-subsidy-scheme-statistics.aspx.

FIGURE 20 NUMBER OF EMPLOYEES ON WAGE SUBSIDY SCHEMES BY MONTH



Source: Revenue Commissioners.
Note: EWSS back payments for 30,700 employees were made with reference to the months of July and August combined but they are not included on the graph above.

We expect the unemployment rate to be 20 per cent in Q4 2020. For 2020 as a whole, we expect the unemployment rate will average 18.4 per cent. This demonstrates the scale of the economic shock faced by the Irish labour market due to the pandemic. Under our Baseline scenario for 2021, which assumes a trade deal is agreed between the EU and the UK and that a vaccine is available in Ireland for the second half of 2021, we estimate the unemployment rate will be just under 10 per cent in Q4 2021 with the rate averaging 14.5 per cent for the whole of 2021. Under a no-deal outcome between the EU and the UK, the unemployment rate would be marginally higher at 15 per cent.

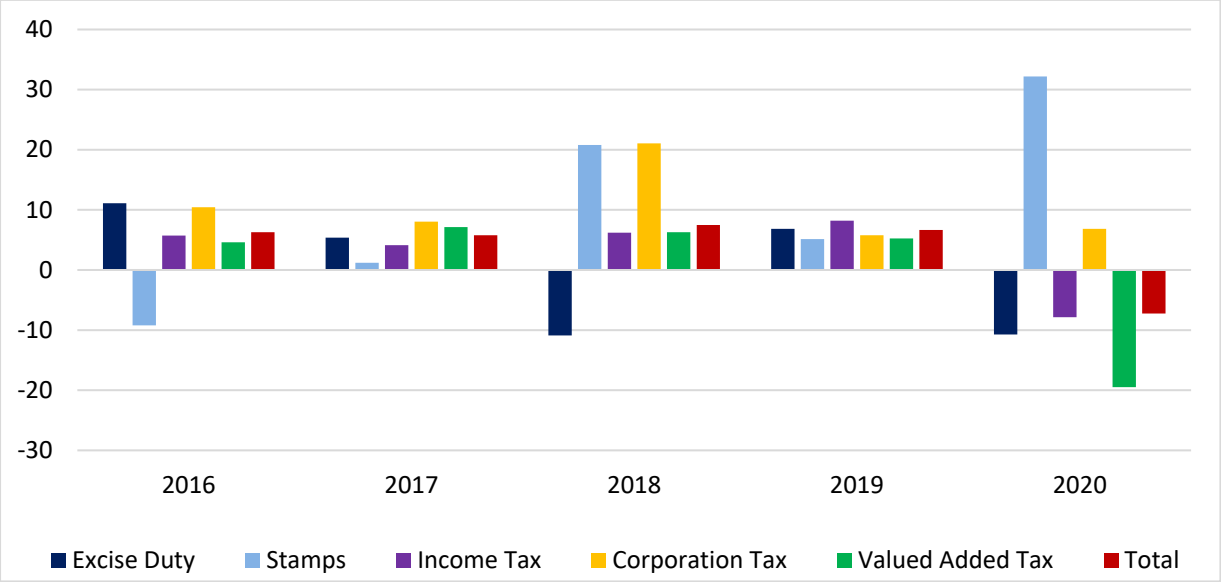
PUBLIC FINANCES

Key Points

- *A substantial deficit in 2020.*
- *A significant deficit also in 2021, even with a vaccine rolled out.*
- *Higher debt levels are sustainable over the medium term once budgetary discipline is maintained.*

Figure 21 plots the growth rates for the main taxation items for the period January to November of each year from 2016 to 2020.

FIGURE 21 ANNUAL CHANGES IN MAJOR TAX SUB-COMPONENTS (%): JANUARY – NOVEMBER



Source: Department of Finance.

With the exception of stamp duties and corporation taxes, all taxation items observed a decline for the year to date compared with 2019. Stamp duties registered a strong increase for the present year mainly due to an allocation of €580 million from 'an ongoing complex tax issue'.[17] Income tax receipts, which did appear to be holding up reasonably well in the face of the significant increase in unemployment, are now down by nearly 8 per cent when compared with the previous year's level. However, the filing deadline for income tax has been deferred to December so it is probably prudent not to read too much into the November returns. Overall, total taxation receipts are down by 7.2 per cent over the same period.

[17] Fiscal Monitor, October 2020. Available online at https://www.gov.ie/en/publication/4ee57-fiscal-monitor-october-2020.

The impact of the changes in the labour market can also be observed in the PRSI returns. For the year to November, receipts are down by over €1 billion or 9.7 per cent compared with 2019. The rate of decline is greater than the fall in income tax receipts as PRSI is less progressive and captures more of the impact of the job losses.

For the year to date, corporation tax receipts are up by nearly 7 per cent. This constitutes another large increase in the receipts on the back of sustained rises since 2013. In the present year, some of this increase may be related to the pandemic as a number of Irish-based corporations have benefitted from increases in medicinal and pharmaceutical exports. However, more generally over the past few years, some of the increase in corporation receipts has been linked more to taxation related issues than the underlying profitability of the corporate sector. In Box A, the potential implications for Irish corporation tax receipts of the new political administration in the United States are discussed.

BOX A ADMINISTRATION CHANGE IN THE UNITED STATES AND FUTURE IRISH CORPORATION TAX RECEIPTS?

The change of political administration in the United States is likely to have a significant impact on the Irish economy in the forthcoming years. The likelihood of re-engagement by the United States in international efforts on issues such as climate change and the recognised position of the incoming administration to Brexit are clear positives for the Irish economy going forward. Furthermore, any improvements in globalisation and enhancements to international trade which transpire are positive for the Irish economy.

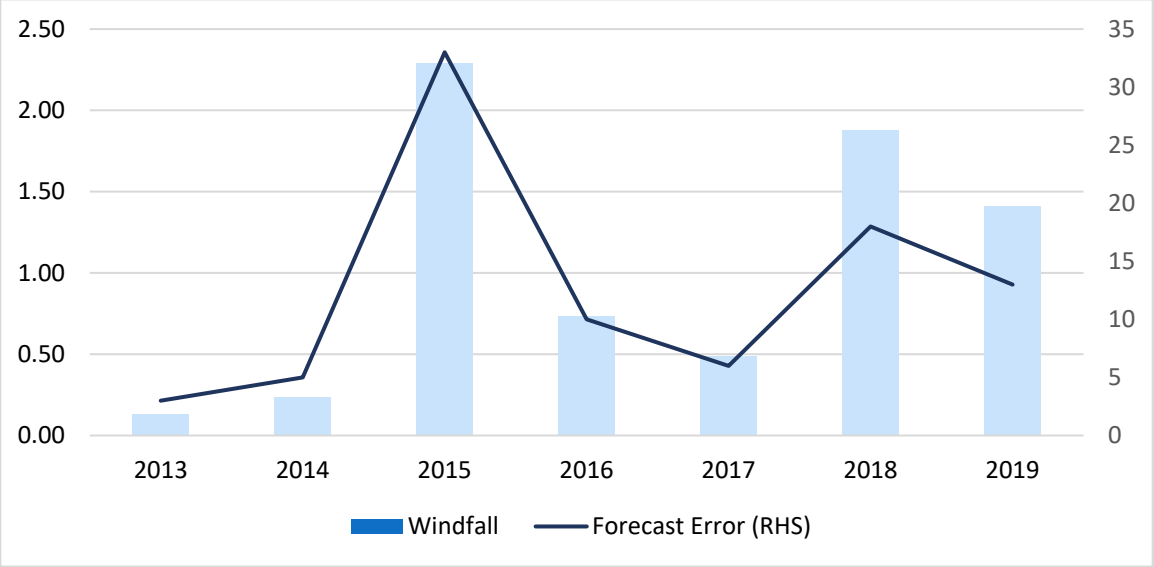
However, it is worth noting that certain changes in the treatment of corporation tax by the outgoing administration may help explain a significant increase in corporation receipts for the Irish Exchequer.

Irish corporation tax receipts have registered significant growth over the past six years with actual returns outstripping the forecasted[18] levels on a consistent basis. The difference between the actual and forecast levels are apparent in Figure A; the difference is labelled 'windfall' and the forecast error (the windfall/actual return) is also plotted. In total, since 2014, actual receipts have been over €7 billion greater than the forecast level representing a significant taxation windfall over the period for the Irish Exchequer. This sustained increase has prompted a number of commentators, including McQuinn, O'Toole, Allen-Coghlan and Coffey (2019),[19] to raise questions about the sustainability or otherwise of Irish corporation receipts.

18 Each year the Department of Finance publishes its 'profile' or forecast of individual tax headings for the year ahead. These can be observed on a historical basis in http://databank.finance.gov.ie.

19 In particular, see the Box by Varthalitis p.56.

FIGURE A **DIFFERENCE (€ BILLION) BETWEEN ACTUAL AND FORECAST LEVEL OF CORPORATION TAX RECEIPTS AND FORECAST ERROR (%)**



Source: Author's calculations.

In its 2017 taxation reform legislation, the outgoing US administration heralded a movement towards a territorial based corporation tax system. In general, a territorial based approach results in the US administration not taxing the profits of US companies earned in a foreign country. Under the approach, the profits are taxed by that foreign country at the prevailing rate. However, as was generally recognised at the time, this territorial approach risked incentivising US companies to move enterprises to a low corporation tax country such as Switzerland, for example, where the enterprises could pay an even lower effective rate. To counter this outcome, the 2017 legislation also introduced the GILTI (Global Intangible Low-taxed Income) which is defined as the excess income earned by a company's foreign subsidiaries over and above a 10 per cent rate of return on their tangible business assets. If no foreign tax is paid on the foreign pool of GILTI profits, the US imposes an effective tax rate of 10.5 per cent on these. This was meant to safeguard against US multinationals outsourcing activity to subsidiaries in other countries.

While some commentators initially felt that the 2017 US tax reform would have an adverse effect on Irish taxation revenues, Barry (2019) concluded that they were unlikely to have such an impact. Furthermore, Setser (2018; 2019), Pozen (2017) and Clausing (2020) argued that at 10.5 per cent the GILTI was too low and that the 2017 tax reforms would actually still incentivise multinational activity to be outsourced from the US to countries which had relatively low corporation tax rates, especially where US subsidiaries already had a significant presence. Any extra outsourcing of such activity to an Irish subsidiary would result in greater corporation tax receipts accruing to the Irish Exchequer. Amongst the evidence presented for this is the continued increase in the level of trade in pharmaceutical products between Ireland the United States in recent years (Setser, 2020a; 2020b).

Conclusions

The significant presence of US technology and pharmaceutical companies in Ireland may have been one of the reasons for the significant increase in corporation tax receipts observed in the domestic economy in recent years. Consequently, any changes to this legislation which sees a movement away from the territorial approach or witnesses an increase in the GILTI tax rate may result in lower domestic corporation tax increases for the Irish Exchequer in the future. As noted in McQuinn, O'Toole, Allen-Coghlan and Coffey (2019), this underscores the potential vulnerability of future corporation tax receipts and suggests that any windfall increases experienced in this taxation item should not be used to finance current expenditure.

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Barry F. (2019). 'Aggressive tax planning practices and inward-FDI implications for Ireland of the new US corporate tax regime', *The Economic and Social Review*, Vol. 50, No. 2, Summer, pp. 325-340.

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Clausing K. (2020). *Fixing five flaws of the Tax Cuts and Jobs Act.* (SSRN Scholarly Paper No. ID 3397387). Rochester, NY: Social Science Research Network. https://doi.org/10.2139/ssrn.3397387.

Pozen R. (2017). 'Trump tax bills would push US jobs and factories abroad'. *Financial Times*, November 28. Available online: https://www.ft.com/content/9f828326-ceb8-11e7-9dbb-291a884dd8c6.

Setser B. (2018). 'The impact of tax arbitrage on the US balance of payments'. Council on foreign relations blogpost: https://www.cfr.org/blog/impact-tax-arbitrage-us-balance-payments.

Setser B. (2019). 'It's time to change how we view of foreign direct investment'. Council on foreign relations blogpost: https://www.cfr.org/blog/it-time-change-how-we-view-foreign-direct-investment.

Setser B. (2020a). 'Ireland really shouldn't be driving the details of the Euro Area's GDP data'. Council on foreign relations blogpost: https://www.cfr.org/blog/ireland-really-shouldnt-be-driving-details-euro-areas-gdp-data.

Setser B. (2020b). 'The Irish shock to US manufacturing'. Council on foreign relations blogpost: https://www.cfr.org/blog/irish-shock-us-manufacturing.

This Box was prepared by Kieran McQuinn

For 2020, the increased expenditure in areas such as social protection and health, along with the overall decline in taxation revenues, means that the Exchequer is likely to experience a deficit of €22.6 billion or 6.2 per cent of GDP. This will result

in a significant increase in the national debt. In 2021, under our baseline scenario we assume that the Government continues to provide the income support schemes for the duration of the year. Consequently, government expenditure is higher than would otherwise be the case. We do expect to see most of the taxation headings registering positive growth in 2021 as receipts recover in line with economic activity. However, as can be seen from Table 3, which presents the actual level of taxation receipts for 2019 as well as forecasts for 2020 and 2021, we believe that most tax aggregates will be lower in level terms in 2021 than they were in 2019. Overall, in 2021, we forecast the deficit will be €18.5 billion in 2021 or 4.6 per cent of GDP.

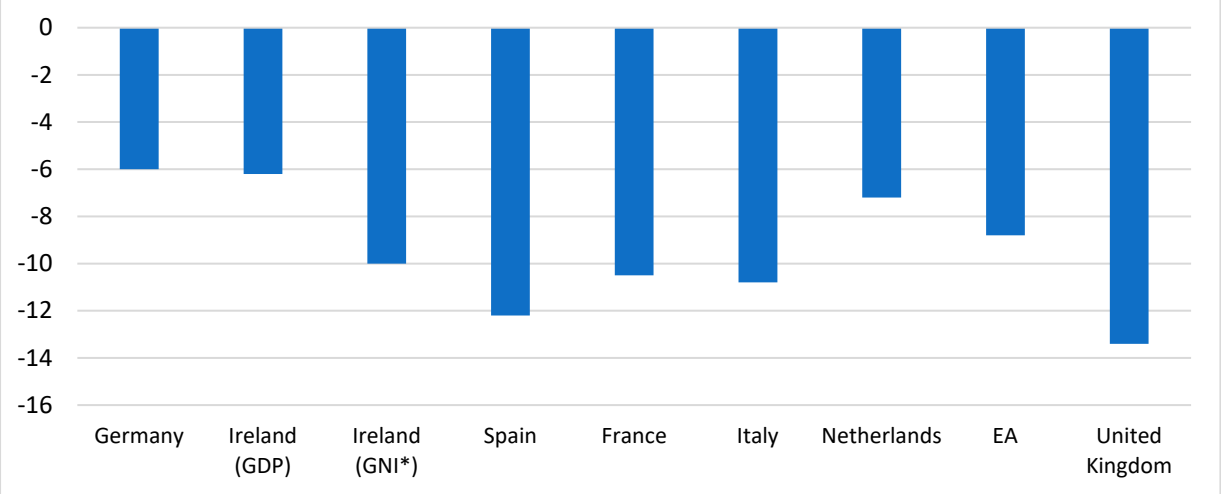
TABLE 3 FORECAST OF KEY TAXATION AGGREGATES IN 2021 (€ BILLION)

Tax Heading	2019 actual level (€ billion)	2020 forecast growth (%)	2021 forecast growth (%)
Income	22.9	-4	4
VAT	15.1	-22	42
Corporation	10.9	6	0
Excise	5.9	-15	15
Total	59.3	-8	13

Source: Department of Finance and Authors' Calculations.

Figure 22 plots the forecast General Government Balance for 2020 for a select set of European countries. Notwithstanding the fact that Ireland had arguably one of the most restrictive set of public health restrictions across Europe, the domestic general balance, in terms of GDP, is set to be one of the smallest for the year.

FIGURE 22 FORECAST GENERAL GOVERNMENT BALANCE (%) FOR SELECT EUROPEAN COUNTRIES 2020

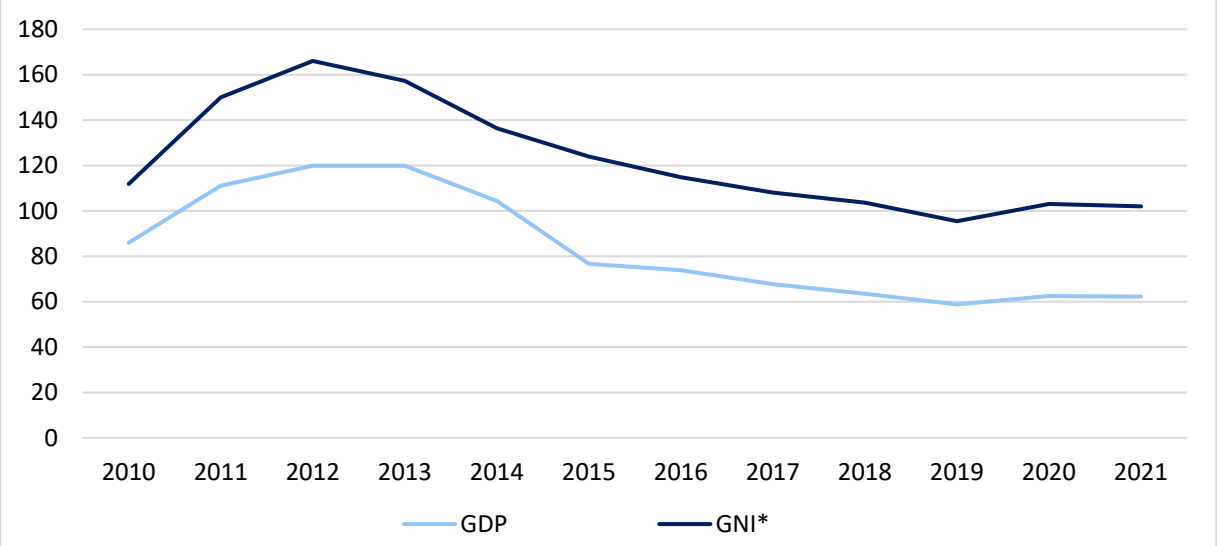


Source: Eurostat.

From a sovereign funding perspective, the National Treasury Management Agency (NTMA) aims to use existing cash balances to meet part of the additional 2020 funding requirement. It is also intended that short-term paper will be an important funding source for the sovereign. The agency also expects that the ECB's Pandemic Emergency Purchase Programme (PEPP) along with its pre-COVID programme the Public Sector Purchase Programme (PSPP) will continue to underpin the Irish bond market. The PEPP is particularly important in that regard given its size (approximately €1.35 trillion). In a Special Article in this *Commentary* Allen-Coghlan, McQuinn and Varthalitis (2020) examine the impact of a scenario where an EU Member State is able to finance part of its emerging deficit via less costly ECB bond holdings. This mitigates the negative effect of the virus-related shock on the domestic economy.

We summarise the resulting implications for our forecasts of the debt-to-output ratios in Figure 23. By the end of 2020, we believe the debt-to-GDP ratio will be up to 63 per cent while debt-to-GNI* will have increased to almost 103 per cent. In 2019, the debt-to-GNI* ratio had fallen to 95 per cent. Both ratios will decline marginally in 2021 as the recovery in output will exceed the increase in the national debt.

FIGURE 23 DEBT-TO-GDP AND DEBT-TO-GNI*RATIOS (%)



Sources: QEC calculations.

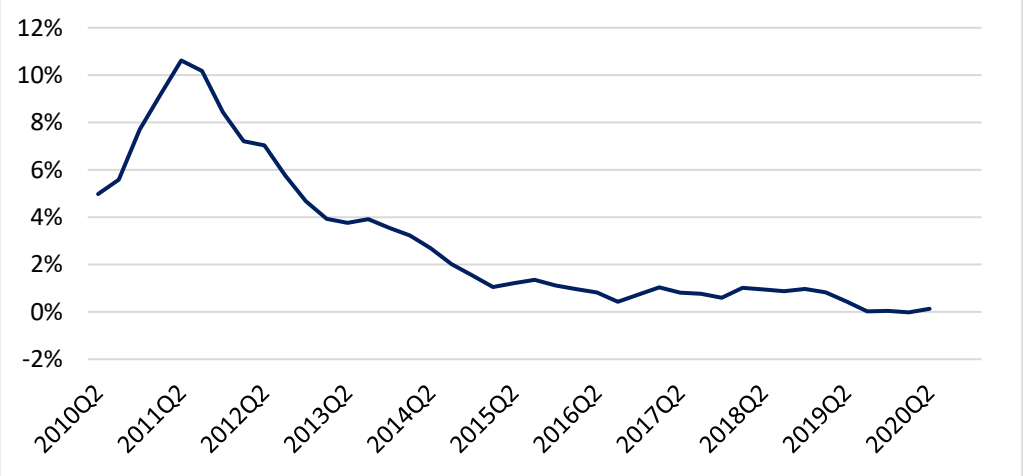
Given the increase in the level of national debt, Box B by Allen-Coghlan and McQuinn examines the potential sustainability of this debt under plausible future growth scenarios for the economy. In particular, the Box utilises the growth scenarios examined in a Box in the previous *Commentary* by Bergin and García-Rodríguez. The Box indicates that once budgetary discipline is maintained in the

medium term and the interest rate on the Irish debt levels remains at its present rate, then the higher levels of debt are sustainable.

BOX B DEBT SUSTAINABILI TY ANALYSIS FOR THE IRISH ECONOMY

As a result of the accommodative monetary policy stance of the ECB and strong demand amongst international investors for the sovereign debt of European countries, the yields on Irish government bonds have decreased substantially in the last decade. Figure B shows the sovereign bond yields on ten-year Irish government debt over the past ten years.

FIGURE B IRISH SOVEREIGN BOND YIELDS: TEN-YEAR GOVERNMENT DEBT



Source: Eurostat.

The ability of the Irish Government to issue new debt at record low yields has resulted in a significant reduction in the effective interest rates on outstanding government debt. This, combined with the mild surpluses the Exchequer has run over the last couple of years, has helped to reduce the overall public debt levels in the country.[20]

However, given the impact of COVID-19, as with most European countries, the domestic government is set to run a significant deficit in 2020 and 2021. This is due to a combination of increased expenditure to combat the negative shock of the pandemic and the decreased taxation revenue from reduced economic activity. This will result in a substantial increase in the level of public debt, forecast to 63 per cent of GDP in 2020.

Naturally such a significant rise in public debt gives rise to questions around the sustainability of that debt. According to the IMF 'a country's public debt is considered sustainable if the government is able to meet all its current and future payment obligations without exceptional financial assistance or going into default'. In this Box we explore the sustainability of Irish government debt depending on future post-COVID-19 economic

[20] See Figure 23 in the main *Commentary.*

growth rates in the country and developments in the interest rate on Irish government debt.

In order to measure the sustainability of Irish debt we use the common debt accumulation equation which is often used as a starting point in the debt dynamics literature:[21]

$$\Delta d_t = \frac{i_t - g_t}{1 + g_t} d_{t-1} - pb_t + dda_t$$

where Δd_t is the change in the gross government debt-to-GDP ratio, i_t is the interest rate charged on government debt, g_t is the nominal GDP growth rate in the country, pb_t is the primary balance-to-GDP ratio and dda_t is the deficit-debt adjustment as a share of GDP.[22]

The growth rate g_t we use comes from a Box in the previous *Commentary* by Bergin and García-Rodríguez. In this Box the authors used the COSMO macro-econometric model of the Irish economy to explore the potential impact that COVID-19 would have on the Irish economy over the long run.

They put forward three different scenarios for the impact of the pandemic on the economy over the next ten years, namely the Recovery scenario, the Delayed Recovery scenario and the Second Wave scenario.[23] These three scenarios were all relative to a baseline case of a no-pandemic scenario. In this analysis we apply each of these output scenarios to the above equation while also introducing two scenarios for interest rate developments over the next ten years. In all cases we make the assumption that the primary balance after 2021 returns to zero. Of course, any primary balance deficit over this period would increase the debt-to-GDP ratio and a primary balance surplus would decrease the ratio. We also assume that the deficit adjustment ratio is zero over this period which is a common assumption for this type of analysis.

In our first interest rate scenario we keep the interest rate constant at the rate observed for 2020 of 1.9 per cent. For every year thereafter we applied this interest rate to Equation 1. Combining this with the growth rates from the four COSMO scenarios (the three COVID scenarios and the baseline) we get the path of the debt-to-GDP ratio over the next ten years (Figure C). Under this interest rate scenario, the debt dynamics are shown to be improving or remaining stable under all output scenarios. Even in the delayed recovery scenario, which has the largest adverse shock to long-run output, the estimated debt-to-GDP ratio remains stable. Under the recovery scenario the debt-to-GDP ratio declines back below 60 per cent by 2029, the level it was pre-pandemic.

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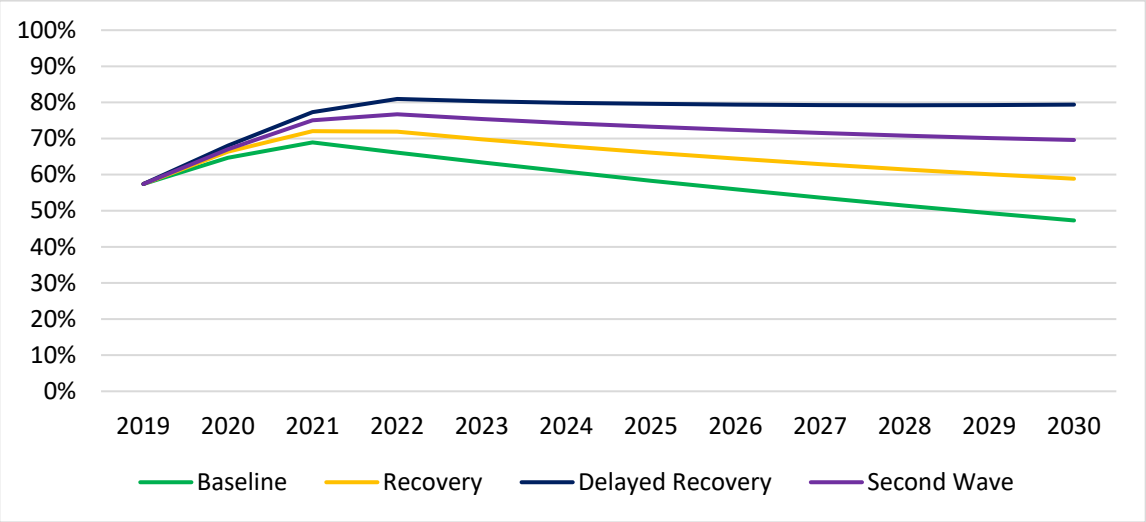
21 See for example: Bouabdallah, O., C. Checherita-Westphal, F. Drudi, R. Setzer, R. De Stefani, T. Warmedinger and A. Westphal (2017). 'Debt sustainability analysis for euro area sovereigns: a methodological framework,' Occasional Paper Series 185, European Central Bank.

22 The dda_t is the difference between the change in debt and the deficit in any given period.

23 For more see Bergin A., A. Garcia Rodriguez, L. Rehill and É. Sweeney (2020). 'Exploring the Impacts of Covid-19, A Hard Brexit and Recovery Paths for the Economy', *Quarterly Economic Commentary*, Autumn 2020 (ESRI).

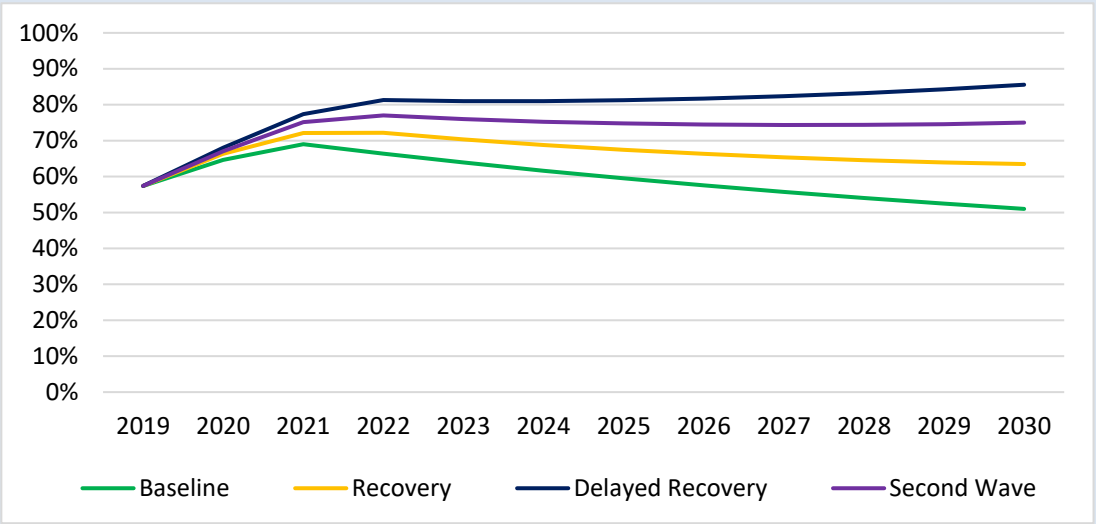
FIGURE C DEBT-TO-GDP RATIO: LOW INTEREST RATE



Source: Authors' calculations.

In the second interest rate scenario we estimate what the debt-to-GDP ratios might look like if there is a gradual increase in the interest rate over the next ten years. This could occur if the ECB were to roll back some of the accommodative monetary policy measures it has put in place in recent years which it could consider doing if, for example, inflation rates across the Eurozone began to pick up. Over the ten years to 2030 we grow the interest rate to the average rate it was over the previous ten years i.e. 3.3 per cent. Under both the Baseline and the Recovery scenarios the debt dynamics are shown to remain favourable with the debt-to-GDP ratios still decreasing. This shows that even under a scenario where interest rates were to grow over the next decade the growth rate under the Recovery scenario is strong enough to ensure that the debt-to-GDP level would decrease. However, this is not the case for the Delayed Recovery and Second Wave scenario in which the growth rates are not high enough to offset the rising interest rate. In the Delayed Recovery scenario, in particular, the debt-to-GDP ratio is shown to be increasing over the next ten years, showing that the forecast GDP growth would not be enough to offset the impact of the increase in the interest rate over this period.

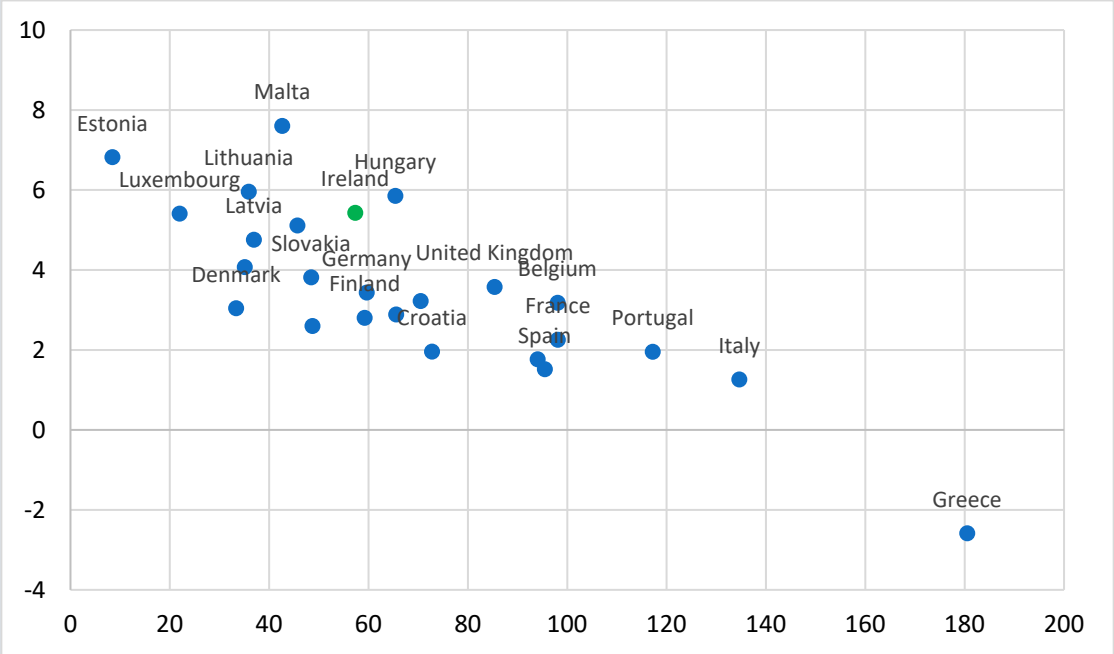
FIGURE D DEBT-TO-GDP RATIO: GRADUAL INCREASE IN THE INTEREST RATE



Source: Authors' calculations.

As a result of the continuing negative impact of the pandemic on economies across the Euro Area, the ECB is unlikely to reverse its dovish monetary policy stance in the near future. However, as economies begin to recover after COVID-19 the ECB may begin to roll back some of its accommodative policy measures. One of the consequences of this would be a higher interest rate on Irish government debt. If this were to happen while Irish growth rates remained anaemic then, as the previous graphs have shown, there would be an increased risk of Irish debt becoming unsustainable. However, looking at historical growth rates for the country it seems the Irish economy is well poised for positive growth when the pandemic is brought under control. Figure E shows that before the pandemic the average growth rates of the Irish economy were amongst the highest in the EU.

FIGURE E TEN-YEAR AVERAGE GROWTH RATES (X-AXIS) AND DEBT-TO-GDP IN THE EU (Y-AXIS)



Source: Authors' calculations.

Conclusions

The large deficits that the Government will run this year and next will lead to significant increases in the level of Irish public debt. The extent to which this public debt will be sustainable going forward is largely dependent on the future growth path of the Irish economy and the extent to which interest rates remain at their current low rates. The growth path of the Irish economy over the next ten years will be impacted by the pandemic. This analysis has shown that in the event of a sharp recovery in the Irish economy, the growth rate would likely be large enough to counter even a steady increase in the interest rate over the next ten years resulting in improving debt dynamics over this period. However, in the event of a delayed recovery or a second wave of the virus the debt dynamics of the country look much more susceptible to increases in the interest rate.

Currently all economies across the Euro Area are feeling the negative impacts of the pandemic. This makes it more likely that ECB monetary policy will be in line with the needs of the Irish economy going forward. Indeed, given the relatively strong growth rates experienced by the Irish economy compared to most other Euro Area countries over the past ten years, Irish growth rates are likely to continue to exceed the Euro Area average over the medium term.

This Box was prepared by Kieran McQuinn and Matthew Allen-Coghlan

General Assessment

COVID-19 has resulted in an unprecedented level of intra-year volatility in most Western economies. This is particularly the case in the Irish context, given the exceptionally strong pace of growth experienced by the domestic economy prior to the pandemic. The decision by the national authorities to place the country in a general lockdown in Q2 2020 resulted in a dramatic decline in most sources of growth for the domestic economy with consumption and investment falling in a substantial manner. However, Q3 2020 has seen a significant recovery in domestic demand, while export growth, which had remained positive even when restrictions were tightest, now appears to be strengthening further. The re-imposition of tight public health restrictions in Q4 2020 will inevitably moderate the degree of the economic recovery; however it is increasingly clear that the second lockdown will not have the same negative impact on growth that the first one did.

Overall, we believe the Irish economy will grow by 3.4 per cent in the present year. This seemingly surprising result is due to the relatively strong performance of the export sector through the present year. As noted in the previous *Commentary* much of this resilience is due to the concentration of Irish exports in seemingly pandemic-proof sectors such as pharmaceuticals and computer services activities (O'Toole, 2020). However, there is also some evidence to suggest in Q3 2020 that the export performance is becoming more broad based.

While a positive growth rate in the current year is an exceptional outcome, it is clear that COVID-19 has had and will continue to have a highly detrimental impact on the Irish economy and society at large. The unemployment rate, which had been declining following the lifting of the first general lockdown, is now increasing in Q4 2020 and is set to be 20 per cent by the end of the year.

The higher rate of unemployment also results in higher levels of Government expenditure with the Pandemic Unemployment Payment (PUP), for example, witnessing further increases over Q4. As a result, we now believe the Irish State will have a General Government deficit of €22.6 billion or 6.2 per cent of GDP in the present year. In recent times, this scale of deficit was only observed at the height of the financial crisis.

The relaxation of Level 5 measures for the Christmas period in Q4 2020 has influenced our choice of scenario for 2021. Given the possibility of an increase in the presence of the virus following the easing of Government restrictions, we now assume that there will be another six-week Level 5 lockdown in the first half of

2021. However, in Q3 2020 we now assume the roll-out of a vaccine to the general population which will continue through Q4 2021. The adoption of a vaccine scenario reflects the increased optimism of a vaccine becoming readily available following positive news around its testing and development in November 2020.

As a result, in our baseline scenario GDP is expected to increase in 2021 by 4.9 per cent, with unemployment averaging 14.5 per cent for the year. The presence or otherwise of a vaccine and the speed and efficiency with which one is rolled out to the general public will have major implications for the short- and medium-term outlook for the domestic economy.

All of these results are subject to the assumption that a trade deal is achieved between the United Kingdom and the European Union. However, if a deal is not achieved, then our growth rate forecast for GDP is reduced to 1.5 per cent.

Even with a vaccine and robust recovery in 2021, the overall implications for the public finances are still quite severe with the Government expected to run a deficit of 4.8 per cent or €18.5 billion. Given the ongoing costs of the pandemic for the Irish Exchequer, the *Commentary* devotes a certain degree of attention to fiscal related items. In a Box, Allen-Coghlan and McQuinn assess the likely implications of different recovery paths of the domestic economy on the sustainability of Irish sovereign debt levels. Following work by Bergin et al. in the Autumn *Commentary*, Allen-Coghlan and McQuinn find that, if the future average interest rate on Irish debt remains constant over the next ten years, then future higher debt levels will be sustainable. However, were the interest rate to increase, then the debt dynamics would not be as reassuring. The analysis does assume that the Irish State does not run a negative primary balance from 2022 onwards. A second Box by McQuinn discusses the potential implications for Irish corporation tax receipts of the change in the political administration in the United States. The Box cautions against the use of 'windfall' corporation tax receipts in funding increases in current Government expenditure.

A Special Article in this *Commentary* by Allen-Coghlan, McQuinn and Varthalitis (2020), examines the role EU institutions and the European Central Bank (ECB), in particular, can play in mitigating the negative economic and fiscal effects of the COVID-19 crisis. They conduct a policy experiment where a Member State is able to finance part of its emerging deficit via less costly ECB bond holdings. This results in extra fiscal space for the domestic authorities in the short and medium run and mitigates the negative effect of the virus-related shock on consumption and investment. This reduces the subsequent increase in the deficit and public debt than would otherwise be the case.

Both the analysis in the Boxes and the Special Article highlight the importance of the ongoing support of the ECB in the present crisis and further highlights the stark economic and fiscal consequences of a reduction in that support. Schnabel (2020)[24] provides the context for ECB monetary policy at this time and addresses some of the criticisms which have arisen due to the unprecedented nature of the ECB intervention. These include refuting the allegation that the unconventional policy measures have muted market discipline and arguing that fiscal policy support is more important now as a tool of macroeconomic stabilisation given the long-term decline in the real natural interest rate. It is worth noting that the present accommodative stance of the ECB is significantly different from the policy stance adopted by the ECB at the onset of the financial crisis.

Following on this theme, Allen-Coghlan and Varthalitis (2020), in a Research Note in the *Commentary*, compare the similarities and differences between the financial crisis and the current one. They look at key economic indicators across both periods and assess the rapidity and the magnitude of the shock caused by each crisis. They find that the scale of the negative shock for most key indicators is much more severe during the COVID-19 crisis. However, the recovery also seems to be sharper than during the global financial crisis where the downward movement was gradual and more prolonged.

The *Commentary* also contains a Special Article by Doorley et al. (2020) which conducts a distributional assessment of poverty and inequality measures in budget 2021 on Irish households. The analysis concludes that while COVID-related unemployment payments are costly to the Exchequer, the existing tax-benefit system accounts for at least half of the cost. Overall, Doorley et al. (2020) conclude that the policy response to the crisis has sheltered the lowest income groups and Budget 2021 continued this trend. The paper discusses future policy challenges in respect of the pandemic; for example, it argues that withdrawing the PUP would improve financial incentives in the second half of 2021 if sufficient employment prospects exist at the time. In terms of the EWSS, the paper recommends that any reform of the scheme should be informed by close monitoring of the speed and scale of the recovery by individual sectors of the economy. It also recommends that the design of the subsidy be examined. At present, the sharp cut-off in eligibility imposed by the requirement to be experiencing a 30 per cent reduction in turnover means some firms may face an incentive to suppress output, therefore inhibiting their recovery.

[24] Schnabel I. (2020). *The shadow of fiscal dominance: Misconceptions, perceptions and perspectives*. Schnabel is a member of the executive board of the ECB. Speech available at: https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200911~ea32bd8bb3.en.html.

While the export sector has performed exceptionally well, the record contraction in the domestic economy and the ongoing public health restrictions have had a very severe impact on many domestic sectors. Indeed, recent survey data indicate the number of firms reporting profitability has dropped by nearly 30 percentage points (to 60 per cent) since the crisis.[25] Despite this shock, the number of firms facing insolvency has not yet begun to increase (McGeever et al., 2020), in the main due to the extraordinary policy supports (such as the wage subsidy scheme, new credit guarantees and tax measures), extensive forbearance on debt, tax and other payments and the use of internal resources. With the deployment of a widescale vaccine in mid to late 2021, other public health restrictions which have affected the SME sector are likely to be loosened. Coupled with a recovery in household spending, this should provide some respite for struggling domestic enterprises. However, at the same time, some of the emergency policy supports are likely to be removed and 2021 may see a rise in company insolvencies which were delayed from 2020. While policy measures will need to continue in line with public health restrictions, the orientation of these measures may need to change from emergency support to boosting growth and recovery when these measures lapse. In this case, ensuring that surviving firms have adequate credit to invest will become critically important to improve their long-term productivity.

25 Department of Finance, *Credit Demand Survey*, October 2020.

Special Articles

DISTRIBUTIONAL IMPACT OF TAX AND WELFARE POLICIES: COVID-RELATED POLICIES AND BUDGET 2021

***Karina Doorley, Claire Keane, Alyvia McTague, Seamus O'Malley, Mark Regan, Barra Roantree, Dora Tuda[1]**

ABSTRACT

In this article, we assess the impact of the COVID-19 pandemic on unemployment in Ireland and estimate how family incomes have changed as a result of increased unemployment, calibrated to administrative sources for end-August. We then show how the direct and indirect tax and welfare measures enacted prior to Budget 2021 have helped to cushion pandemic-related income losses. Lastly, we assess the impact of Budget 2021 measures.

We find that pandemic-related unemployment could have decreased household income by an average of 7 per cent across the population, with significantly larger losses for those who lost their jobs. Thanks to the initial policy response in the form of the PUP, wage subsidy and standard rate VAT cut, household income fell instead by 3 per cent on average. These losses are sharpest at the upper end of the income distribution, for the young, and for those in certain hard-hit sectors such as hospitality. The impact of Budget 2021, while less costly than the pre-budget measures, is similar in pattern, with above average gains for the bottom two-fifths of the income distribution and lower than average gains for those at the upper end.

Without these interventions, income inequality would have increased substantially. Instead, our simulations suggest that the COVID-related interventions stabilised disposable income inequality, a significant feat given the job losses experienced. At risk of poverty rates were also stabilised by COVID-related policies but there is a risk that these indices may increase significantly once these supports are withdrawn. We conclude with some brief reflections on some of the challenges facing the government in the coming years.

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[1] Funding from the ESRI's Tax, Welfare and Pensions Research Programme (supported by the Departments of Public Expenditure and Reform, Employment Affairs and Social Protection, Health, Children and Youth Affairs and Finance) is gratefully acknowledged. We are grateful to the CSO for facilitating access to the Survey of Income and Living Conditions (SILC) Research Microdata File used to construct the database for the SWITCH tax-benefit model and to the Irish Social Science Data Archive for facilitating access to the Household Budget Survey used in the ITSim model.

1. INTRODUCTION

In the Budget delivered to the Dáil on 13 October, the Minister for Finance and the Minister for Public Expenditure and Reform announced plans for General Government expenditure in 2021 of €109.2 billion, a €21.9 billion (25 per cent) increase from its pre-pandemic 2019 level. This is to be financed by €88.7 billion of General Government revenue and borrowing, with a General Government deficit of €20.5 billion planned for 2021.[2]

The majority of additional Departmental expenditure has been allocated to the Department of Health – reflecting increased healthcare costs and additional demands arising from the ongoing COVID-19 pandemic – and the Department of Social Protection. While most of the latter reflects increased claims for welfare payments rather than an increase in the generosity of these payments, the Budget announced changes that will leave welfare spending €510 million higher and taxes €265 million lower than they otherwise would have been.[3]

These measures come in addition to the substantial changes made earlier in 2020 to the direct tax and benefit system and indirect taxes. The COVID-19 pandemic has resulted in huge employment losses in 2020, with the Government responding by introducing two new financial supports: the Pandemic Unemployment Payment and the Employment Wage Subsidy Scheme. A cut to the standard rate of VAT was also enacted in advance of the Budget package.

Using representative survey data linked to SWITCH, the ESRI's tax and benefit microsimulation model and ITSim, the ESRI and Department of Finance indirect tax tool, this article assesses these reforms. We first look at the cost and distributional effect of pandemic-related unemployment, where this is calibrated to the latest available figures at end-August 2020. We then assess how pre-budget COVID income supports and Budget 2021 affect these.[4]

We find that pandemic-related unemployment could have decreased household income by an average of 7 per cent across the population, with significantly larger losses for those who lost their jobs. Thanks to the initial policy response in the form of the PUP, wage subsidy and standard rate VAT cut, household income fell instead by 3 per cent on average. These losses are sharpest at the upper end of the income

2 See Table 11 of the Budget 2021 Economic and Fiscal Outlook, available at http://budget.gov.ie.
3 See Chapter 10 of Budget 2021 Expenditure Report, available at http://budget.gov.ie.
4 This analysis focuses on pre-budget direct and indirect tax and welfare measures and Budget 2021. It excludes measures announced at the end of October 2020 which increased the level of PUP and EWSS in response to the introduction of Level 5 restrictions.

distribution, for the young, and for those in certain hard-hit sectors such as hospitality. The impact of Budget 2021, while less costly than the pre-budget measures, is similar in pattern, with above average gains for the bottom two-fifths of the income distribution and lower than average gains for those at the upper end.

Without these interventions, income inequality would have increased substantially. Instead, our simulations suggest that the COVID-related interventions stabilised disposable income inequality, a significant feat given the job losses experienced. At risk of poverty rates were also stabilised by COVID-related policies but there is a risk that these indices may increase significantly once these supports are withdrawn. We conclude with some brief reflections on some of the challenges facing the government in the coming years.

2. SCENARIOS

This analysis uses SWITCH, the ESRI's tax benefit model and ITSim, the indirect tax microsimulation tool jointly developed by researchers at the ESRI and the Department of Finance. SWITCH is run on data from the 2017 Survey of Income and Living Conditions (SILC), the primary source of information on household incomes collected annually by the Central Statistics Office (CSO). The scale, depth and diversity of this survey allows it to provide an overall picture of the impact of the policy changes on Irish households, which cannot be gained from selected example cases. ITSim estimates the indirect taxes (VAT and excise duties, including carbon taxes) paid by Irish households on the basis of their reported expenditure, collected by the CSO's nationally representative Household Budget Survey (HBS) in 2015-2016.[5] There are three stages to our analysis which rely on four scenarios. These are summarised in Table 1.

[5] Incomes are uprated to 2020 levels using earnings growth, and expenditures are uprated to 2021 levels using forecasts for HICP from the Central Bank of Ireland (Central Bank of Ireland, 2020). No income growth is assumed between 2020 and 2021.

TABLE 1 SCENARIOS

Scenario	Data	Tax-benefit policy system
Pre-COVID	2017 SILC with incomes uprated to 2020 levels	February 2020 direct and indirect tax and welfare policies, indexed by forecast price growth between 2020 and 2021
COVID - no policy response	2017 SILC with incomes uprated to 2020 levels and COVID-related job loss calibrated to end-August 2020	February 2020 direct and indirect tax and welfare policies, indexed by forecast price growth between 2020 and 2021
COVID - September policy response	2017 SILC with incomes uprated to 2020 levels and COVID-related job loss calibrated to end-August 2020	September 2020 direct and indirect tax and welfare policies, indexed by forecast price growth between 2020 and 2021
COVID - Budget 2021	2017 SILC with incomes uprated to 2020 levels and COVID-related job loss calibrated to end-August 2020	2021 direct and indirect tax and welfare policies

Given the substantial impact of the COVID-19 pandemic on employment, we first adjust the 2017 data in order to be representative of the 2020 population in terms of unemployment rates. A proportion of workers in each industry are assumed to have either lost their job or to have been put on the Employment Wage Subsidy Scheme (EWSS). The number of individuals to either lose their job or receive the EWSS is calibrated from publicly available data from the CSO on the number of people in receipt of the Pandemic Unemployment Payment (PUP) and the Temporary Wage Subsidy Scheme (TWSS, the predecessor to EWSS). Both calibrations are done using end-August figures, the latest available at the time of writing, and account for the industry and age breakdown of recipients of either scheme.[6] The data are also adjusted to take account of income growth between 2017 and 2020.[7]

We then use SWITCH to calculate households' social welfare entitlements, tax liabilities and net incomes under our baseline policy. This indexes the policy rules in place in February 2020 by forecast inflation of 0.2 per cent[8] between 2020 and 2021 to provide a benchmark that holds welfare payments, tax credits and thresholds constant in real terms.[9] Comparing this scenario (*COVID – no policy response*) to one in which there is no unemployment shock *(Pre-COVID*) shows in net-terms the effect of pandemic-related unemployment on incomes, accounting

6 COVID-19 Adjusted Monthly Unemployment Estimates by Age Group, Lower and Upper Bound, Month, Statistic and Sex. https://statbank.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=MUM02&PLanguage=0.

7 For example employment income is uprated by 1.12 using data from the CSO and the ESRI *Quarterly Economic Commentary*, and self-employment income is uprated by 1.04 using both data from the CSO and national income forecasts in the ESRI *Quarterly Economic Commentary*.

8 As per the Central Bank's Quarterly Bulletin, Q3.

9 While these rules could alternatively be indexed by forecast wage growth to provide a more distributionally neutral benchmark, no such forecast was available given the uncertainty associated with the ongoing pandemic. See Callan et al. (2019) for a discussion of indexation options and the associated issues they raise.

for the offsetting effect of lower tax payments and higher social welfare entitlements (so called 'automatic stabilisers').

In the second stage, we incorporate three major policy changes made between March and September 2020 in response to the pandemic.

1. The **Pandemic Unemployment Payment (PUP)** was announced on 15 March at a rate of €203 per week, increased to €350 per week following an announcement on 24 March. The generosity of the PUP was gradually decreased so that, by September 2020, recipients received either €203, €250 or €300 per week, depending on their pre-pandemic earnings. It is this version of the PUP that we model in SWITCH. Although reduced from its initial flat rate of €350, the PUP is still more generous that the standard personal rate for Jobseekers' supports. The PUP is closed to new applicants from January 2021 while the payment itself will be discontinued in Spring 2021.

2. On 19 March, the Minister for Social Protection introduced the Employer Refund scheme by which employees could remain on company payrolls while receiving the amount of the COVID-19 Support Payment, the cost of which would be reimbursed to relevant businesses. This scheme was superseded by the Temporary Wage Subsidy Scheme (TWSS) from 26 March, allowing employers to claim subsidies of up to €410 per week for eligible employees they retain on payroll. The TWSS was replaced on 1 September by the **Employment Wage Subsidy Scheme (EWSS)** which provides a two-tier subsidy of €151.50 or €203 per employee to employers who have suffered a loss in turnover of at least 30 per cent. This scheme will remain in operation until Spring 2021. As our focus in the *COVID – September policy response* scenario is on the tax-benefit scheme in place just preceding the budget, it is the EWSS that is examined in the analysis that follows.

3. As part of the July Stimulus, the **standard rate of VAT** was cut from 23 per cent to 21 per cent from September 2020 until February 2021 to aid a wide range of economic activities.

This scenario, *COVID – September policy response*, is compared to the *COVID – no policy response* scenario in order to show the cost and distributional effect of these supports.[10] A key assumption in this stage of the analysis is the number of jobs supported by the EWSS that would have been lost in the absence of this policy measure. Our central assumption is that 50 per cent of jobs supported by the EWSS would have been lost in the absence of this policy measure[11] but, in the next

[10] In each case, policy rules are indexed in line with forecast CPI growth between 2020 and 2021 (Central Bank of Ireland, 2020).

[11] We have arbitrarily chosen the halfway point, 50 per cent, as it is not possible to know what the true figure is.

section, we show how sensitive our estimation of the cost of the pandemic income supports is to this assumption.

In the third stage of the analysis, we incorporate changes announced in Budget 2021. The elements of Budget 2021 that we model consist of changes to direct taxes, indirect taxes and social welfare payments which we list in Appendix A and briefly detail here.

Although most tax credits and bands were frozen in cash terms – amounting to a small effective tax increase given forecast inflation of 0.2 per cent – some cuts to direct taxes on personal income were announced. The point that the main rates of Universal Social Charge (USC) and class A employer pay related social insurance (PRSI) begin to apply were increased slightly while a reduced rate of USC for Medical Card holders was extended by a year. The earned income tax credit (EITC) available to self-employed workers was also increased (by €150 to €1,650 per year) meaning that most self-employed will now pay the same income tax as employees with the same level of earnings.[12]

There were more substantial reductions in indirect taxes, with a temporary 14-month cut in the rate of VAT charged on hospitality and hairdressing (from 13.5 per cent to 9 per cent) and cash freezes (small effective cuts) in alcohol duties. However, there were also increases in tobacco products tax (equivalent to an extra 50 cents per pack of 20 cigarettes) as well as a well-flagged rise in the carbon tax (from €26 to €33.50 per tonne).[13]

While the main rates of most social welfare benefits were frozen in cash terms, there were some substantial targeted increases to payments, in part informed by ESRI research on how lower income households could be best compensated for a rise in the carbon tax (O'Malley et al., 2020). Low income retirees and single adults living alone gained from increases to the Living Alone Increase and Fuel Allowance: 36 per cent and 14 per cent respectively. Low income families with children gained from a rise in weekly payments per child, whether in receipt of Jobseekers' payments, One-Parent Family Payment or Working Families Payment. In addition, there were increases to the amount that recipients of One-Parent Family Payment

12 The incomes of self-employed workers will continue to be subject to higher rates of USC above €100,000 per year but benefit from more favourable PRSI treatment than the earnings of employees (Roantree et al., 2018). The Budget also announced the extension of various direct tax reliefs for companies and first-time buyers of newly built homes, none of which are incorporated in our analysis given the focus is on household incomes.

13 There were also changes to the way that cars registered from January 2021 will be taxed, both on registration in the form of Vehicle Registration Tax (VRT) and recurrently (motor tax). However, we do not model either of these changes as our SILC data do not contain sufficiently detailed information on car ownership.

and Disability Allowance could earn before seeing their payment means-tested, and to the Carer's Support Grant paid annually to those in receipt of the Carer's Allowance, Carer's Benefit and Domiciliary Care Allowance.[14]

Comparing outcomes in the *COVID – September policy response* and *COVID – Budget 2021* scenarios gives the additional cost and distributional effect of the direct and indirect tax and welfare measures announced in Budget 2021, compared to a price-indexed version of the September 2020 tax-benefit system.

3. COST

Table 2 displays the monthly cost of pandemic-related unemployment, of the accompanying supports in operation as of September 2020 and of Budget 2021.

Columns 1 and 2 of Table 2 show the cost of pandemic-related unemployment, calibrated to match August 2020 levels, under two assumptions: (1) no jobs supported by the EWSS would have been lost in the absence of this policy and (2) 50 per cent of jobs supported by the EWSS would have been lost in the absence of this policy. The net Exchequer impact of the pandemic unemployment shock ranges between -€341 million and -€745 million depending on how EWSS is treated. In our central scenario (in column 2), where 50 per cent of jobs supported by EWSS would be lost without this policy intervention, the loss in Exchequer revenues of €745 million per month is almost equally driven by a reduction in tax/SIC revenue (-€365 million per month) and an increase in welfare expenditure (+€380 million per month).

Comparing this scenario to one in which the PUP and EWSS are introduced in column 3 shows a larger loss in Exchequer revenue of €831 million per month. It is notable however, that much of this Exchequer loss would have been experienced in the absence of these policies, assuming that the EWSS is saving 50 per cent of the jobs it supports. Even if we assume that the EWSS is saving no jobs, close to half of this Exchequer loss would have been experienced (see net Exchequer impact of -€341 million per month in column 1). This is because, in the absence of the PUP and EWSS, the existing tax-benefit system would have helped stabilise incomes, for example through increased Jobseeker's Benefit or Assistance payments. These estimates suggest that, at most, the PUP and EWSS are doubling the Exchequer cost of COVID-related unemployment, although it is likely that their

[14] There was also a postponement of the planned rise in the qualifying age for the State pension, which we do not model.

marginal cost is significantly less than this, depending on how crucial the EWSS is to job retention.

The effect of Budget 2021, in column 4, is to slightly increase the monthly Exchequer cost, primarily through an increase in welfare expenditure.

TABLE 1 THE COST OF COVID-19 RELATED EMPLOYMENT IN TERMS OF DIRECT TAX AND WELFARE

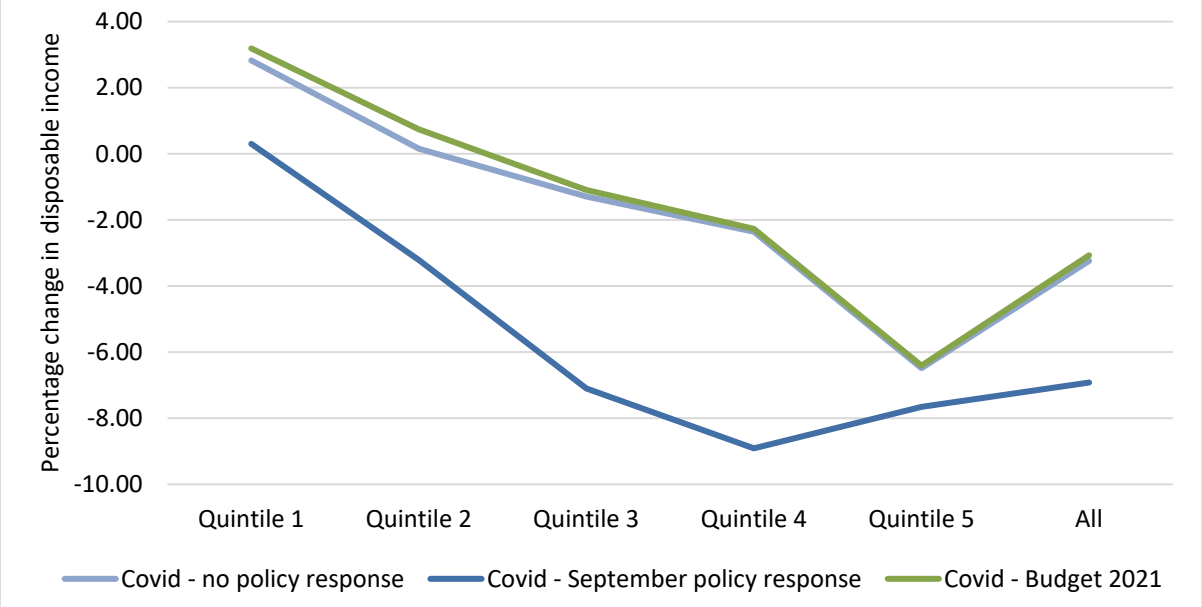
	Cost (€million per month)			
	COVID – no policy response (1)	COVID – no policy response, baseline (2)	COVID – September policy response (3)	COVID – budget 2021 (4)
Change in earnings	-503	-1,080	-778	-778
(a) Change in tax/SIC revenue	-173	-365	-277	-276
(b) Change in welfare expenditure	168	380	335	345
Pandemic Unemployment Payment	*0*	*0*	*272*	*270*
(c) Employment Wage subsidy scheme	0	0	219	219
Net Exchequer impact (a-b-c)	**-341**	**-745**	**-831**	**-839**

Source: Authors' calculations using SWITCH run on 2017 Survey of Income and Living Conditions data, uprated to 2020 income levels.
Notes: (1) no direct/indirect tax or welfare policies implemented. Assumes no jobs supported by the EWSS would have been lost in the absence of this policy.
(2) no direct/indirect tax or welfare policies implemented. Assumes 50 per cent of jobs supported by the EWSS would have been lost in the absence of this policy.
(3) direct and indirect tax and welfare policies implemented up to September 2020.
(4) direct and indirect tax and welfare policies announced in Budget 2021.

4. DISTRIBUTIONAL IMPACT

Figure 1 shows the distributional effect of pandemic-related unemployment with and without accompanying supports and Budget 2021 measures. We first examine the impact of pandemic job losses without targeted supports on income distribution (*COVID – no policy response*). We then turn to the effect of the PUP, EWSS and cut to the standard rate of VAT on household income (*COVID – policy response*) before showing the cumulative effect of these supports and Budget 2021 measures (*COVID – Budget 2021*).

FIGURE 1 DISTRIBUTIONAL EFFECT OF EMPLOYMENT LOSSES WITH AND WITHOUT SEPTEMBER COVID POLICIES AND BUDGET 2021



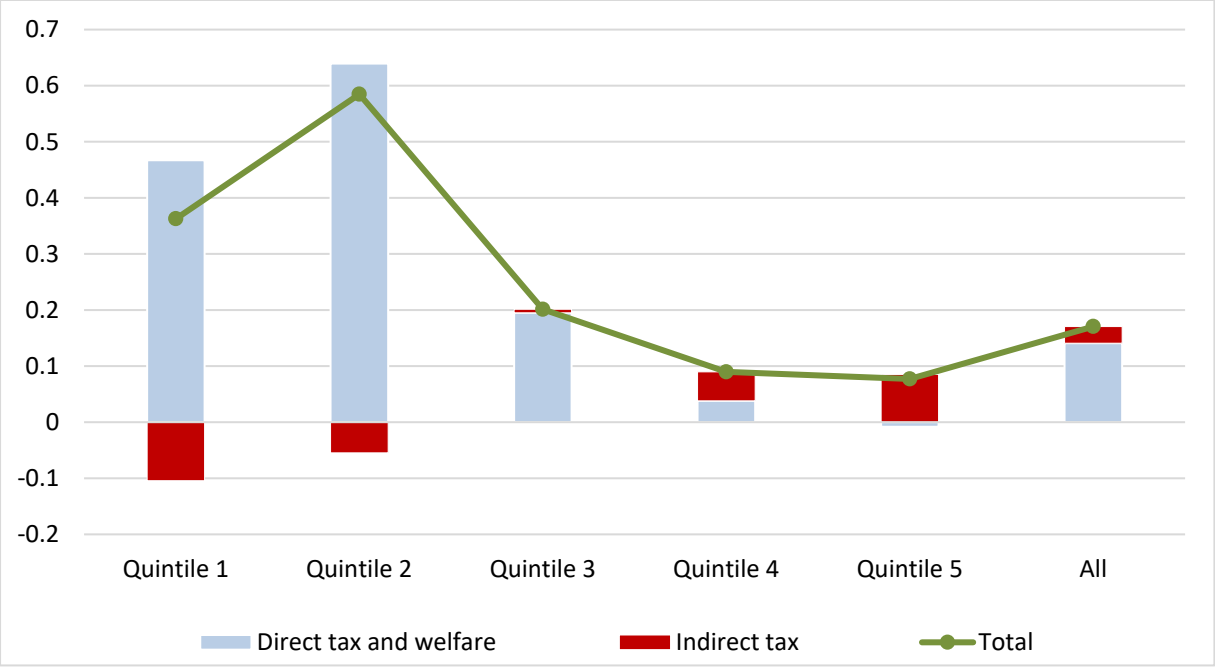
Source: Authors' calculations using ITSim linked to the 2015-2016 Household Budget Survey uprated to 2021 prices, and SWITCH run on 2017 Survey of Income and Living Conditions data, uprated to 2020 income levels.
Notes: Quintiles are based on equivalised household income, using CSO national equivalence scales.

Figure 1 illustrates the impact of each scenario across the distribution of household income, adjusted for family size, with the population divided into five equally sized groups (quintiles) ordered from lowest- to highest income, left-to-right. We estimate that pandemic-related unemployment has decreased household income by 7 per cent. However, this loss is not equally distributed. Households in the lowest quintile group saw little change to their income as (1) they are less likely to contain a worker and to be exposed to the unemployment shock and (2) the existing tax-benefit system (e.g. Jobseeker's Benefit, Jobseeker's Assistance etc.) does a good job of sheltering the incomes of those in this income quintile from job losses. Losses increase further up the income distribution with those in the upper half of the income distribution experiencing the largest income loss of between 7 per cent and 9 per cent.

The initial policy response to the pandemic (PUP, EWSS and cut to the standard rate of VAT) decreases the average household income loss from 7 per cent to 3 per cent. Households in the lowest two income quintiles experienced small income gains compared to a *Pre-COVID* scenario as a result of the generous rate of PUP and the cut to the standard rate of VAT. This phenomenon is also highlighted in Beirne et al. (2020), which examines the distributional effect of the more generous flat-rate PUP of €350 per week. Losses are small in quintiles three and four. Only quintile five still experiences large average income losses of 6.5 per cent compared to a *Pre-COVID* scenario.

Figure 1 also shows the additional effect of Budget 2021 on income distribution. Budget 2021 reinforces the trend of the pre-Budget income support policies but the magnitude of the effect of Budget 2021 is small compared to the impact of employment losses or policies enacted earlier in the year. Figure 2 shows the effect of Budget 2021 policy changes alone, distinguishing between direct tax and welfare and indirect tax measures. Direct tax and welfare measures result in an average increase in disposable income of 0.2 per cent compared to the price indexed benchmark. Gains are higher in the lower half of the distribution and are close to zero in quintiles four and five, reflecting low rates of social welfare receipt in these quintiles. Indirect tax measures result in a negligible increase in disposable income, on average, compared to price-indexed policies with the reduction in VAT more than offsetting the rise in carbon tax and tobacco duty for most households. However, the effect is not uniform and there are small losses at the bottom of the income distribution in addition to the small gains at the top of the distribution. Taking direct and indirect measures together results in an overall picture of a progressive budget, largely driven by the substantial increases to certain welfare payments for low income retirees, families with children and adults living alone.

FIGURE 2 BUDGET 2021 COMPARED TO INDEXED SEPTEMBER 2020 POLICY PARAMETERS



Source: Authors' calculations using ITSim linked to the 2015-2016 Household Budget Survey uprated to 2021 prices, and SWITCH run on 2017 Survey of Income and Living Conditions data, uprated to 2020 income levels.

Notes: Quintiles are based on equivalised household income, using CSO national equivalence scales.

5. INEQUALITY

The impact of the pandemic has not been uniform across different groups of the population. Inequalities have been observed by income group, age, gender and industry (Adams-Prassl, et al., 2020; Alon et al., 2020; McQuinn, et al., 2020). There are also suggestions that the pandemic will result in longer-run effects on inequality in income, health, human capital, etc. (Blundell et al., 2020). In this section, we show estimates for income inequality and at risk of poverty rates in the four scenarios presented above. We also add to the international evidence on the unequal effect of the pandemic and show how short-run pandemic-related income losses vary by age cohort, gender and industry in Ireland. To do this, we examine income at the individual level rather than the family level (discussed in Section 4). This necessitates some assumption about how income is split between members of a couple.

5.1 Income inequality and at-risk of poverty rates

Table 3 shows our estimates of income inequality and at risk of poverty rates in the four scenarios described above. Income inequality is measured using the widely used Gini Index. An increase in this index indicates that income is distributed more unequally. At risk of poverty rates are measured with respect to a poverty line equal to 60 per cent of median equivalised household income.[15]

Inequality in market – or pre-tax and transfer – income is 0.51 in the *Pre-COVID* scenario, rising to 0.56 when we account for COVID-related job loss without any policy response. The initial policy response reduces this to 0.53 and inequality remains at this level in the *COVID – Budget 2021* scenario. The Gini of disposable – or post-tax and transfer – income is 0.28 in the *Pre-COVID* scenario. This rises to 0.29 (+4 per cent) when COVID-related job losses are introduced. The initial policy response to COVID and tax-benefit changes in Budget 2021 stabilise the Gini of disposable income at 0.28 and 0.27 respectively. This pattern of a predicted rise in inequality in the absence of policy intervention and a stabilisation once policy changes are taken into account is not unusual compared to our European neighbours. Almeida et al., 2020 estimate that in the absence of policy responses, the COVID pandemic would have resulted in an average rise in the Gini of 3.6 per cent across the European Union but a small fall is estimated (-0.7 per cent) once policy measures are taken into account.

[15] The CSO's equivalence scale is used.

TABLE 3 INCOME INEQUALITY AND AT RISK OF POVERTY RATES

	Pre-COVID	COVID – no policy response	COVID – September policy response	COVID – Budget 2021
Income inequality				
Gini Market Income	0.51	0.56	0.53	0.53
Gini Disposable Income	0.28	0.29	0.28	0.27
At Risk of Poverty rate				
Anchored Poverty rate	0.14	0.18	0.16	0.15
Anchored Poverty rate - working age	0.15	0.20	0.17	0.16
Anchored Poverty rate - child	0.18	0.23	0.20	0.19

Source: Authors' calculations using SWITCH run on 2017 Survey of Income and Living Conditions data, uprated to 2020 income levels. The at risk of poverty rate is calculated based on a poverty line equal to 60 per cent of median equivalised disposable income. The CSO equivalence scale is used. Working age defined as aged 18-65 and children those under age 18.

The at risk of poverty rate rises from 0.14 in the *Pre-COVID* scenario to 0.18 in the *COVID – no policy response* scenario. There are rises of similar magnitudes for working age and child subgroups. The direct and indirect tax and benefit reforms introduced as part of the COVID policy response cushion most of this increase and Budget 2021 continues in the same direction, so that at risk of poverty rates in the *COVID – Budget 2021* scenario are little higher than those in the *Pre-COVID* scenario.

While the COVID polices in particular have done much to stabilise inequality and the at risk of poverty rate, these scenarios indicate how inequality and poverty may rise in the future if these supports are withdrawn before there are ample job opportunities.

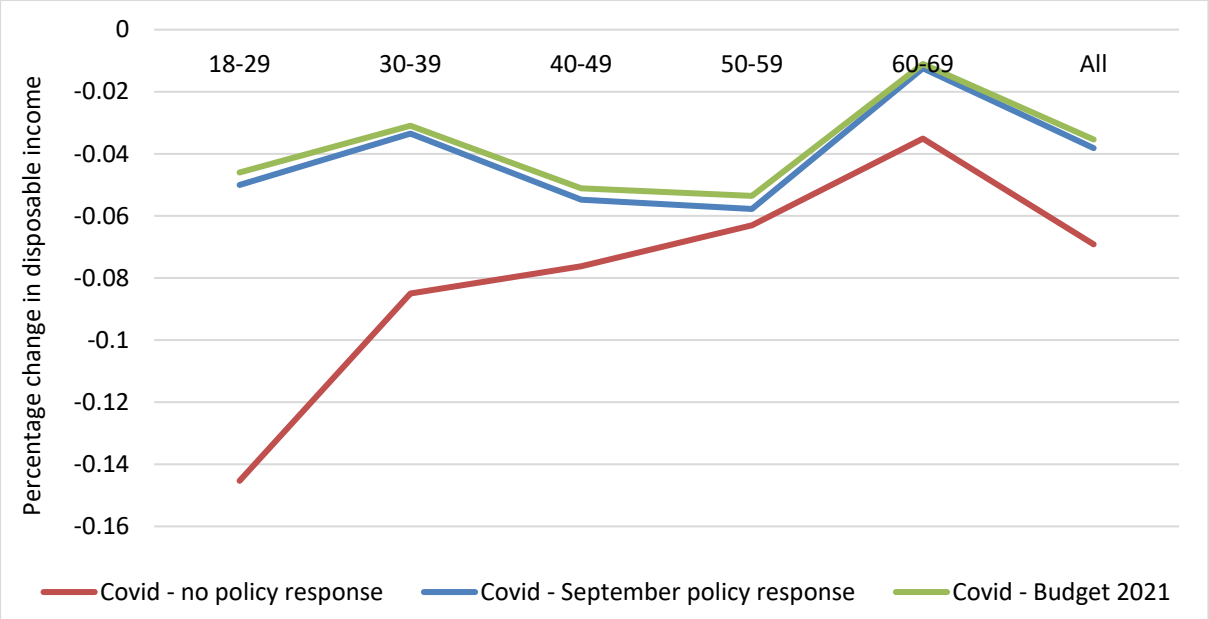
5.2 Age

Figure 3 shows the change in disposable income by age cohort compared to the *Pre-COVID* scenario.[16] Clearly the youngest age cohort is most affected by income losses due to COVID-related unemployment. We estimate that the 18-29 cohort would have lost 15 per cent of disposable income in the absence of targeted supports. This is twice the average loss of 7 per cent observed across all age cohorts. However, the policy response to COVID-related job losses has been such that losses have averaged 3.5 per cent with little difference across age cohorts.

[16] Income is at the individual level rather than the tax-unit level which necessitates some assumption about how income is split between members of a couple. We consider each member of a couple as an individual in terms of their market income, tax liability and benefit entitlement. One exception is family benefits, such as child benefit, and household level benefits, such as housing benefits, which we assume to be shared equally among members of a couple.

This implies that the COVID policies are doing most to support the incomes of young adults.

FIGURE 3 IMPACT OF EMPLOYMENT LOSSES, DIRECT TAX AND WELFARE POLICIES AND BUDGET 2021 BY AGE



Source: Authors' calculations using SWITCH run on 2017 Survey of Income and Living Conditions data, uprated to 2020 income levels. To individualise income, household level benefits are split equally between members of a couple.

5.3 Gender

Figure 4 shows how income losses are distributed by gender, comparing the scenario *COVID – Budget 2021* to the scenario *Pre-COVID.* Men are more likely to be in employment, pre-COVID, than women and, when they are in employment, they tend to have higher average earnings. In line with this, we estimate that men lose, on average, more disposable income than women as a result of the pandemic. This should be interpreted as a short-term effect as there is evidence in the international literature that, in order to cope with increased caring responsibilities, women have been more likely than men to switch from employment to inactivity or to decrease their hours of work during the pandemic (Adams-Prassl, et al., 2020; Alon et al., 2020; Andrew et al., 2020). Neither of these effects are captured by our method and they are likely to have knock-on effects on the gender wage gap and the gender work gap in the future.

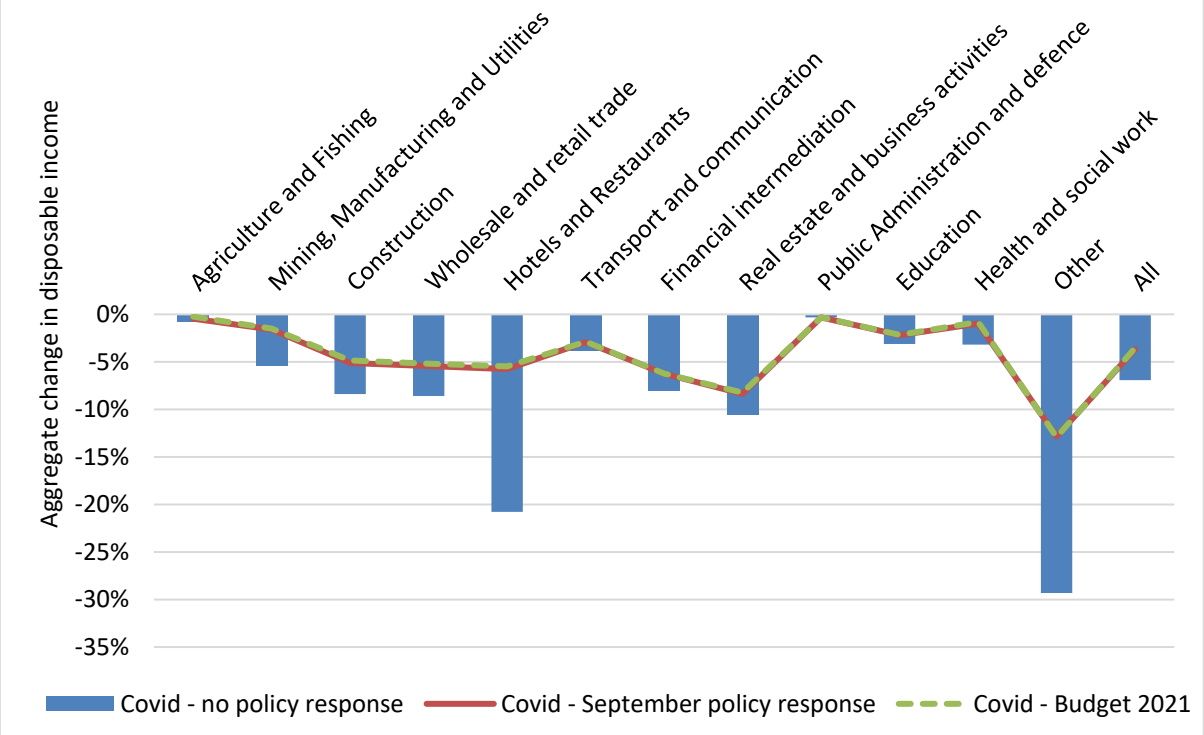
FIGURE 4 THE IMPACT OF EMPLOYMENT LOSSES, DIRECT TAX AND WELFARE POLICIES AND BUDGET 2021 BY GENDER

Source: Authors' calculations using SWITCH run on 2017 Survey of Income and Living Conditions data, uprated to 2020 income levels. To individualise income, household level benefits are split equally between members of a couple.

5.4 Industry

Figure 5 shows the aggregate change in disposable income of workers by industry. Before accounting for the PUP and EWSS, those most affected by income losses are those working in *Hotels and Restaurants* and *Other*, which includes the Arts. The policy response to unemployment losses has greatly sheltered the income losses for those working in these industries in particular. In the absence of economic recovery in these industries, the withdrawal of these policies, scheduled for Spring 2021, will result in large income losses.

FIGURE 5 THE IMPACT OF EMPLOYMENT LOSSES, DIRECT TAX AND WELFARE POLICIES AND BUDGET 2021 BY INDUSTRY



Source: Authors' calculations using SWITCH run on 2017 Survey of Income and Living Conditions data, uprated to 2020 income levels. To individualise income, household level benefits are split equally between members of a couple.

6. CONCLUSIONS

2020 has been a challenging year for employment and incomes in Ireland and has proved a severe test of the social welfare system. Significant interventions have been made by the Government to support the incomes of those affected financially by COVID-19 in the form of the Pandemic Unemployment Payment and wage subsidies. In addition the standard rate of VAT was reduced over the summer from 23 per cent to 21 per cent to help bolster economic activity.

If these initial interventions had not happened, we estimate that pandemic-related unemployment would have decreased household income by an average of 7 per cent across the population, with significantly larger losses for those who lost their jobs. The initial policy response in the form of the PUP, wage subsidy and standard rate VAT cut helped protect family incomes and reduce the cost of living so that household income fell instead by 3 per cent on average. These losses are sharpest at the upper end of the income distribution. At 6 per cent, those in the highest income quintile experience a loss more than twice the average. Those in the lowest income quintile actually experienced a gain of close to 3 per cent because of the cut to VAT and the relative generosity of the PUP compared to prior earnings of this group.

We estimate that, in the absence of targeted policies, young adults in the 18-29 age category would have experienced a particularly large loss in income of over 14 per cent due to COVID-related job losses. The initial interventions acted to reduce this to around 5 per cent, similar to that experienced by older age groups. Those working in certain hard-hit sectors – hospitality, for example – would also have faced significantly above average falls in income. Again, the initial COVID-related policies ensured these losses were greatly reduced.

Without these interventions, inequality in market (pre-tax and transfer) income, as measured by the Gini coefficient, would have risen by close to 10 per cent. Instead, our simulations suggest it rose by less than half of that, just under 4 per cent. Once taxes and transfers are taken into account the COVID-related interventions actually completely stabilised disposable income inequality, a significant feat given the job losses experienced. At risk of poverty rates were also stabilised by COVID-related policies but there is a risk that they may increase significantly once these supports are withdrawn.

While much less costly than the pre-Budget COVID policies, Budget 2021 was also progressive in its impact, with above average gains for the bottom two-fifths of the income distribution and lower than average gains for those at the upper end. We estimate that Budget 2021 will result in small reductions in income inequality and the at risk of poverty rate.

There is much debate over how long to continue COVID-related policies such as the PUP and EWSS. While pandemic-related unemployment is costly to the Exchequer in terms of tax foregone and welfare expenditure, this research has shown that at least half (and probably more) of this cost would have been incurred in the absence of the COVID policies.

The PUP is due to be continued until April 2021 but closed to new applicants at end-2020. Should sufficient employment prospects exist at that time, withdrawing the PUP would improve financial incentives for those seeking work to take up employment. So too would allowing existing recipients to maintain their payment while taking up paid employment for a period of time, as is the case with the self-employed. This could encourage those in non-viable industries to seek employment in other sectors, for which they may need additional training. However, if the labour market has not largely recovered by Spring of 2021, then the withdrawal of the PUP would be likely to disproportionately affect low-income, young, single workers. This group is particularly at risk of a large income shock for

two reasons. Firstly, those aged 18-25 living with parents receive a rate of Jobseeker's Assistance that is 45 per cent lower than the rate for those aged 25 and above.[17] Secondly, many young people receiving the PUP are students so may not be eligible for Jobseeker's Assistance in the first place.[18] One option available to policymakers is a more gradual tapering of the PUP which could help the groups most at risk of long-term unemployment after the pandemic to maintain a certain standard of living while searching for work. Much will depend on the post-COVID recovery and the availability of employment for different age cohorts and in different sectors.

Similarly, determining the optimal time to close or withdraw the EWSS – currently end-March 2021 – will be challenging. In the long-run, continuing the subsidy would mean supporting both employment which would exist even if the subsidy was no longer in place (a deadweight cost) and employment which is no longer viable in the long term (where employees should be given the opportunity to re-train in other roles). Yet withdrawing it too early would lead some firms to fail that would otherwise be viable. While close monitoring of the speed and scale of the recovery by sector may help inform this difficult decision, there is also a case for examining the design of the subsidy for any it does continue for. At present, the sharp cut-off in eligibility imposed by the requirement to be experiencing a 30 per cent reduction in turnover means some firms may face an incentive to suppress output, therefore inhibiting their recovery.

Finally, men appear to have been hardest hit by employment losses in the short term, driven by the fact that they are more likely than women to be in employment in the first place and tend to have higher earnings. However, in line with the international evidence, female participation rates and hours of work in Ireland may have changed over the course of 2020 due to child and elderly care pressures. Such pandemic-related career interruption may have a knock-on effect on gender gaps in earnings and work patterns in the future, which policymakers may wish to address.

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17 The personal rate of Jobseeker's Assistance for those aged 18-25 not living independently and with no dependent children is €112.70 per week compared to €203 a week for those aged over 25.

18 It is estimated that in October 2020 at least 25 per cent of PUP recipients aged under 25 were registered as a full-time student (CSO, 2020) and therefore ineligible for Jobseeker's Assistance or Benefit.

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APPENDIX A

The SWITCH model provides a detailed and accurate representation of almost all aspects of the Irish personal tax and benefit system. It does not include taxes on businesses (like corporation tax), which are difficult to assign to individual households, or expenditure on public services which, unlike cash transfers provided through the benefit system, are conceptually difficult to assign a value to (O'Dea and Preston, 2014).

The ITSim model estimates the indirect taxes (VAT and excise duties, including carbon taxes) paid by Irish households on the basis of their reported expenditure, collected by the CSO's nationally representative HBS in 2015-2016.

The main measures we include in our analysis of Budget 2021 using SWITCH are given in Table A1.

TABLE A1 MAIN MEASURES IN BUDGET 2021 USING SWITCH

Income Taxes	EITC increase
	USC second rate increase
Social Welfare	Carer's support grant increase
	Living Alone Allowance increase
	Fuel Allowance increase
	QCI changes
	OPFP earnings cap removal
	Working Family Payment increases
	Disability Allowance disregard increased
Indirect Taxes	Carbon tax increase
	VAT reduction for hospitality/tourism
	Tobacco tax increases

SOVEREIGN DEBT AFTER COVID-19: HOW THE INVOLVEMENT OF THE ECB CAN IMPACT THE RECOVERY PATH OF A MEMBER STATE

* Matthew Allen-Coghlan, Kieran McQuinn and Petros Varthalitis[1]

ABSTRACT

The likely substantial impact of COVID-19 related measures on the public finances of European countries has prompted an unprecedented call for new and significant policies at a European level to alleviate the pressures on individual Member States. The administrative closures adopted across most economies has resulted in a complete cessation of certain types of economic activity, a significant increase in unemployment and profound fiscal challenges for the countries in question. In this paper we use a SOE-DSGE model to assess the role the ECB can play in mitigating the negative economic and fiscal effects of the crisis for Ireland by participating directly in the sovereign debt management of the country. Our results indicate that the direct involvement of the ECB via sovereign bonds purchases increases the efficiency of the extraordinary fiscal stimulus packages that were put in place to combat the negative impact of COVID-19. A fiscal stimulus at the national level backed by ECB financing reduces the output losses in the first year which would otherwise occur. The reduction in the output loss ranges from 0.5 per cent to 0.7 per cent depending on the mix of fiscal policies chosen by the State. The cumulative reduction in output loss over a five-year horizon could sum to 1.4 per cent to 2.2 per cent depending on the fiscal policy mix chosen.

1. INTRODUCTION

The emergence of COVID-19 in 2020 has prompted governments across Europe to adopt a range of extraordinary lockdown measures. While necessary from a health perspective, the cumulated impact of these measures has resulted in unprecedented economic fallout, with millions of workers across Europe being made unemployed. To mitigate the negative impact of the pandemic, governments across Europe have also initiated extraordinary fiscal responses at a national level. In Ireland this has included the introduction of wage support schemes, subsidies for business and COVID-19 related unemployment payments.[2] These significant expenditure measures coupled with the expected fall in taxation receipts due to

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1 The authors would like to thank an anonymous referee, David Purdue, Diarmaid Smyth, Rossa White and seminar participants at the ESRI for helpful comments. We would also like to thank David Purdue and Rossa White for providing data.

2 See *Taking Stock: The Fiscal Response to Covid-19*. Irish Department of Finance, November 2020.

the decline in economic activity will result in the Irish government encountering substantial fiscal challenges this year, with key metrics such as the General Government Balance and debt-to-GDP ratios set to be adversely impacted.

As the spread of the virus puts pressure on the public finances of countries across Europe, the issue of whether European institutions should provide more support to Member States has come to the fore. In this context a number of different options have been advanced. Blanchard (2020), for example, called for the ECB to act directly and buy Italian bonds. Whelan (2020) endorsed the proposal by Gros and Mayer (2012) that the European Stability Mechanism (ESM) should be provided with a liquidity backstop by having it registered as a bank. Alesina and Giavazzi (2020) called for the ECB to lift, temporarily, the constraints on its asset purchase programme and in particular the capital key. Furthermore, Alesina and Giavazzi (2020) suggested that the additional expenditure required by Member States to address the COVID-19 issue should be part of an EU programme. Bénassy-Quéré et al. (2020) and Gourinchas (2020) both supported a debt-financed fiscal stimulus at the European level.

This article has two main aims. The first is to examine the impact of the unfolding pandemic crisis on the Irish economy. The second is to assess the role the ECB can play in mitigating the negative demand and supply effects of the crisis for a particular Member State by participating directly in the sovereign debt management of that country.[3] It is not our intention to recommend the most effective or preferable form of European intervention but to demonstrate the impact a particular form of intervention would have on the recovery path of the Irish economy.

To conduct this exercise, we utilise the small open economy dynamic stochastic general equilibrium (SOE-DSGE) model calibrated for Ireland developed in Varthalitis (2019).[4] The model is extended in three ways. First, we introduce demand and supply shocks in the model so as to gauge the adverse impact of the pandemic in key macroeconomic aggregates of a small open economy member of Eurozone. A significant economic fallout has already occurred in Ireland (see e.g. McQuinn et al., 2020). Second, we develop the fiscal block of the model so as to incorporate a set of extraordinary fiscal instruments that are used by national fiscal authorities to mitigate the negative effect of the pandemic. Third, and, perhaps

3 There is a growing literature that extends medium scale DSGE models used for policy analysis to study the macroeconomic and policy implications of the pandemic. Some examples include Bayer et al. (2020), Faria-e-Castro (2020) and Hagedorn and Mitman (2020).

4 FIR-GEM is a small open economy DSGE model for Ireland. Since the structure of the model is thoroughly analysed in Varthalitis (2019), in this paper we mostly focus on the extensions and the policy implications.

more importantly, we study the impact of the ECB directly intervening in the debt management of a Member State economy. This is accomplished by enhancing a SOE model to add a union-wide policymaker that can directly intervene in the debt management of the domestic economy.

Under our policy experiment, we assume that two policy authorities can intervene in the economy of a member of a currency union, the national fiscal authority (the treasury) and a supra-national policymaker (the ECB). The role of the treasury is to finance its government expenditure, conventional and extraordinary, by levying taxes and/or issuing sovereign bonds. The role of the ECB, under our experiment, is to buy sovereign bonds from the Member States and set the union-wide interest rate. Each Member State's public debt can now be held by two types of institutional creditors, private markets and/or the ECB. Therefore, with such a policy the ECB can generate additional fiscal space for the national governments in the short to medium run. The timing of when these bonds will start impacting domestic public finances depends on the purchasing policy of the ECB.

In terms of the impact of the pandemic shock, we consider two possible outcomes. One outcome involves the impacts of the outbreak fading swiftly with economic activity, as a consequence, recovering quite quickly. We refer to as the 'V-shaped' recovery. We also consider an outcome where the pandemic endures and, thus, the adverse effects on the economy are more prolonged. This is referred to as the 'long-lasting' outcome. We calibrate the magnitude of the pandemic shock so as to mimic the expected fallout in some key macroeconomic aggregates reported in McQuinn et al. (2020).[5]

Our results indicate that the direct financial assistance of the ECB via sovereign bonds purchases increases the efficiency of the extraordinary national fiscal stimulus packages. A fiscal stimulus at the national level backed by ECB financing reduces the output losses in the first year which would otherwise occur. The reduction in the output loss ranges from 0.5 per cent to 0.7 per cent depending on the mix of fiscal policies chosen by the Member State. The cumulative reduction in output loss over a five-year horizon could sum to 1.4 per cent to 2.2 per cent depending on the fiscal policy mix chosen and the size of the fiscal stimulus. In terms of national policy, we find that extraordinary expenditures such as spending related to enhanced public health, labour income, subsidies and/or cash transfers targeted to financially constrained households perform better in countering the negative economic impacts of the lockdown. Fiscal packages should target households with no other sources of income and, thus, with a higher propensity to

[5] The current analysis is subject to uncertainties due to the unexpected and novel nature of the COVID-19 pandemic.

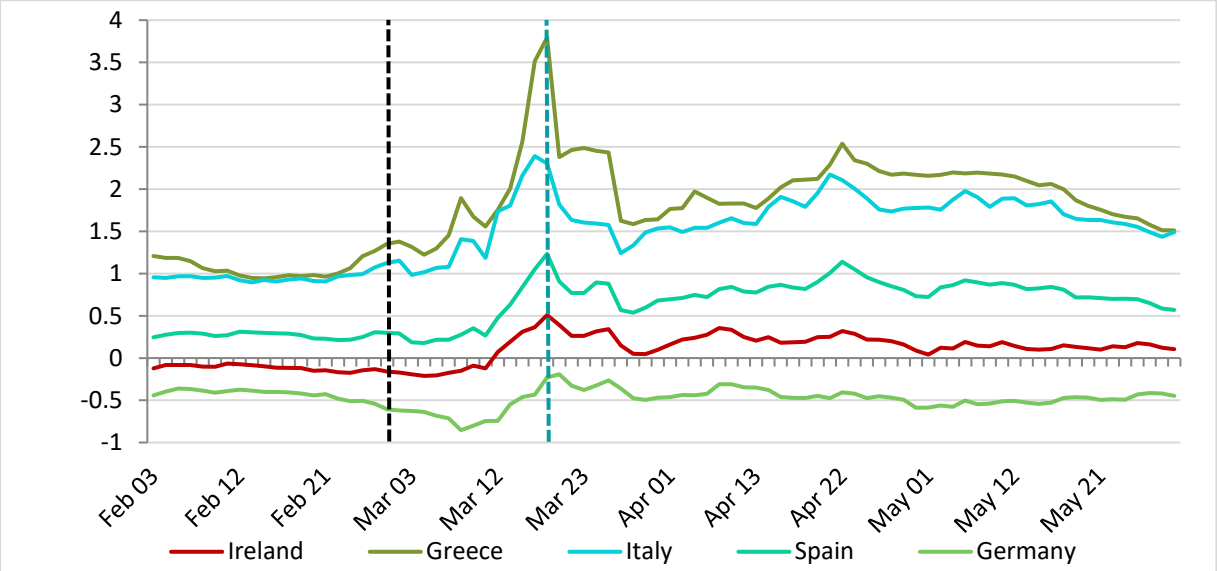
consume. Our article contributes to the growing literature that extends medium scale DSGE models used for policy analysis to study macroeconomic and policy implications of the pandemic.

The rest of the paper is structured as follows; in Section 2 we look at the role that could be played by ECB institutions in sharing the debt of Member States. Section 3 develops the extensions of the model. Section 4 presents the main scenarios simulated. Section 5 explains our results and Section 6 outlines some concluding comments. For the technical analysis see McQuinn and Varthalitis (2020).[6]

2. INCREASED ROLE FOR THE ECB SHARING THE DEBT OF MEMBER STATES?

At the onset of the crisis, the ECB acted swiftly to support Member States through accommodative monetary policy. Through the Pandemic Emergency Purchase Programme (PEPP) the ECB will purchase €1.35 trillion worth of sovereign government debt up to the end of June 2021 or when the COVID-19 'crisis phase' is deemed to be over. This has helped alleviate market fears of default for Eurozone countries, in turn keeping borrowing costs down (see Schnabel, 2020). Figure 1 shows that the initial increase in yields experienced by some Eurozone countries at the start of the pandemic have largely fallen back to pre-pandemic rates.

FIGURE 1 GOVERNMENT BOND YIELDS SELECTED EUROZONE COUNTRIES DAILY FREQUENCY (PER CENT)

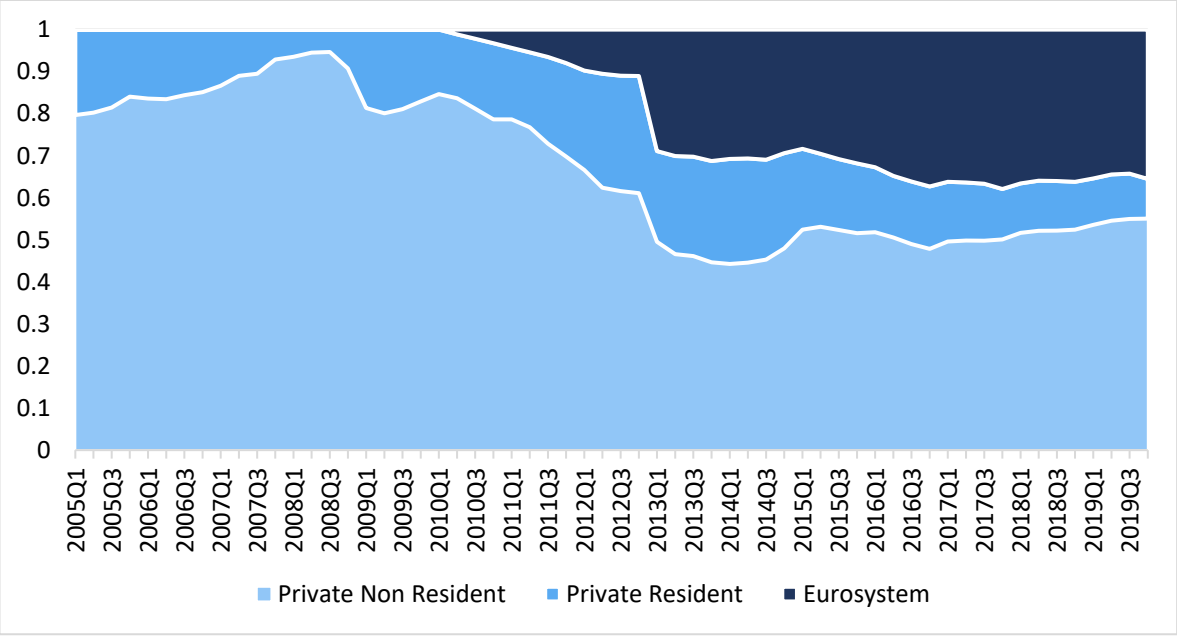


Source: Investing.com.
Note: Black dashed line marks the outbreak of the pandemic while the green dashed line marks announcement of PEPP.

6 In July 2020, McQuinn and Varthalitis (2020) also conducted a quantitative analysis based on year to date information and data available at that point in time. This article updates their quantitative analysis.

Prior to the PEPP, the ECB engaged in a number of other asset purchase programmes in the post-financial crisis era. These programmes were instigated in response to the sovereign debt crisis in the Euro Area following the financial crisis and the anaemic inflation rates throughout the Eurozone in the intervening years. Figure 2 shows the amount of long-term Irish government debt held by the Eurosystem/ECB between 2005 and 2019. The amount of debt held by private markets is also included for comparative purposes. Between 2009 and 2013 there was a sharp increase in Irish long-term government debt by held by the Eurosystem. This can be attributed to the bailout programme that was introduced over this period in which the Eurosystem purchased large sums of Irish government debt to make up for the shortfall in the public finances. Eurosystem holdings of Irish sovereign bonds continued to increase in the following years until it began to temporarily wind down its asset purchase programme in 2018. However, these were reintroduced in 2019 and coupled with the large scale purchases of sovereign debt as part of PEPP, there are likely to be further increases in ECB purchases of Irish government debt in 2020 and beyond.

FIGURE 2 IRISH LONG-TERM DEBT HELD BY THE PRIVATE MARKET/EUROSYSTEM



Source: National Treasury Management Agency.

In addition to the monetary policy intervention by the ECB, European Union leaders agreed to a multi-year spending package of €1.8 trillion in July 2020. As part of this package a €750 billion 'Next Generation EU' fund to target the ill effects of the pandemic was also agreed. Of the €750 billion, €390 billion will be distributed as grants with the rest distributed as loans. This fund will be distributed proportional to the level to which a country has been impacted by the pandemic. Crucially, the

fund will be joint financed by all members of the European Union. This will ensure that countries that have seen their debt levels spike as a result of COVID-19 and the administrative closures will not be burdened by further debt.

3. THE MODEL

Our model is similar to the medium scale small open economy DSGE model developed in Varthalitis (2019). We extend the model in the following ways: first, we allow for the negative demand and supply effect of the pandemic in the small open economy of a Member State of the EU. Second, we develop the fiscal block of the model so as to incorporate a set of extraordinary fiscal instruments that are used by national fiscal authorities to mitigate the negative effect of the pandemic. Third, we allow for a greater policy role of the ECB in providing financial assistance to an individual Member State in the form of sovereign bond purchases (for further technical details on these extensions see McQuinn and Varthalitis, 2020).

3.1 DSGE model

The model developed in Varthalitis (2019) follows a typical household utility maximisation subject to a sequential budget constraint. Here the model is adjusted to take into account the impact of the pandemic which has a negative impact on both demand and supply, e.g. consumption falls from containment policies while labour supply is restricted due to the administrative closures and/or the risk of workers becoming infected. In response to the pandemic, the Government launches a set of extraordinary spending instruments to alleviate the negative economic effects. In this model the spending instruments can take a number of different forms. The first spending type we look at is expenditure related to public health. We assume that this type of spending is a strong complement to private consumption. The economic logic of this assumption is that the extreme containment measures curtail a large part of consumption activities. Households will only be able to restore their levels of private consumption if the Government can guarantee a certain level of safety through public health measures. The second type of expenditure we look at is a labour income subsidy which is proportional to the loss of labour income experienced in the private sector. That is, the Government pays back a fraction of the income losses occurred during the pandemic. Finally, we look at direct extraordinary cash transfers. To account for targeted fiscal policies to different income classes, we allow income subsidies and cash transfers to differ between Ricardian (savers) and non-Ricardian (non-Savers) households.

3.2 Model policy extension

We extend Varthalitis (2019) by allowing national fiscal policy to use an extraordinary set of spending instruments in a discretionary manner while also allowing for an enhanced role for the ECB in purchasing Irish sovereign debt.

Institutional composition of public debt

Following Economides et al. (2020), we assume that Ireland's public debt can be purchased by two types of creditors that differ in their institutional state: (i) private markets, i.e. domestic and foreign agents that participate in the domestic and international financial markets and (ii) EU institutions (i.e. ECB). Total public debt in period *t* expressed in nominal terms is:

$$P_t F_t^M + S_t P_t^* F_t^{*E} \quad (1)$$

where $P_t F_t^M \equiv P_t B_t + S_t P_t^* F_t^{*g}$ denotes public debt in private markets and is further decomposed in public debt held by domestic private agents, $P_t B_t$, and foreign private agents, $S_t P_t^* F_t^{*g}$. In what follows, $P_t F_t^M$ will be referred to as market-held public debt. $S_t P_t^* F_t^{*E}$ denotes public debt that is purchased by the ECB and it will be referred as ECB-held public debt. Below, we assume that each type of public debt incurs different borrowing costs, which have different implications for the domestic country's public finances.

Borrowing cost and type of institutional creditor

We assume that the borrowing cost faced by the small open economy depends on the institutional state of the creditor. In terms of public debt in private markets, we assume that the interest rate at which Ireland borrows from the private markets is debt-elastic (as in e.g. Philippopoulos et al., 2017):

$$Q_t = Q_t^* + \varphi^d \left(e^{\frac{P_t F_t^M}{P_t Y_t^{gdp}} - \mathcal{F}^M} - 1 \right) \quad (2)$$

where Q_t^* denotes the union-wide interest rate, φ^d is a parameter which measures the elasticity of the interest rate with respect to deviations of the market-held public debt-to-GDP ratio from its threshold value, $\mathcal{F}^M$.

In terms of public debt purchased by the ECB, we assume that the ECB can lend to a Member State at an interest rate lower than the one the Member State would face in the private markets, i.e. $Q_t^* < Q_t$. This is because the lower interest rate is

based on the economic fundamentals and policies of the currency union (e.g. the interest rate policy of the ECB). As noted in Reis (2016), in the absence of any sovereign risk premium, the two types of bonds are equivalent. However, the higher the sovereign risk due to the higher debt levels held by private markets (or for other reasons captured in φ^d) the larger the importance of the institutional type of the creditor.

National Fiscal Policy

We assume that the Government has two sets of spending instruments:

1. Conventional nominal government spending, which includes non-utility enhancing government consumption, investment, the public wage bill and total public transfers; and

2. A set of extraordinary spending instruments. These include labour income subsidies and direct cash transfers targeted to Ricardians and non-Ricardians respectively and public health related government spending.

In our experiments, we assume that market-held public debt, F_t^M is adjusted residually to satisfy the government budget constraint in each period *t*; while the ECB determines the supply of ECB-purchased public debt, F_t^{*E} as well as the interest rate paid on this debt Q_t^*. Ireland is a member of a currency union; thus we solve for a monetary regime without monetary independence and a fixed exchange rate regime.

We assume that the national fiscal authorities use one or more fiscal instruments to only react to public debt held by private markets. This assumption implies that, in the short run, the ECB funded public debt does not impose an extra fiscal burden on the Member State's public finances.

This could be thought of as a situation where policymakers suspend the stringency of the fiscal targets amid the pandemic crisis. We have already seen this with the suspension of fiscal rules from the EU. As a result, there is less of an immediate need for domestic policymakers to adjust their fiscal stance in the near term in order to reduce their debt burden. Thus, it creates additional fiscal space for national fiscal policymakers to adjust their public finances in an attempt to mitigate the negative economic effects of COVID-19.

On the other hand, it should be noted that public debt held by the ECB enters the government budget constraint,[7] thus, eventually, it will result in a fiscal cost.

That is, in the medium/long run, the ECB funded debt should be financed either by the issuance of new public debt in the private markets or by future fiscal adjustment (i.e. tax increases and/or spending decreases). The timing of this depends on the ECB policy which is specified in the next section.

Extraordinary fiscal instruments

To deal with the unprecedented nature of the shock, national fiscal policymakers use a set of extraordinary fiscal instruments. The fiscal authority sets these instruments in a discretionary manner for the specific time period in which the economy is affected by the pandemic.

ECB

In our model, however, we assume that the ECB can utilise two policy instruments to intervene in managing the debt levels of a Member State's economy, namely the union-wide interest rate, Q_t^* and sovereign bonds holdings, F_t^{*E}.[8] In terms of sovereign bonds holdings, following Sims and Wu (2020), we assume that ECB institutions' purchases of sovereign bonds are set according to a Taylor-type reaction function:

$$F_t^{*E} - F^{*E} = \rho^{F^{*E}}\left(F_{t-1}^{*E} - F^{*E}\right) + \gamma^{F^{*E}}\left(\frac{DEF_t}{P_t Y_t^{GDP}} - def\right) + \epsilon_t^{F^{*E}} \qquad (3)$$

where $\gamma^{F^{*E}}$ is the share of the public deficit to output deviation from a target, *def*, that the ECB finances via sovereign bond holdings, $\rho^{F^{*E}}$ capture the speed with which these bonds could be reduced and $\epsilon_t^{F^{*E}}$ is an iid shock that captures discretionary sovereign bonds purchases by the ECB. The policy parameter $\gamma^{F^{*E}}$ governs the share of the domestic deficit-to-output ratio that the ECB allow to be financed via ECB bond holdings in period *t*. The policy parameter $\rho^{F^{*E}}$ governs the duration of the ECB purchasing programme. For example, a short-lived purchasing programme, captured by a lower value of $\rho^{F^{*E}}$ means that the Member State that borrows from the ECB will need to generate additional resources in a quicker manner to meet its financing needs, either by borrowing purely via private markets or by tax/spending adjustments.

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7 See Equation 4 in McQuinn and Varthalitis (2020) for details.

8 For thorough discussion and modelling of the alternative instruments available at the Eurosystem see Economides et al. (2020) and references therein.

4. SCENARIO ANALYSIS

We assume two different recovery outcomes for the Irish economy: a V-shaped recovery, where the economy is expected to recover quite quickly; and a long-lasting outcome, where the negative effects of the pandemic endure for a longer period. In the V-shaped outcome, we assume that the containment measures will succeed in containing the virus within a short period of time. In terms of the model, this means that the pandemic shocks will last one period. If this outcome were to materialise, the economy is expected to recover quite quickly.

In the long-lasting outcome, we assume that the supply and demand effects of the pandemic will endure for a relatively longer period. This could mean that containment measures, e.g. administrative closures, would be released gradually and that economic activity will be restored at a slower pace. In terms of the model this means that the shocks will die out in around three periods. The magnitude of the initial shocks is identical in both scenarios; we only vary the persistence parameters and hence the duration of the shocks as opposed to their scale.

4.1 Policy responses

The Government is assumed to utilise the set of extraordinary fiscal instruments in a discretionary manner to mitigate the negative impact of the pandemic. Initially, we examine the impact of one fiscal instrument at a time in order to quantify the effects on output of each fiscal instrument separately (normalised to 1 per cent of steady state output unless otherwise stated). Two alternative public financing scenarios of these extraordinary fiscal packages are now considered.

First, via private markets where the emerging public deficits are financed by an increase in market-held public debt at the market interest rate. Second, we allow the ECB to provide financial assistance to Member States in the form of purchases of government bonds.

5. RESULTS

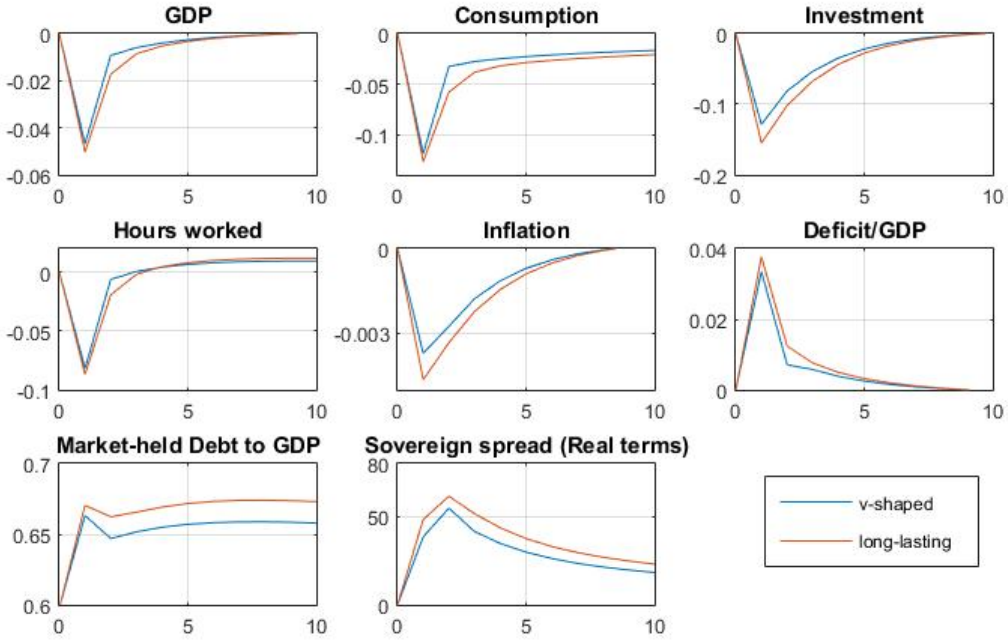
5.1 Pandemic impact on the Irish economy

Figure 3 presents the dynamic responses of the key endogenous macroeconomic variables under the two recovery outcomes based on the ‘V-shaped’ and the ‘long-lasting’ recovery. On the demand side, due to the administrative closures and the higher risk of becoming infected, households reduce consumption sharply in the short run. Similarly, the rest of the world reduces its demand for Irish goods and services resulting in a large reduction in domestic exports.

On the supply side, the pandemic shock causes a substantial fall in hours worked. Subsequently, the large decrease in hours worked and consumption will also reduce investment. As a result, the combined negative impact of demand and supply causes a significant reduction in output.

As expected, the combined effects of these shocks have significant implications for key fiscal metrics. The large drop in demand and supply leads to a drop in wages and returns on capital across sectors. As a result, the tax base of the economy which consists of consumption and income from labour and capital is expected to experience a significant fall. Accordingly, there is a sharp rise in the national deficit. In Figure 3, we assume that the deficit is financed by an increase in borrowing via private markets. Thus, the public debt held by private markets increases and this puts upward pressure on the sovereign premia. The rise in real interest rates feeds back into the economy and further suppresses investment and consumption.

FIGURE 3 DURATION OF THE PANDEMIC SHOCK AND IMPACT ON THE IRISH ECONOMY



Source: Authors' analysis.
Note: GDP, consumption, investment, hours worked and inflation are in % from their steady state values; Market-held public debt and deficit-to-GDP are ratios. The sovereign premia is the rate (%).

5.2 The role of policy

In Table 1 we quantify the implications of the extraordinary national fiscal policy measures on output levels in the first year by varying the fiscal policy instrument

used to alleviate the negative effect as well as the method of public financing these extraordinary fiscal packages. In the first column we report which fiscal instrument is used to deal with the economic fallout. The fiscal instruments which are utilised are additional spending in 'public health', cash transfers targeted at financially constrained households, labour income subsidies targeted at financially constrained households[9] and the spending fiscal mix. The spending mix is a combination of the three aforementioned fiscal instruments. We include two types of spending mix, the first is labelled 3 per cent, where there is a 1 per cent increase in health-related expenditure, cash transfers and labour income subsidies. The second is a larger spending mix of 5.5 per cent where there is a 1.5 per cent increase in health-related expenditure, a 3 per cent increase in cash transfers and 1 per cent increase in labour income subsidies. This spending mix is based on the forecast growth of expenditure on these items in 2020 relative to 2019. It should be noted that there are additional spending instruments available to the Irish government such as subsidies to firms but for the purpose of this model we limit ourselves to these three instruments.

The results under the two scenarios of public financing; private markets and ECB-held debt, are presented in the third and fourth column. In the second column, the results for when there is no policy intervention at either national or supranational level are also presented.[10]

TABLE 1 FIRST YEAR OUTPUT RECESSION UNDER VARIOUS POLICY SCENARIOS (PERCENTAGE)

Policy instrument	No Policy	Market-held debt	ECB-held debt
Health related expenditure	-5.1	-4.4	-3.8
Cash transfers	-5.1	-5.0	-4.4
Labour income subsidies	-5.1	-5.0	-4.5
Spending mix (3%)	-5.1	-4.2	-3.5
Spending mix (5.5%)	-5.1	-3.5	-2.8

Source: Authors' analysis.

In terms of mitigating the negative impact on output, the most effective instrument is spending associated with public health. This is followed by a targeted fiscal policy which supports the income of non-Savers either via labour income subsidies or direct cash transfers. The least effective fiscal instruments are labour income subsidies and cash transfers targeted at Savers.[11] However, the mitigation

9 For comparison, the size of fiscal stimulus for each fiscal instrument is normalised to 1 per cent of steady state output.

10 For comparability, across all three scenarios, the Government uses conventional government consumption to react to market-held public debt so as to ensure fiscal sustainability.

11 We have also examined the case in which the Government increases cash transfers and labour income loss subsidies targeted to Savers. However, our results suggest that these extraordinary fiscal instruments are not efficient in terms of aggregate output. The economic logic is that Savers have other sources of income, such as access to domestic and

effect is quantitatively small in most of the cases when these extraordinary fiscal measures are financed solely via newly issued public debt in the private markets (see the explanation below). In contrast, when the ECB actively engages in sovereign bond purchases, the effect of the extraordinary national fiscal measures increases significantly across all fiscal instruments. In particular, increasing spending related to public health by 1 per cent of GDP could reduce the output loss by 0.6 per cent more when the ECB intervenes, i.e. from 4.4 per cent to 3.8 per cent. Similarly, increases in direct cash transfers and labour income subsidies targeted to non-Ricardians/non-Savers backed by ECB purchased bonds could reduce the output loss by 0.6 per cent and 0.5 per cent, respectively. In terms of the spending mix, ECB purchased sovereign bonds to mitigate the recession by 0.7 per cent compared to the spending mix being funded through private markets.

Finally, the ECB sovereign bonds purchasing programme could enable a quicker recovery of the economy. In particular, the cumulative reduction in output loss over a five-year horizon relative to debt financing in the private market sum to 1.5 per cent, 1.5 per cent, 1.4 per cent and 1.8 (or 2.2) per cent for the direct cash transfers, labour income subsidies, spending related to public health and the spending mix respectively (Table 2).

TABLE 2 CUMULATIVE OUTPUT LOSS OVER FIVE YEARS HORIZON[12] (PERCENTAGE)

Policy instrument	No Policy	Market-held debt	ECB-held debt
Health Related Expenditure	-8.4	-7.9	-6.5
Cash transfers	-8.4	-8.5	-7.0
Labour income subsidies	-8.4	-8.5	-7.0
Spending mix (3%)	-8.4	-8.2	-6.4
Spending mix (5.5%)	-8.4	-8.3	-6.1

Source: Authors' analysis.

5.3 The underlying mechanism

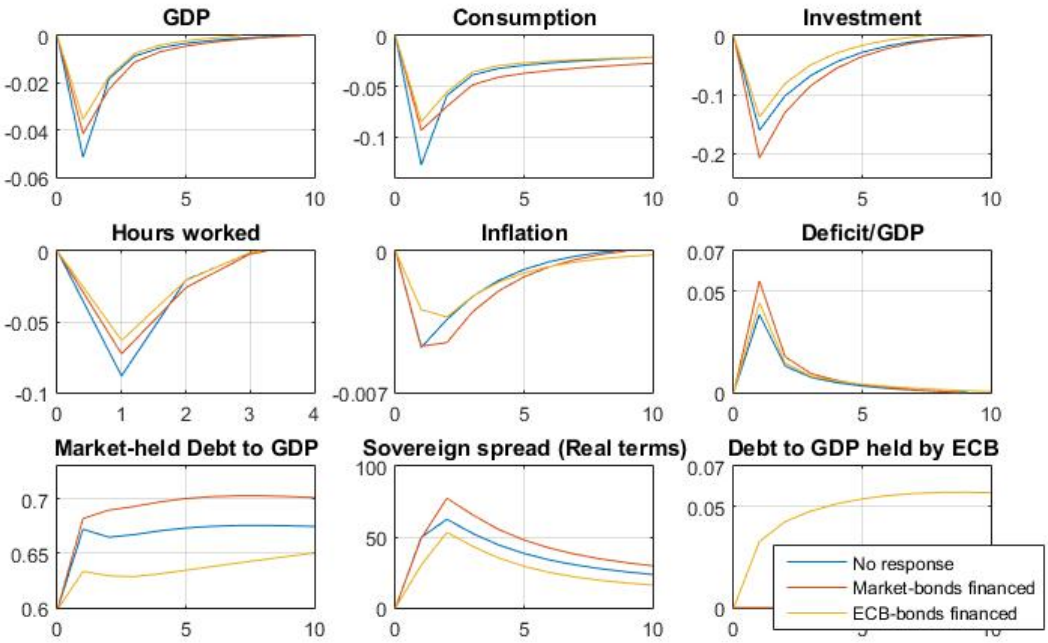
Now we examine the mechanism by which the intervention of the ECB can help to mitigate the negative impact of the pandemic. We focus on the extraordinary spending mix presented in Table 1 and Table 2. Figure 4 compares the dynamic responses of the key macroeconomic variables under the two public financing scenarios. In particular, the scenarios in which the national deficits are financed via market-held public debt and where the national deficits are financed via the ECB. These are labelled as 'Market-bonds financed' and 'ECB-bonds financed' respectively. For comparability, we also present results from the scenario in which

international financial markets, thus it is expected that these fiscal measures will not affect their consumption plans in the short run. To save space we exclude these results from Table 1.

12 Formulas of the cumulative output loss can be found in McQuinn and Varthalitis (2020), Appendix I.

there is no policy response at the national and supra-national level; this is labelled as 'No response'. In terms of the key macroeconomic variables, an ECB bond purchasing programme can significantly mitigate the negative effect on consumption and investment in the short and medium term. This could suppress the initial reduction in output and ultimately allows for a quicker recovery in the medium term. As expected, on the fiscal side, financing the emerging deficits via the less costly ECB bond holdings allows extra fiscal space for the Member State in the short and medium term. Thus, the rise in the deficit and public debt is far less prolonged in this case.

FIGURE 4 NATIONAL FISCAL PACKAGE AND PUBLIC FINANCING SCENARIOS



Source: Authors' analysis.

Borrowing from the ECB leads to a smaller rise in market held public debt in the short run while it also keeps public debt in the medium/longer run at low levels despite the increase in national deficits. ECB-held public debt absorbs the temporary fiscal imbalances and thus stabilises domestic public finances in the medium/longer run. Lower public debt issued in private markets subsequently leads to lower real interest rates. Since the latter affects households' economic decisions, it makes national extraordinary fiscal measures more effective by crowding out less investment and consumption. In turn, the milder reduction in consumption and investment leads to a faster recovery in hours worked. Thus, labour and capital incomes of households experience a smaller decline which creates a further positive feedback loop on output. This results in a milder reduction in the associated tax bases, resulting in a lower rise in the national deficit

across all time horizons. The combined effect of a lower rise in interest rates and a smaller decline in the tax revenues leads to a smaller rise in the national deficit. Overall, the ECB bond holdings can play a role of foreign financial capital flows in the resource constraint of the small open economy (i.e. the balance of payments) which can help the Member State economy to mitigate the negative effects of the pandemic.

6. CONCLUSIONS

As with most Western economies, both the impact of the COVID-19 virus itself and the measures taken by the public authorities to counter the spread of the virus will have a dramatic and negative impact on the Irish economy. We model the impact of the virus with a standard SOE-DSGE model with both demand- and supply-side shocks. In simulating the impact of the shock, we assume two potential outcomes, (i) a V-shaped recovery where the containment measures succeed in containing the virus within a short period of time and (ii) a long-lasting recovery, where the supply and demand effects of the pandemic will endure over a longer period.

Our model based results indicate that an ECB bond purchasing programme significantly mitigates the negative effect of the virus-related shock on consumption and investment in the short and medium run. As a result, the impact on economic output is also reduced with a quicker recovery being facilitated in the medium run. Under our policy experiment, the ability of a Member State to finance part of the emerging deficit via less costly ECB bond holdings results in extra fiscal space for the domestic authorities in the short and medium run. This reduces the subsequent increase in the deficit and public debt than would otherwise be the case.

In light of the policy measures announced to date, it is fair to say that EU institutions generally have committed to playing a more expansive role in dealing with the present crisis then in previous cases. In order to maximise the efficiency of this support, it is important to be able to quantify the impact of this greater involvement on both Member States' key fiscal variables and growth outlooks. We believe our paper makes a significant contribution in that regard.

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Research Note

COMPARING TWO RECESSIONS IN IRELAND: GLOBAL FINANCIAL CRISIS VS COVID-19

* Matthew Allen-Coghlan and Petros Varthalitis[1]

1. INTRODUCTION

The rate at which the COVID-19 pandemic has spread across the globe and the damage it has caused to so many countries is unprecedented in modern times. Not since the spread of the Spanish Flu over 100 years ago has there been a global health crisis of this scale and severity. The economic impact of COVID-19 is also global and already the pandemic has had a significant adverse impact on the world economy. However, we do not have to go back a century to find a global economic shock of this scale. The Global Financial Crisis (GFC) was just over ten years ago and like the current economic crisis it spread throughout the world impacting advanced and developing economies alike.

The Irish economy was no exception and much has been written on the devasting impact of the resulting recession.[2] Given the severity of that recession and how recently it occurred, a natural question arises around the similarities and differences between the GFC and the one currently being experienced as a result of the pandemic.

Recently, other commentators have also compared the economic impact of the COVID-19 crisis with past major global crises. For example, De Grawe and Ji (2020) compare the COVID-19 crisis, the GFC and the 1933 Great Depression using indicators of the world economy. Buti (2020) compares the GFC with COVID-19 crisis for the EU economy and Wheelock (2020) compares the COVID-19 crisis with the Great Depression focusing on the US economy.

In this Research Note we explore how both crises impacted various aspects of the Irish economy. In order to do that we analyse key economic indicators across both periods comparing and contrasting the rapidity and the magnitude of the shock caused by each crisis. We focus on three types of indicators: hard indicators, which

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2 For the various aspects of the Irish debt crisis and recovery see Whelan (2014), CESifo (2014) and McQuinn and Varthalitis (2020).

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can be thought of as a measure of realised outcomes, soft indicators which can be thought of as a measure of expectations and policy responses, both at a national and EU level.

The rest of this Note is structured as follows: Section 2 provides an overview of the nature of the two shocks and the differences in the economy entering into both periods. Section 3 compares various hard indicators across both periods while Section 4 compares soft indicators. Section 5 discusses the different policy response to both crises, both at a national and EU level. Section 6 concludes.

2. NATURE OF THE SHOCKS

Before examining the impact that both crises have had on the Irish economy, we first outline the nature of the two shocks and the differences in how they manifested themselves in the economy.

The initial trigger for the GFC started with the collapse of Lehman Brothers in the United States in 2008. Due to the interconnectedness of the global financial system, credit dried up globally and the lack of liquidity transmitted to European financial markets. The problem intensified in several Eurozone countries with the sovereign debt crisis.

While this initial trigger originated outside the Irish economy, it was endogenous structural distortions within the economy that magnified the shock through the Irish system. These distortions were in the form of the property market and credit bubbles that had emerged in the Irish economy over the prior decade. Banks and households were overleveraged in this regard and the Irish government had become increasingly reliant on revenues from the property sector. Thus, when these twin bubbles burst banks became insolvent, households fell into negative equity and the public finances collapsed.

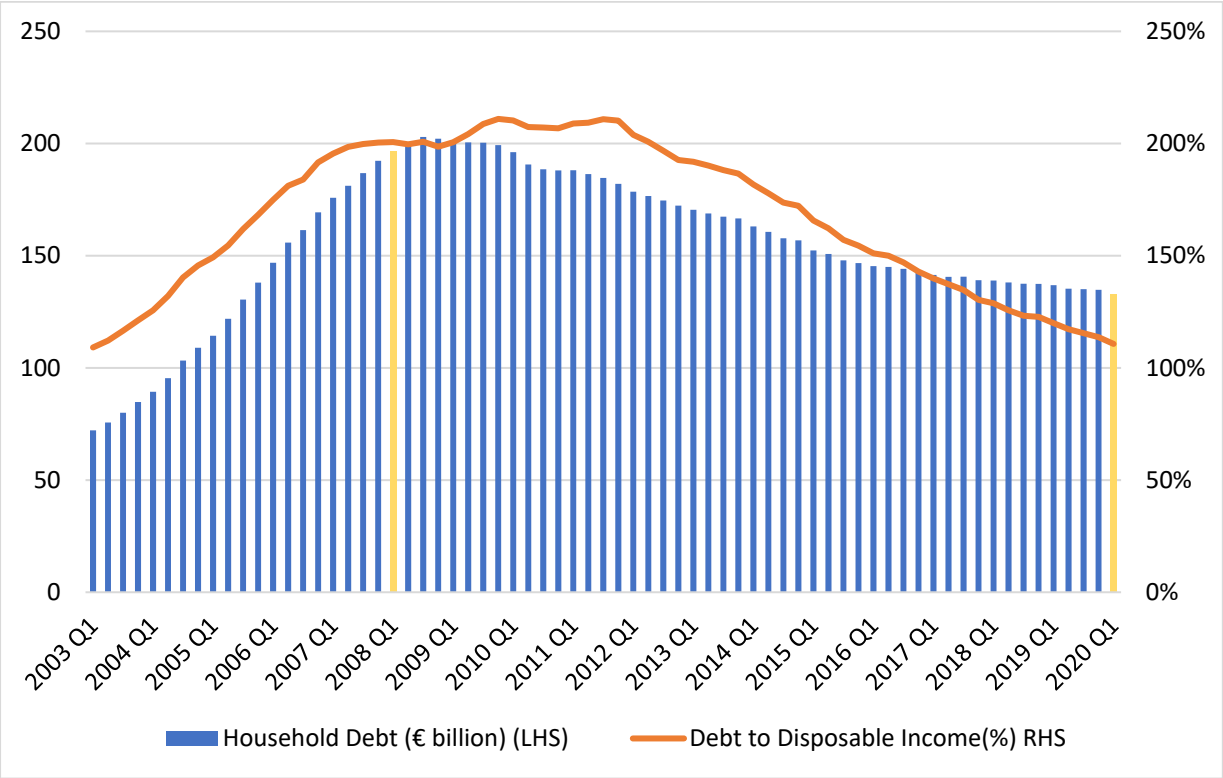
The COVID-19 crisis on the other hand is the definition of an exogenous shock.[3] This unpredictable health crisis emerged from outside the economic system and thus far has not been propagated by structural distortions in the economy in the same way the GFC was. One of the ways this is evidenced is by comparing the amount of leverage in the system across both periods.

Figure 1 shows the household debt in the country since 2003. Going into the previous recession the level of household debt had been increasing sharply and by

[3] See Danielsson et al. (2020).

Q1 2008 it was up over €200 billion. By comparison, in Q1 2020 the level of household debt was just over €130 billion following a decade in which household debt has been falling steadily. The difference between both periods is even more stark when taken relative to disposable income. In Q1 2008 household debt to disposable income was up over 200 per cent in comparison to just over 100 per cent in Q1 2020.

FIGURE 1 HOUSEHOLD DEBT

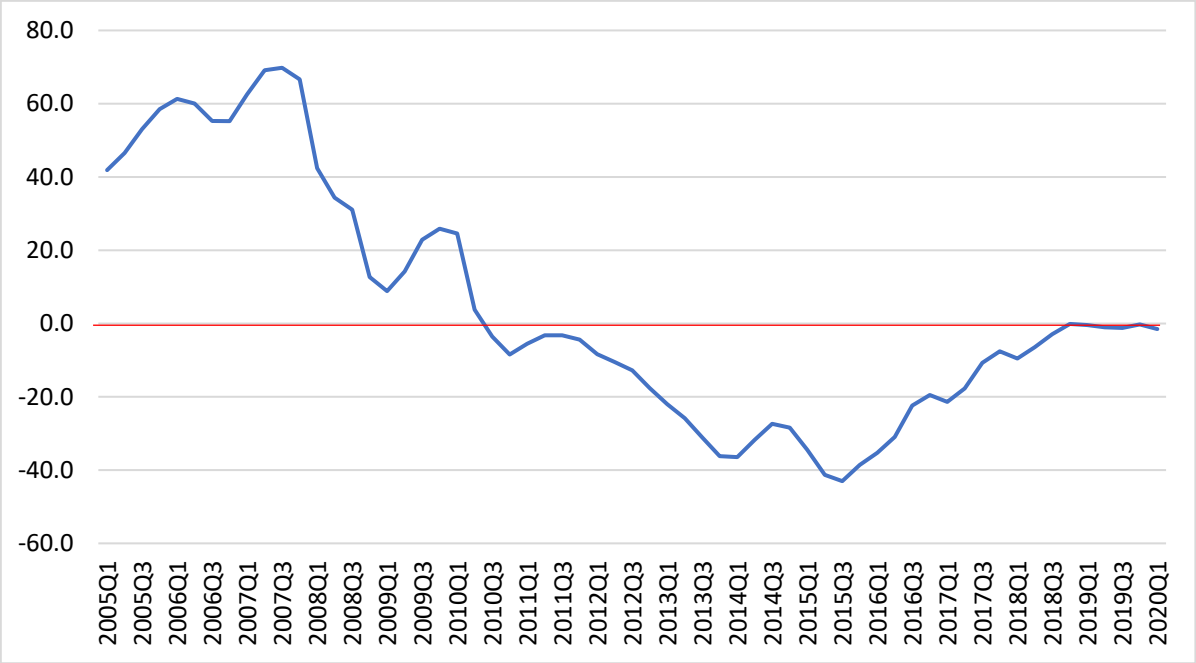


Source: Central Bank of Ireland.

Another metric of the amount of leverage in the system is the credit gap. The credit gap is a measure of the difference between the actual and long-run trend level of the credit-to-GDP ratio.[4] When the gap is positive, the current level of the ratio is greater than trend and when the gap is negative the current level of the ratio is less than trend. If the gap becomes significantly large, this may suggest that the level of credit in the economy is unsustainable. Going into the GFC the credit gap had peaked at just under 70 per cent. However, since then there has been a steady decline in the credit gap which hasn't been positive since 2009. Going into the pandemic crisis the credit gap remained around 0 per cent indicating that the amount of credit in the economy was not at an unsustainable level.

4 For more on the measurement of the credit gap see O'Brien et al. (2018).

FIGURE 2 CREDIT GAP (%)



Source: Central Bank of Ireland.

Both measures show that there was significantly less leverage in the system going into the COVID-19 crisis in comparison to the GFC. One of the reasons for this is likely a result of the introduction of a number of regulatory measures which were put in place post the GFC recession. These include the macroprudential rules and the counter-cyclical capital buffer which have been designed to reduce the amount of credit in the Irish economy.[5]

3. HARD INDICATORS

3.1 Quarterly indicators

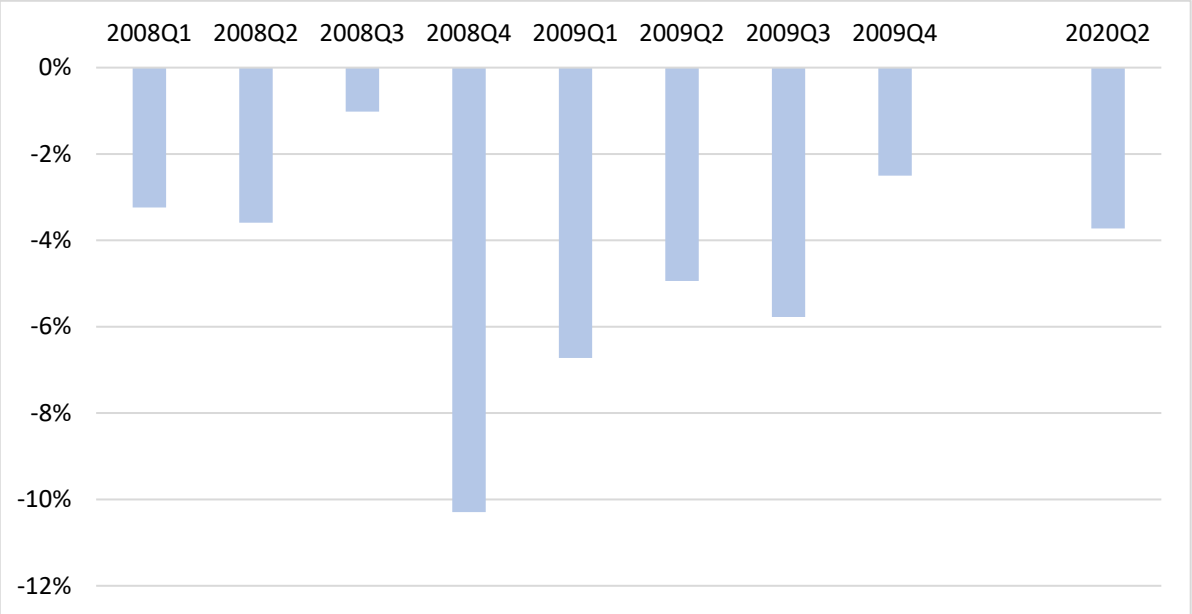
When the pandemic first took effect there was an expectation amongst most policy institutions and forecasters that there would be a decline in Ireland's output in 2020 greater than anything the country had experienced before.[6] The largest decline in output was expected to come in Q2, the period over which the strictest phases of the lockdown would be in place. However, National Account data shown in Figure 3 reveal that while the decline in output in Q2 was significant it was not unprecedented. In Q2 2020 real GDP growth fell by just under 4 per cent compared to the same quarter the previous year. During the previous recession we saw much greater declines in GDP over multiple quarters. In every quarter between 2008 and 2009 there was a decline in annual GDP growth and over four of these quarters the

5 For further discussion on the impact of these financial stability measures see: Lozej and O'Brien (2018) and Economides et al. (2019).

6 See for example: McQuinn et al. (2020); IMF (2020); IFAC (2020).

negative GDP growth was greater than that experienced in Q2 2020. The largest decline came in Q4 2008 when real GDP fell by over 10 per cent compared to the same period the previous year.

FIGURE 3 REAL GDP GROWTH (YEAR-ON-YEAR)



Source: Central Statistics Office.

Figure 4 also shows output growth for the Irish economy except here the economy is divided into the tradable and non-tradable sectors.[7] The impact of the pandemic crisis on the domestic sector is indeed unprecedented, with the decline in output in the non-tradable sector much greater than anything that was seen during the previous recession. The largest decline in real GVA in the non-tradable sector during the previous recession was in Q1 2009 when output declined by over 10 per cent compared to the same period the previous year. The annual decline in Q2 2020 was nearly double that, with a negative growth rate of just over 19 per cent. In contrast, the impact on the tradable sector during the current crisis has been much more benign than anything experienced during the GFC recession. In Q2 2020 the tradable sector actually experienced positive output growth, up over 2 per cent compared to the same period the previous year. This compares to sizeable declines in output growth in the tradable sector during the previous recession. The dichotomy between the performance of the tradable and non-tradable sectors is an example of how the current pandemic crisis is having very

[7] The tradable and non-tradable GVA are defined as in Bergin et al. (2017). A sector is defined as tradable if at least 50 per cent of total final uses (excluding change in stocks) is exported. The tradable sectors (NACE classification): Industry (excl. Construction), Information and Communication, Financial and Insurance Activities, Professional, Admin and Support Services. Non-tradable sectors (NACE classification): Agriculture, Forestry and fishing, Construction, Distribution, Transport, Hotels and Restaurants, Real estate activities, Public admin, Education and Health, Arts, Entertainment and Other services.

different impacts on different sectors of the economy. The fact that the overall decline in output in Q2 was relatively benign despite such an unprecedented decline in the non-tradable sector also highlights how important the tradable sector is to the fortunes of the Irish economy. Within the tradable sector, it was the strong performance of just a small number of sectors, namely pharmaceutical and computer services that accounted for the positive growth over this period.[8]

FIGURE 4 REAL GVA GROWTH, TRADABLE AND NON-TRADABLE SECTORS (YEAR-ON-YEAR)

Source: Central Statistics Office.

3.2 Monthly indicators

The following hard indicators have a monthly time frequency which has the advantage of giving us more up-to-date data points for the current pandemic which would not be available with quarterly data. Monthly data also allow us to see how the economic indicators react to sudden shifts in policy and sentiment which is especially important given the rapidly changing nature of the current health crisis. So as to compare and contrast the evolution of these indicators between the pandemic recession and the GFC we overlay the monthly data from both periods. In order to do this we first choose a turning point which marks the month prior to which the recession began in both periods. Choosing the month in which the recession began for the pandemic crisis is quite straightforward as the first lockdown restrictions were put in place in March 2020. Therefore, February 2020 is identified as the turning point for the pandemic crisis. Identifying the turning point for the GFC is not as straightforward as there is a not a single month we can

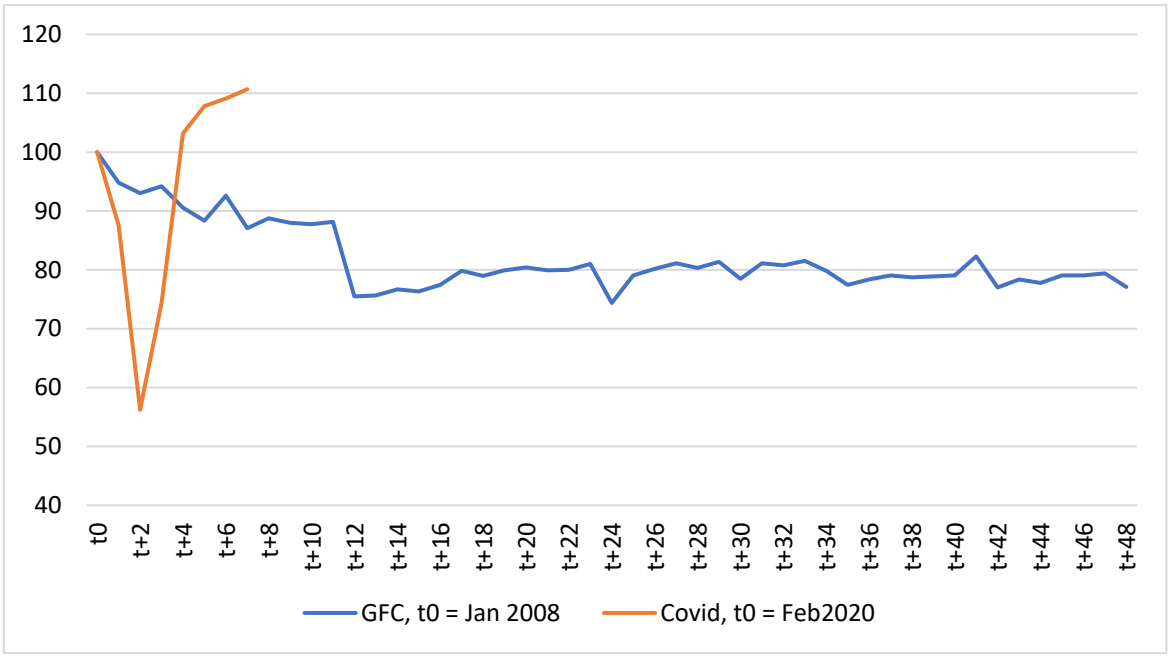
[8] For further details see O'Toole (2020).

identify as to when the recession started over this period. We therefore base this turning point on retail sales. Retail sales are sensitive to both underlying economic conditions and economic sentiment and so this a reasonable economic indicator on which to base the turning point.[9] Based on the retail sales data we identify January 2008 as the turning point i.e. the month before we see a large decrease in retail sales volume over consecutive months. Overlaying the two periods based on these turning points we then compare the scale and rapidity of the shocks to these indicators across both periods.

Figure 5 shows that after the initial lockdown restrictions were brought in in March retail sales collapsed. At this time, the country was in strictest phase of the lockdown when many retailers were forced to close their doors. By April, the total volume of retail sales was down nearly 50 per cent compared to the period immediately preceding the lockdown. However, the recovery in retail sales has been equally sharp with the volume of sales increasing above pre-lockdown levels just four months after the initial turning point. In contrast during the GFC the decline in retail sales was much more gradual. Over the 12 months after the GFC turning point, retail sales declined by around 20 per cent and remained at this lower level over the next three years. The V-shaped recovery of retail sales is likely a result of pent-up demand following the months in which consumers were unable to access retail stores as well as improved expectations for the future economic and policy outcomes (see Section 5).

9 Our key results do not change if we employ an alternative indicator so as to identify the turning point of the GFC.

FIGURE 5 RETAIL SALES, VOLUME ADJUSTED (INDEX, T0=100)



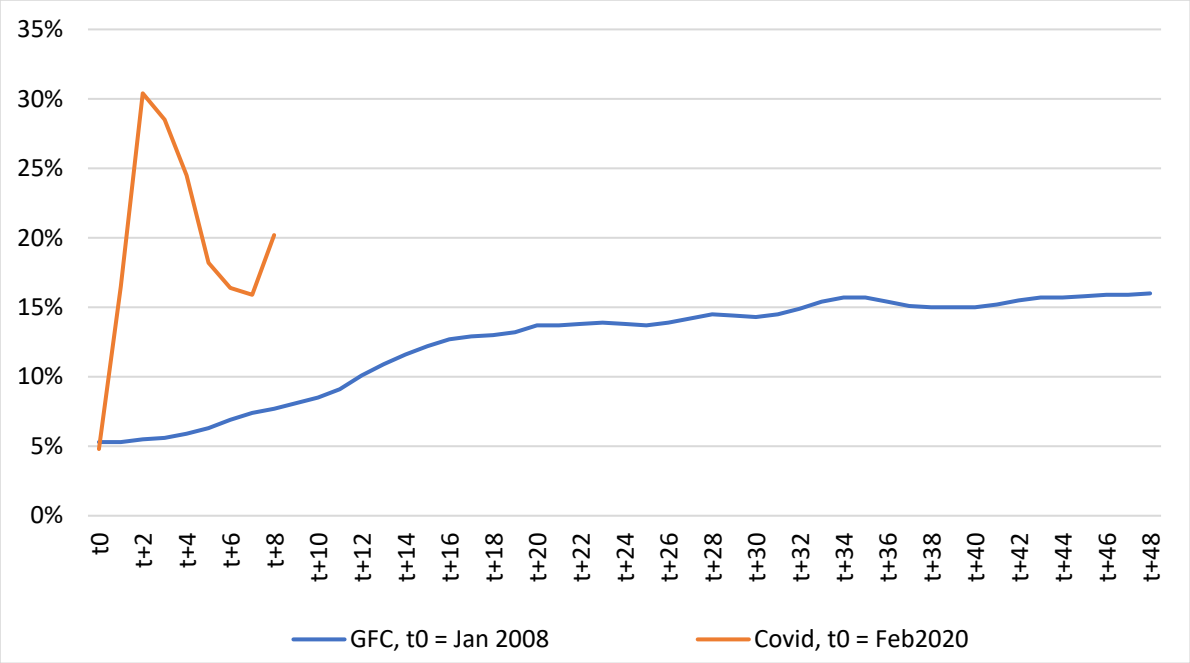
Source: Central Statistics Office.

Figure 6 shows the unemployment rate over the two recessions. During the GFC there was a gradual increase in the unemployment rate which continued to rise over a four-year period after the initial turning point, eventually peaking at just over 16 per cent. In contrast during the current recession the increase in the unemployment rate has been much sharper, peaking at over 30 per cent just two months after the turning point.[10] In the subsequent months, as the lockdown restrictions were eased, there was also a sharp recovery in the unemployment rate. However, the momentum of this recovery began to slow in Q3 and there has been a spike in the unemployment rate in the most recent data as a result of the Level 5 lockdown, though not as steep as that seen during the first lockdown. One of the main differences between the two periods in how Ireland deals with the shock to the labour market is the migration channel. Historically, outward migration has acted as a release valve for pressure in the Irish labour market with large levels of emigration synonymous with recessions in the country. For this reason, the unemployment rate during previous recessions such as the GFC was likely subdued by the thousands of Irish people who sought work outside the country. Given the current restrictions around international travel and the significant economic contraction being experienced by most of the world's major economies, the ability of Irish workers to seek work outside the country has greatly reduced. While emigration would not act as a panacea to the pandemic unemployment crisis given

[10] The unemployment rate referenced since March 2020 is what the CSO refers to as the upper-bound. This counts all those on the Pandemic Unemployment Programme as being unemployed. The unemployment rate according to the ILO definition is significantly lower. For further explanation of this see: https://www.cso.ie/en/methods/labourmarket/monthlyunemployment/monthlyunemploymentandcovid-19adjustedestimatesaugust2020technicalnote.

the large estimates of people unemployed, the inability of people to emigrate for work is likely contributing to the elevated unemployment rate.

FIGURE 6 UNEMPLOYMENT RATE



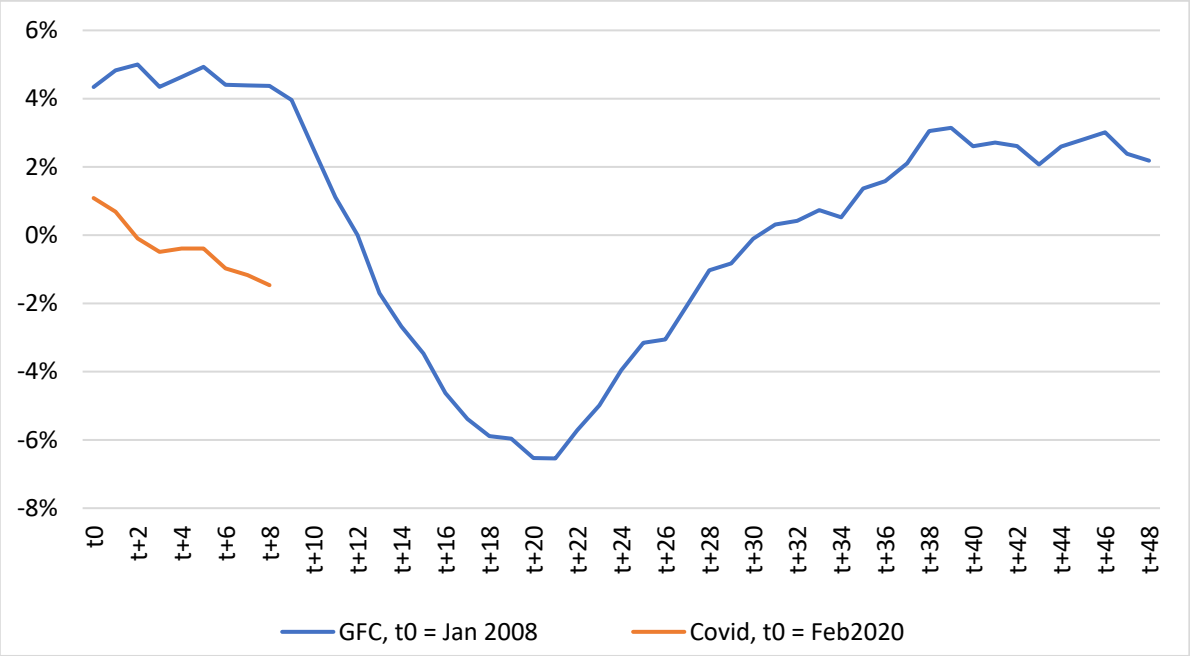
Source: Central Statistics Office.
Note: The unemployment rate includes those on the Pandemic Unemployment Payment which is the upper bound of the CSO's unemployment data.

At the onset of COVID-19 it was uncertain what impact the pandemic would have on inflation due to the shock to both the supply and demand side of the economy. On the supply side many businesses have been forced to close and workers in some industries have been prevented from going to their jobs. Globally, supply chains have been significantly disrupted and international trade has been disturbed. On the demand side there have been significant declines in consumption and large increases in savings.[11] While both these effects should pull inflation in opposite directions, the initial data we have after the turning point shows that the country has entered a period of deflation, indicating that the pandemic might have a greater impact on the demand side of the economy. The inflation rate has gone from just over 1 per cent before the initial lockdown to about -1.5 per cent in September. Though the decline in energy prices has contributed to this deflation, core inflation which excludes energy prices and unprocessed foods is also negative (-0.6 per cent in September). Going into the previous recession the inflation rate was at a much higher rate of 5 per cent, a symptom of the economic boom that the country was experiencing at that time. However, as the recession took effect there was large negative impact on prices which started to decline ten months

11 See FitzGerald (2020).

after the turning point. The CPI continued to decline for another year with prices bottoming out at negative 6 per cent about 22 months after the initial turning point. It wasn't for another 12 months that price growth turned positive, showing that deflation in the economy can be quite persistent.

FIGURE 7 CONSUMER PRICE INDEX (YEAR-ON-YEAR)



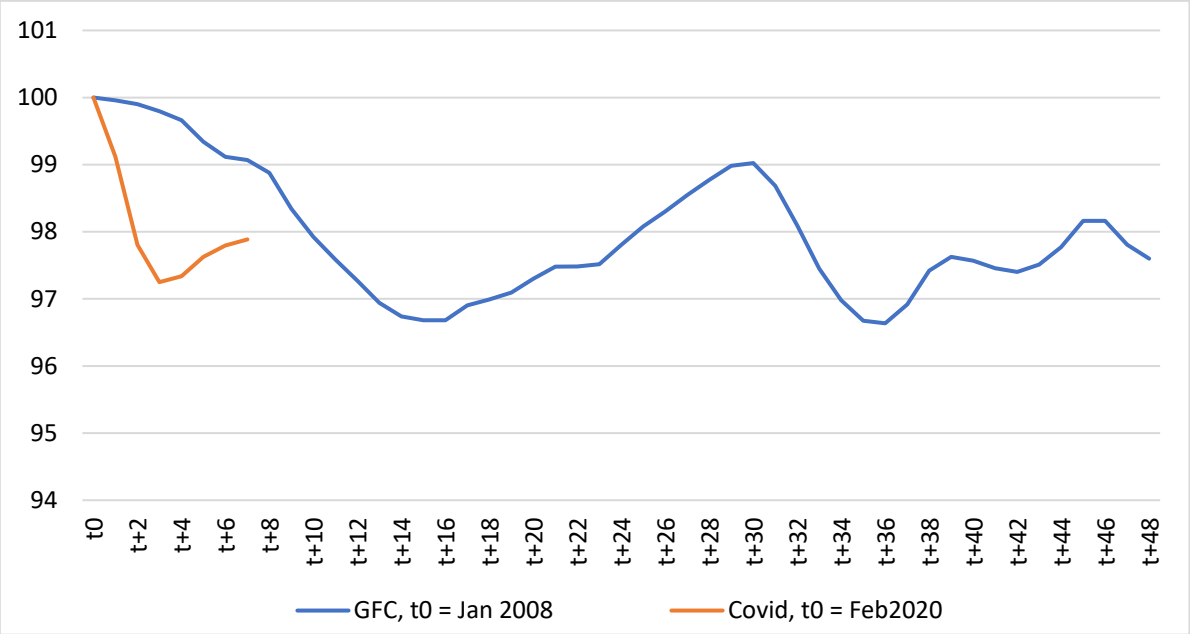
Source: Central Statistics Office.

4. SOFT INDICATORS

In order to compare how expectations have differed over the two recessions we also draw on a number of soft indicators, the first of which is consumer confidence. In the first few months after the turning point of the COVID-19 pandemic there was a sharp decline in consumer confidence. By May 2020 consumer confidence had bottomed out at just over 97 index points. However, in recent months there has been some evidence of increased consumer optimism with the index rising in four consecutive months since May.

During the previous recession consumer confidence remained below its pre-turning point level for a number of years. The oscillating path of the Consumer Sentiment Index over this period shows that expectations can be quite volatile.

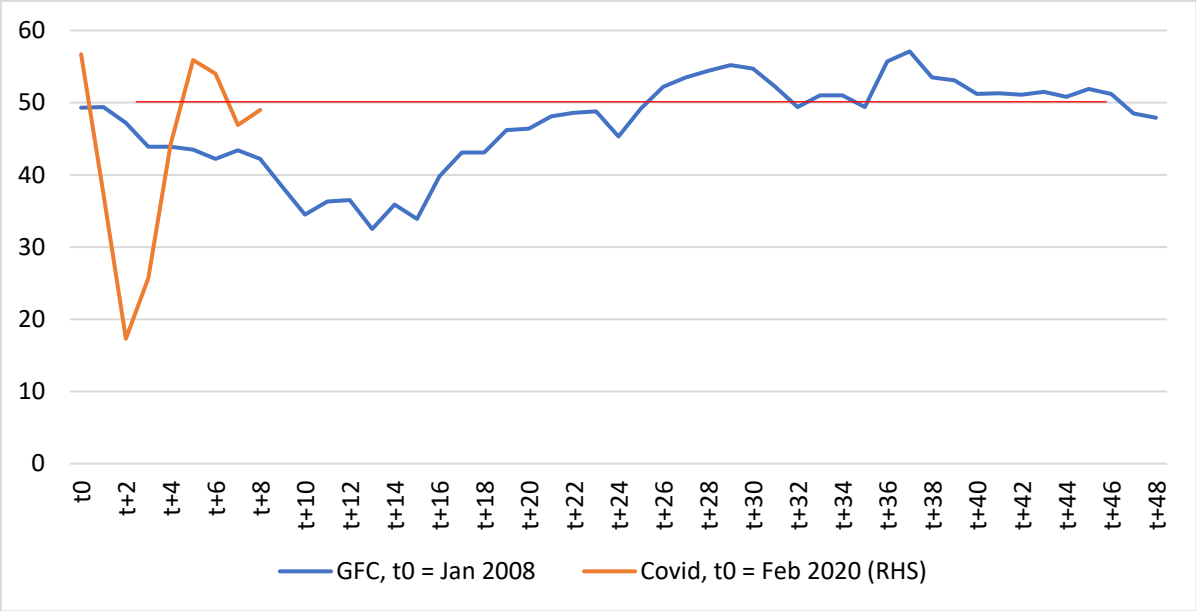
FIGURE 8 CONSUMER SENTIMENT INDEX (T0=100)



Source: OECD.

Figure 9 shows the composite Purchasing Managers Index (PMI) for the manufacturing and services sectors. The PMI is based on a monthly survey of senior executives at private market companies and gives an indication of underlying business conditions and sentiment. A value over 50 indicates that there is an expansion on the previous month while a value below 50 indicates there is a contraction. Like the Consumer Sentiment Index, there was an initial sharp decline in the PMI as the lockdown was brought in in March. The PMI fell below 20 in April which was a record low for the Index. Though the Index briefly rose above 50 in subsequent months, this is a month-on-month indicator and so the increase is relative to the very low point reached in April. Indeed, the most recent data are again below 50 indicating a contraction on previous months. During the GFC the PMI declined below 50 immediately after the turning point and remained below 50 for over two years thereafter, meaning that for 24 straight months, private market companies viewed underlying business conditions as being less favourable than the month before.

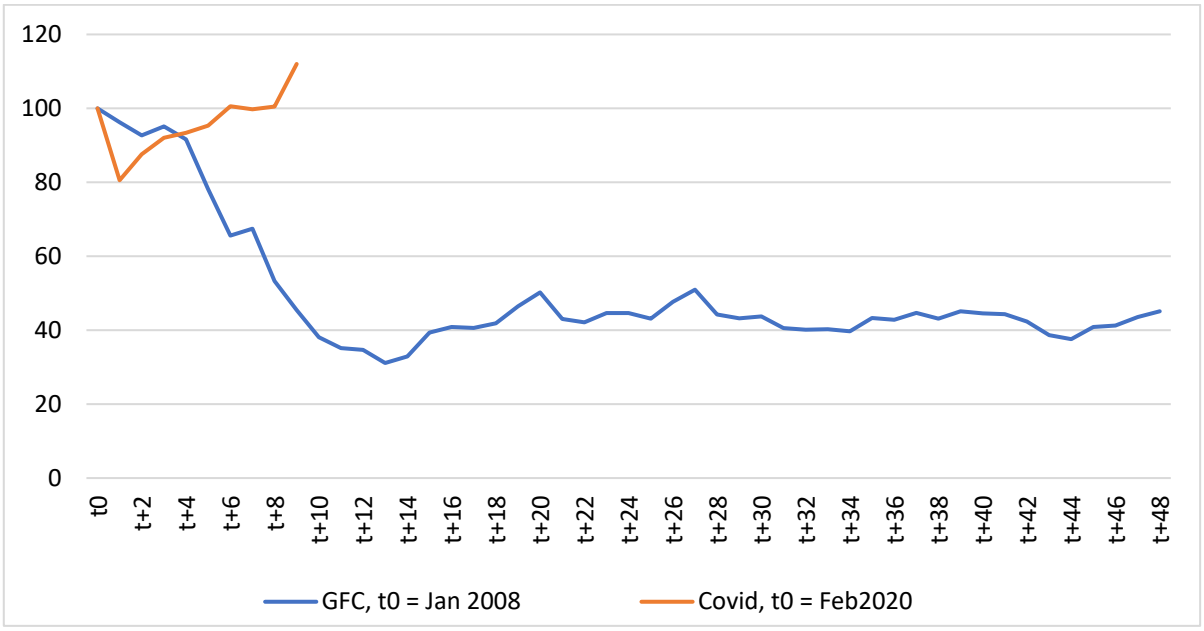
FIGURE 9 PURCHASING MANAGERS INDEX



Source: Central Statistics Office.

The final indicator compared between the two periods is the ISEQ Index which is benchmark stock index of the 20 largest companies that trade on the Irish stock market. This index captures investor sentiment about the future prospects of these Irish companies and thus is an indicator of the market's expectations about future economic conditions. As with the other soft indicators there was an initial sharp decline in the index after the turning point March. However, unlike the other soft indicators the recovery has been rapid and the most recent data show that the index is at a greater value than it was entering into the lockdown. The relatively robust performance of the stock market may indicate that investors are optimistic about the future business conditions and that once the virus is brought under control there is an expectation that the economy will be able to pick back up where it left off. This is a stark contrast to the previous recession when stock prices plummeted by 70 per cent from their pre-lockdown levels and remained low for a number of years thereafter.

FIGURE 10 ISEQ (INDEX, T0=100)



Source: Central Statistics Office.

5. POLICY RESPONSE

The final comparison we draw between the two periods is in the area of the policy response. There has been a significant difference in how policymakers at both a national and European level have responded to both crises.

As the lockdown restrictions were brought in in March 2020, the Irish Government immediately launched a large fiscal stimulus package to mitigate the negative economic effect of the pandemic. Equally important has been the response of the ECB which, through its accommodative monetary policy, has facilitated the national fiscal expansion.

The combined national (fiscal) and ECB (monetary) policy responses during the COVID-19 pandemic are in sharp contrast with the associated responses during the GFC. At the time of the GFC, national fiscal policy was much more restrictive due to the multiannual fiscal consolidation programme implemented mostly via spending cuts. The ECB was also implementing tighter monetary policy during the initial phase of the GFC, partly a result of the asymmetric impact of the GFC on different Eurozone countries.

5.1 National fiscal policy

Regarding national fiscal expenditures, Table 1 shows the annual growth in government expenditure in 2008/2009 and 2020 (Budget 2021 forecasts). Across nearly all headings a significant increase in expenditure is forecast for 2020

in comparison to the previous year. In percentage terms the largest increase is in the area of subsidies which are forecast to increase by 266 per cent (€4.5 billion) this year as a result of the implementation of various wage subsidy schemes and subsidies to firms impacted by the lockdowns. Social benefit payments are forecast to increase by about 28 per cent (€8.6 billion) as a result of the large increase in people receiving welfare payments including the Pandemic Unemployment Payment (PUP). The use of goods and services is also expected to increase substantially resulting from increased health-related expenditure. In total Irish government expenditure is expected to increase by 23 per cent (€19.0 billion) in 2020. Interest payments are the only expenditure heading that are forecast to experience a reduction in 2020 with respect to 2019, due to the fall in the cost of borrowing. In 2008/2009 interest payments increased partly due to the increased cost of borrowing over this period (see Section 5.2 for more).

TABLE 1 EXPENDITURE GROWTH BY HEADING (YEAR-ON-YEAR)

Expenditure Item	2008 %	2009 %	2020 %
Compensation of employees	7	-2	3
Use of goods and services	3	-1	40
Subsidies	7	-2	266
Interest	21	42	-14
Social benefits	13	10	28
Total	10	7	23

Source: Central Statistics Office and Budget 2021.
Note: 2020 figures on forecasts from Budget 2021.

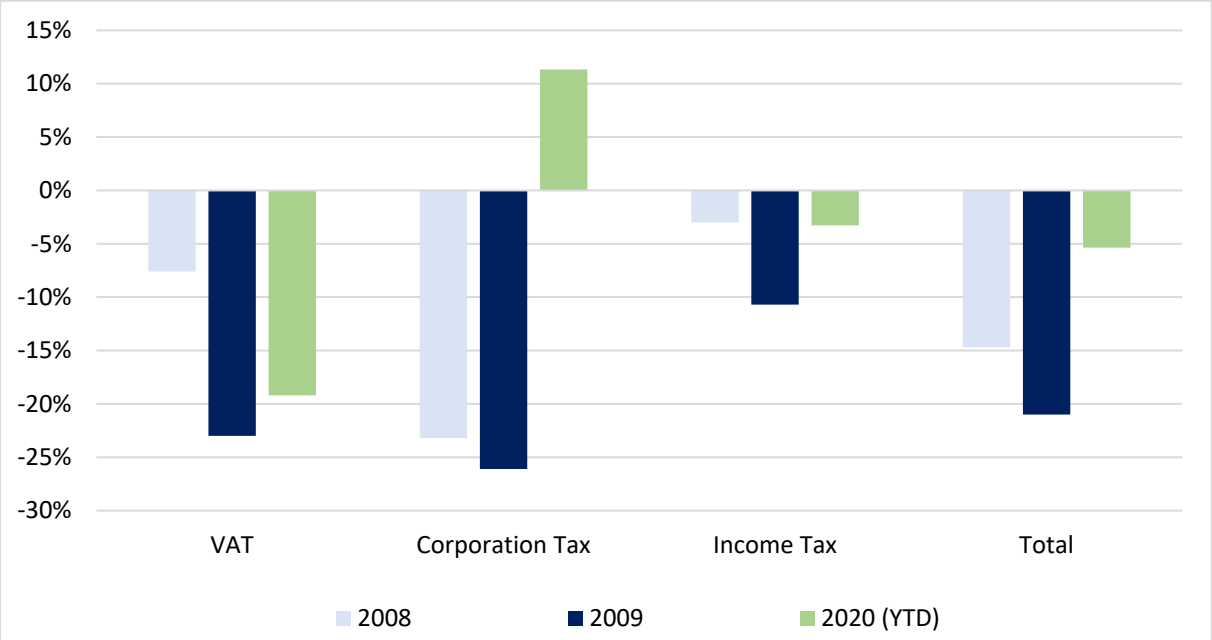
In terms of revenues, so far during the COVID-19 recession total tax receipts have experienced a relatively mild decrease compared to the sharp fall that was experienced over the years of the GFC. Figure 11 illustrates that this difference is mostly driven by two tax headings; corporation and income taxes.

The most significant difference between the pandemic crisis and the GFC is in corporation taxes. Despite the deterioration in economic activity, corporation taxes have increased by over 11 per cent in 2020. By comparison corporation taxes fell by 23 and 26 per cent in 2008 and 2009, respectively. After years of significant growth,[12] corporation taxes also account for a larger share of total tax receipts than they did during the GFC. Their strong performance this year is the main reason why total receipts have held up reasonably well, declining by just 5 per cent compared to 15 and 21 per cent in 2008 and 2009. The decline in income taxes has also been relatively muted in 2020 despite the large increase in unemployment. This is a

12 See Varthalitis (2019) and IFAC (2019).

result of those who have lost their jobs typically being in lower paid sectors, Ireland's progressive taxation system and the various wage subsidy schemes that have kept workers on their employers' payroll. The declines in VAT receipts are much more in line with what we saw during the previous recession, down by 19 per cent in 2020 compared to 8 per cent and 23 per cent in 2008 and 2009.[13]

FIGURE 11 TAX RECEIPTS GROWTH BY HEADING (YEAR-ON-YEAR)



Source: Fiscal Monitor.

5.2 Eurozone and EU policy

One of the most striking differences between COVID-19 and GFC is the policy response of EU institutions.

During the period of the GFC the Irish government was solely reliant on the international and domestic private markets to borrow and finance its national deficits. As the public finances deteriorated at this time the demand for Irish government debt from the private markets declined substantially while sovereign spreads rose significantly, rendering public debt unsustainable.

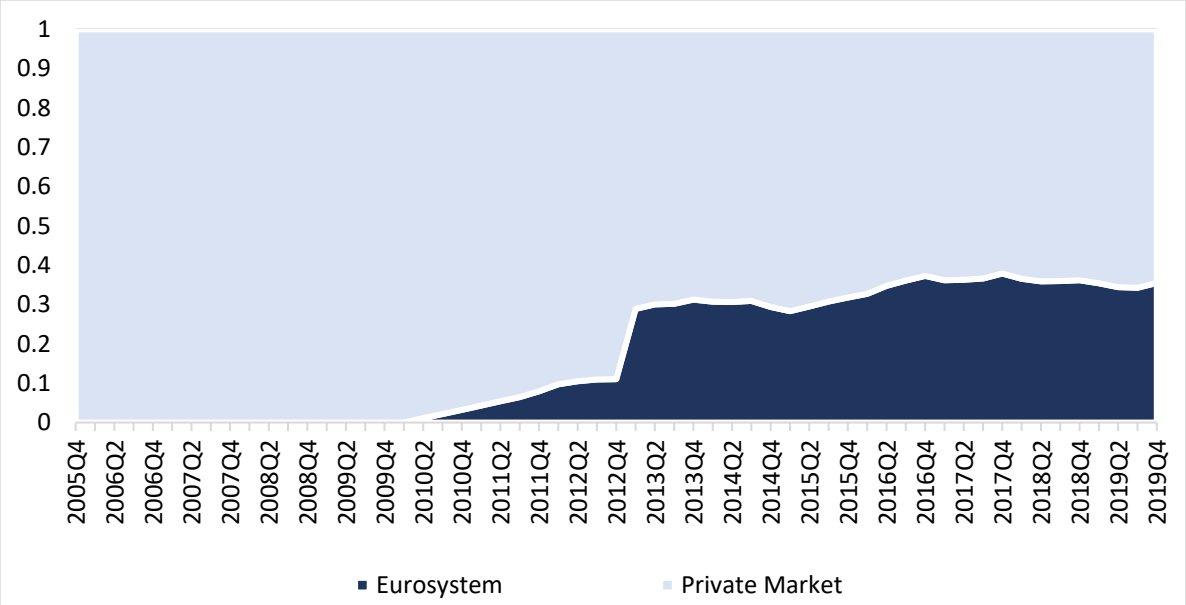
Since 2011 as the European Sovereign Debt Crisis took hold the ECB gradually began to directly intervene in the sovereign bond markets of Member States. This came in the form of various asset purchase programmes which greatly

[13] See Coffey et al. (2020).

increased the amount of Irish sovereign debt held by the Eurosystem (see Figure 12).

In response to the COVID-19 pandemic the ECB has engaged in further sovereign bond purchases through the Pandemic Emergency Purchase Programme (PEPP).

FIGURE 12 IRISH LONG-TERM DEBT HELD BY THE PRIVATE MARKET/EUROSYSTEM

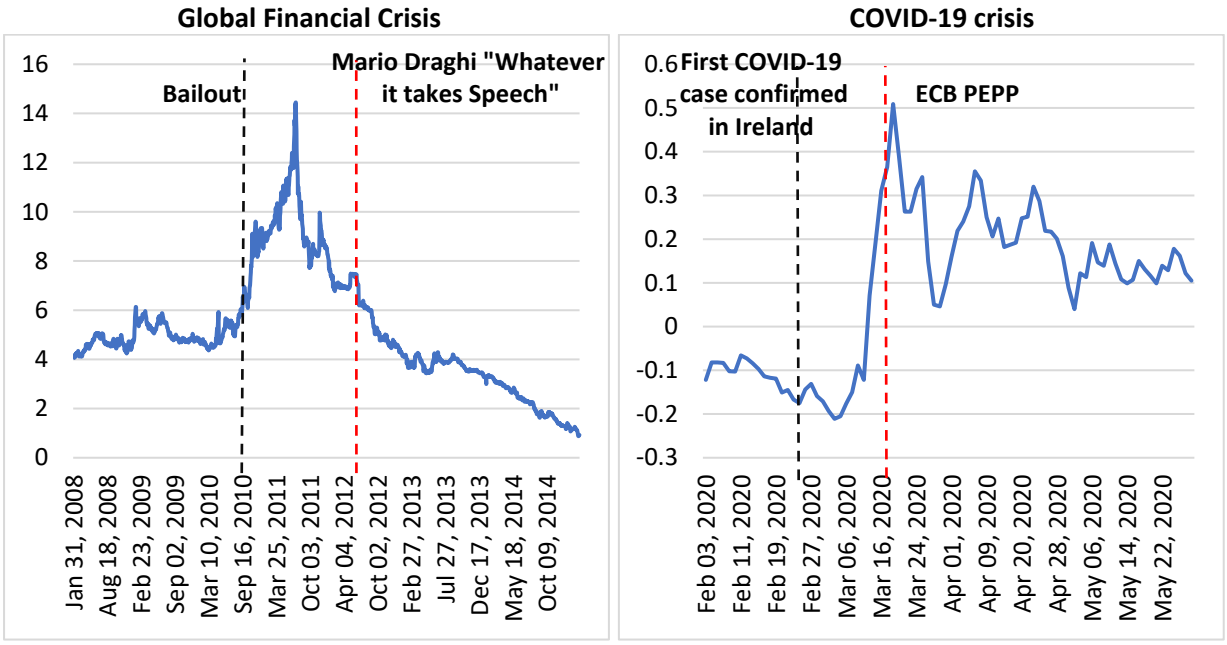


Source: National Treasury Management Agency.

The accommodative monetary policy implemented by the ECB has driven sovereign bond yields across the Eurozone to record lows. These low yields mean that the effective interest rates on Irish debt have lowered despite the increasing deficits. These lower borrowing costs have created additional fiscal space for the Irish Government to fund the large deficits that will be run in 2020 and 2021.[14] On the other hand, in the early phase of the GFC, the ECB's monetary policy was much more conservative and the yields on Irish government debt were substantially higher, peaking at over 10 per cent as private markets shunned Irish debt. It was only through signals from the ECB that it would do 'Whatever it takes' to save the euro including the aforementioned direct intervention in the bond markets and the Irish public finances being brought back under control that interest payments on Irish government debt returned to more manageable levels.

[14] For a quantitative analysis see Allen-Coghlan et al. (2020).

FIGURE 13 IRISH TEN-YEAR GOVERNMENT BOND YIELDS



Source: Investing.com.

6. CONCLUSIONS

This Note has compared the evolution of key indicators of the Irish economy during the current COVID-19 pandemic crisis and the 2008 Global Financial Crisis.

The scale of the negative shock for most key indicators is much more severe during the COVID-19 crisis. However, thus far it seems that the economy bounces back much more rapidly than during the GFC where the downward movement was gradual and more prolonged.

One of the key differences between this time and then is the relative uniformity in how all European countries have been impacted by the virus. During the previous crisis the impact on Ireland and other Eurozone periphery countries was much different to other core Eurozone countries.

Partly resulting from this, the policy response at a European level has been fundamentally different during the two crises. National fiscal and Eurozone monetary policies (ECB) have coordinated in a timely manner to support the Irish and other Eurozone economies. The large spending programmes run by European countries in an attempt to mitigate the economic fallout have in turn been supported by the monetary policy that keeps sovereign spreads at low levels. Thus, the monetary-fiscal policy nexus is in contrast to the policies implemented during the early phase of the GFC in 2008.

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