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FORECASTING
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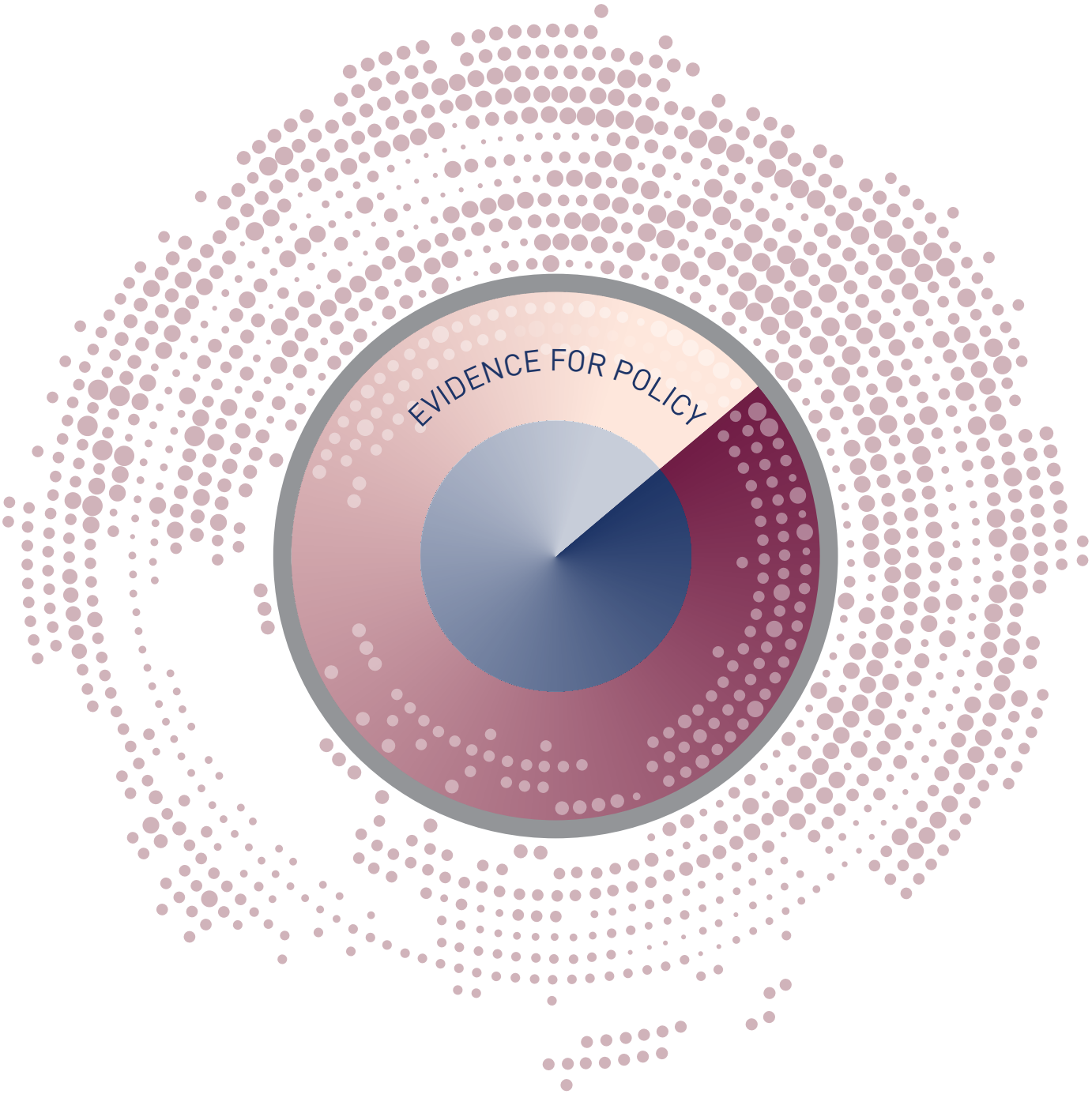
QUARTERLY ECONOMIC COMMENTARY

WINTER 2019

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



ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

QUARTERLY ECONOMIC COMMENTARY

Kieran McQuinn

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Cathal Coffey

Winter 2019

The forecasts in this *Commentary* are based on data available by 4 December 2019

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The Quarterly Economic Commentary has been accepted for publication by the Institute, which does not itself take institutional policy positions. It has been peer reviewed by ESRI research colleagues prior to publication. The authors are solely responsible for the content and the views expressed.

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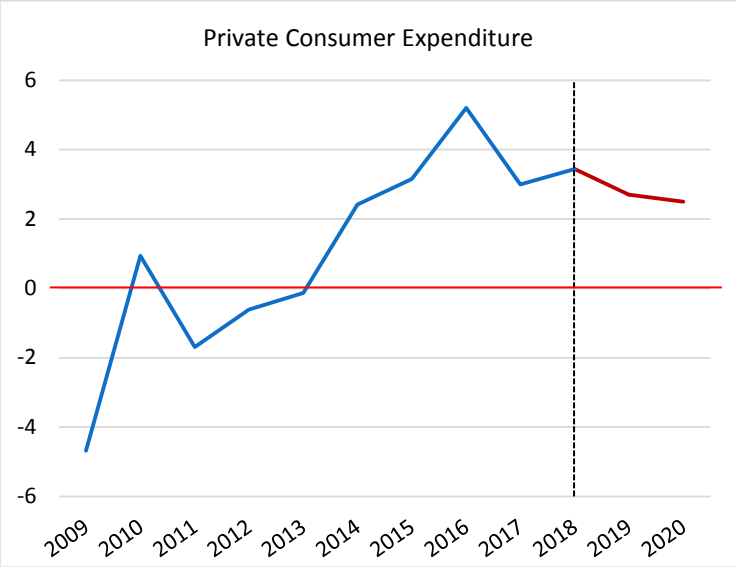
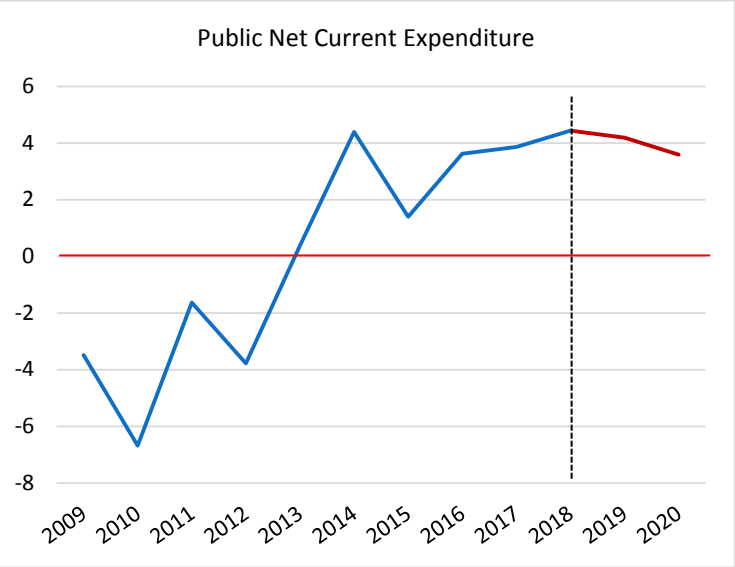
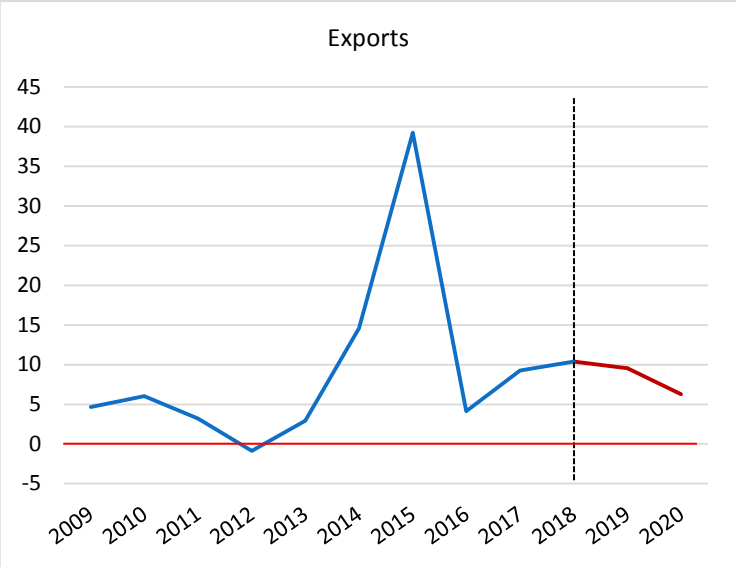
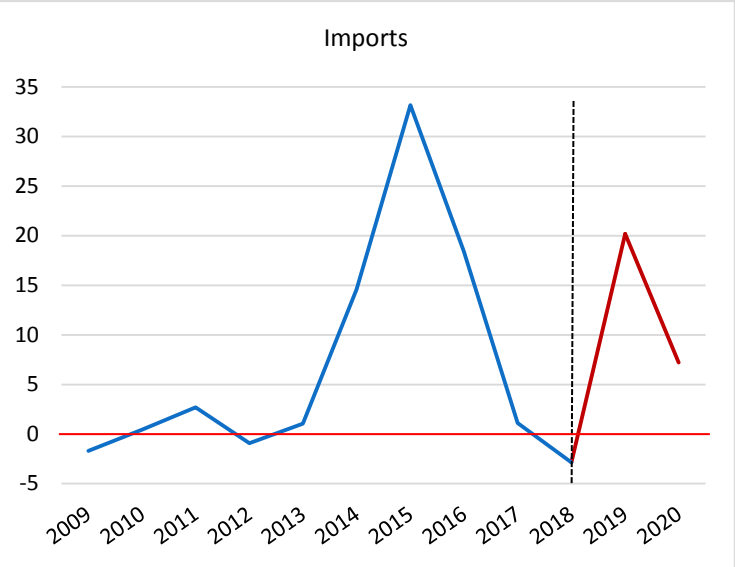
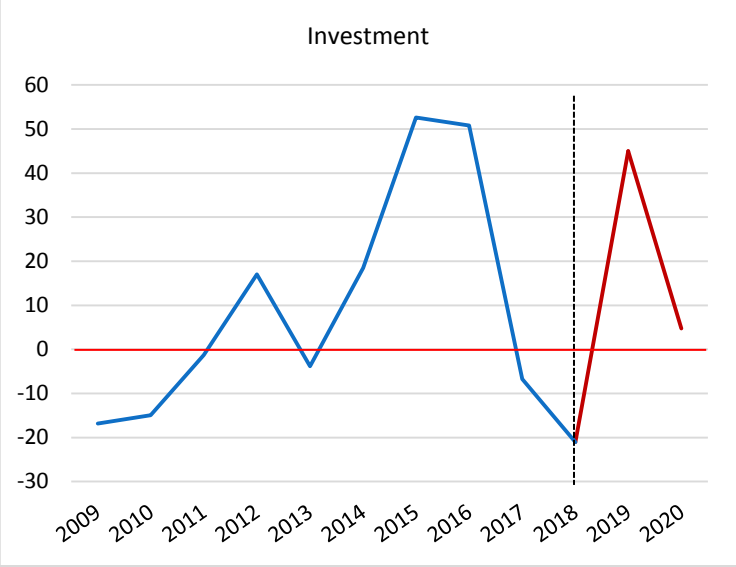
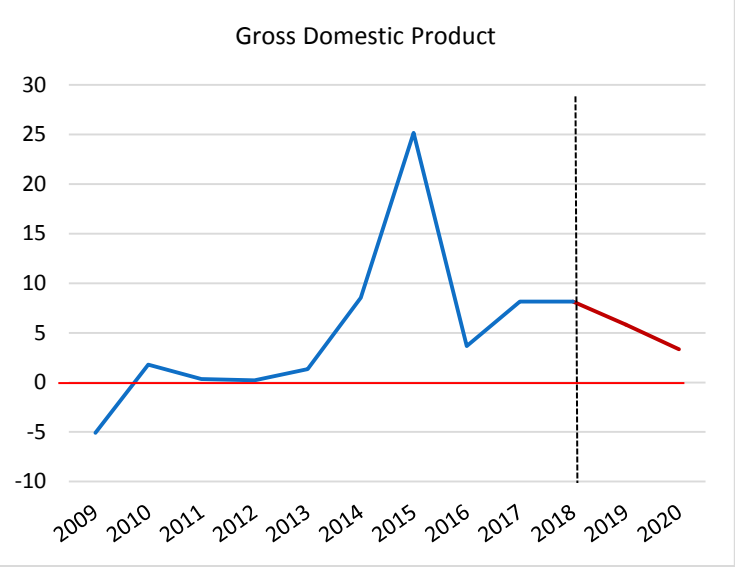












SUMMARY TABLE

	2016	2017	2018	2019	2020
Output (Real Annual Growth %)					
Private Consumer Expenditure	5.2	3.0	3.4	2.7	2.5
Public Net Current Expenditure	3.6	3.9	4.4	4.2	3.6
Investment	50.8	-6.8	-21.1	45.0	4.7
Exports	4.1	9.2	10.4	9.6	6.3
Imports	18.4	1.1	-2.9	20.2	7.2
Gross Domestic Product (GDP)	3.7	8.1	8.2	5.8	3.3
Gross National Product (GNP)	9.7	5.2	6.5	5.2	3.8
Prices (Annual Growth %)					
Consumer Price Index (CPI)	0.0	0.3	0.5	1.0	1.2
Growth in Average Hourly Earnings	2.5	3.4	3.0	3.5	4.0
Labour Market					
Employment Levels (ILO basis ('000))	2,132	2,194	2,258	2,310	2,353
Unemployment Levels (ILO basis ('000))	195	158	137	125	114
Unemployment Rate (as % of Labour Force)	8.4	6.7	5.8	5.0	4.6
Public Finance					
General Government Balance (€bn)	-1.8	-0.8	0.0	0.0	-1.1
General Government Balance (% of GDP)	-0.7	-0.3	0.0	0.0	-0.3
General Government Debt (% of GDP)	73.9	67.8	63.6	57.8	53.5
External Trade					
Balance of Payments Current Account (€bn)	-11.4	1.5	34.3	-2.5	-3.1
Current Account (% of GNP)	-5.2	0.6	13.6	-0.9	-1.1

NATIONAL ACCOUNTS 2018

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2017	2018	Change in 2018		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	101.6	107.0	5.3	1.8	3.4
Public Net Current Expenditure	29.6	32.1	8.7	4.0	4.4
Gross Fixed Capital Formation	93.2	75.9	-18.6	3.1	-21.1
Exports of Goods and Services	359.7	396.4	10.2	-0.2	10.4
Physical Changes in Stocks	6.1	1.2			
Final Demand	**590.1**	**612.5**	**3.8**	**0.8**	**3.0**
less:					
Imports of Goods and Services	294.0	289.0	-1.7	1.2	-2.9
Statistical Discrepancy	1.1	0.5			
GDP at Market Prices	**296.1**	**323.5**	**9.3**	**0.4**	**8.8**
Net Factor Payments	-62.3	-71.0			
GNP at Market Prices	**234.9**	**253.1**	**7.7**	**1.2**	**6.5**

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2017	2018	Change in 2018	
	€ bn	€ bn	€ bn	%
Agriculture, Self Employed Income	3.5	3.0	-0.5	-15.4
Agriculture, Employee Remunerations	0.7	0.7	0.0	1.6
Non-Agriculture, Employee Remunerations	87.4	92.6	5.1	5.9
Other	111.6	126.3	14.7	13.2
Adjustments: Stock Appreciation	0.1	0.3		
Statistical Discrepancy	-1.1	-0.5	0.5	
Net Domestic Product	**202.2**	**222.2**	**20.0**	**9.9**
Net Factor Payments	-62.3	-71.0	-8.7	14.0
National Income	**139.9**	**151.2**	**11.3**	**8.1**
Depreciation	73.1	79.3	6.2	8.5
GNP at Factor Cost	**213.0**	**230.5**	**17.5**	**8.2**
Taxes less Subsidies	21.9	22.6	0.7	3.2
GNP at Market Prices	**234.9**	**253.1**	**18.2**	**7.7**

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2017	2018	Change in 2018
	€ bn	€ bn	€ bn
X – M	65.6	107.4	41.8
F	-61.1	-69.7	-8.7
Net Transfers	-3.1	-3.4	-0.3
Balance on Current Account	**1.5**	**34.3**	**32.8**
as % of GNP	0.6	13.6	13.0

NATIONAL ACCOUNTS 2019

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2018	2019	Change in 2019		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	107.0	111.8	4.5	1.8	2.7
Public Net Current Expenditure	32.1	35.3	10.0	5.5	4.2
Gross Fixed Capital Formation	75.9	113.6	49.8	3.3	45.0
Exports of Goods and Services	396.4	440.7	11.2	1.5	9.6
Physical Changes in Stocks	1.2	3.0			
Final Demand	**612.5**	**704.4**	**15.0**	**2.1**	**12.6**
less:					
Imports of Goods and Services	289.0	351.8	21.7	1.3	20.2
Statistical Discrepancy	0.5	-0.1			
GDP at Market Prices	**323.5**	**352.6**	**9.0**	**3.0**	**5.8**
Net Factor Payments	-71.0	-77.9			
GNP at Market Prices	**253.1**	**274.6**	**8.5**	**3.2**	**5.2**

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2018	2019	Change in 2019	
	€ bn	€ bn	€ bn	%
Agriculture Self-Emp. Income	3.0	3.1	0.1	4.9
Agriculture, Employee Remuneration	0.7	0.7	0.0	0.0
Non-Agriculture, Employee Remunerations	92.6	98.4	5.9	6.3
Other	126.3	143.8	17.5	13.9
Adjustments: Stock Appreciation	0.3	0.3		
Statistical Discrepancy	-0.5	0.1	0.6	
Net Domestic Product	**222.3**	**246.5**	**24.1**	**10.9**
Net Factor Payments	-71.0	-77.9	-6.9	9.7
National Income	**151.3**	**168.6**	**17.3**	**11.4**
Depreciation	79.3	82.1	2.9	3.6
GNP at factor cost	**230.6**	**250.7**	**20.1**	**8.7**
Taxes less Subsidies	22.4	23.9	1.5	6.5
GNP at Market Prices	**253.1**	**274.6**	**21.6**	**8.5**

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2018	2019	Change in 2019
	€ bn	€ bn	€ bn
X - M	107.4	79.1	-28.3
F	-69.7	-77.9	-8.1
Net Transfers	-3.4	-3.7	-0.4
Balance on Current Account	**34.3**	**-2.5**	**-36.8**
as % of GNP	13.6	-0.9	-13.8

NATIONAL ACCOUNTS 2020

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2019	2020	Change in 2020		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	111.8	116.8	4.4	1.9	2.5
Public Net Current Expenditure	35.3	36.7	4.1	0.4	3.6
Gross Fixed Capital Formation	113.6	123.1	8.4	3.5	4.7
Exports of Goods and Services	440.7	474.8	7.7	1.4	6.3
Physical Changes in Stocks	3.0	3.0			
Final Demand	**704.4**	**754.5**	**7.1**	**1.7**	**5.3**
less:					
Imports of Goods and Services	351.8	383.3	8.9	1.6	7.2
Statistical Discrepancy	-0.1	-0.1			
GDP at Market Prices	**352.6**	**371.2**	**5.3**	**1.9**	**3.3**
Net Factor Payments	-77.9	-80.3			
GNP at Market Prices	**274.6**	**290.8**	**5.9**	**2.0**	**3.8**

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2019	2020	Change in 2020	
	€ bn	€ bn	€ bn	%
Agriculture Self-Emp. Income	3.1	3.2	0.1	3.2
Agriculture, Employee Remuneration	0.7	0.7	0.0	0.0
Non-Agriculture, Employee Remunerations	98.4	104.5	6.0	6.1
Other	143.8	152.8	9.0	6.3
Adjustments: Stock Appreciation	0.3	0.2		
Statistical Discrepancy	0.1	0.1	0.0	
Net Domestic Product	**246.5**	**261.5**	**15.1**	**6.1**
Net Factor Payments	-77.9	-80.3	-2.4	3.1
National Income	**168.6**	**181.2**	**12.6**	**7.5**
Depreciation	82.1	84.9	2.8	3.4
GNP at factor cost	**250.7**	**266.1**	**15.4**	**6.1**
Taxes less Subsidies	23.9	24.7	0.8	3.2
GNP at Market Prices	**274.6**	**290.8**	**16.2**	**5.9**

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2019	2020	Change in 2020
	€ bn	€ bn	€ bn
X - M	79.1	81.3	2.2
F	-77.9	-80.3	-2.4
Net Transfers	-3.7	-4.1	-0.3
Balance on Current Account	**-2.5**	**-3.1**	**-0.5**
as % of GNP	-0.9	-1.1	-0.2

The Irish Economy – Forecast Overview

2019 is likely to witness another year of substantial growth for the Irish economy. This comes in the face of significant uncertainty with the prospect of a No-Deal Brexit hovering over the domestic economy for most of 2019. We believe the economy will grow by 5.8 per cent in 2019 before slowing somewhat in 2020 to a growth rate of 3.3 per cent. The latter forecast assumes that Brexit does not occur next year and is influenced by the slowdown observed in the performance of many of the main trading partners of the Irish economy.

Despite the diminishing possibility of a No-Deal Brexit in the short term, the recent agreement between the United Kingdom and the European Union sees the UK committed to a free trade agreement in future trade relationships; this will bring immense challenges for various sectors in both the Irish and European economies in the years ahead. It could also see significant frictions in negotiations amongst European countries as they contend with the different proposals made.

The *Commentary* devotes considerable attention to regional issues. Two Research Notes examine developments in housing markets across the different counties over the past ten years. Both pieces of research point to significant variations in house price trends across the country with urban areas in particular experiencing the most significant housing affordability issues. While prices across the country appear to be in line with what fundamental economic variables in the local economies would suggest they should be, it is clear that assessments of regional house price sustainability need to be updated on a regular basis. Based on housing related variables, a Box in the *Commentary* also examines for potential convergence in economic activity across the country during the recent recovery. However, indicators suggest that there has been a significant degree of divergence since 2007.

Finally, another Box in the *Commentary* examines the implications for the Irish public finances of a significant decline in the windfall component of corporation tax receipts. Based on a recently specified dynamic stochastic generated equilibrium (DSGE) model, the analysis highlights the vulnerability of the Irish public finances to significant variation in these types of taxation receipts.

The International Economy

Output

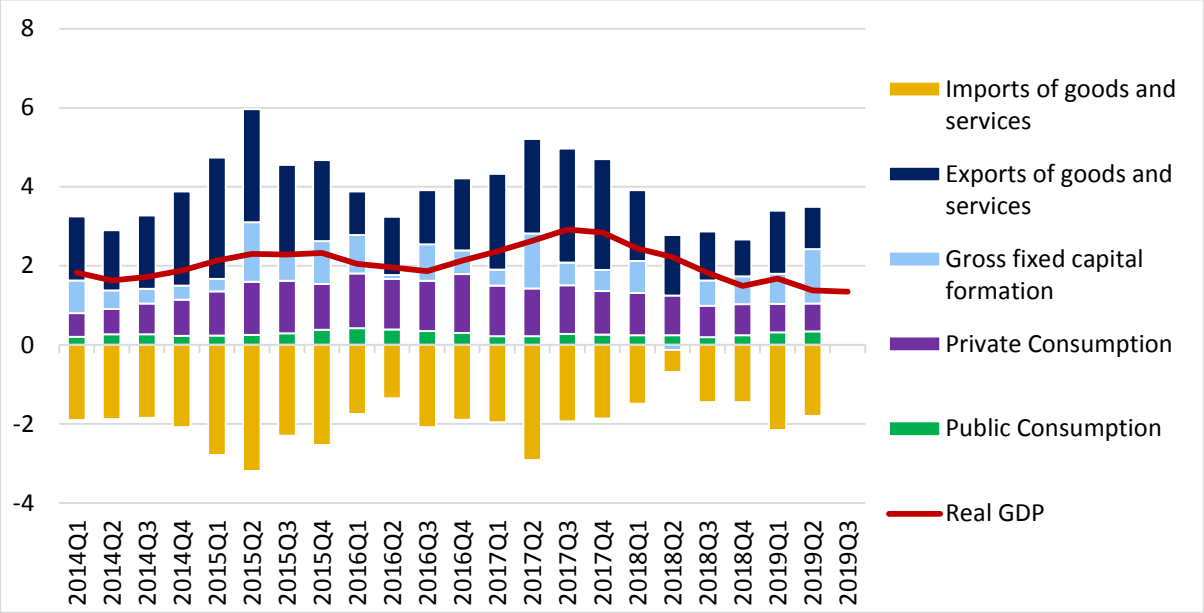
Key Points

- *Growth in Europe continues to wane in the midst of a deteriorating external environment;*
- *US and Chinese economies both feeling the negative effects of the trade war;*
- *Consensus forecasts point to slower growth for major economies in 2020.*

Global uncertainty and a more subdued external environment continue to weigh on activity in the European economy. Annual GDP growth in the European Union declined for the second consecutive quarter in Q3 2019 standing at just over 1.3 per cent. This is the lowest growth rate in the region since Q4 2013. In the Euro Area growth remains at 1.2 per cent. Growth is anaemic in the major economics of the Euro Area standing at 0.3, 0.5 and 1.3 per cent in Italy, Germany and France respectively. Figure 1 illustrates that declining growth in Europe has largely been caused by the weak performance of exports and private consumption. The slowdown in global trade is particularly problematic for the export-oriented German economy.

Low inflation also continues to persist across the region, averaging 0.7 per cent in October 2019, half the rate it was at the start of the year. One of the major positives for the European economy over this time has been the strength of the labour market. As of Q3 2019 the unemployment rate in the European Union stood at 6.3 per cent, a significant decline from the peak rate of 11.0 per cent in Q2 2013.

FIGURE 1 EU28 – CONTRIBUTIONS TO YEAR-ON-YEAR REAL GDP GROWTH (%)

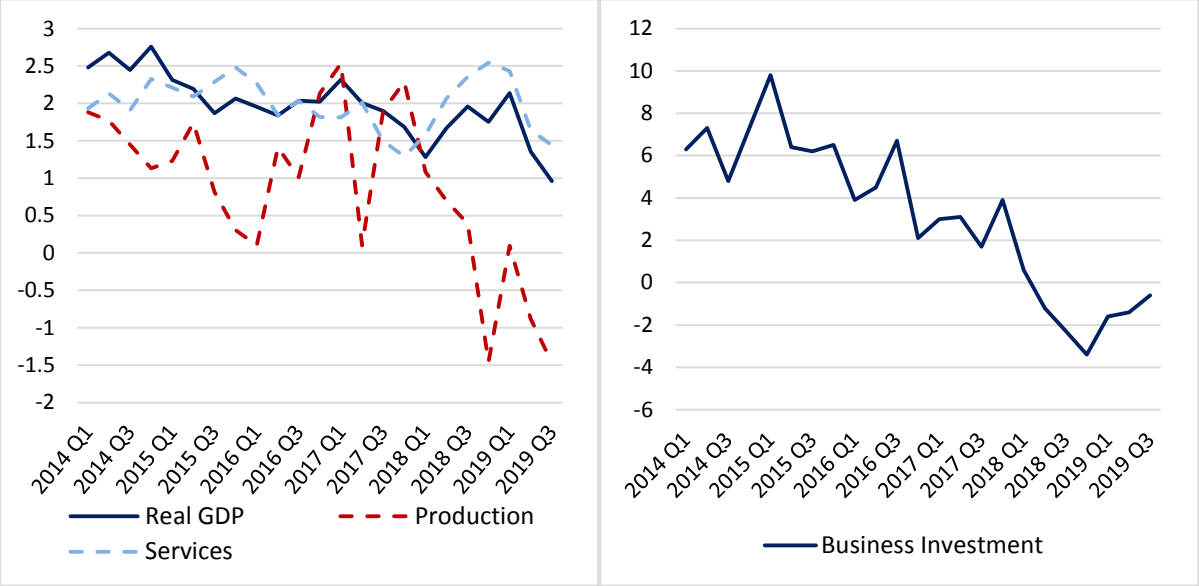


Sources: Eurostat, GDP and main components.

Real GDP growth in the UK fell below 1 per cent in Q3 2019 relative to the same period the previous year, the lowest rate of annual growth in the country in nearly a decade. Figure 2 shows that weak economic performance over this period is reflected in particular in the production sector where the annual growth rate was negative at approximately -1.5 per cent. Figure 2 also shows that since the end of 2017 there has been a drastic decrease in rate of growth in business investment, likely reflecting the ongoing Brexit uncertainty. Since Q2 2018 business investment growth has been negative and remains negative at -0.6 per cent as of Q3 2019.

As in the rest of Europe, the labour market in the UK continues to perform strongly. Unemployment fell to 3.8 per cent in Q3 2019 and is now on par with rates not seen since the 1970s. This is putting upward pressure on earnings which grew by 3.6 per cent over the same period. However despite strong earnings and weak GDP, inflation in the UK continues to trend downward. As of October 2019 inflation was 1.5 per cent, down from 2.2 per cent in the same month last year.

FIGURE 2 UK GDP, PRODUCTION AND SERVICES (LHS), UK BUSINESS INVESTMENT (RHS), YEAR-ON-YEAR CHANGE (%)



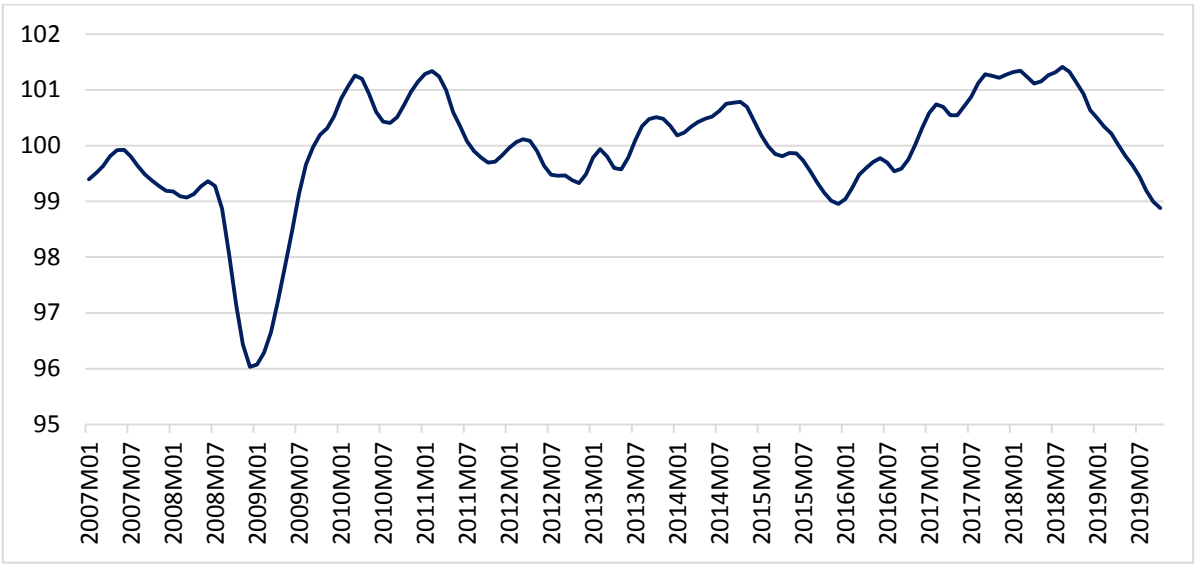
Source: Office for National Statistics.

The annual growth rate of real GDP in the US fell to just over 2.0 per cent in Q3 2019, the lowest rate of growth in the country since Q1 2016. This was primarily due to weak growth in investment and declining exports over the period. Gross Fixed Capital Formation fell to 1.4 per cent in the quarter as business sentiment continues to plummet. The Business Tendency Survey for manufacturing (Figure 3), which is a measure of conditions and confidence in the manufacturing sector,[1] fell to its lowest point in October since the Great Recession. The manufacturing industry, which relies on imports of raw materials from abroad, has been significantly impacted by rising prices due to increasing tariffs. Export growth was also weak over the period growing by just 0.1 per cent, though this was up from -1.7 per cent in the previous quarter. However, private consumption, which grew by 2.5 per cent over the same period, continues to give cause for optimism. Consumption has been buoyed by a strong labour market in which the unemployment rate in October was 3.6 per cent.

Economic growth in the US over the last two years has been boosted by stimulatory tax measures enacted by the US administration at the start of 2018. However, the impact of this fiscal stimulus is likely to wane in the final quarter of 2019 and into 2020. This is due to the fleeting impact of the tax cuts which have failed to provide a significant boost to investment. In the absence of a fiscal stimulus in 2020 the diminishing impact of the tax cuts are likely to put downward pressure on US growth.

[1] For more detail on the Business Tendency Survey see: *Business Tendency Surveys: A Handbook*. OECD (2003).

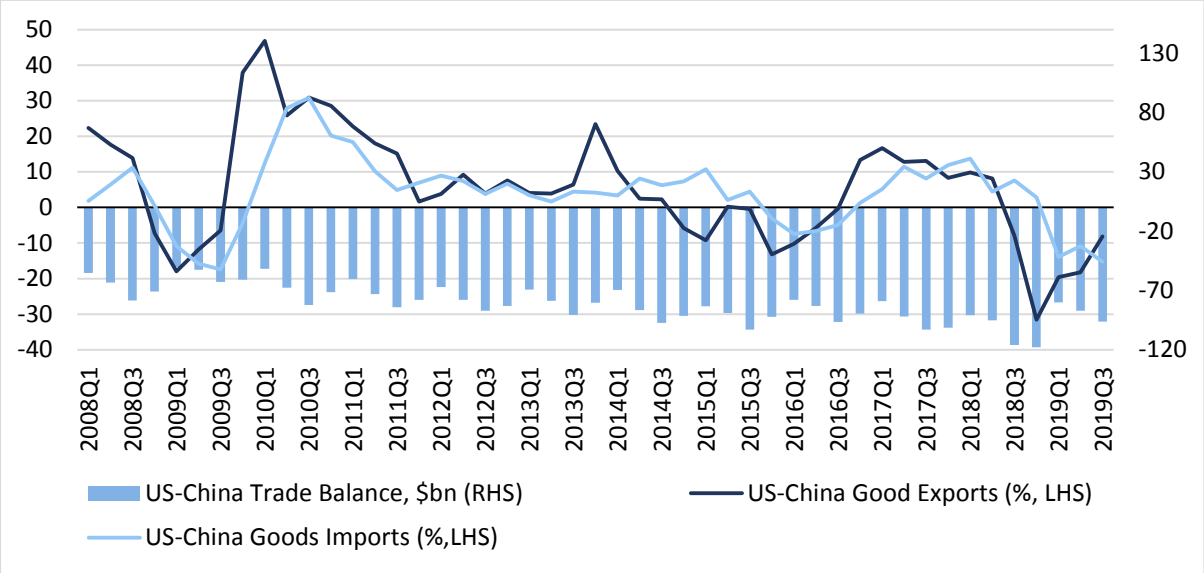
FIGURE 3 US BUSINESS TENDENCY SURVEY FOR MANUFACTURING, NORMALISED (NORMAL=100)



Source: OECD data sourced from St. Louis Fed database (FRED).

The major driver of uncertainty in international trade and financial markets over the past two years has been developments in the trade dispute between the US and China. Figure 4 shows how trade between the two countries has developed over this time. Over the course of 2019 there has been a clear decline in the flow of goods between the two countries. In Q3 2019 US exports to China fell by 8.2 per cent on the same period the previous year, while Chinese exports to the US fell by 15.2 per cent.

FIGURE 4 US-CHINA SEASONALLY-ADJUSTED IMPORTS AND EXPORTS, Y-O-Y GROWTH (%)

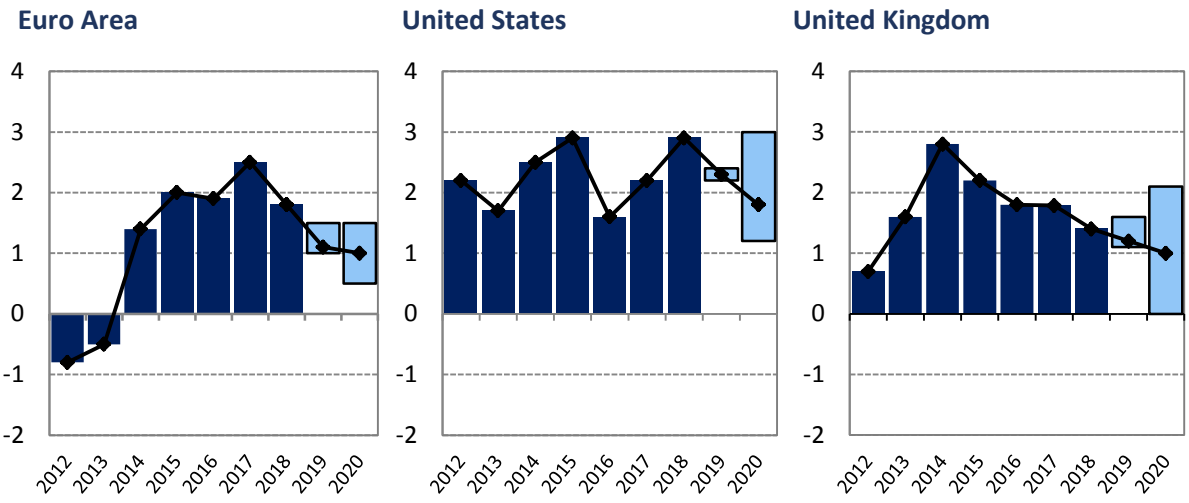


Source: United States Census Bureau, US Export and Import data for goods.

Real GDP growth in China fell to 6.0 per cent in Q3 2019, down from 6.2 per cent in the previous quarter. Economic growth in the country has been declining since 2009, which is seen as a natural phenomenon after decades of expansion. However, as is the case for the US, growth in China is also being negatively impacted by the trade war. Chinese exports fell by 3.2 per cent in September compared to the same period the previous year. Stimulatory measures from the Chinese government had been relatively tempered through much of 2019 and had been limited to some tax reforms and a reduction in banks' cash reserve requirements. However in November, the Chinese central bank cut the short-term lending rate for the first time since 2015. Though the rate cut was limited to five basis points, this may be the start of a more accommodative monetary policy stance from the bank as the economy continues to feel the effects of the trade war.

Figure 5 summarises the forecasts for GDP growth of the Euro Area, the US and the UK produced by individual economists and the major institutions of their respective economies. Each forecast signals minimum and maximum forecasts, with point values identifying the median of forecasts. These forecasts suggest a broad-based expectation of a moderation in economic growth in 2019. In the Euro Area growth is forecast to fall to its lowest level since 2013, while in the UK growth is expected to be at its lowest point since 2012. Higher growth is forecast for the US but is still down on the rate in 2018. Growth in all three regions is expected to fall next year, though consensus is wide ranging.

FIGURE 5 REAL GDP, YEAR-ON-YEAR GROWTH (%)

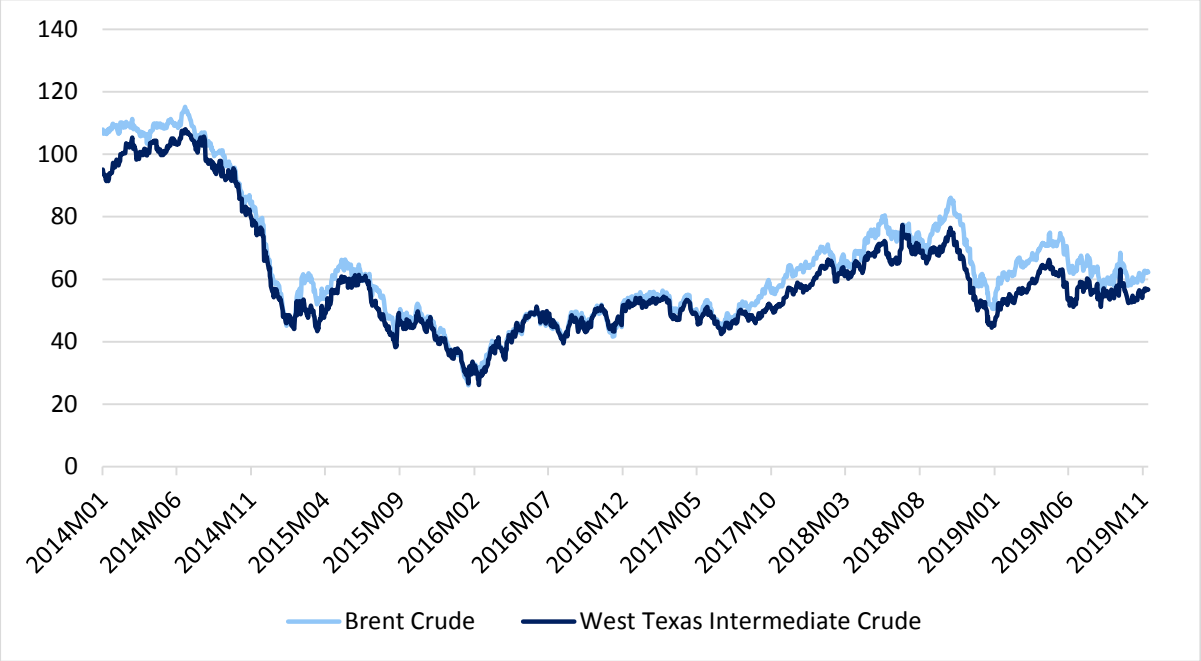


Sources: EA; FocusEconomics. US; Federal Reserve Bank of Philadelphia. UK; HM Treasury.

Developments in oil prices

Figure 6 displays recent trends in global oil prices. The most significant event for oil markets in 2019 was the missile attack on Saudi Arabian oil infrastructure in September. This caused oil prices to increase by as much as 20 per cent in a single day but the effects were largely reversed within a couple of weeks as production capacity was restored. On the demand side, oil prices have been kept subdued due to the ongoing trade war between the US and China. Any escalation in trade tensions is likely to see a slowdown in economic activity which in turn will lead to a downturn in demand for energy. From an Irish perspective, lower oil prices will decrease inflation, putting downward pressure on household expenses.

FIGURE 6 CRUDE OIL PRICES ($ PER BARREL)



Source: St. Louis Fed database (FRED).

International financial developments

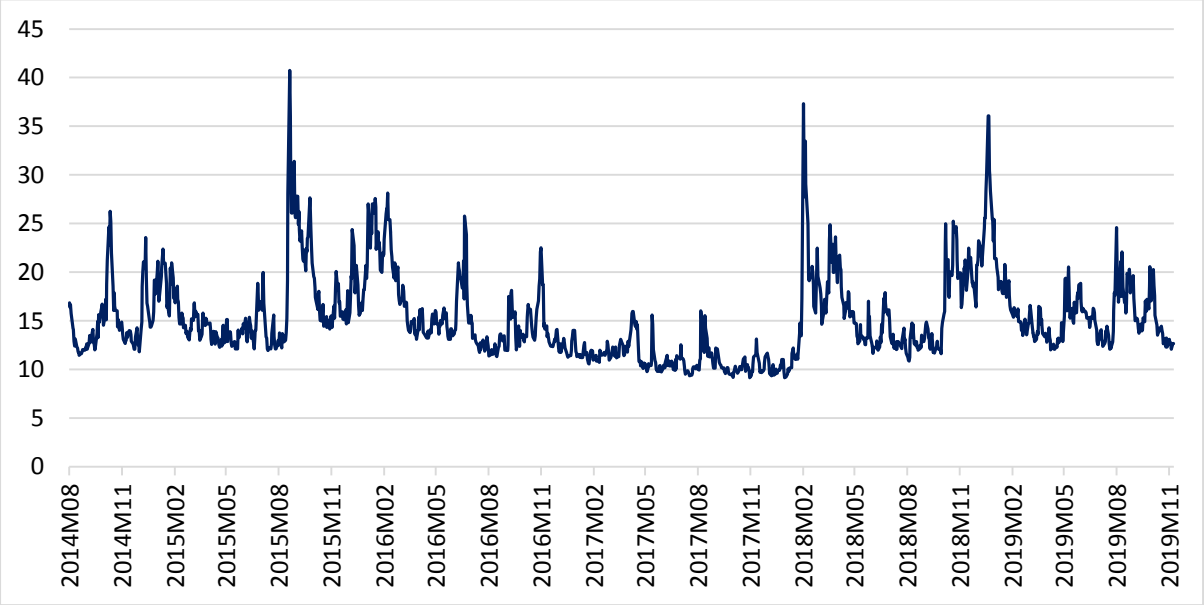
Key Points

- *Volatility in equity markets remains subdued into Q4;*
- *The ECB loosens monetary policy with further rate cuts and a return to quantitative easing;*
- *Sovereign and corporate bond yields fall to historical low.*

The VIX Volatility Index (Figure 7) was relatively subdued in November following some significant fluctuation in the previous months. Known as the 'fear gauge of Wall Street', the VIX is derived from volatility in the S&P 500 stock index and is a

reflection of investor uncertainty about future market conditions. Over the course of 2019 the two primary sources of uncertainty in US equity markets have been around international trade disputes and monetary policy adjustments by the Fed. The Fed implementing a more accommodative monetary policy stance in the form of a number of interest rate cuts, coupled with increased optimism that a trade deal between the US and China could be reached, helped assure investors in October and into November. This is reflected both in the low rates of volatility as well as a number of major US equity indices – including the S&P 500 and the Dow Jones Industrial Average – reaching record highs.

FIGURE 7 VIX VOLATILITY INDEX (%)

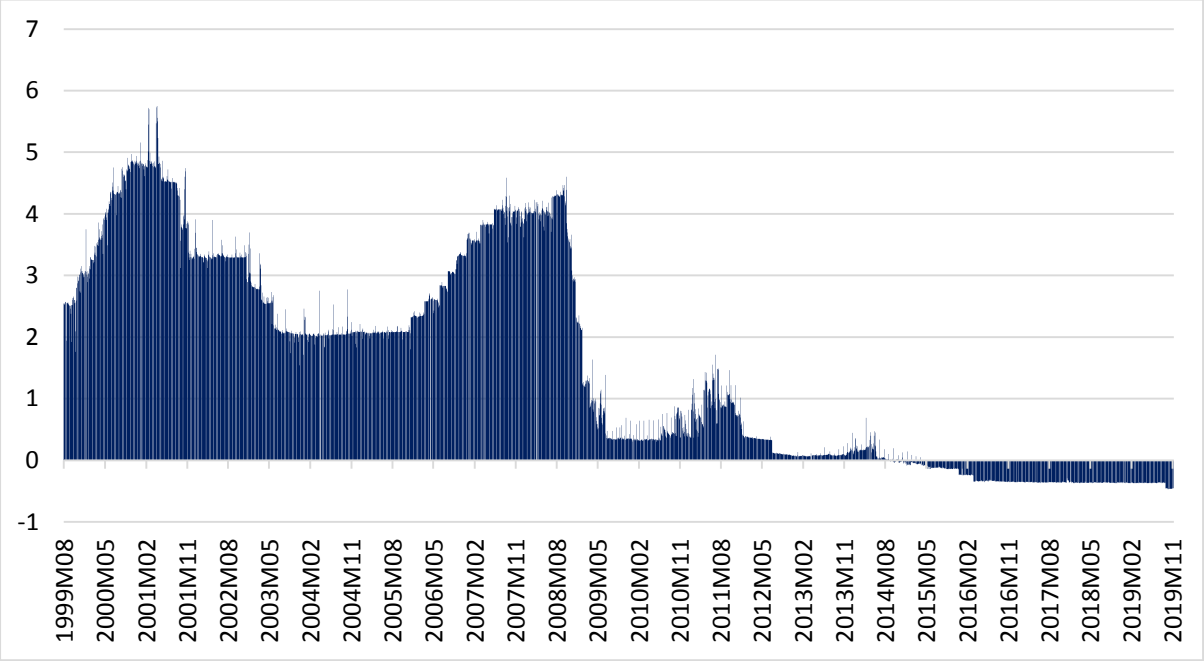


Source: *Chicago Board Options Exchange data* St. Louis Fed Database (FRED).

Citing inflation that has remained persistently below target and weakening growth prospects for the global economy, the ECB cut its policy rate further in September (Figure 8). As of November, the Eonia rate, which is the rate at which banks can lend to each other overnight, stood at -0.45 per cent. Beyond rate cuts, the ECB has also restarted its asset purchase programme, which had been suspended since December 2018. This involves the purchase of €20 billion worth of sovereign and corporate bonds a month in Eurozone economies, in order to increase the money supply and liquidity and lower the cost of credit. However, the ECB has continued to stress that monetary policy is at its limit with restricted scope for further policy measures should economic conditions deteriorate further. In light of this, the bank has argued for increased intervention from European governments through stimulatory fiscal policy measures.[2]

[2] See speech by Mario Draghi entitled 'Farewell remarks' at the farewell event in his honour in Frankfurt, Germany.

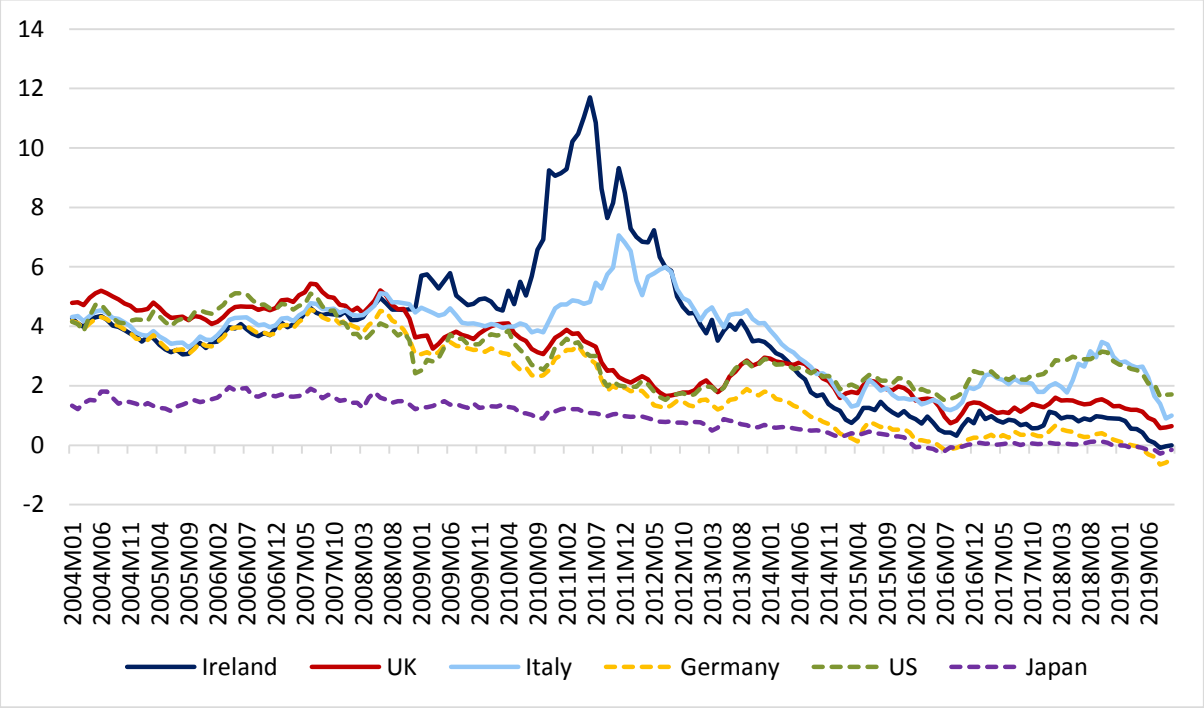
FIGURE 8 EURO OVERNIGHT INDEX AVERAGE, EONIA (%)



Source: European Central Bank, Statistical Data Warehouse.

Government bond yields have declined through much of 2019 as central banks have continued to loosen monetary policy. Yields have also declined in response to downward revisions to economic forecasts for the global economy as investors sought refuge in the relative safety of sovereign debt. As of October 2019, yields in both Germany and Japan were in negative territory. The prospect of a resolution to the trade war between the US and China saw an uptick in US yields in October. The US yield curve, which had been inverted earlier in the year, has steepened over the final few months of the year helping allay some fears of recession. The yield on ten-year Irish government bonds stood at 0.00 per cent as of October, having fallen into negative territory for the first time in August. In November the ratings agency Standard & Poor's upgraded Irish sovereign debt to a rating on par with its pre-crisis level. This is likely to make the issuance of new bonds less costly which is particularly beneficial for the Irish Exchequer as the level of outstanding debt-to-output is relatively high by international standards.

FIGURE 9 TEN-YEAR GOVERNMENT BOND YIELDS (%)

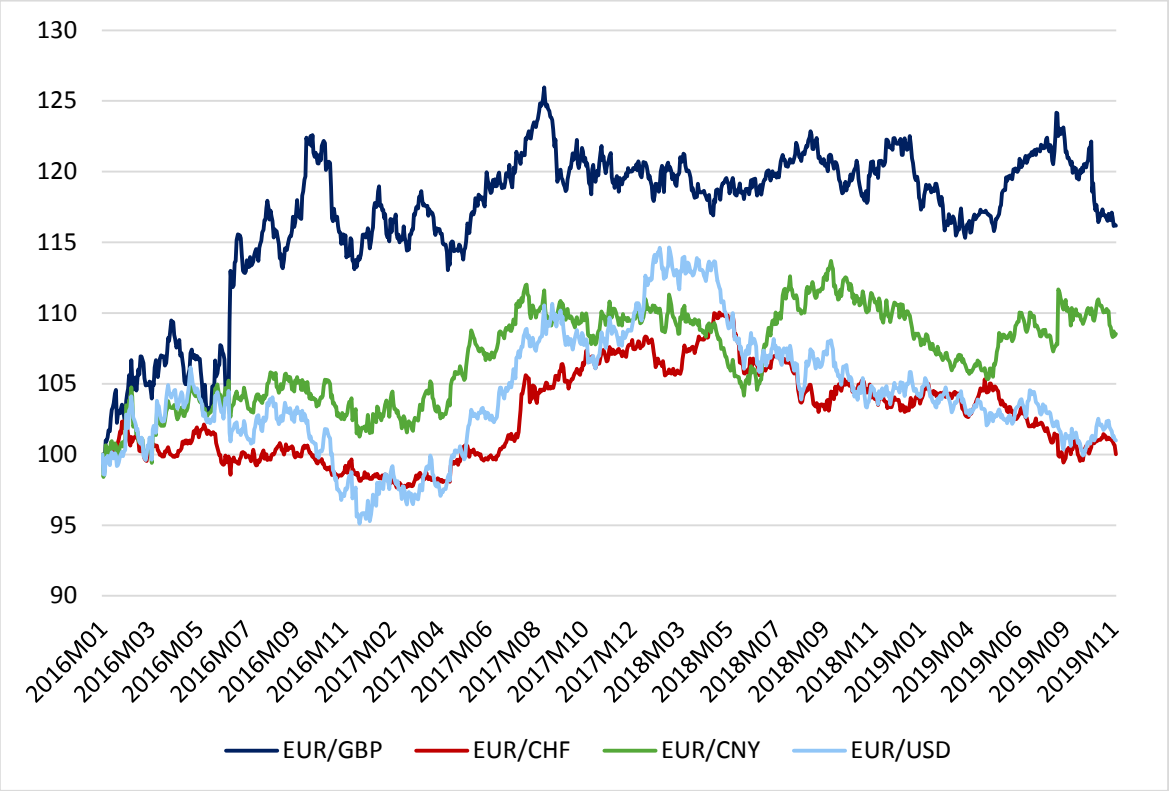


Source: St. Louis Fed database (FRED).

Figure 10 graphs the exchange rate of the euro (EUR) to the US dollar (USD), the British pound sterling (GBP), the Swiss franc (CHF) and the Chinese renminbi (CNY). These are the currencies of Ireland's largest trading partners outside the Eurozone and their value against EUR impacts on the competitiveness of Irish companies in the international market. Following news in late October that an extension to the Brexit deadline was likely to be granted by the European Council, the value of GBP increased significantly against EUR. The EUR/GBP rate is now around the same value it was in the period following the initial extension granted to the UK in March 2019. With over 20 per cent of Irish good imports coming from the UK, a decline in the EUR/GBP rate is likely to impact on Irish consumers and producers in the form of higher inflation.[3] The EUR/USD rate has seen a general decline over the past two years as economic growth in the US has surpassed that of the Eurozone. While rate cuts by both the ECB and Fed over the latter half of 2019 have led to fluctuations in the exchange rate, further downward revisions to Eurozone forecasts have kept the exchange EUR/USD rate subdued. As the US is Ireland's largest export market, a weakening EUR/USD rate is likely to prove beneficial to the competiveness of Irish export firms. The EUR/CNY rate increased substantially in August following the devaluation of CNY by Chinese policymakers. This gain was largely reversed in the months since, as CNY strengthened following positive news concerning the trade war.

[3] For further detail on this see: Allen-Coghlan, Matthew (2019). 'Exchange rate pass-through – EUR/GBP', *Quarterly Economic Commentary* (Autumn 2019), ESRI.

FIGURE 10 EUR EXCHANGE RATE TO GBP, CHF, CNY, USD (JANUARY 2016 BASE=100)



Source: Eurostat.

IMPLICATIONS FOR IRISH EXPORTS, IMPORTS AND THE BALANCE OF PAYMENTS

Key Points

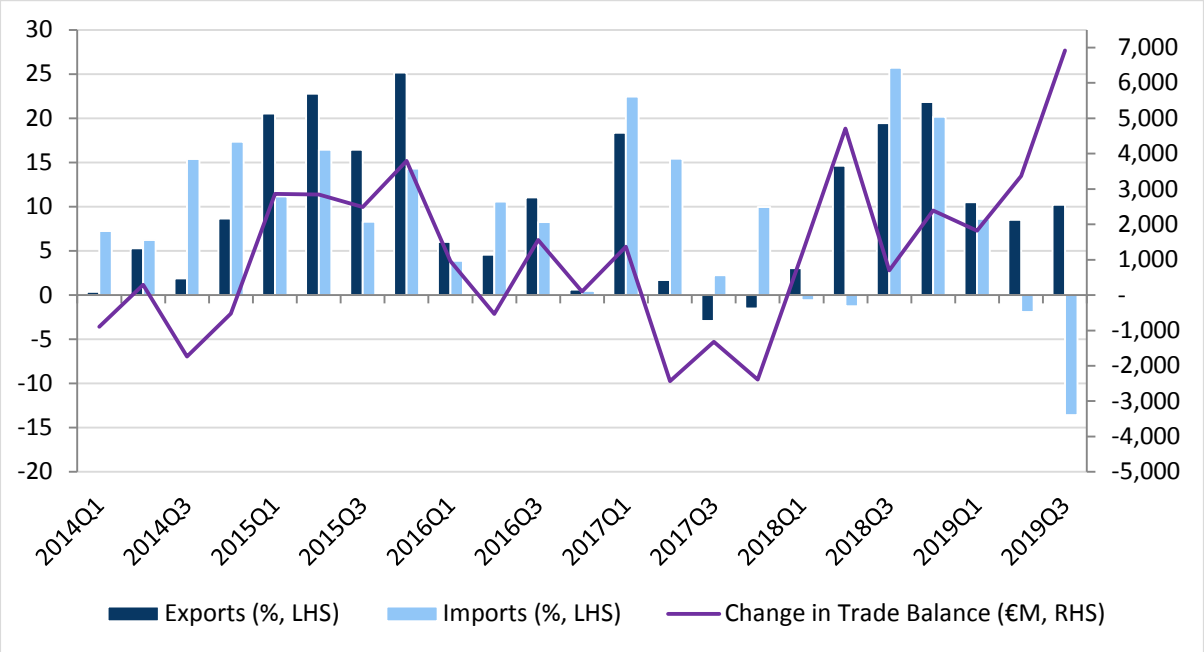
- *Current account declines to record deficit as service imports spike in Q2;*
- *Cross-border imports decline in Q3 due to decline in transport and medicinal and pharmaceutical products.*

Goods

In Q2 2019 the annual growth rate in the volume of Irish goods exports was 6.2 per cent compared to 11.8 per cent for Irish goods imports. While imports growth was higher than exports for the quarter, the trade surplus of €33.2 billion shows that international trade remains a significant source of growth for the Irish economy.

The trade in goods figures presented in the quarterly National Accounts include the trade of ownership goods (e.g. contract manufacturing and merchanting).[4] While these traded goods are owned by Irish resident firms, some of these goods may never physically cross the Irish border, nor are they produced domestically. Therefore, these overall trade figures may not paint an accurate picture of the underlying trends in goods trade. In Figure 11 we present the cross-border trade statistics which function somewhat more accurately as an indicator of domestic exporter performance.[5] These statistics only include goods which have crossed the Irish border with the exception of aircraft for leasing.[6] In Q3 2019, cross-border exports increased by 10.2 per cent on the same period the previous year, while cross-border imports decreased by -13.6 per cent. This resulted in an annual increase in the trade balance of €6.9 billion.

FIGURE 11 ANNUAL GROWTH RATE IN CROSS-BORDER IRISH EXPORTS AND IMPORTS, (VALUE, SEASONALLY ADJUSTED)



Source: Central Statistics Office.

Figure 12 plots the four commodity groups that had the largest decline in import value from Q3 2018 to Q3 2019. The significant fall in the annual growth of Irish cross-border imports in Q3 2019 can be attributed predominately to the decline in other transport equipment and medicinal and pharmaceutical products.

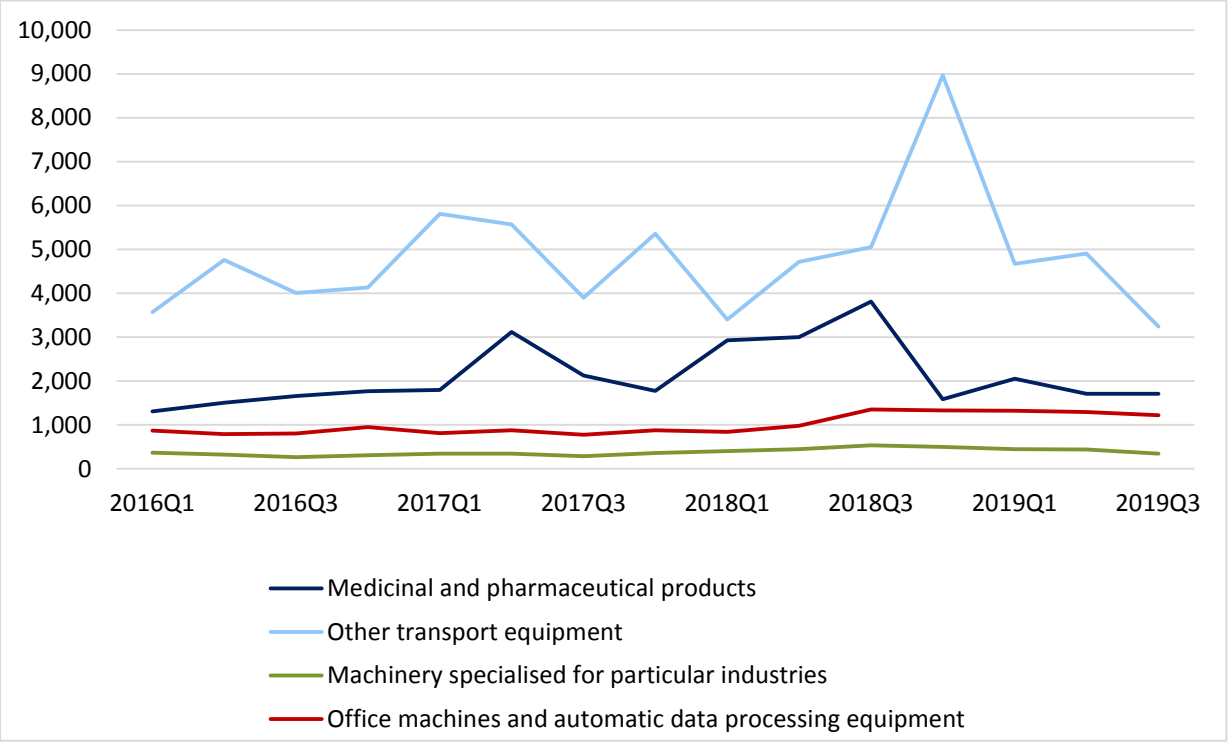
4 'Goods for processing' is dominated by 'contract manufacturing', a process in which multinational companies residing in Ireland issue contracts to foreign firms to produce goods. Although these goods never enter the Irish economy, due to ownership of these goods pertaining to Irish resident firms, sales are recorded as an Irish export. 'Merchanting' consists of the buying and selling of completed goods abroad which at no stage enter or leave Ireland.

5 For further details on ownership trade, see CSO document 'Explaining Goods Exports and Imports 2012-2016'.

6 Figures also include aircraft for leasing regardless of whether they are registered for aviation in Ireland. For more see CSO document 'Moving to a Transfer of Economic Ownership Basis for Trade in Aircraft'.

Also observable is a sharp upward trend in the imports of other transport equipment in Q4 2018. This commodity group includes aircraft for leasing which is highly volatile by nature. If the spike in imports proves to be a once-off event then we are likely to see a significant year-on-year fall in the growth of Irish goods imports in Q4 2019.

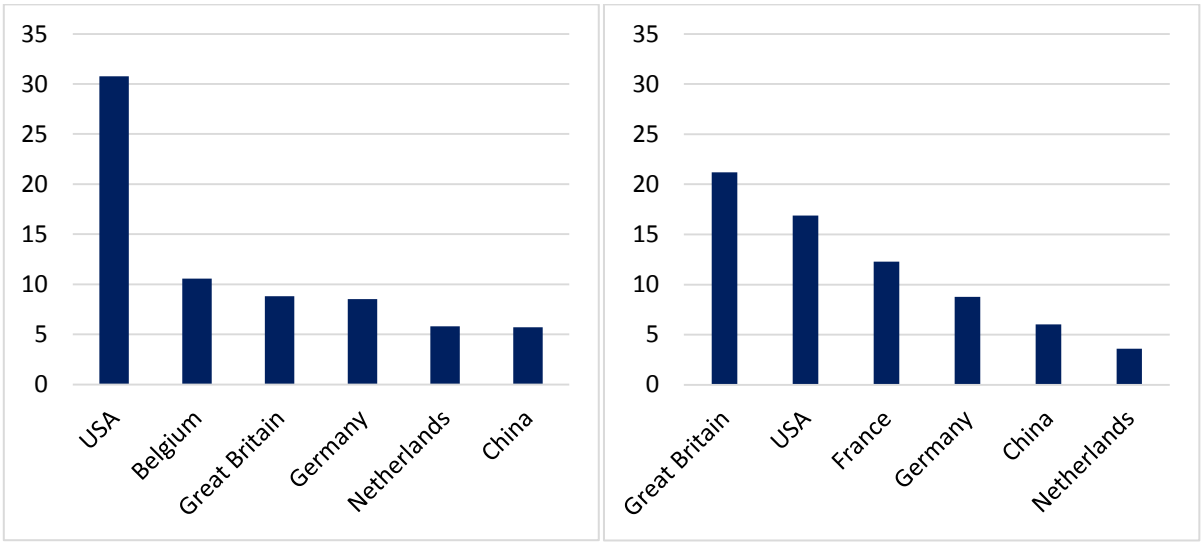
FIGURE 12 IRISH IMPORTS BY COMMODITY (VALUE, € MILLION)



Source: Central Statistics Office.

Figure 13 shows the proportion of cross-border trade to Ireland's main trading partners from January to September 2019. The US is by far the largest destination for exports accounting for over 30.7 per cent of exports. This emphasises the importance of the economic performance of the US for the Irish economy. The next largest export destination is Belgium (10.6 per cent) which imports a significant proportion of Irish pharmaceutical exports. Great Britain is the largest source market for Irish imports (21.1 per cent) followed by the US (16.9 per cent) and France (12.3 per cent).

FIGURE 13 IRISH CROSS-BORDER EXPORTS (LHS) AND IMPORTS (RHS) BY COUNTRY JANUARY TO SEPTEMBER 2019 (PROPORTION %)

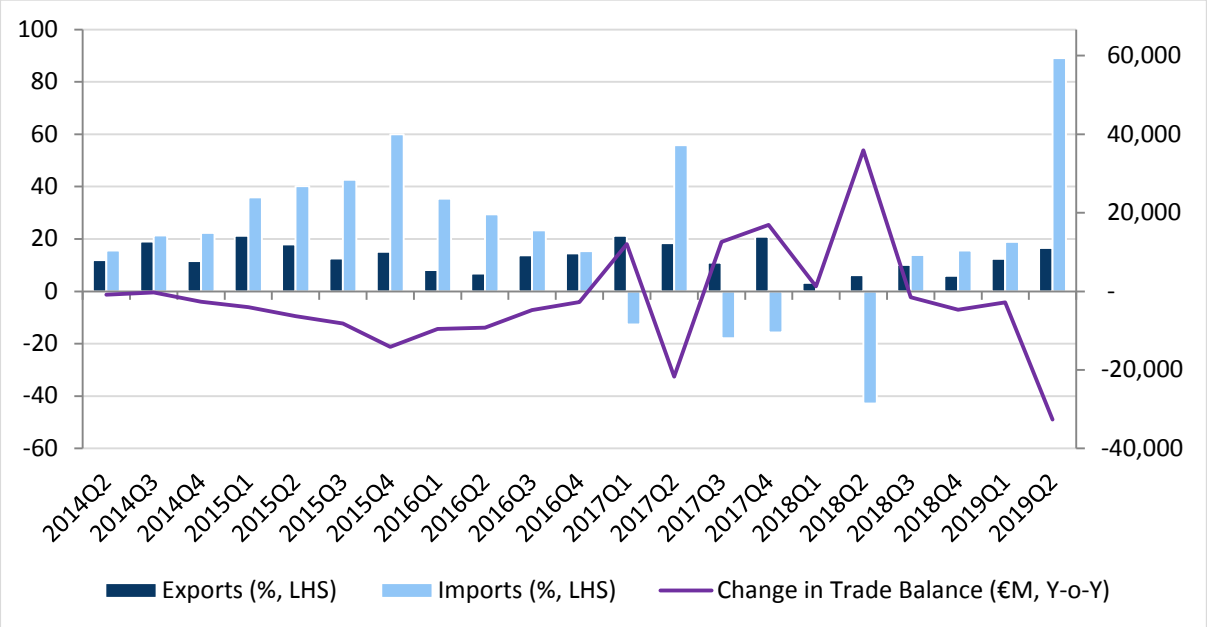


Source: Central Statistics Office.

Services

Service imports for the quarter increased by 87.3 per cent compared to the same period the previous year. This was primarily due to an increase in business service imports which were up by over 227 per cent to €54.8 billion. Meanwhile, service exports for Q2 2019 grew by 16.3 per cent compared to the same period the previous year. This resulted in a sharp decline in the services trade balance which declined by over €32 billion.

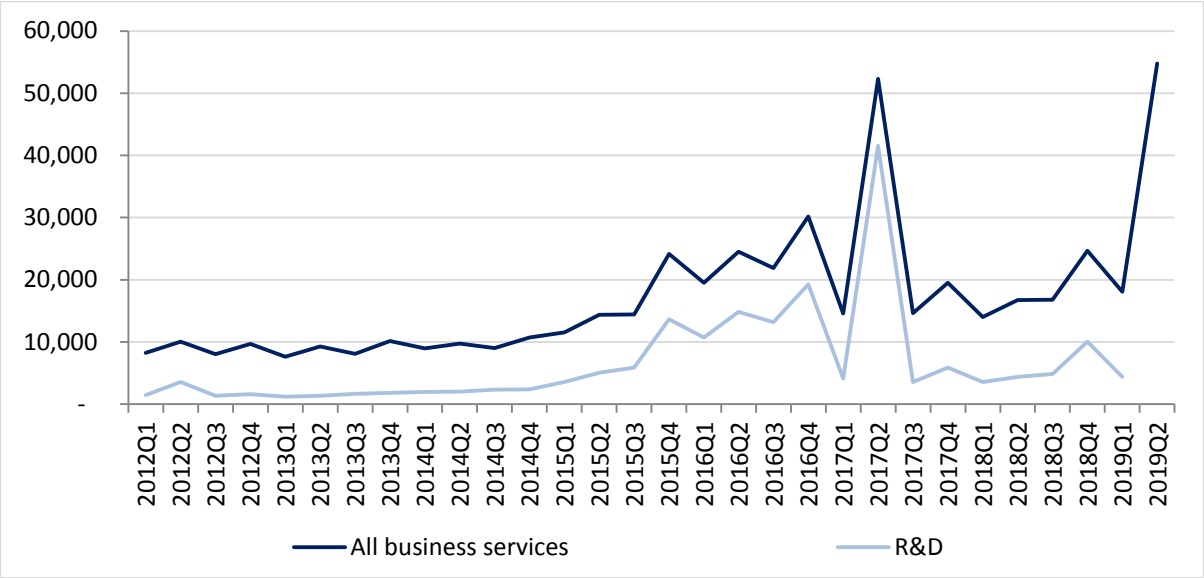
FIGURE 14 ANNUAL GROWTH RATE IN IRISH SERVICE EXPORTS AND IMPORTS



Source: Central Statistics Office.

One of the major components of business service imports is research and development (R&D). The majority of R&D imports are comprised of the movement of intellectual property by large multinational firms onto their Irish balance sheets. Due to the relatively small numbers of multinational firms that engage in these practices to a large scale, the value of R&D imports can be extremely volatile from quarter to quarter. For confidentiality reasons the CSO redacted information pertaining to the size of R&D imports in Q2 2019. However, examining the past relationship between business service imports and R&D imports reveals a close relationship between the two series. This was most evident in Q2 2017 when business service imports grew by 114 per cent primarily due to an increase in R&D imports. The correlation coefficient between the two series over the period Q1 2012 to Q1 2019 is over 0.97 which strongly suggests that the spike in business service imports in Q2 2019 was driven by another significant increase in R&D imports.

FIGURE 15 IMPORTS OF SERVICES BY COMPONENT (€ MILLION)

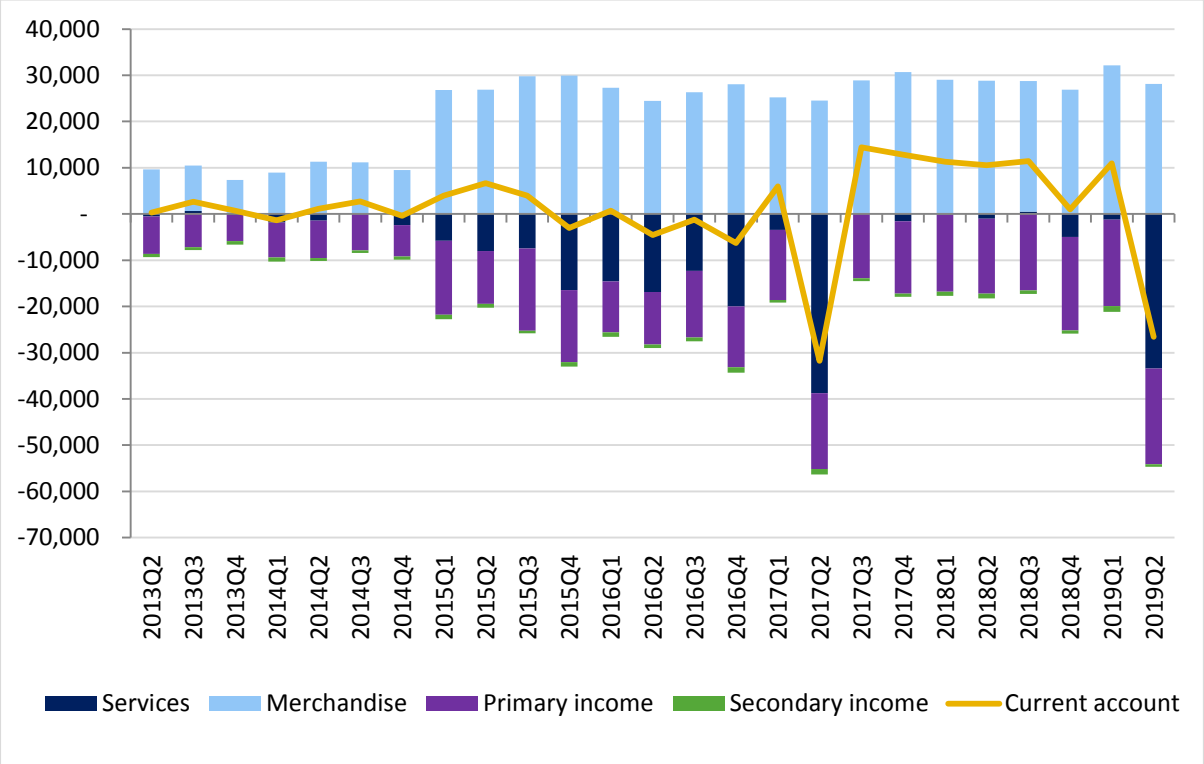


Source: Central Statistics Office.

Current account

The Irish current account balance fell to -€26.5 billion in Q2 2019, down from €10.6 billion in the same period the previous year. This was largely due to the sharp increase in service imports over this time. There was also an increase in the primary account deficit to -€20.7 billion, its lowest ever. The current account in Q2 2019 bears a similar resemblance to Q2 2017, which was the last time there was a negative balance. In that quarter there was also a large increase in service imports which was then attributed to R&D imports.

FIGURE 16 CURRENT ACCOUNT BALANCE (€ MILLION)



Source: Central Statistics Office.

Exports are expected to grow by 9.6 per cent this year and then moderate to 6.3 per cent in 2020 due to the general consensus of a global economic slowdown next year. As a result of distortions from multinational activity, we expect imports to increase by 20.2 per cent in 2019 and then to moderate to 7.2 per cent in 2020.

The Domestic Economy

The Domestic section of the *Commentary* is organised as follows; we initially review the outlook for output growth before discussing developments in the Irish monetary and financial sectors. Prices in the economy are then discussed, followed by a review of demand-side factors such as consumption and housing market issues. On the supply side, we then examine developments in investment and the labour market before concluding with an analysis of the public finances.

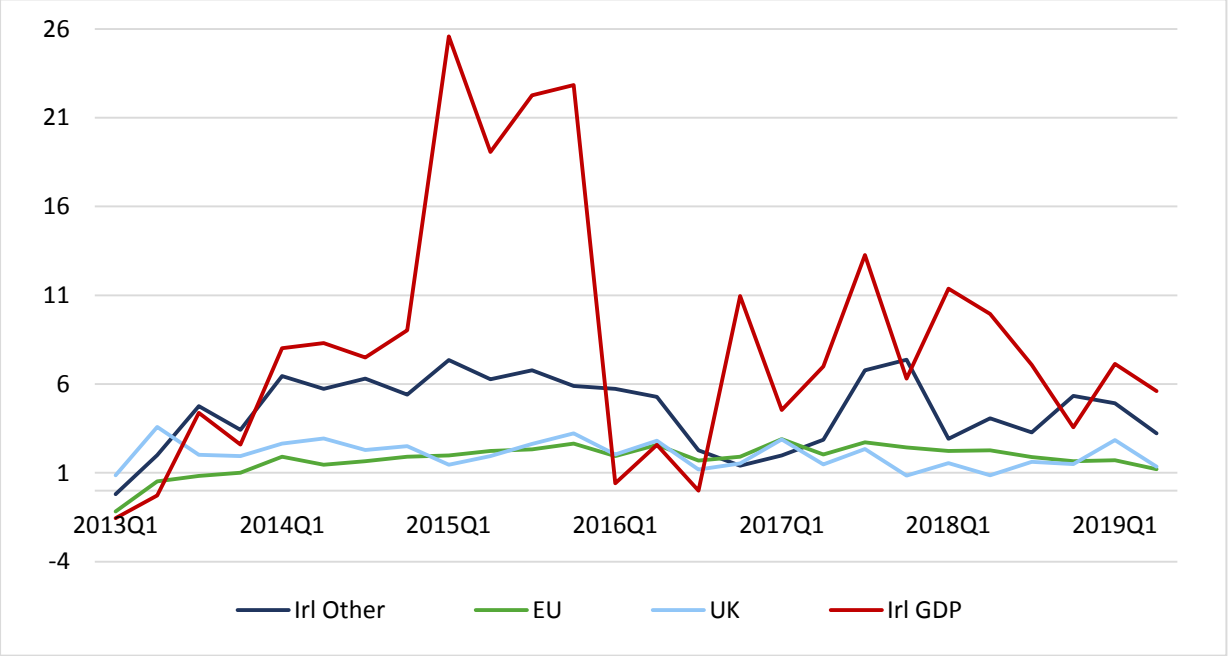
Output

Key Points

- *Continued strong underlying performance of the Irish economy;*
- *Particularly strong when compared to European and UK growth rates;*
- *Regional heterogeneity in the recovery of the Irish economy.*

The CSO recently released its estimates of gross value added for foreign-owned multinational enterprises and other sectors. While accounts for the foreign-owned dominated sector can be significantly influenced by certain large transactions, focussing on the 'other' sector indicates how the indigenous component of the Irish economy is performing. To benchmark these results in Figure 17 we plot the year-on-year growth rate for the other sector and compare it to the equivalent growth rate for the European Union and the United Kingdom over the period Q1 2013 to Q2 2019.

FIGURE 17 GROWTH RATE OF THE 'OTHER' COMPONENT OF THE IRISH ECONOMY COMPARED WITH HEADLINE GDP FOR IRELAND, THE EU AND THE UK, 2013 TO 2019 (%)



Source: Central Statistics Office, Eurostat and *QEC* Calculations.

What is evident from the graph is that while the growth rate of the 'other' sector of the Irish economy is less than the headline rate, it is still significantly larger than the growth rates for the European Union and the United Kingdom over the period 2013 to 2019. On average, the 'other' sector of the Irish economy grew by 4.5 per cent for that period, while the EU and the UK grew by 1.8 and 2.0 per cent respectively. It should be noted that the growth rate does fluctuate to a much greater extent which is consistent with the small, open nature of the Irish economy.

Given the persistently strong growth rates for the domestic economy over the past six years, attention is increasingly turning to the performance of different regions in the country. In 2018, for example, the Government published the National Development Plan which will underpin the implementation of the National Planning Framework (NDP). A key component of this strategy is to achieve sustainable growth of cities, towns and villages across the country. However, achieving timely estimates of regional growth is particularly difficult in an Irish context. In the following Box, Allen-Coghlan and McQuinn present some new estimates.

BOX 1 NEW ESTIMATES OF CONVERGENCE IN REGIONAL IRISH HOUSING MARKET ACTIVITY

While aggregate house prices and rent levels have increased to a significant degree since the international financial downturn of 2007/2008, growing attention is now focussing on the regional nature of the housing market performance. To what extent have price and rent levels in the different regions of the country increased and have some areas of the country witnessed faster growth than others? In assessing these questions it is informative to draw on growth theory which, when addressing this issue across countries, typically breaks the issue down into:

1. Beta convergence; and
2. Sigma convergence

Beta convergence is concerned with whether countries/regions with relatively low initial values of economic activity grow faster in comparison to countries/regions that start with higher values of economic activity. One way to examine for this is to run a regression where the dependent variable is the average growth rate of economic activity in a country/region and the independent variable is the economic activity in the initial year of the study. If convergence takes place over the period in question, then the coefficient on the independent variable will be negative and significant suggesting that the growth rate over the period is greater for those regions which had a relatively lower level of activity in the initial period.

In addition to beta convergence, sigma convergence is also used to examine whether countries/regions converge with respect to the variance of economic activity. In many instances, sigma convergence can be tested for by examining a plot of the coefficient of variation of economic activity for the regions over the period in question. The coefficient of variation is a standardised measure of dispersion for a given distribution. It is defined as the ratio of the standard deviation to the mean for a particular period. Plotting the coefficient for the different periods under review provides an indication of convergence, where a decline in the coefficients indicates convergence. Goecke and Hüther (2016) use this approach in examining for convergence across countries and regions in the European Union.

Data

An increasing amount of regional housing market data is now available. House price data are now provided on a monthly basis at a county level from 2010 to August 2019. Furthermore, the ESRI in conjunction with the Residential Tenancies Board now produces rental indicators for 166 local electoral areas on a quarterly basis from Q3 2007, with the most recent data being available for Q2 2019 (see Lawless M., K. McQuinn and J. Walsh, 2018, for more on these indicators).

Housing market information can be regarded as a proxy for economic activity in a local area as often both house price and rental models are specified on the basis of a long-run relationship between prices and rents and economic variables such as income and labour market data (see Kelly and McQuinn, 2014, for more on this). Thus, variations in housing

market data across regions are likely to be highly correlated with variations in the underlying economic and labour market data in those regions.

Results

The regression results of the beta convergence estimation using the house price data are presented in Table A. The dependent variable is the average growth in house prices over the period 2010-2019. The explanatory variable is house prices in each county at the start of the period (Q1 2010). The regression results using the rent price data are also presented, in Table B. The dependent variable here is the average growth in rent prices over the period 2007-2019 while the independent variable is rent levels in each county at the start of the period (Q3 2007). The coefficients on the explanatory variables in both estimations are shown to be both positive and significant. This suggests that over this period, a high initial house/rent price is associated with a higher growth rate in house prices/rents. In other words, areas that had high house/rent prices to begin with have experienced greater appreciation in prices over the last ten years. This suggests that there has been divergence in economic activity between counties/LEAs over this time period.

Figures A and B show the results of the sigma convergence estimation in each quarter using rent and house price data, respectively. These figures illustrate how the level of convergence/divergence between counties/LEAs has developed across time. Figure A shows that from 2007 to 2010, during the period immediately following the financial crisis, there was convergence in economic activity between LEAs. From 2010 onwards, when the economy was in the initial phase of recovery, both graphs paint a similar picture with an increasing level of divergence up until 2014. From this point until 2019 the coefficient of variation appears to be relatively stable with some evidence of convergence from the end of 2018. However, it should be noted that due to the presence of market regulation in the form of rent pressure zones in the rental market and macro-prudential rules in the housing market there may be a greater level of divergence than suggested by the coefficient of variation. These regulations limit the growth of rents and house prices in areas in which upward pressure on prices are greatest and so may cause these indicators to underestimate the level of economic activity in these areas. As such, the results presented over this period can be thought of as a lower bound on the level of divergence, with divergence in economic activity likely higher.

Conclusions

The estimates presented here indicate that there has been a significant divergence in house prices and rental levels across Irish counties during the period of the economic recovery. While the housing market as a whole has experienced a significant increase in prices and rents over the past ten years, it is evident that certain areas have grown faster than others. Moreover, those areas that had relatively lower prices and rents in both 2008 and 2010 appear to have experienced relatively lower rates of growth over the entire period. From a policy perspective, it is clear that the recently released National Development Plan (NDP) must seek to achieve a greater degree of balance in activity across the country over the medium term.

TABLE A REGRESSION ESTIMATE RESULTS (HOUSE PRICE DATA)

Dependent Variable: Average Growth in House Prices (2010-2019)		
Variable	**Coefficient (House price at the start of the period)**	**T-Stat**
Constant	0.153	0.029
House Prices (Q1 2010)	0.006	0.014

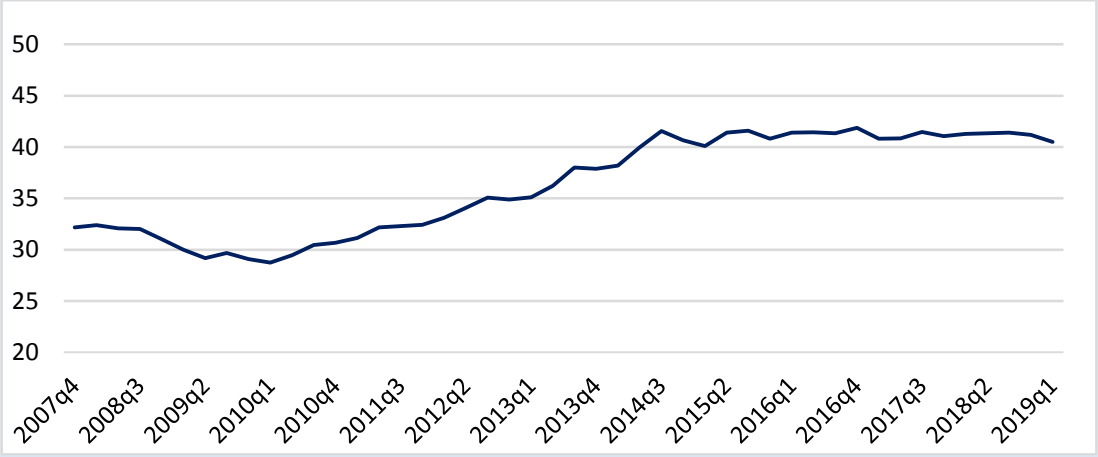
Source: *QEC* Calculations.

TABLE B REGRESSION ESTIMATE RESULTS (RENT DATA)

Dependent Variable: Average Growth in Rents (2007-2019)		
Variable	**Coefficient (Rent level at the start of the period)**	**T-Stat**
Constant	-0.009	-4.514
Rent level (Q3 2007)	0.00003	12.651

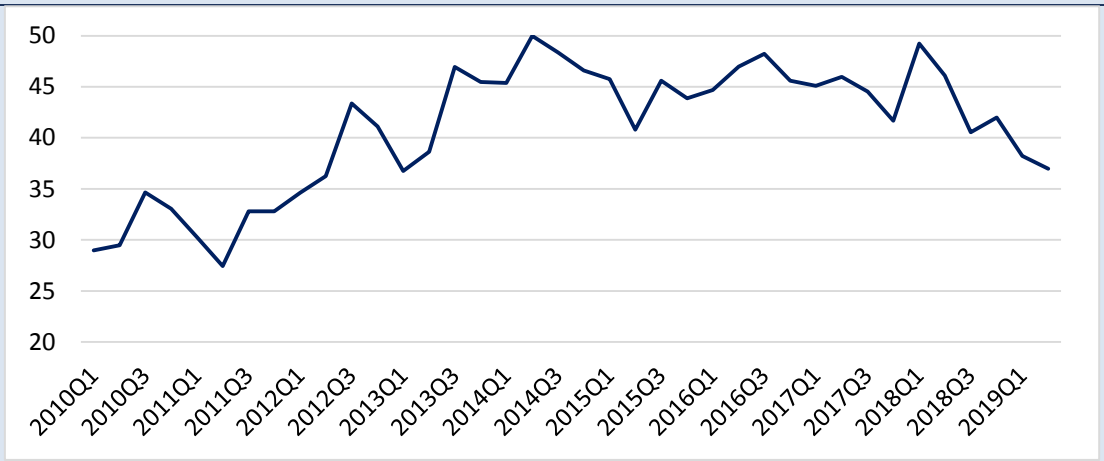
Source: *QEC* Calculations.

FIGURE A SIGMA CONVERGENCE BY YEAR (RENT DATA)



Source: *QEC* Calculations.

FIGURE B SIGMA CONVERGENCE BY YEAR (HOUSE PRICE DATA)



Source: *QEC* Calculations.

References:

Goecke H. and M. Hüther (2016). 'Regional convergence in Europe', *Intereconomics*, Vol. 51, May/June, No. 3, pp. 165-171.

Kelly R. and K. McQuinn (2014). 'On the hook for impaired bank lending: Do sovereign-bank inter-linkages affect the net cost of a fiscal stimulus?', *International Journal of Central Banking*, Vol. 10, No. 2, pp. 95-128.

Lawless M., K. McQuinn and J. Walsh (2018) 'Identifying rent pressures in your neighbourhood: A new model of Irish regional rent indicators', *The Economic and Social Review*, Vol. 49, pp. 73-92, No.1, Spring.

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

While the Irish economy has been subjected to considerable uncertainty in 2019, it appears that the headline domestic growth rate is set to be 5.8 per cent. This is an increase in the growth rate compared with the last *Commentary* and reflects the better than expected performance of the Irish traded sector in 2019. In 2020, as global conditions continue to moderate, it is likely that the economy will sustain a more modest growth rate of 3.3 per cent.

MONETARY AND FINANCIAL AND INFLATION OUTLOOK

Key takeaways

- *Rate of Irish mortgage lending remains steady through 2019 but is down on 2018;*
- *Outstanding loans to Non-Financial Corporations increasing since 2018;*
- *Irish inflation subdued despite strong labour market.*

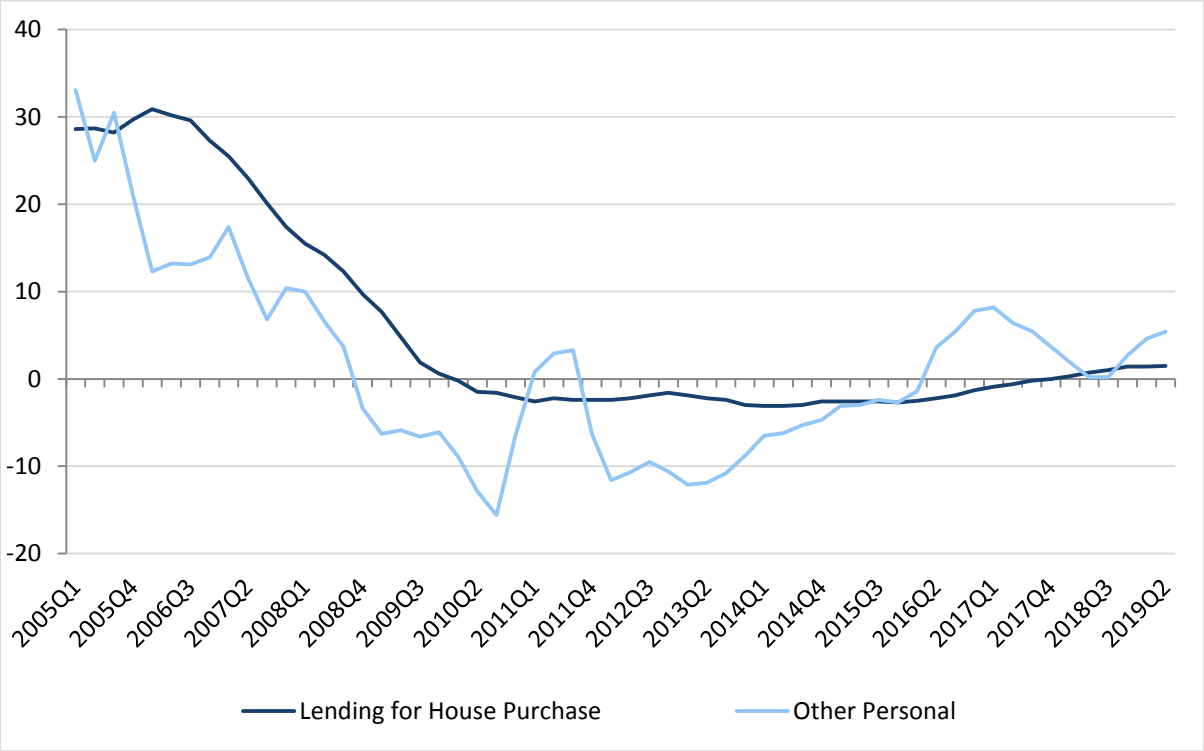
Household credit and mortgage market

Figure 18 presents the annual growth rates of credit to households from Irish resident credit institutions.[7] The data are split between loans for house purchase and other personal loans (auto finance, credit cards, student loans etc.). The growth rate of lending for house purchase has increased steadily since 2016 and as of Q2 2019 stood at 1.5 per cent. Since Q3 2018 there has also been an increase in other personal loans with the growth rate standing at 5.4 per cent in

[7] See CBI, 'Credit, Money and Banking Statistics: Private Household Credit and Deposits' A.18 for details.

Q2 2019. The increasing stock of outstanding credit is a reflection of an expanding economy and, with it, the recovery in the housing market and personal consumption. However, these rates remain significantly below the levels they were at before the financial crisis when credit growth in some quarters was in excess of 30 per cent. Any return to pre-crisis credit levels would be a worrisome development given the unsustainability of the credit boom phase.

FIGURE 18 GROWTH RATES OF CREDIT TO HOUSEHOLDS YEAR-ON-YEAR (%)



Source: Central Bank of Ireland, Credit, Money and Banking Statistics.
Notes: Data are taken from Central Bank of Ireland data release A.18, Growth rates series codes 777 and 1,252.

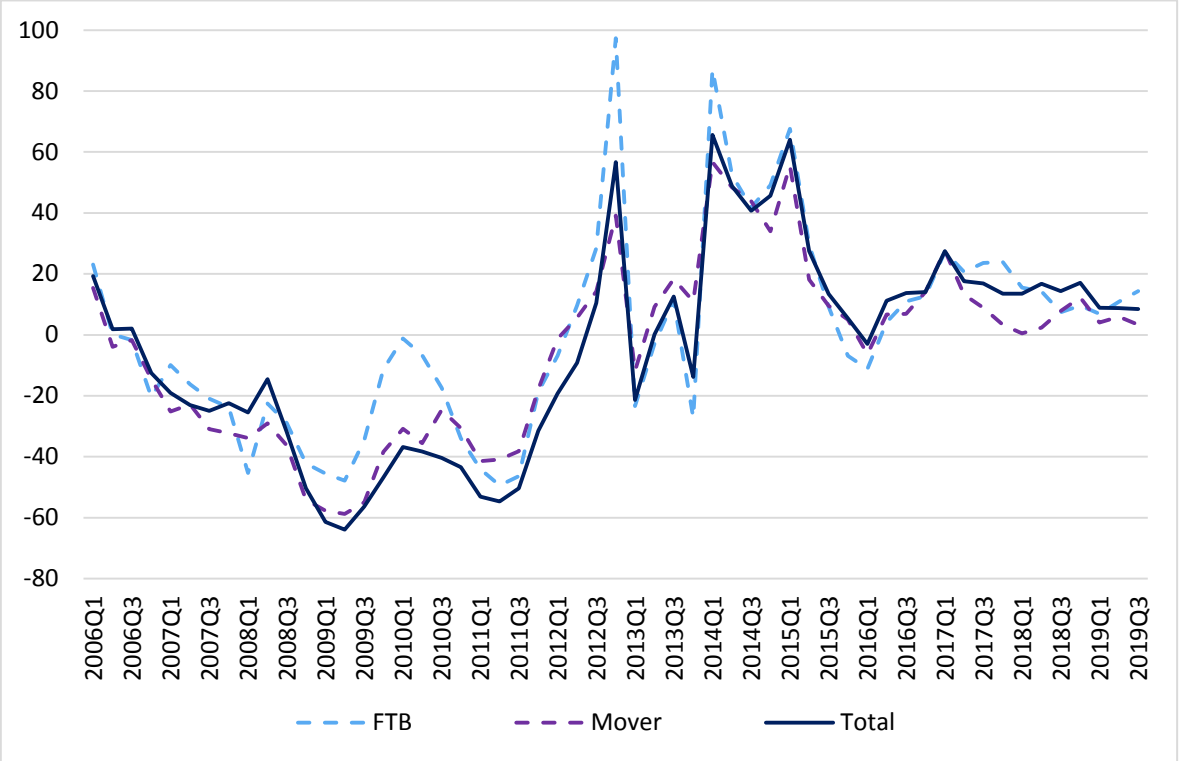
The growth rate in the volume of new mortgage lending has remained relatively stable over 2019 at just below 9 per cent. However, this is down significantly on the growth in new mortgage lending in 2018 which averaged 15.4 per cent. In Figure 19 the growth in the volume of lending is broken down by the purpose of the mortgage. New mortgage lending growth for first time buyers was 14.3 per cent in Q3 2019 compared to 8.8 per cent for mover purchase.

Recent research by the Central Bank of Ireland has explored the impact of macro-prudential rules on the Irish mortgage market.[8] This research examines the change over time in the proportion of borrowers that are at or close to their maximum in terms of the mortgage credit they can obtain under the Loan-to-

[8] Robert Kelly and Elena Mazza, 'A Measure of Bindingness in the Irish Mortgage Market' Central Bank of Ireland *Financial Stability Notes*, 2019, 12.

Value and Loan-to-Income limits. This measure is used as an indicator for the level of 'bindingness' in the market, i.e. the degree to which the macro-prudential rules are curtailing the potential demand for credit. The researchers show that level of 'bindingness' has increased over time since the measures were first introduced in 2015. The study also finds that the highest share of bound borrowers are in Dublin where house prices are highest. The demand for housing and hence the volume of new mortgage lending would likely be significantly higher in the absence of these rules.

FIGURE 19 NEW MORTGAGE LENDING VOLUME GROWTH (%)



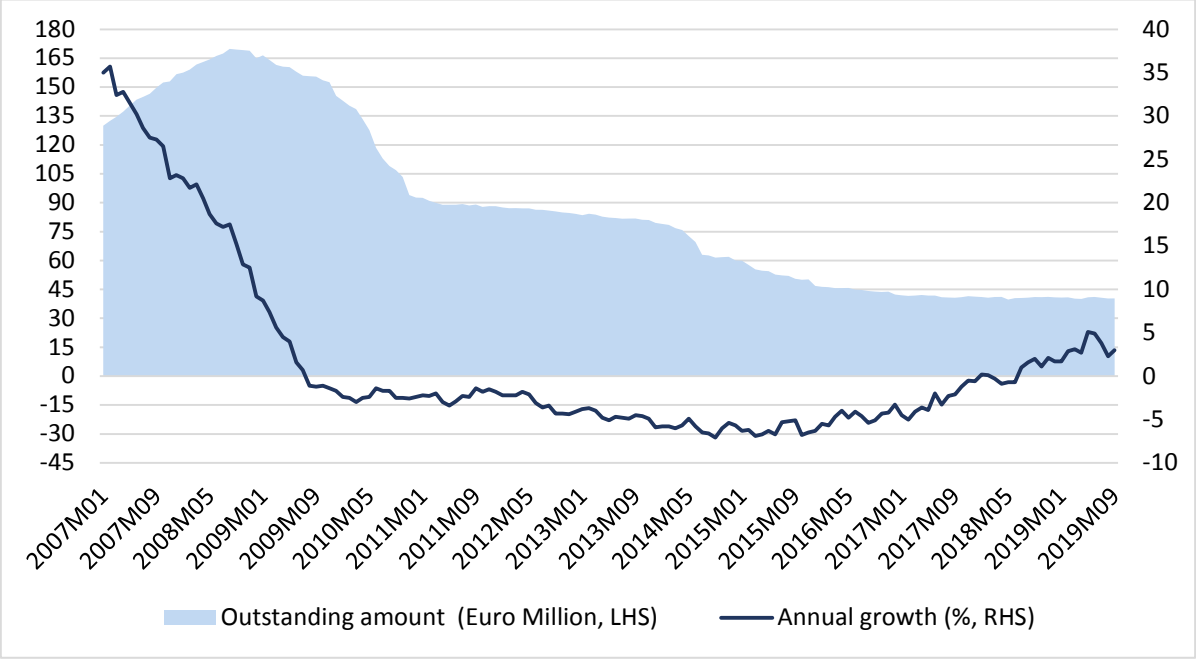
Source: Banking and Payments Federation Ireland.

Trends in corporate credit market

Figure 20 shows the outstanding loans to Non-Financial Corporations in Ireland from Irish resident credit institutions. In the years preceding the financial crisis much of the growth in the Irish economy was driven by the boom in the Irish property market. This was fuelled by a significant credit expansion in which loans for property related transactions soared. However following the financial crisis in 2008 and the associated crash in the property market there was a significant decline in the level of outstanding loans. Within four years of the peak level, the amount of outstanding loans had halved. Outstanding loans continued to decline until Q3 2018 when the growth rate turned positive. While the growth rate stands at 3.0 per cent as of September 2019, in level terms the value of loans outstanding remains more than 75 per cent below the peak level. A smaller

amount of loans outstanding may be viewed as a positive development as one of the lessons learned from the financial crisis is to avoid growth built on rapid expansions in credit.

FIGURE 20 OUTSTANDING LOANS TO NON-FINANCIAL CORPORATIONS



Source: Central Bank of Ireland.

The credit gap is a measure of the difference between the actual and trend level of the credit-to-GDP ratio. 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 current level of credit in the economy is unsustainable. Due to a number of methodological issues with the standard approach to calculating the credit gap in the Irish context, the Central Bank has constructed an alternative measure of the credit gap using a model-based approach, using GNI*[9] in place of GDP.[10] Figure 21 shows that following the general downtrend in the credit gap in the years after the financial crisis, the credit gap in Ireland has been increasing since 2015. After three years of consecutive growth, Q4 2018 marks the first quarter that the credit gap has been positive since 2010. While still at a very low level in a historical context it is imperative that indicators such as this are monitored over time to determine the sustainability of the level of credit in the Irish system.

9 This measurement for domestic economic activity attempts to strip away the distortionary effects of in order to give a more reliable measure for trends in the underlying Irish economy.

10 For more on this approach see: Eoin O'Brien, Martin O'Brien and Sofia Velasco, 'Measuring and mitigating cyclical systemic risk in Ireland: The application of the countercyclical capital buffer' Central Bank of Ireland *Financial Stability Notes*, 2018, 4.

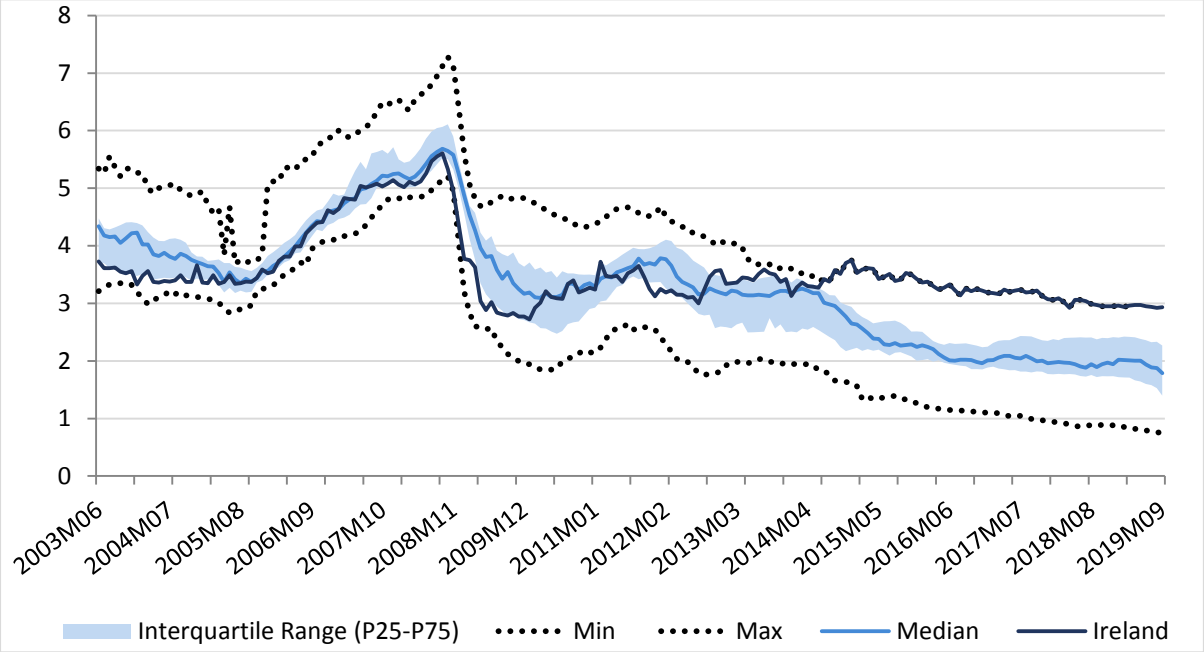
FIGURE 21 CENTRAL BANK MODEL BASED ESTIMATE OF CREDIT GAP (%)

Source: Central Bank of Ireland.

Interest rates and the cost of finance

Figure 22 shows that the cost of credit for Irish consumers is relatively high in comparison to other Euro Area countries. The average annual interest rate on new house loans in Ireland was 2.9 per cent in September 2019 compared to just 1.9 per cent in the Euro Area. Over the course of 2019 there is a clear downward trend in the rate of interest on house purchase in the Euro Area. This corresponds with the ECB loosening its monetary policy by setting policy rates lower throughout the year. In Ireland on the other hand there is little evidence that lower policy rates are being passed on to consumers as the interest rate in 2019 has remained relatively flat. The Research Note in this *Commentary* by Allen Coghlan et al. (2019) show that affordability issues in the Irish housing market are growing over time. The relatively high rates on borrowing faced by Irish homeowners are likely to exacerbate these affordability challenges.

FIGURE 22 INTEREST RATES ON NEW HOUSE PURCHASE LOANS TO HOUSEHOLDS, EURO AREA COMPARISON (%)

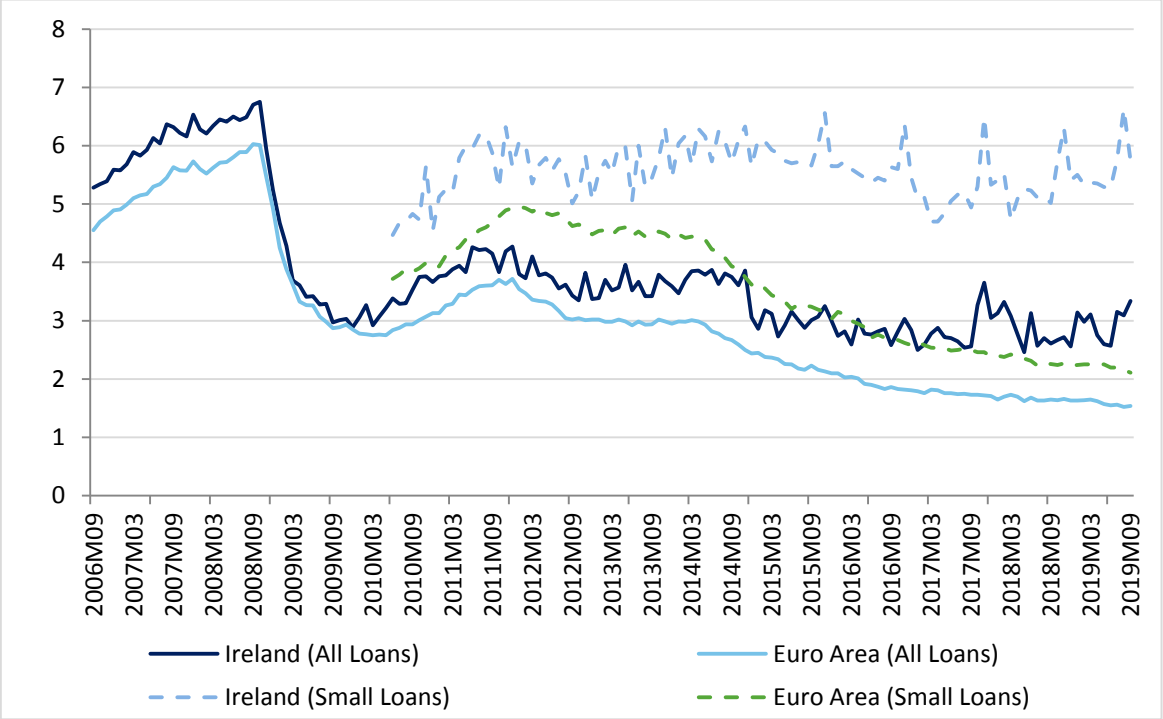


Source: Central Bank of Ireland, SME Credit Series, Table A.14.1.
Notes: Countries included are: AT, BE, EE, ES, FI, FR, IE, IT, LT, NL, PT, SI. These countries are selected due to data availability. Data differ between this chart presented and the text as the ECB comparison data include restructured mortgages whereas the new business SVR is only for new drawdowns.

Interest rates on loans to corporations are also higher in Ireland than in the Euro Area. Figure 23 presents the interest rates on new business loans for Non-Financial Corporations in Ireland as well as the median rate for the Eurozone. As of September 2019 there was a 1.8 percentage point difference in the rate paid by Irish and Euro Area businesses. This difference was even larger for business loans worth less than €250,000, which are used as a proxy for loans to SMEs. For small loans the rate of interest paid by Irish business was 3.6 percentage points greater than the rest of the Euro Area.

While the interest rate on corporate loans in the Euro Area has been decreasing since 2014, a similar trend is not observed in Ireland. From June 2019 there is a clear increase in the average interest rate charged on corporate loans in Ireland. This likely reflects the increased likelihood of a No-Deal Brexit at this time. Given the close economic ties of the Irish and UK economies, a No-Deal Brexit would likely have a significant negative impact on Irish business and this is reflected in the increased cost of financing over this period.

FIGURE 23 INTEREST RATES ON NEW CORPORATE LOANS, EURO AREA COMPARISON (%)



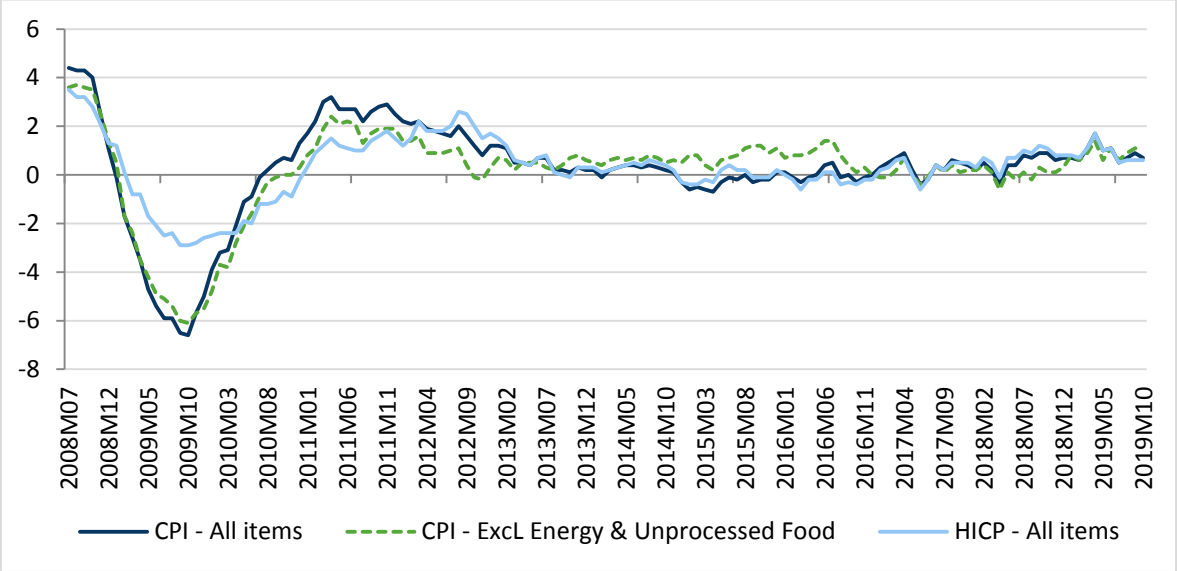
Source: ECB MFI data. Small loans refer to loans worth less than €250,000.

Inflation outlook

Figure 24 presents the inflation rate in Ireland using the CPI, the CPI excluding energy and unprocessed foods (core inflation), and the HICP.[11] Despite an environment of low unemployment and increasing earnings, price inflation has been relatively subdued through 2019. In October 2019, the 12-month inflation rate was 0.7 per cent for the CPI and 0.6 per cent for the HICP. Core inflation, which does not include energy prices or unprocessed food, increased by 1.1 per cent over this period. Over the same period there were increases in the prices of education (+4.6 per cent), housing, water, electricity, gas and other fuels (+3.2 per cent), alcoholic beverages and tobacco (+2.7 per cent), and restaurants and hotels (+2.6 per cent). Elsewhere, sectors which experienced deflation over the 12-month period were communications (-6.5 per cent), clothing and footwear (-2.5 per cent), furnishings, household equipment and routine household maintenance (-2.1 per cent), food and non-alcoholic beverages (-1.1 per cent), and transport (-0.9 per cent).

[11] HICP refers to the Harmonised Index of Consumer Prices. This is an index of consumer prices designed to provide a standardised measure of inflation across European countries. Methodological differences between the HICP and Irish CPI lead to small discrepancies between both measures.

FIGURE 24 ANNUAL GROWTH IN INFLATION (%)



Source: Central Statistics Office.

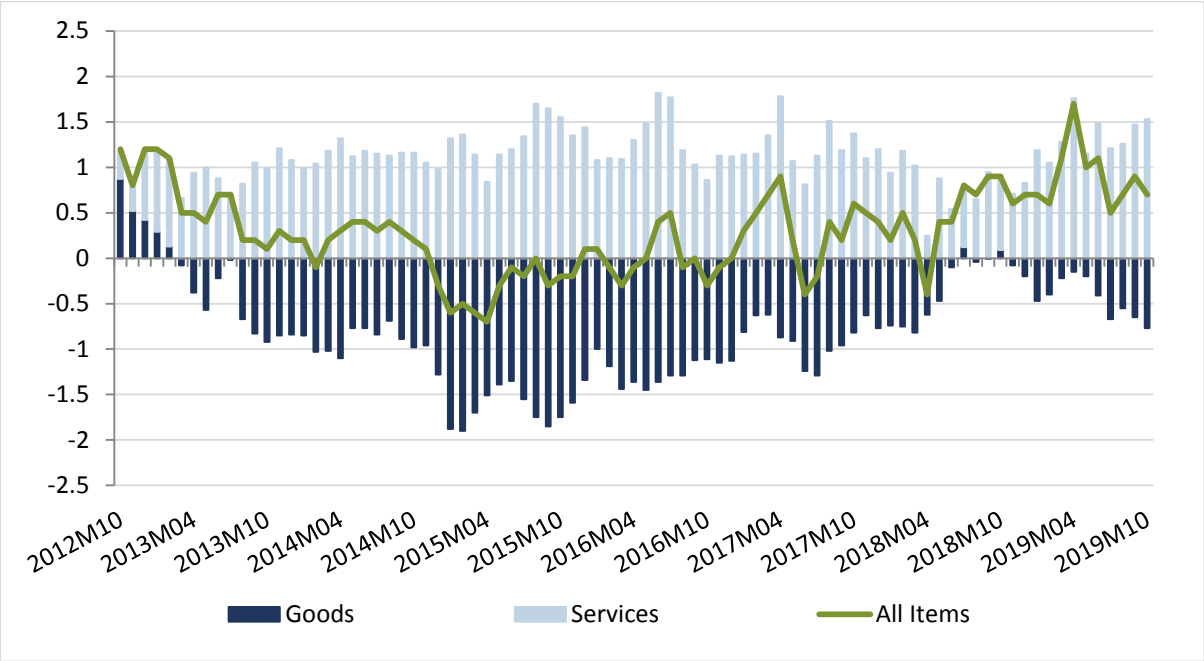
Typically as unemployment falls and earnings increase, firms will put up prices in order to keep up with rising costs. This should lead to an increase in inflation, which is why prices are expected to rise during an expansionary economic period. Given the strong performance of the Irish labour market in recent years and the associated increase in earnings, we would expect to see some significant price growth over this time. However, inflation has remained relatively subdued, averaging just 0.9 per cent in 2019. Persistently low inflation has become something of a phenomenon globally, resistant even to unprecedented levels of accommodative monetary policy. A number of reasons have been put forward in order to try and explain why prices have remained so low.

Figure 25 shows the inflation rate for Ireland broken down into goods and services. While inflation in services has been trending upwards since the start of 2018, for goods the opposite is true. A number of factors may explain the difference in price growth between goods and services. These include a greater level of competition in the goods sector, which has been enhanced by increased globalisation and international trade. There has also been a faster rate of growth in labour productivity in manufacturing relative to market services over the past number of decades.[12] Another reason for the low price growth of goods may be the weak value of GBP over the last number of years. This is known as exchange rate pass-through and is a measure of the extent to which cheaper import prices

[12] For further discussion see Ferrara, L. (2019). 'What is behind the change in the gap between services price inflation and goods price inflation?', *Economic Bulletin*, Issue 5, ECB, 2019.

are passed on to consumers when the domestic currency increases in value relative to the origin country.[13]

FIGURE 25 DECOMPOSITION OF ANNUAL CPI GROWTH INTO GOODS AND SERVICES GROWTH (%)



Source: Central Statistics Office.

Inflation is expected to increase next year as the labour market and earnings improve. Consumer prices are expected to rise by 1.0 per cent in 2019, followed by a 1.2 per cent increase in 2020.

DEMAND

Household sector consumption

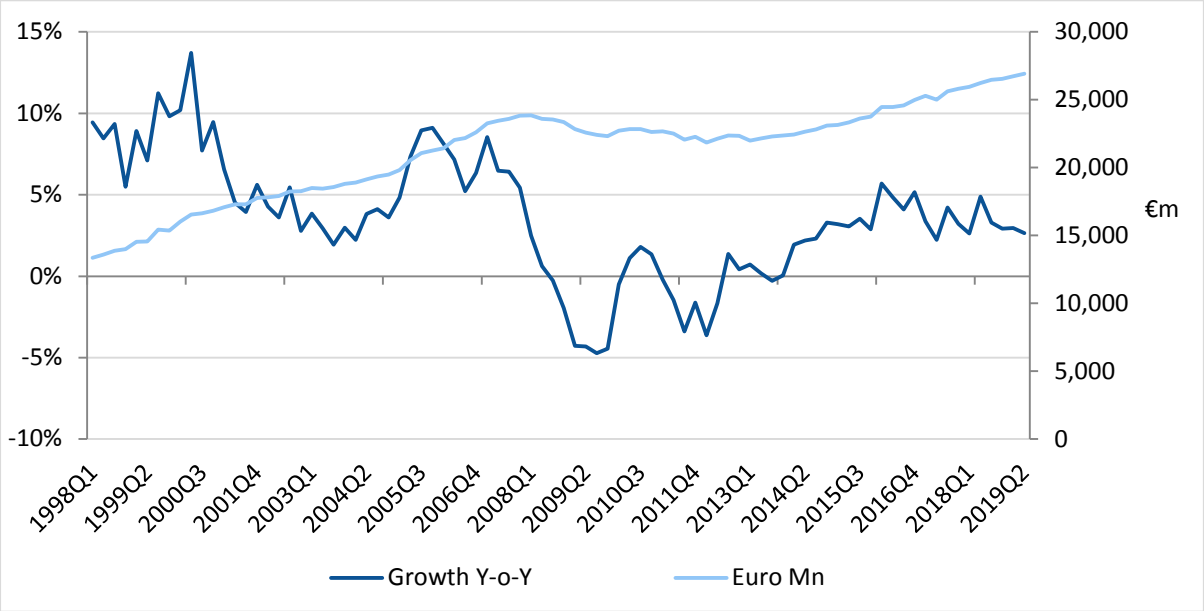
Key findings:

- *Consumption growth slowed in Q2 2019 but remains high in an international context;*
- *Rising incomes and low unemployment are providing a supportive context for housing spending;*
- *Consumer sentiment continued to decline in Q3 2019 on the back of Brexit and international uncertainties.*

[13] For more on this see: Allen-Coghlan, Matthew 'Exchange rate pass-through – EUR/GBP', *Quarterly Economic Commentary*, Autumn 2019, ESRI.

According to the latest quarterly National Accounts, personal consumption expenditure increased by 2.6 per cent year-on-year in Q2 2019. This represents a decrease in the pace of growth from Q1 2019. A moderation in the pace of spending growth by households may be correlated with greater uncertainty at the household level. While the labour market has continued to perform strongly with low unemployment and rising real incomes, uncertainty particularly around the Brexit issue is likely to be diminishing households' risk appetite.

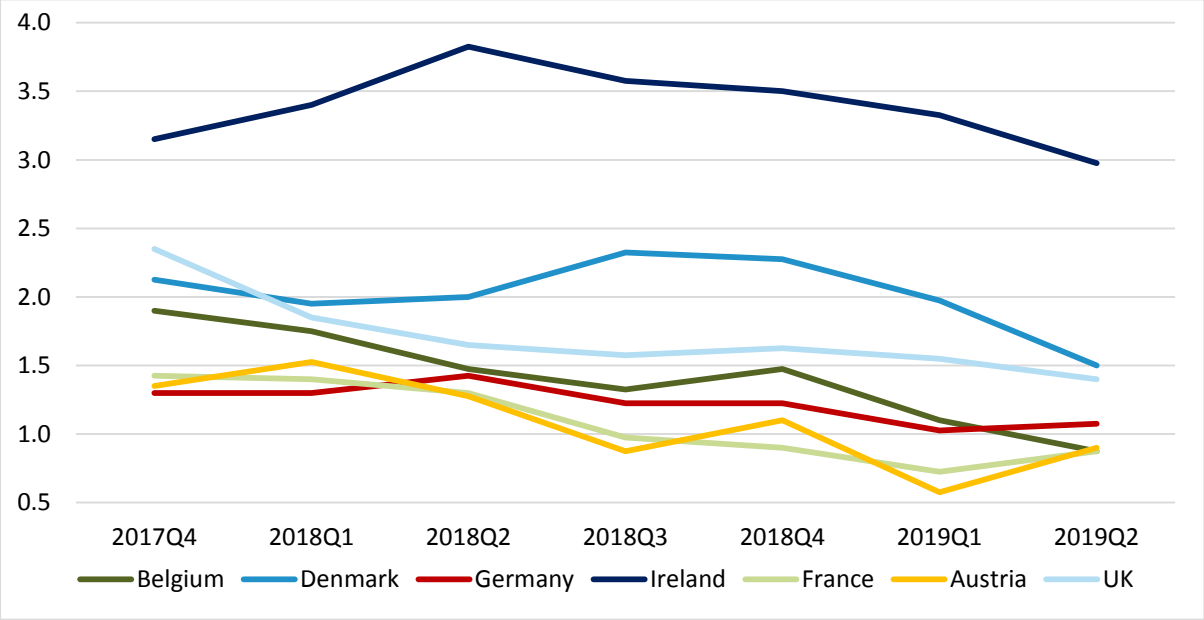
FIGURE 26 QUARTERLY PERSONAL CONSUMPTION ON GOODS AND SERVICES – CONSTANT MARKET PRICES AND SEASONALLY ADJUSTED



Source: Central Statistics Office.

However, consumption growth in Ireland is high in an international context, in particular relative to other European economies (Figure 27). For example in Q2 2019, the growth rate of consumption for the preceding four quarters was twice that of any other country presented including the UK, France and Germany.

FIGURE 27 QUARTERLY PERSONAL CONSUMPTION IN SELECTED ECONOMIES – FOUR-QUARTER ROLLING AVERAGE OF ANNUALISED GROWTH RATES (%)



Source: Eurostat, Final expenditure of households, non-seasonally adjusted, chain linked volumes percentage change on the same period one year previous. Figures present a four-quarter rolling average.

To get an insight into what is driving household spending patterns we draw on detailed retail sales data. The retail sales is an important input into understanding household behaviour as it measures actual spending and is available in a timely manner. Table 1 presents the annual growth in retail sales volume for select items for the three months to September 2019. The third quarter information on retail sales gives a more up-to-date picture than the Q2 National Accounts data.

Relative to the data presented in our previous *Commentary*, there has been some increase in retail sales in the three months to September 2019. Overall retail sales rose by just over half a per cent. Sales in the retail business index excluding motor trade rose by over 4 per cent. Again, sales of furniture and lighting goods grew considerably, up 8.39 per cent year-on-year, which is likely due to the strong growth in housing market activity. There was a further 6.5 per cent fall in retail sales from department stores which highlights the ongoing struggle of traditional retailers in the current environment, for example from online competition.

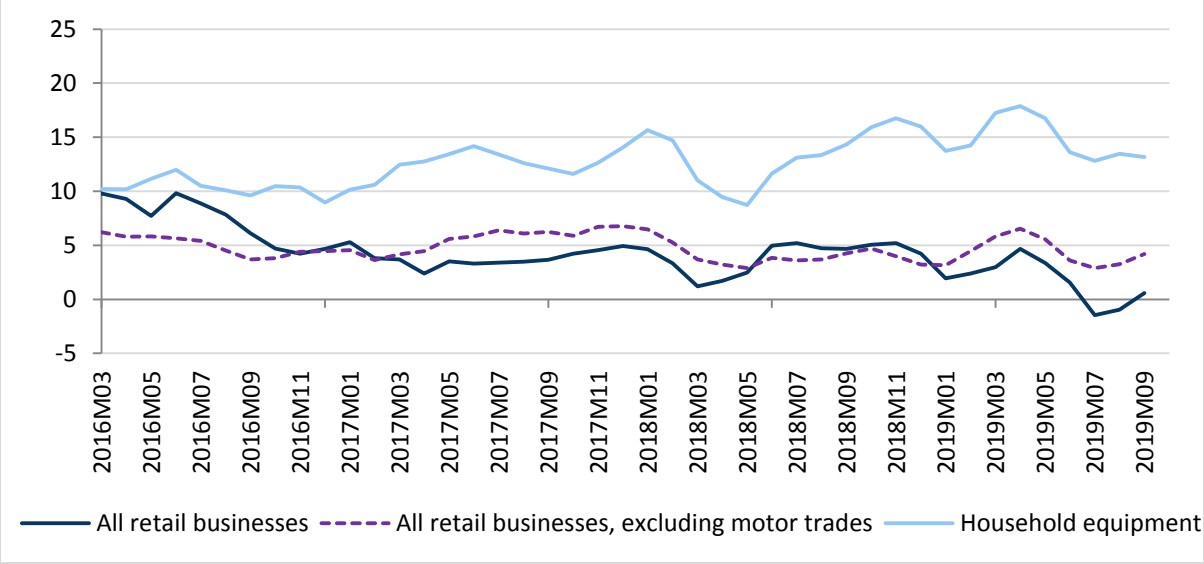
TABLE 1 GROWTH IN SELECT RETAIL SALES (VOLUME) ITEMS (THREE MONTHS TO SEPTEMBER 2019)

Retail Business – NACE REV 2	Volume of Sales
	Annual % change
Motor Trades	-5.2
Non-specialised stores (excluding department stores)	5.6
Department stores	-6.5
Clothing, Footwear and Textiles	1.5
Furniture and lighting	8.4
All retail businesses	0.6
All retail businesses, excluding motor trades	4.2

Source: Central Statistics Office.

The overall trends in retail sales are displayed in Figure 28. This chart presents a three-month rolling average of the annual growth of total retail sales, sales excluding the motor trade, and sales for household equipment. The most recent data up to September 2019 point towards an increase in retail sales. The fact that this increase coincided with one of the most uncertain times with respect to the UK's exit from the European Union is surprising.

FIGURE 28 ANNUAL GROWTH (%) IN RETAIL SALES INDEX VOLUME ADJUSTED (BASE 2005=100), THREE-MONTH ROLLING AVERAGE

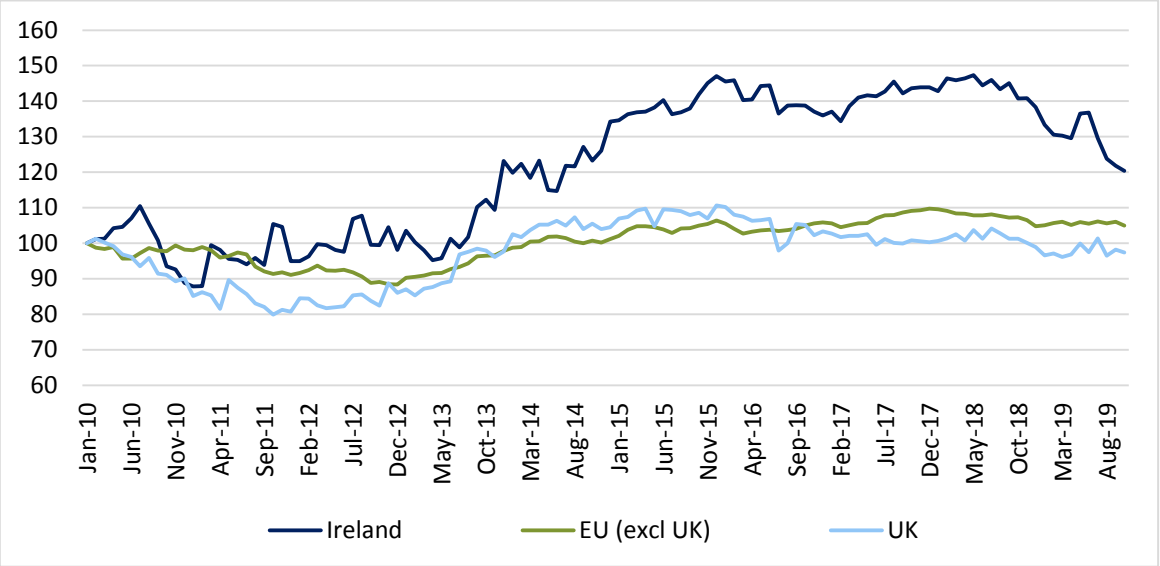


Source: Central Statistics Office.

Another important indicator which provides insight into household spending is consumer sentiment. Figure 29 presents an index developed using the European Commission data on consumer sentiment. The figure presents data for Ireland, the UK and the rest of the EU to provide context.

As noted in the previous *Commentary*, the initial Brexit delay from the end of March deadline resulted in an increase in sentiment in April 2019 but this was short-lived. Throughout the summer and into autumn, consumer sentiment in Ireland has continued to fall. This is in stark contrast to the increase in retail sales that is observed in August and September and highlights the apparent breakdown in the correlation of household spending and consumer sentiment highlighted in the Summer 2019 *Commentary*.

FIGURE 29 CONSUMER SENTIMENT INDICATORS – IRELAND, UK AND REST OF EU



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 2010 with growth relative to this point i.e. ((Yt/YJan2010) -1)*100.

Given the risk of a No-Deal Brexit in the period prior to the agreement of the current revised Withdrawal Agreement, it is unsurprising that households would have viewed the economic outlook with caution. With the signing of the revisited arrangement and the additional extension, it is likely the risk of a No-Deal Brexit has receded in the short term. This may result in a recovery in consumer sentiment towards the end of 2019. In this regard, we forecast consumption growth of 2.7 per cent in 2019 and 2.5 per cent in 2020.

Property market developments

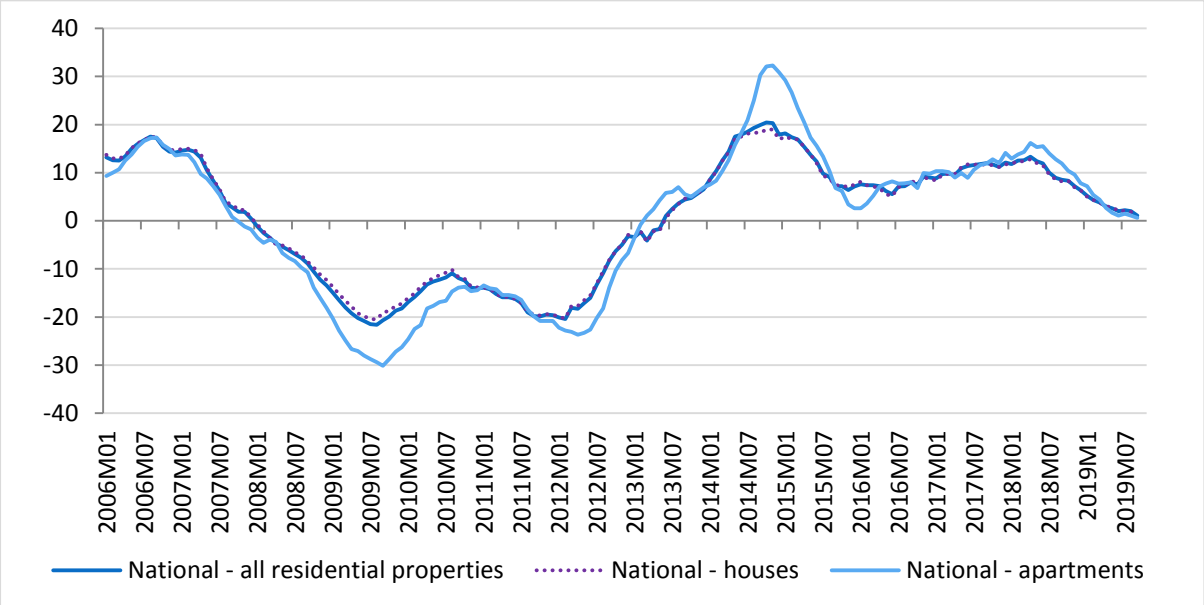
Key Points:

- *General decline in national property price growth continues;*
- *Property price growth in Dublin turns negative, falling by 1.3 per cent in September;*
- *Rents continue to grow strongly with the RTB National Rent Index growing by 7 per cent annually in Q2 2019.*

The general decline in national property price growth noted in the previous *Commentary* (Autumn 2019) has continued. This recent downward trend began in mid-2018 and property price growth remains at its lowest point since mid-2013. Figure 30 shows the year-on-year change in residential property prices by property type. In September 2019, the annualised growth rate in the price of all residential properties stood at 1.1 per cent, down from 8.3 per cent in September 2018.

Examining the price growth of houses and apartments separately shows that apartment price growth has seen the most dramatic deceleration so far in 2019, falling from 7.2 per cent in January to 0.6 per cent in September. The growth rate of house prices has fallen from 5 per cent to 1.1 per cent over the same period. The reasons behind the deceleration in residential property price growth likely include the increased level of housing completions and the affordability constraints stemming from the mortgage lending limits set by the Central Bank of Ireland.

FIGURE 30 ANNUAL RESIDENTIAL PROPERTY PRICE GROWTH BY DWELLING (%)



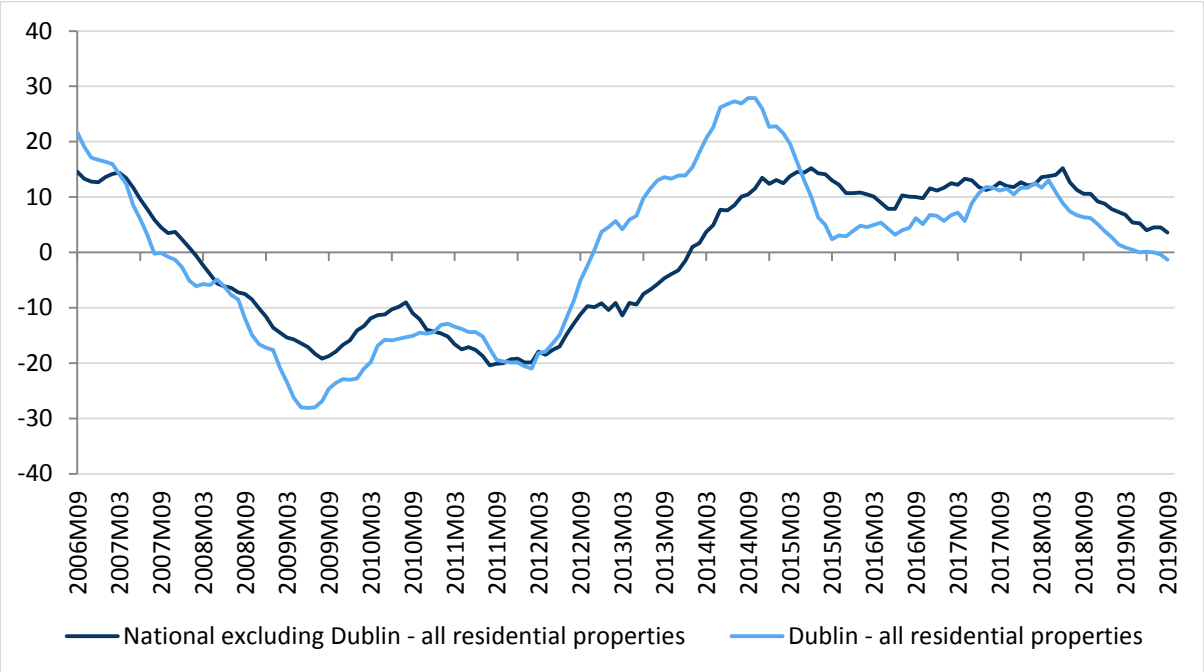
Source: Central Statistics Office.

The national trend in property prices hides regional variation in the behaviour of residential property prices. Comparing Dublin to the rest of the country (Figure 31), it is clear that the fall in property price growth is much more acute in Dublin than elsewhere. Property price growth outside of Dublin has remained positive, falling from 7.8 per cent in January to 3.6 per cent in September 2019. However since August 2019, property price growth in Dublin has been negative.

The growth rate of property prices in Dublin has declined from 2.7 per cent in January 2019 to -1.3 per cent in September. This is 7.7 percentage points lower than the growth rate in September 2018. The 0.4 per cent fall in Dublin's residential property prices in August 2019 marks the first price decline since October 2012.

In the short term, such a modest fall in Dublin property prices will do little to assuage concerns about the affordability of housing for buyers in the area. Recent work by Allen-Coghlan et al. (2019a) highlights the challenges faced by first time buyers in terms of housing affordability in Dublin.[14] They find that first time buyers in Dublin and the surrounding counties face mortgage repayment-to-income (MRTI) ratios that far exceeded those faced by first time buyers in other counties. Coupled with evidence from Gaffney (2019) and Kelly and Mazza (2019), it is highly likely that Dublin house prices are affected by borrowing constraints becoming more binding.

FIGURE 31 ANNUAL RESIDENTIAL PROPERTY PRICE GROWTH BY REGION (%)



Source: Central Statistics Office.

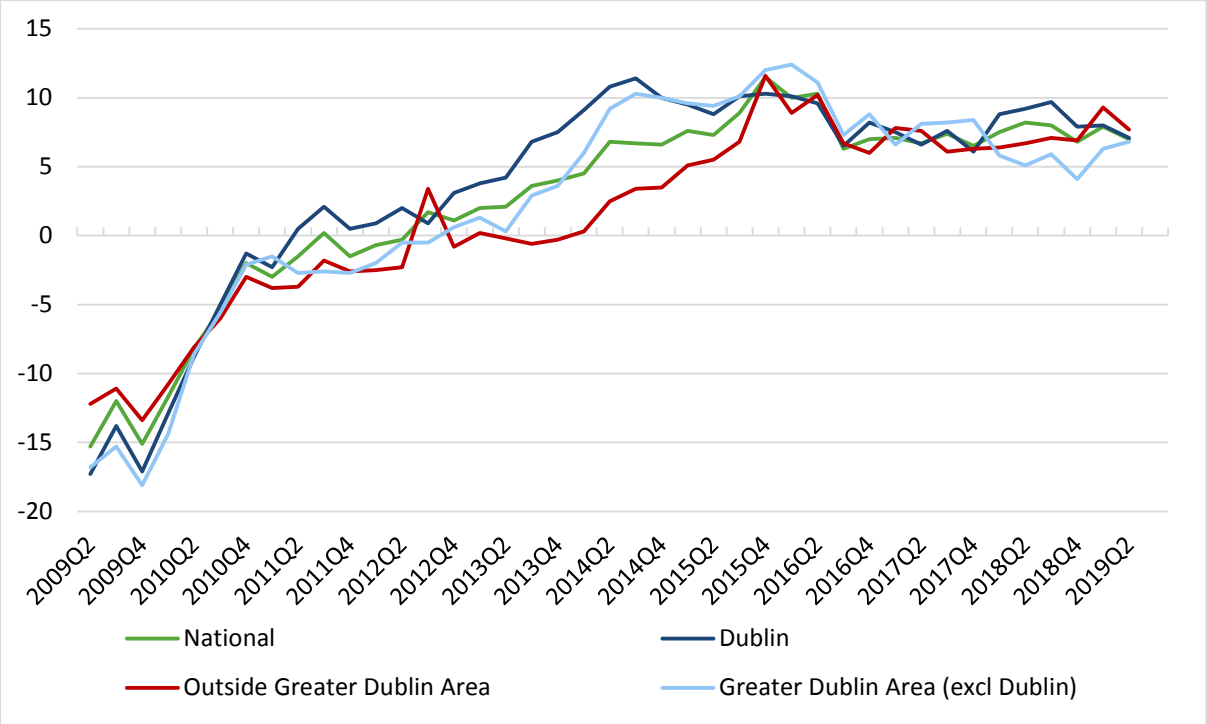
The RTB National Rent Index indicates that rents, nationally, grew by 7 per cent in Q2 2019 compared to the same period the previous year. This is broadly consistent with expectations given that the growth rate of the National Rent

[14] Allen-Coghlan, Matthew, Conor Judge, Conor O'Toole, Rachel Slaymaker (2019a). *A County Level Perspective on Housing Affordability in Ireland*. ESRI Research Note.

Index has been between 6.5 and 8.2 per cent since the final quarter of 2016. The growth rate of the RTB National Rent Index, as well as that of the RTB regional rent index for Dublin, the GDA and outside of the GDA, are presented in Figure 32. Rents in the GDA and outside of the GDA grew by 6.8 per cent and 7.7 per cent respectively, while rents in Dublin grew by 7.1 per cent year-on-year in Q2 2019. In Q2 2018 rents grew by 9.2, 6.7 and 5.1 per cent year-on-year in Dublin, outside the GDA and in the GDA respectively. Thus, when comparing Q2 2019 to the same quarter a year previous, a relative convergence in the growth rate of rent across the regions is evident.

Combining data on rent and house prices from 2010 to 2018, Allen-Coghlan et al. (2019b) explore trends in the rent-to-house-price ratio in Ireland in order to provide insights into price sustainability and how the housing market is developing across the country's regions. They find that the Irish housing market is not overvalued from a user cost perspective and that overall the market appears to be well explained by fundamentals. However, the Note does point out the variation observed across the country in key housing variables over the period 2013-2018.[15]

FIGURE 32 RTB RENT INDEX – NATIONAL, DUBLIN, GDA AND OUTSIDE GDA YEAR-ON-YEAR GROWTH (%)



Source: Residential Tenancies Board (RTB).

[15] Allen-Coghlan, Matthew, Kieran McQuinn, Conor O'Toole. (2019b). *Assessing Price Sustainability in the Irish Housing Market: A County-Level Analysis*. ESRI Research Note.

SUPPLY

Investment overview

Key Points:

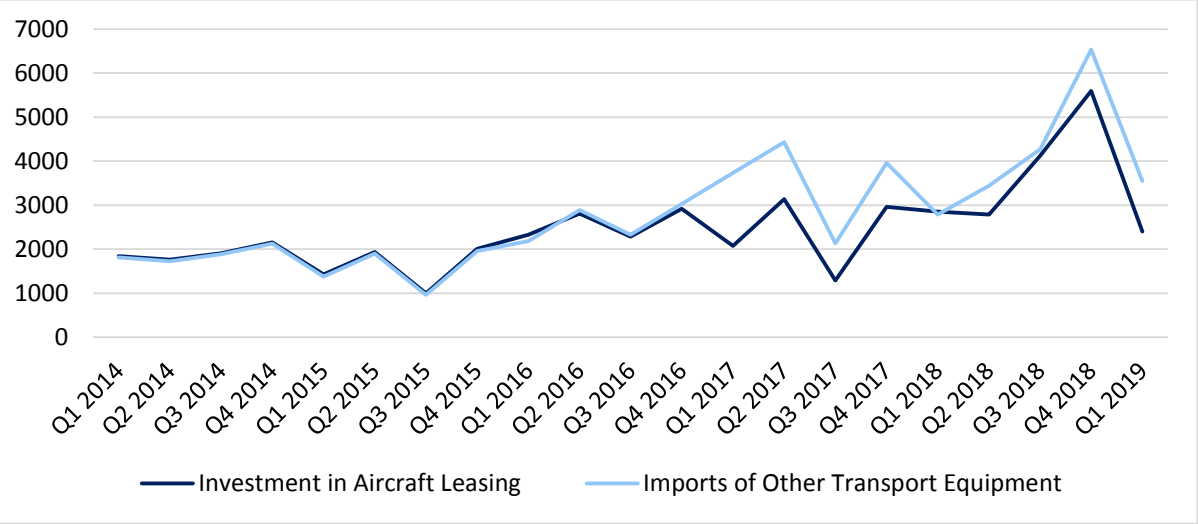
- *Business sentiment deteriorated through 2019;*
- *Uncertainty likely dragging on investment in machinery and equipment;*
- *Construction investment remains strong, despite Q2 slowdown in growth.*

Within recent Commentaries, we have noted the high correlation between investment and uncertainty and examined the impact of Brexit and other international economic challenges on investment decisions taken in the Irish economy. Indeed, previous work by O'Toole (2019) in the Summer 2019 *Commentary* noted the correlation between policy uncertainty in the US and investment in Ireland: capital accumulation amongst US companies operating in the Irish economy appears to be strongly correlated with policy uncertainty in the US economy.

It is not always possible to identify changes in investment linked to economic fundamentals in Ireland using National Accounts data, given the divergence between the headline level of investment in the economy and the underlying fundamental rate.

The latest quarterly National Accounts (Q2 2019) provide a good example of the incredible impact of globalisation effects on Irish investment, as capital accumulation increased by over 220 per cent relative to Q2 2018. These effects are staggering, however their initial impact on GDP is limited as capital imports offset the investment flows. Figure 33 shows the correlation between investment in aircraft leasing from the quarterly National Accounts and imports of other transport equipment (where inflows of aircraft leasing capital shows up in the trade statistics). This demonstrates the offsetting GDP impact.

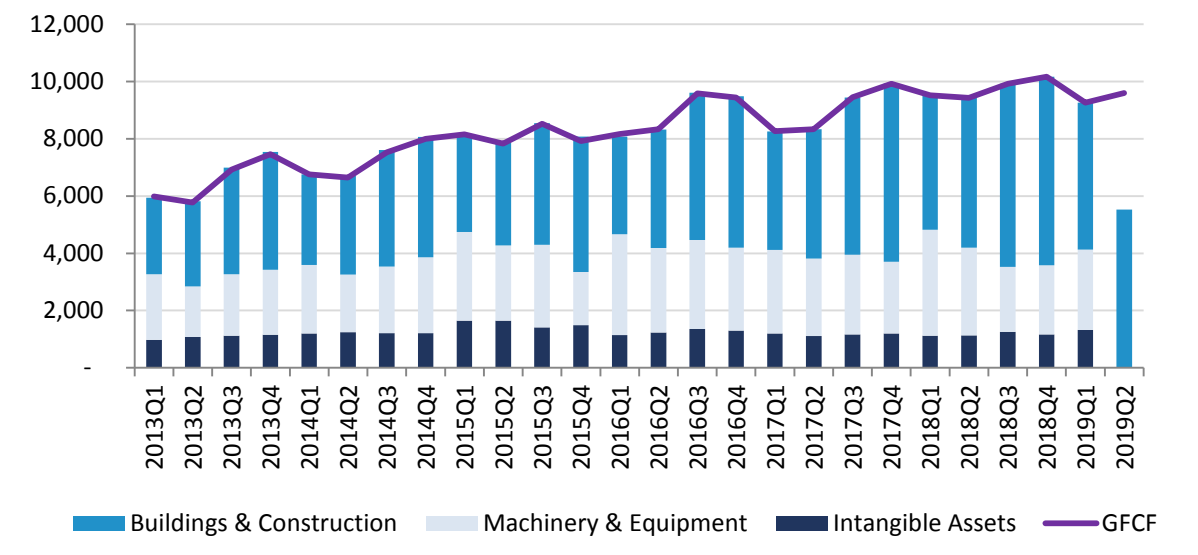
FIGURE 33 IMPORT AND INVESTMENT DATA FOR AIRCRAFT LEASING, YEAR-ON-YEAR (%)



Sources: CSO and *QEC* analysis.

To strip out these effects and focus on underlying activity, and to better understand the impact of economic factors on investment, we consult a number of data sources. Figure 34 presents the trend in the CSO's modified investment which excludes the aircraft leasing and IP investment activity. Based on these data, investment has increased by 1.7 per cent year-on-year to Q2 2019 which was an increase from the previous quarter. It is not possible to provide insight into the subcomponents of machinery and equipment and intangibles as the figures have been redacted. However, construction activity is available and this category has continued to grow at 5.6 per cent year-on-year to Q2 2019. This represents a slowdown in construction investment which has continued from the first quarter. More details on construction investment are presented below.

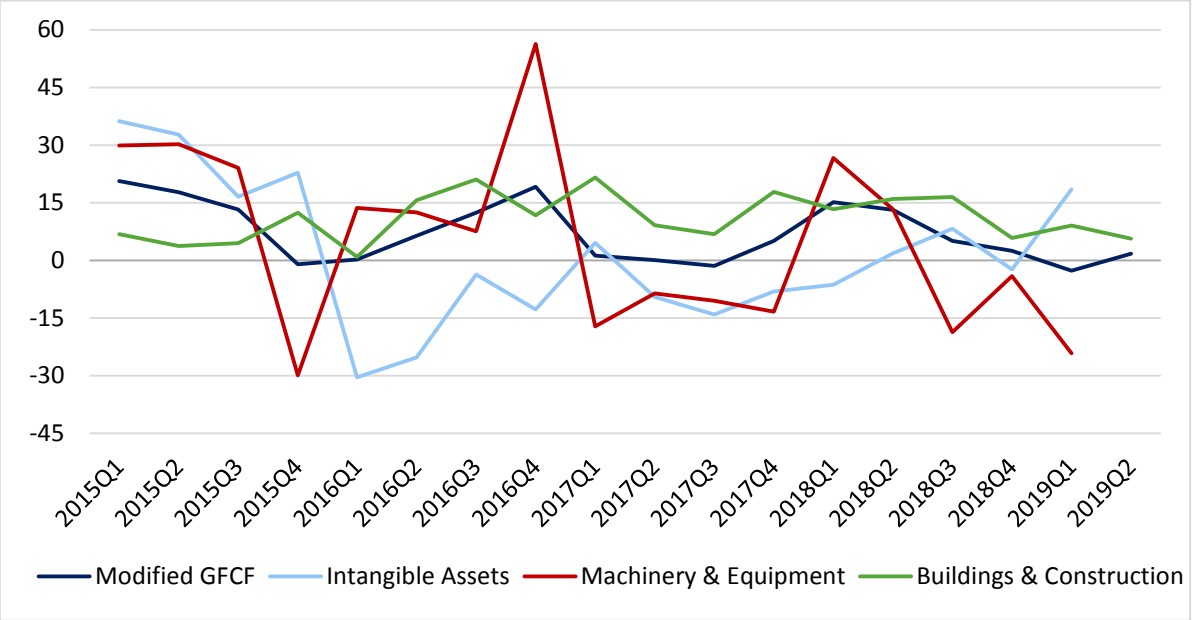
FIGURE 34 GROSS FIXED CAPITAL FORMATION GROWTH, YEAR-ON-YEAR (%)



Sources: CSO and *QEC* analysis.

The growth rates for modified investment are presented in Figure 34. As noted it is not possible to extrapolate the growth rate for Q2 2019 for machinery and equipment and intangibles due to redactions. Looking back since early 2018, it is clear there has been a slowdown in the rate of investment growth both overall, but particularly in machinery and equipment and construction activity. The fall in machinery and equipment investment is unsurprising as O'Toole (2019) showed that investment in these assets is very sensitive to uncertainty.

FIGURE 35 GROSS FIXED CAPITAL FORMATION GROWTH, YEAR-ON-YEAR (%)

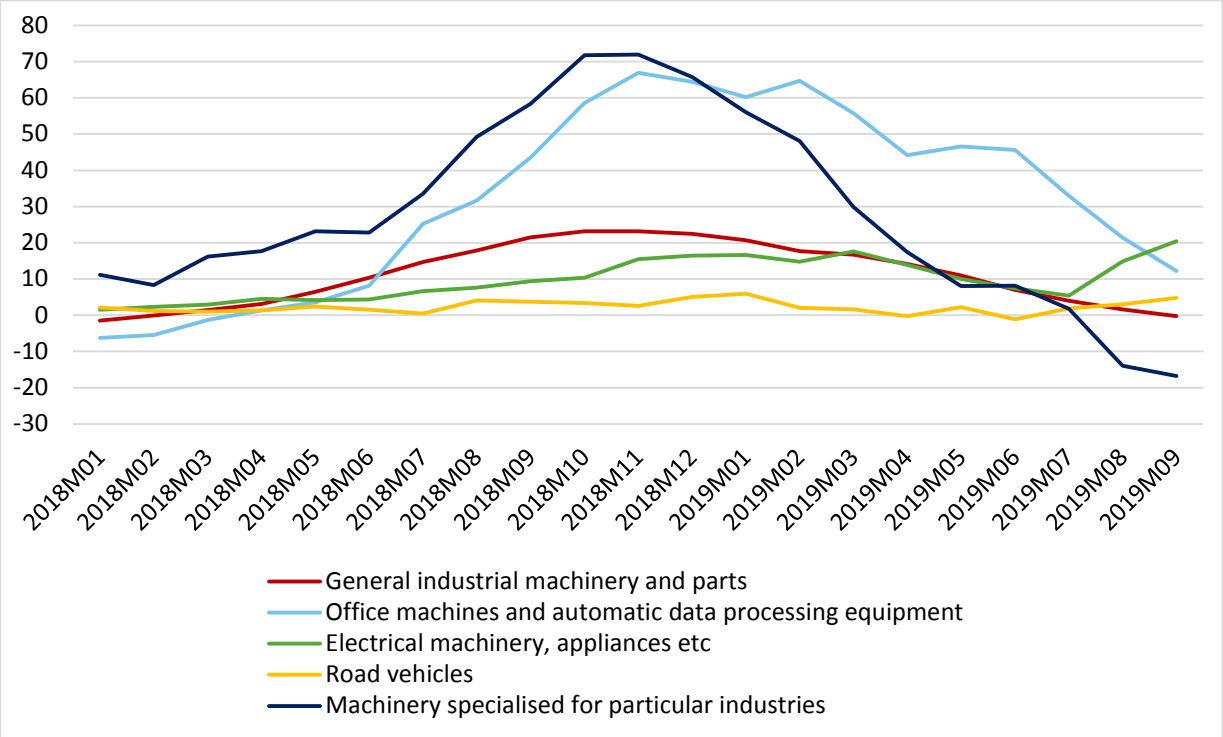


Sources: CSO and *QEC* analysis.

To provide further detail on the slowdown in machinery and equipment investment, a more granular review can be undertaken by focusing on the Irish import data. As a small open economy with relatively few traditional manufacturing activities, it is often the case that most investment assets are imported. Import data can therefore be used to gauge investment flows. Figure 36 presents the trend growth rate in selected machinery imports. The trend growth is a simple six-month moving average, used for smoothing purposes given the considerable volatility in the monthly data.

It is clear that imports of capital machinery picked up in mid- to late-2018, however the recent trend shows a deterioration across the majority of assets. This provides further evidence of the likely drag that global uncertainty is having on capital formation. Declines were particularly strong in a number of sectors including metal working machinery, office machines and automated data processing equipment and specialised industrial machinery.

FIGURE 36 IMPORTS OF MACHINERY INTO IRELAND – TREND GROWTH RATES – SIX-MONTH MOVING AVERAGE, YEAR-ON-YEAR (%)



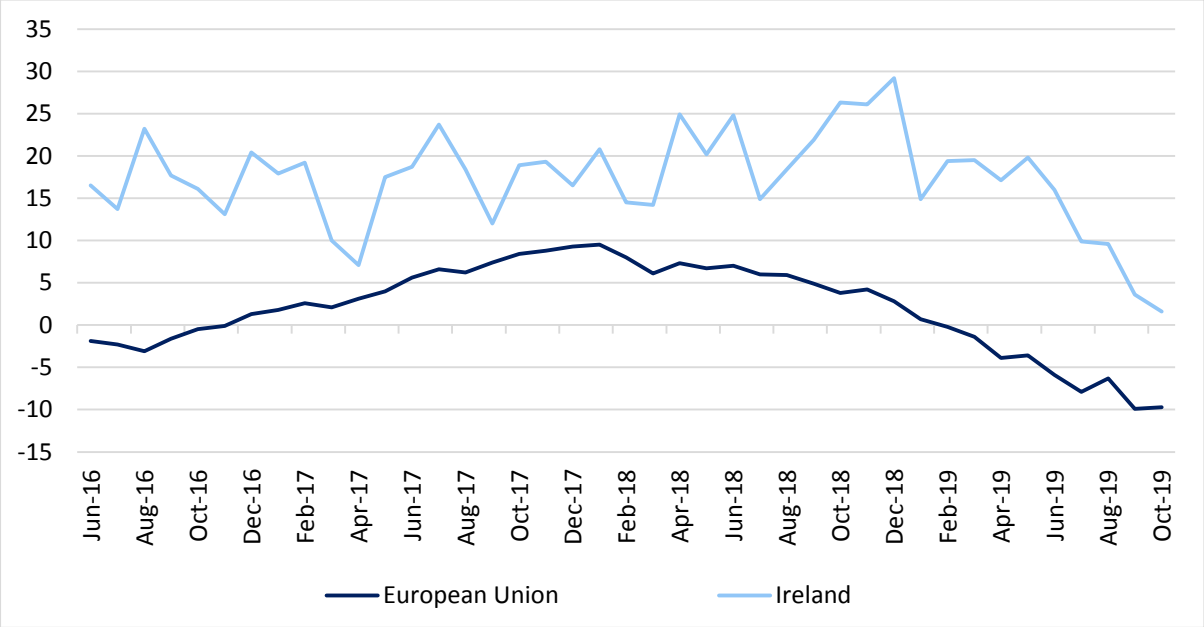
Sources: CSO and *QEC* analysis.

Business sentiment

To gain more insight into the degree to which businesses are being affected by uncertainty, we draw on the European Commission Business Confidence Indicators. The overall confidence indicator for Ireland and the average for the European Union are presented in Figure 37. This indicator is the average of the positive/negative survey response balance to three sub-questions on the order book levels, stock holdings and production expectations over the coming three months. Positive numbers indicate that more companies view an improvement in conditions while negative numbers indicate a worsening in the economic outlook.

While Ireland posts more favourable conditions than those in the EU, it is clear that since December 2018 there has been a reduction in the number of companies viewing the outlook positively. This has occurred concurrently with a similar trend for the EU as a whole but is far more pronounced in Ireland. It is likely that such a reduction in confidence is weighing on investment spending. The most recent data for September and October have continued to decline indicating that Irish companies are becoming increasing uneasy about the business climate.

FIGURE 37 EUROPEAN COMMISSION BUSINESS CONFIDENCE INDICATOR

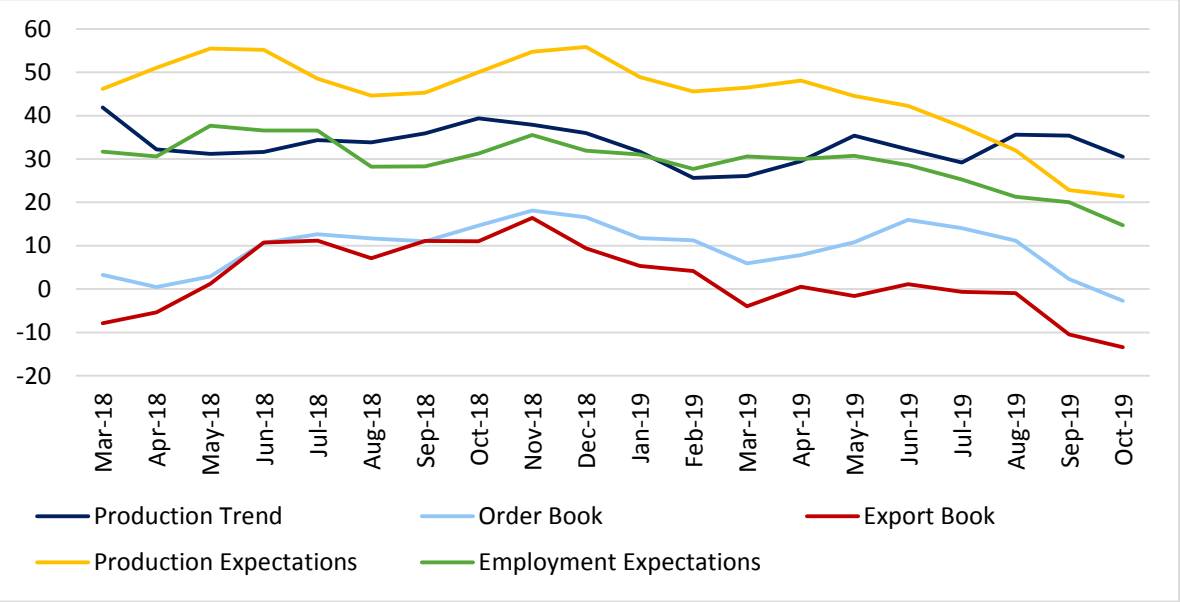


Source: European Commission.

A more granular review of the specific concerns of companies can be gleaned from considering the sub-indices which are built into the overall confidence indicator. Figure 38 presents the trend in the sub-indices covering the following issues: production trends, assessment of the order book levels, assessment of the export order book levels, production expectations and employment expectations. The interpretation of these indicators is identical to that for the headline metric. However, we present a three-month moving average to remove some of the short-term volatility.

It is clear that the deterioration in sentiment noted in the previous *Commentary* has worsened, with views on order books, export orders and employment all declining.

FIGURE 38 ROLLING AVERAGE FOR INDIVIDUAL ITEMS FROM EC BUSINESS SENTIMENT FOR IRELAND

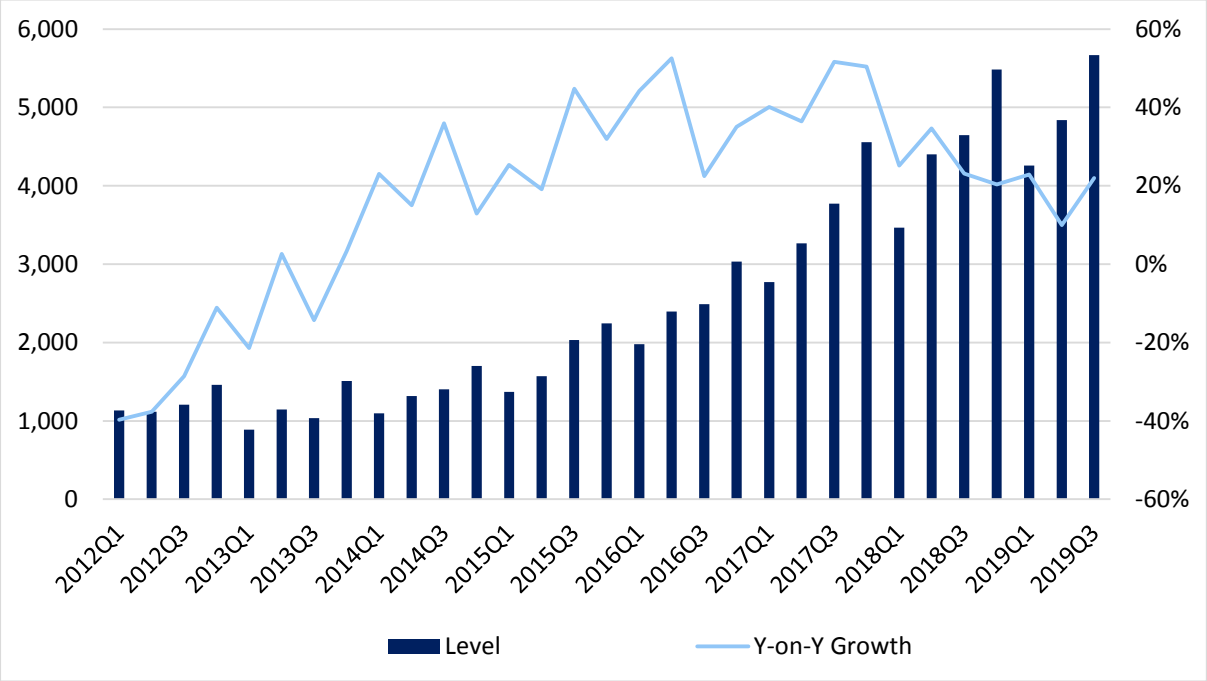


Sources: *QEC* analysis of EC data.

Construction outlook

The National Accounts data to Q2 2019 highlighted a fall in the growth rate of construction investment to 5.6 per cent. As housing completion numbers come out ahead of the National Accounts, this was flagged in our previous *Commentary*. To provide the most up-to-date assessment, Figure 39 presents the trend in housing completions on a quarterly basis over the period Q1 2012 to Q3 2019. The latest figure for Q3 2019 indicates that nearly 5,700 units were completed for the quarter, with circa 14,700 units being built for the year to date. This represents an acceleration of 20 per cent on an annualised basis.

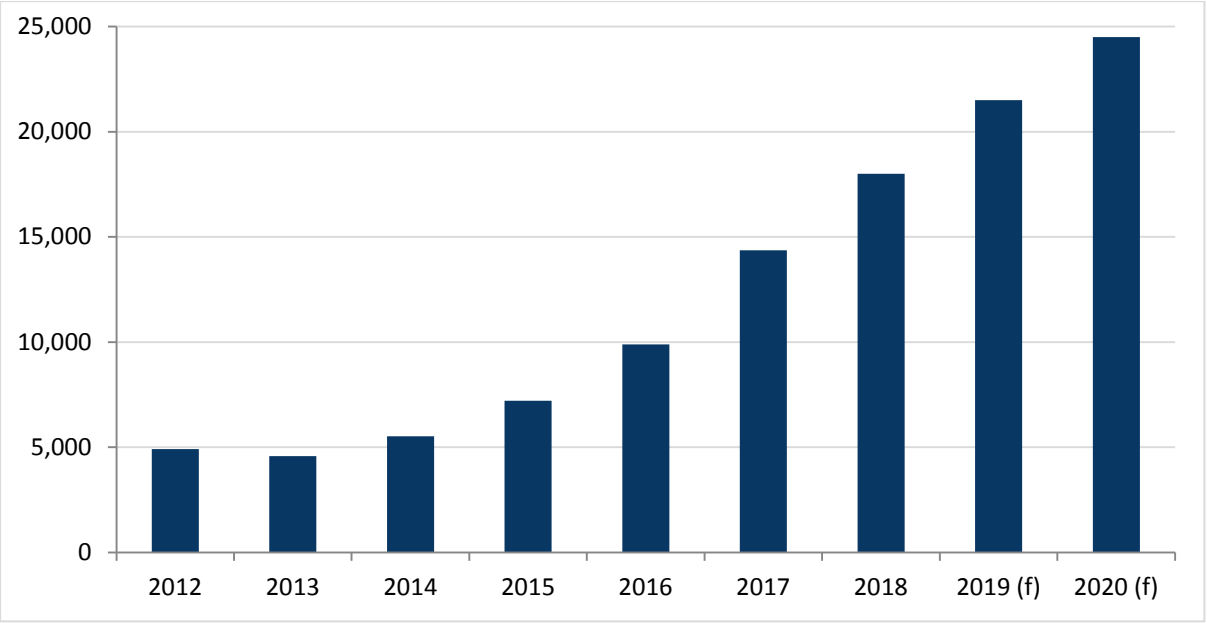
FIGURE 39 HOUSING COMPLETIONS – QUARTERLY LEVEL AND YEAR-ON-YEAR GROWTH



Sources: Central Statistics Office.

On the back of the higher growth in Q3 2019, we have increased our forecast for housing units in 2019 marginally to 21,500 units. Maintaining the growth rate into 2020 suggests a completions level of just over 24,500 units next year (Figure 40). However, should any adverse economic shock occur, for example from a hard Brexit, this may reduce the growth rate in completions next year.

FIGURE 40 HOUSING COMPLETIONS – QUARTERLY LEVEL AND YEAR-ON-YEAR GROWTH



Sources: CSO and *QEC* Forecasts.

Forecasts

As global risk factors and the Brexit negotiations continue to weigh on business planning, we have moderated our investment outlook for 2019 and 2020. However, if the rebound in growth in construction activity is sustained and public investment continues apace, these factors will provide a stimulus to investment. Overall, due to distortionary multinational activity we expect annual average growth in investment of 45.0 per cent in 2019 and 4.7 per cent in 2020.

LABOUR MARKET

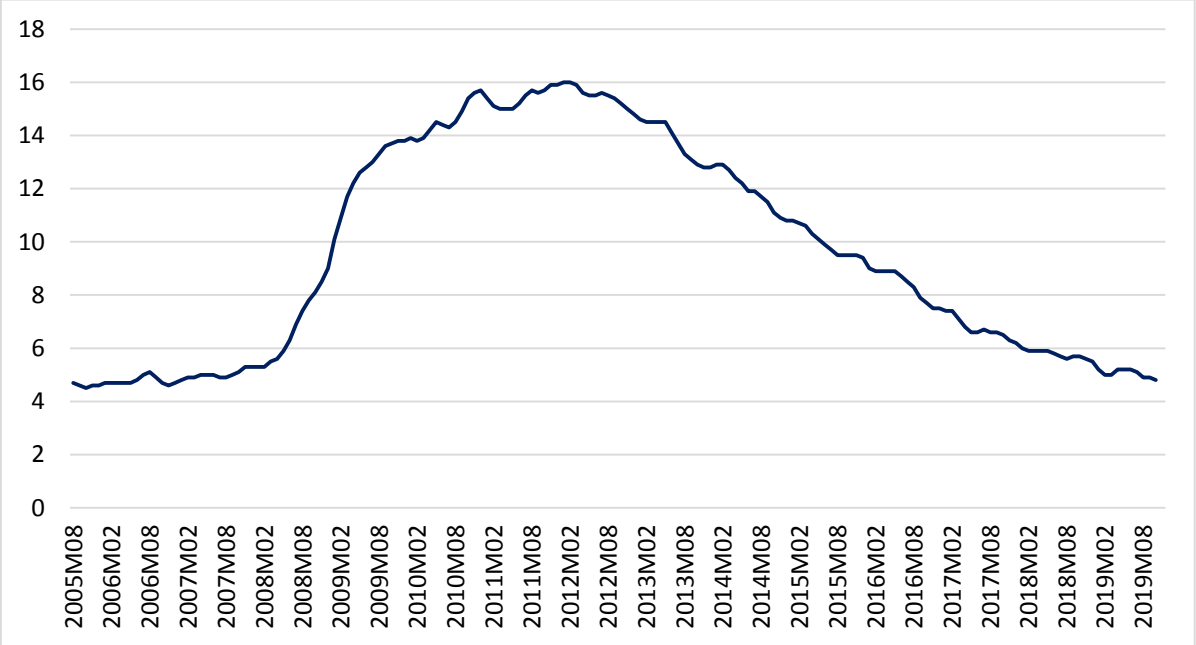
Unemployment

Key Points:

- *Unemployment rate falls below 5 per cent for the first time since 2007;*
- *Employment rises by 2.4 per cent in the year to Q3 2019 with 2,326,900 people at work;*
- *Average weekly earnings increased by 4 per cent annually in Q3 2019.*

The seasonally-adjusted unemployment rate (Figure 41) has continued to decline and was 4.8 per cent as of October 2019. The unemployment rate dropped below 5 per cent in August of this year (after the CSO revised previous estimates). This is the lowest unemployment rate recorded in over 12 years – since January 2007. The current rate is down from 5.7 per cent in October 2018 and down from 11.1 per cent in October 2014. Although the rate may decline further in the near future, as the economy is nearing full employment any such declines are likely to be small. This is because a substantial proportion of the unemployment that remains is likely to be structural in nature and thus not unduly influenced by the business cycle.

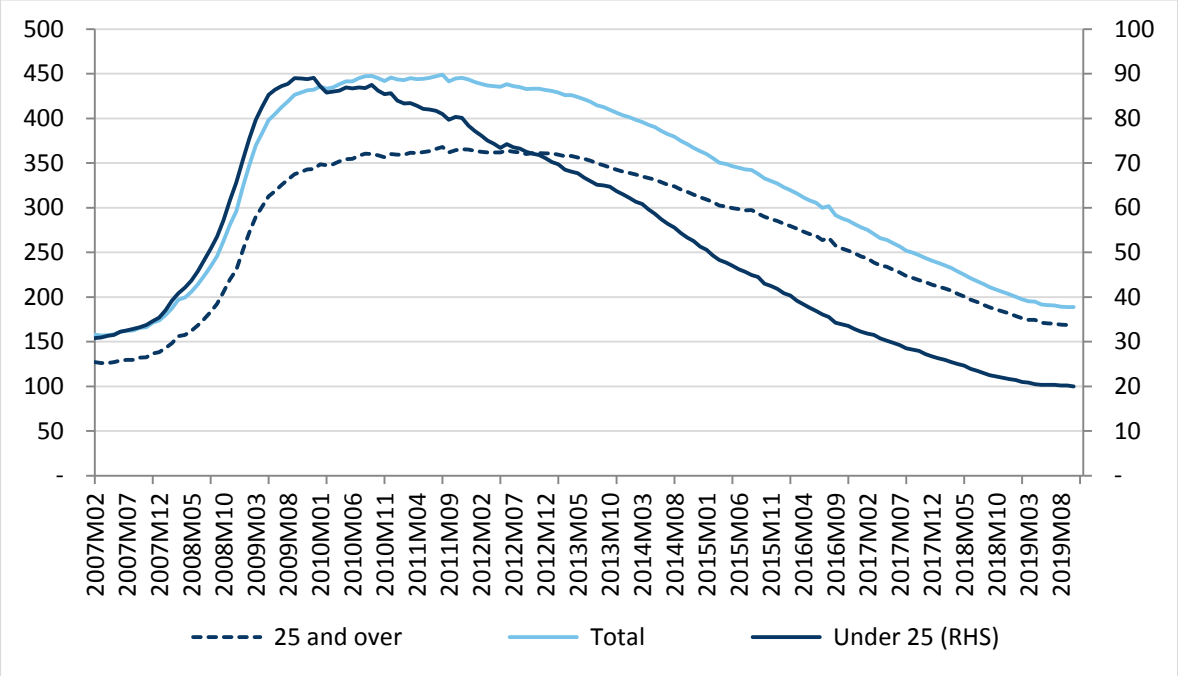
FIGURE 41 SEASONALLY-ADJUSTED UNEMPLOYMENT RATE BY MONTH (%)



Source: Monthly Unemployment Series, Central Statistics Office.

The Live Register provides a monthly series on the number of people registered for Jobseekers Benefit, Jobseekers Allowance and those registered for various other statutory entitlements from the Irish Department of Employment Affairs and Social Protection. It is one of the most up-to-date labour market measures produced by the CSO. While it is not a perfect measure of unemployment, as it includes part-time, casual and seasonal workers, it does capture important trends that exist in the Irish labour market. Figure 42 depicts the number of people on the Live Register, by age, from February 2007 to October 2019. In October 2019 there were 188,700 people on the Live Register – the lowest level since early 2008. Of those on the register, 168,700 were 25 or older, while 20,000 were under 25. As of October 2019, there were 17,300 less people 25 or older on the Live Register compared to the same period the previous year and 2,200 less people below the age of 25. In total there were 19,500 fewer people on the Live Register in October 2019 compared to October 2018, a 9.9 per cent reduction.

FIGURE 42 NUMBERS ('000) ON THE LIVE REGISTER BY AGE (SEASONALLY ADJUSTED)



Source: Central Statistics Office.

Table 2 shows the number and proportion of those on the Live Register broken down by duration. The number of long-term unemployed, those out of work for a period greater than 12 months, has fallen by 59.5 per cent in the five years between October 2014 and October 2019. The proportion of those on the Live Register for a period greater than 12 months now stands at 38.6 per cent, down from 47.6 per cent in October 2014. These are positive developments, as the longer an individual is out of work the more difficult it can be for that person to re-enter the workforce. The reasons for this include the atrophy of skills during unemployment, a fall in individuals' morale and a stigma among employers towards those who are long-term unemployed.[16] The proportion of people on the Live Register for a period of less than a year has increased from 52.4 per cent to 61.7 per cent over the same period. This implies that over the last five years an increasing number of people are able to find a job within their first 12 months of being unemployed.

[16] Bjørsted, Erik, Elva Bova and Signe Dahl (2016). 'Lessons Learnt from the Nordics: How to Fight Long-term Unemployment', *Intereconomics*. Vol. 51, Issue 3, p.172-178.

TABLE 2 NUMBER AND PROPORTION OF PEOPLE ON THE LIVE REGISTER BY DURATION

	2014 M10		2018 M10		2019 M10	
	('000)	%	('000)	%	('000)	%
All durations	358.1		199.2		180.5	
Under 1 year	187.4	52.3	116.2	58.3	111.4	61.7
1 year and over	170.7	47.7	83.0	41.7	69.1	38.3
1 year – less than 2 years	46.3	12.9	22.3	11.2	19.1	10.6
2 years – less than 3 years	28.6	8.0	12.9	6.5	11.1	6.1
3 years and over	95.8	26.8	47.8	24.0	38.9	21.6

Source: Live Register, Central Statistics Office.

Table 3 shows the number people on the Live Register categorised with respect to the last occupation held. The number of people on the Live Register fell across all the occupational categories in the 12 months from October 2018 to October 2019. Of those on the Live Register in October 2019, 16.6 per cent worked in 'craft and related' occupations prior to being out of work. This represents the largest single occupational class and includes occupations such as; bricklayers, carpenters, plumbers, blacksmiths, butchers and bakers.[17] However, there has been a significant decline in the number of people from this occupational class on the Live Register over this period. Those who previously worked in 'associate professional and technical' occupations were the smallest occupational group, making up just 3.5 per cent of those on the Live Register in October 2019. Examples of the type of occupations that fall into this category include; dental assistants, bookkeepers, estate agents, legal secretaries, photographers and chefs among others. In percentage terms, the largest reductions were in the 'sales' and the 'plant and machine operatives' occupational classes. The former falling by 15.2 per cent and the latter by 13.2 per cent over those 12 months.

[17] International Labour Office (ILO) (2012) International Standard Classification of Occupations (ISCO-08), Vol. 1. Geneva: International Labour Office (ILO). Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf

TABLE 3 PERSONS ('000) ON THE LIVE REGISTER CLASSIFIED BY LAST OCCUPATION HELD

Sector	2018 M10	2019 M10	% Change	Unit Change
Managers and administrators	10.33	9.61	-7.0	-0.72
Professional	12.45	11.97	-3.9	-0.48
Associate professional and technical	6.93	6.38	-7.9	-0.55
Clerical and secretarial	21.59	21.07	-2.4	-0.52
Craft and related	33.58	29.94	-10.8	-3.64
Personal and protective services	25.94	23.17	-10.7	-2.77
Sales	20.53	17.41	-15.2	-3.12
Plant and machine operatives	30.75	26.70	-13.2	-4.05
Other broad occupational groups	24.67	22.59	-8.4	-2.08
No occupation	12.49	11.60	-7.1	-0.89

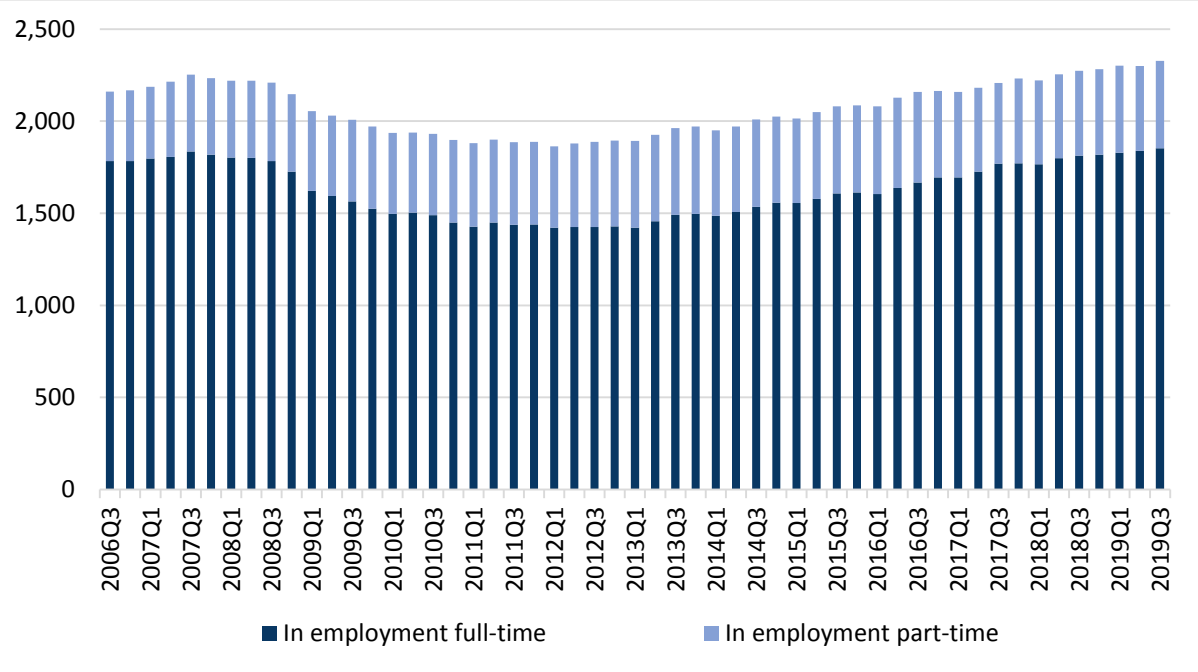
Source: Live Register, Central Statistics Office.

Employment

In Q3 2019 there were 53,700 more people in employment than in Q3 2018, a 2.4 per cent increase. This is in line with expectations as the growth rate of employment has been greater than or equal to 2 per cent since Q2 2013. The employment growth rate for Q3 2019 marks a slight increase on the 2 per cent growth rate experienced in the year to Q2 2019. However, it still represents a lower level of employment growth than that witnessed between Q1 2015 and Q4 2017. During this period employment growth never fell below 3 per cent. The slowdown in employment growth rates may be connected to international uncertainty in recent times. While uncertainty stemming from the United Kingdom's exit from the European Union may have alleviated slightly in the short run, a degree of international uncertainty remains present. However, as the economy moves closer to full employment the growth rate of employment will inevitably be lower than that witnessed during the economic recovery period.

Figure 43 shows the number of people in full-time and part-time employment in Ireland between Q3 2006 and Q3 2019. As of Q3 2019 there are now 1,853,400 people working in full-time employment. This is an increase of 2.2 per cent compared to Q3 2018. Those working full-time represent about 80 per cent of all workers. The number of people working part-time in Q3 2019 increased by 11,500 to 473,500 people. This represents an increase of 2.9 per cent compared to the same quarter a year previous. Interestingly, the number of people who are part-time underemployed, which measures the number of people working part-time that have a desire to work more hours, increased by 0.3 per cent in the year to Q3 2019. In all, total employment in the State stood at 2,326,900 people as of Q3 2019.

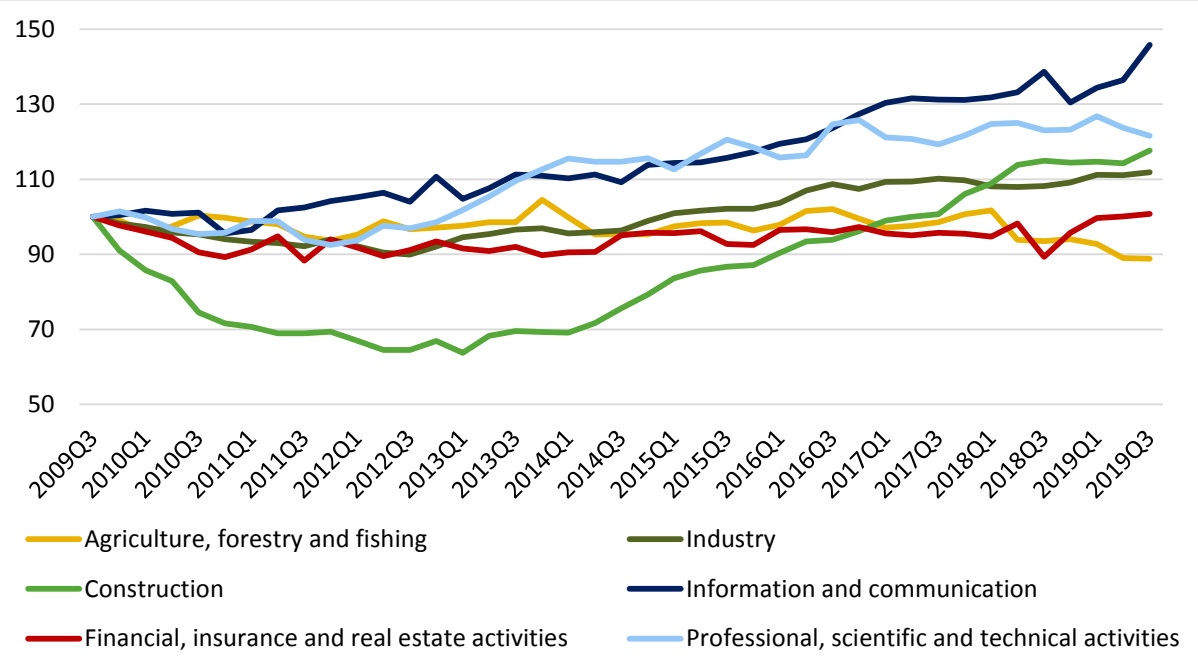
FIGURE 43 SEASONALLY-ADJUSTED EMPLOYMENT, FULL-TIME AND PART-TIME ('000)



Source: Labour Force Survey, Central Statistics Office.

The increase in employment has been spread across a broad range of sectors. Figure 44 shows the growth in the seasonally-adjusted level of employment by sector. Employment in the construction sector has continued to rise from its nadir in 2013, increasing by 84.5 per cent between Q1 2013 and Q3 2019. Employment in the information and communication and the industry sectors has also continued to increase, rising by approximately 45 per cent and 12 per cent respectively over the ten years in question. As of Q3 2019, there are also about 21 per cent more people engaged in 'professional, scientific and technical' activities compared to Q3 2009, while the number of people working in 'finance, insurance and real estate' has recovered to just above parity with its Q3 2009 level. Of the sectors presented, only agriculture, forestry and fishing is below its Q3 2009 level a decade on.

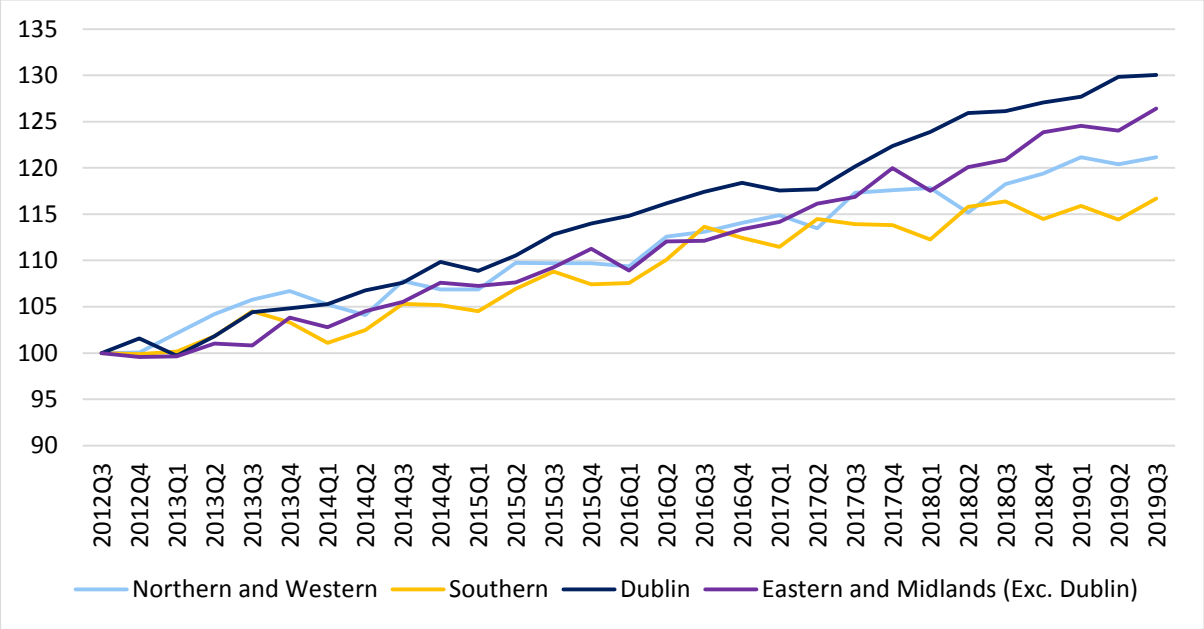
FIGURE 44 SEASONALLY-ADJUSTED EMPLOYMENT BY SECTOR (INDEXED USING Q3 2009 AS BASE)



Source: Central Statistics Office.

Figure 45 shows the number of people aged 15 years and over in employment by region indexed against Q3 2012. In the seven years that followed Q3 2012, employment increased by just over 21 per cent in the Northern and Western Region and by approximately 17 per cent in the Southern Region. Over the same period, employment rose by just over 26 per cent in the Eastern and Midlands Region (excluding Dublin). The largest percentage increase was in Dublin itself which experienced a 30 per cent increase in employment during this period.

FIGURE 45 EMPLOYMENT BY REGION (INDEXED USING Q3 2012 AS A BASE)

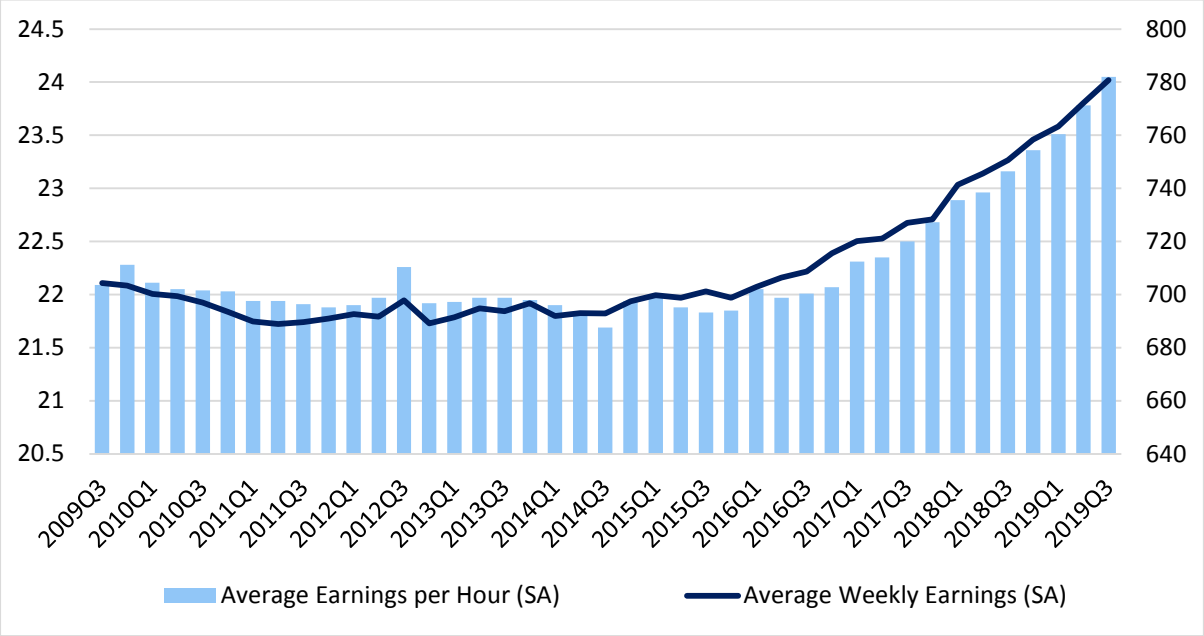


Source: Central Statistics Office.

Earnings

Figure 46 shows seasonally-adjusted Average Hourly Earnings and seasonally-adjusted Average Weekly Earnings for the decade between Q3 2009 and Q3 2019. In Q3 2019 seasonally-adjusted Average Hourly Earnings were €24.10, an increase of 3.84 per cent year-on-year. This marks the ninth consecutive quarter that seasonally-adjusted Average Hourly Earnings have grown by more than 2 per cent year-on-year. As of Q3 2019 seasonally-adjusted Average Weekly Earnings were €780.80, a 4 per cent increase year-on-year. This represents a continuation in the strong growth of labour earning witnessed in recent times. Overall, with such low unemployment, wage growth is expected to continue as employees tend to have more bargaining power in a tight labour market. Furthermore, with inflation at its current levels, most of this wage growth has translated into real wage growth and so consumers will have more to spend.

FIGURE 46 SEASONALLY-ADJUSTED AVERAGE HOURLY AND AVERAGE WEEKLY EARNINGS



Source: Earnings, Hours and Employment Costs Survey, Central Statistics Office.
Note: The y-axis on the LHS has a very low range of values.

Labour market forecasts

Given the strong performance of the Irish economy thus far in 2019 we expect the average unemployment rate for the year to be 5 per cent. In the absence of shocks, we expect the unemployment rate to further improve to 4.6 per cent in 2020. Employment levels are expected to average 2.31 million for 2019 and to reach 2.35 million in 2020. As the labour market continues to get tighter, we expect nominal earnings growth to average 3.5 per cent for 2019 and 4.0 per cent for 2020.

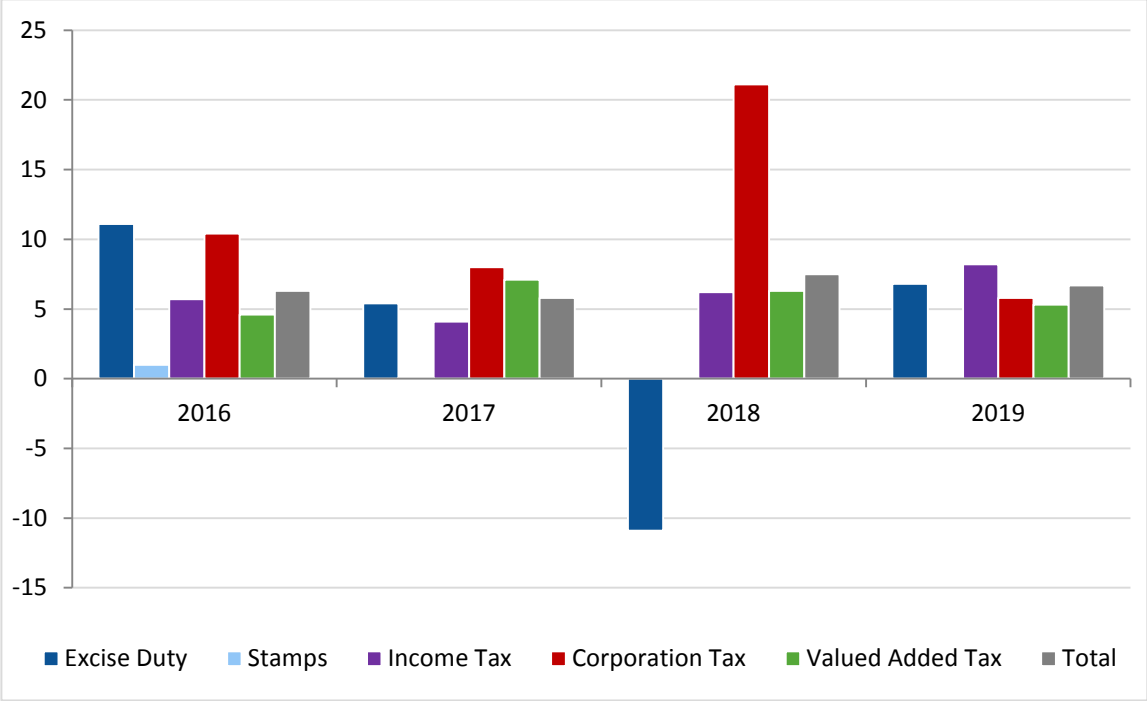
PUBLIC FINANCES

Key Points:

- *Majority of tax categories see strong growth;*
- *Corporation tax likely to register another year of strong growth;*
- *Box illustrates the impact of a collapse in windfall element of corporation taxes;*
- *Budget 2020 mainly prudent in its objectives.*

Irish taxation revenue is set to register strong growth in 2019 indicating that the underlying economy continues to perform well despite the presence of Brexit and the likelihood of a global economic slowdown. From Figure 47 it can be seen that all of the major taxation items for the year to date have shown significant increases in year-on-year returns.

FIGURE 47 ANNUAL CHANGES IN MAJOR TAX SUB-COMPONENTS (%): JANUARY TO NOVEMBER

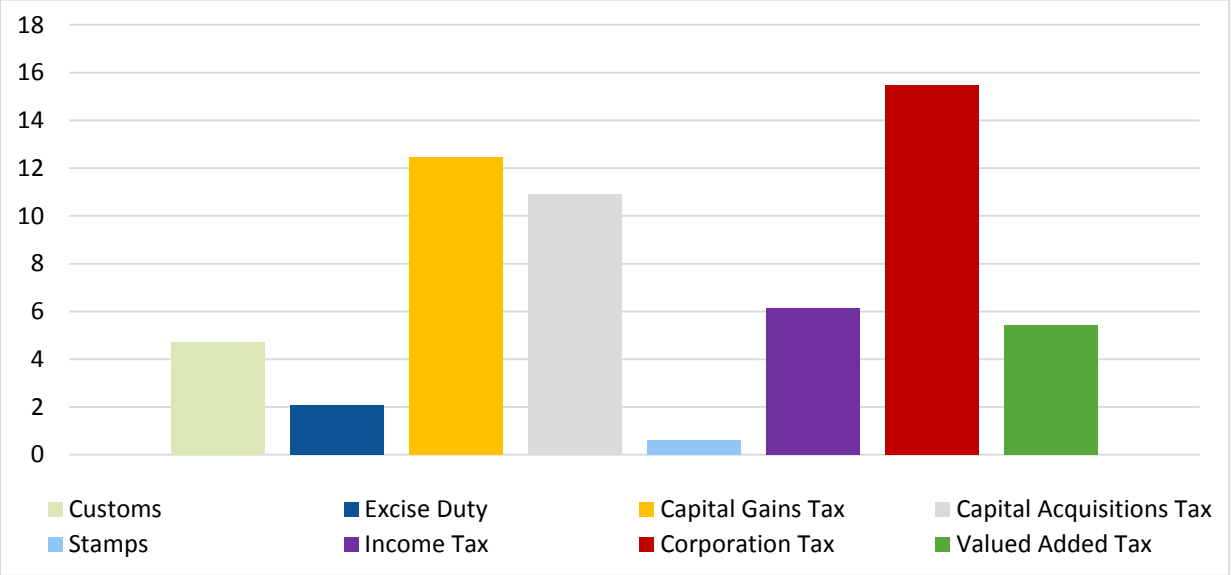


Source: *QEC* calculations.

Income tax receipts for the year to date are up by 8.2 per cent on the previous year, while pay related social insurance receipts are up by 5.3 per cent on the previous year. Increases in both these tax receipts along with the continued robust performance of the Irish labour market demonstrates the underlying resilience of the Irish economy.

Interestingly, corporation tax is also experiencing an increase of nearly 6 per cent for the year to date. This follows a substantial increase in 2018. Figure 48 presents the average annual growth rate in all the major tax headings over the period 2012 to 2018.

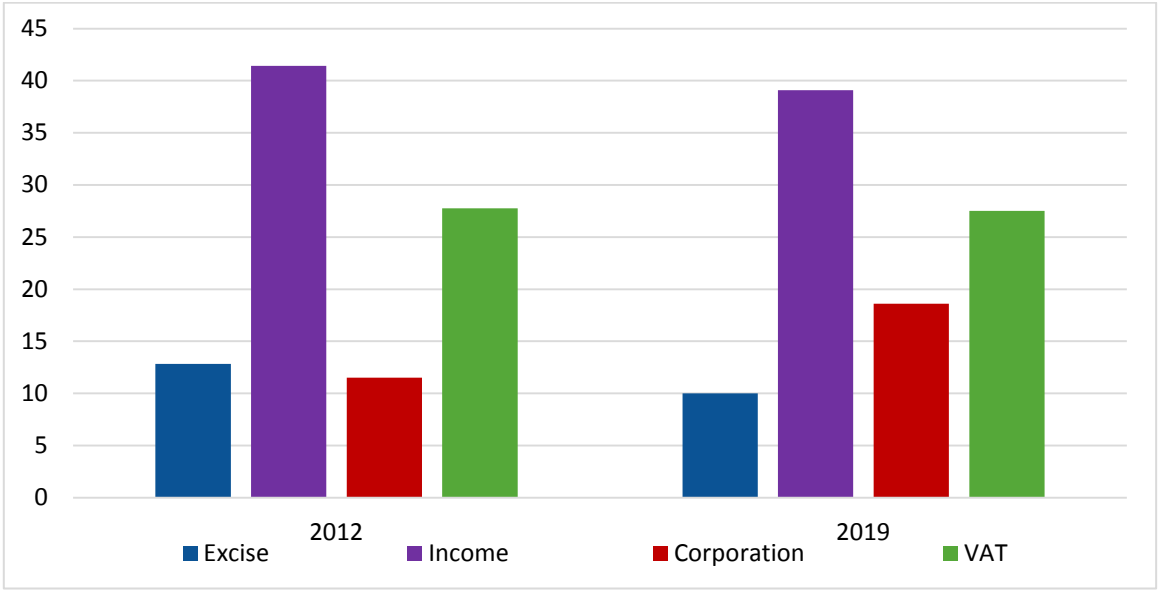
FIGURE 48 AVERAGE ANNUAL GROWTH RATE IN MAJOR TAX HEADINGS % (2012 TO 2018)



Source: *QEC* calculations.

It is clear from the graph that corporation taxes have experienced a much more significant increase compared to the other tax headings particularly when compared with income taxes and VAT. Figure 49 compares the share of total taxation receipts for the major components: income tax, VAT, corporation tax and excise duty for 2012 and 2019.[18]

FIGURE 49 COMPARISON OF THE SHARES OF DIFFERENT TAXATION COMPONENTS (%) 2012 AND 2019



Source: *QEC* calculations.

[18] The 2019 figure is for the period January to October.

Of the major headings, corporation tax has shown the largest increase in relative importance going from 11.5 per cent of the total receipts in 2012 to over 18.5 per cent in 2019. Inevitably, the persistent, sharp increase in recent corporation returns has given rise to the concern that some element of the increase may be unsustainable or be a 'windfall' in nature.[19] If that is the case, then that unsustainable element of the returns should not be used to fund current expenditure. Varthalitis, in Box 2, uses a recently developed dynamic stochastic general equilibrium (DSGE) model to assess the potential implications of a collapse in these windfall returns on the public finances generally.

BOX 2 WHAT HAPPENS IF THERE IS A REDUCTION IN THE WINDFALL COMPONENT OF CORPORATION TAXES?

Since 2012, corporate tax (CT) revenues in Ireland have witnessed a sizeable increase both in nominal levels and as a share of total revenues. In total, CT receipts have grown by 146 per cent between 2012 and 2018 from €4.3 billion to €10.4 billion. This has resulted in CT receipts becoming the third largest source of tax revenues in Ireland.

CT revenues are inherently more volatile in a small and remarkably open economy such as the Irish case, where these structural characteristics make Ireland's CT revenues more prone to changes in international economic conditions. Over the last couple of years CT outturns have consistently outperformed official budget forecasts (see e.g. IFAC, 2018 and Conefrey et al., 2019). Perhaps more importantly, various model-based projections suggest that Ireland's economic fundamentals might not be able to fully explain this exceptional growth in CT revenues (see e.g. McGuinness and Smyth, 2019 and Box D in IFAC, 2019a). For example, a recent analysis by IFAC estimates the unexplained amount of CT receipts to be within a range from €3 billion to €6 billion in 2018 (see Box D in IFAC, 2019a).

While a large share of CT recent growth can be attributed to Ireland's economic performance, there are some concerns that a significant share may constitute a temporary increase or 'windfall' element of Government's revenues and thus this element may be unsustainable in the longer term. In the latter case, a sudden and persistent fall of these 'windfall' revenues poses a potential fiscal risk. A fiscal gap would emerge with fiscal and macroeconomic repercussions for the Irish economy.

The aim of this Box is to assess the fiscal and macroeconomic implications for the Irish economy of such fiscal risks. We do this by employing a dynamic general equilibrium macroeconomic model for Ireland that has been recently developed in the ESRI (FIR-GEM; for more details see Varthalitis, 2019). To quantify the effects on fiscal/macro aggregates we simulate in FIR-GEM fiscal scenarios that simulate a decline in the windfall component of CT receipts. We achieve this by implementing a series of fiscal shocks

[19] The windfall element of corporation tax returns has been recognised by the Department of Finance. See for example: *Budget 2020: Addressing Fiscal Vulnerabilities*, Department of Finance.

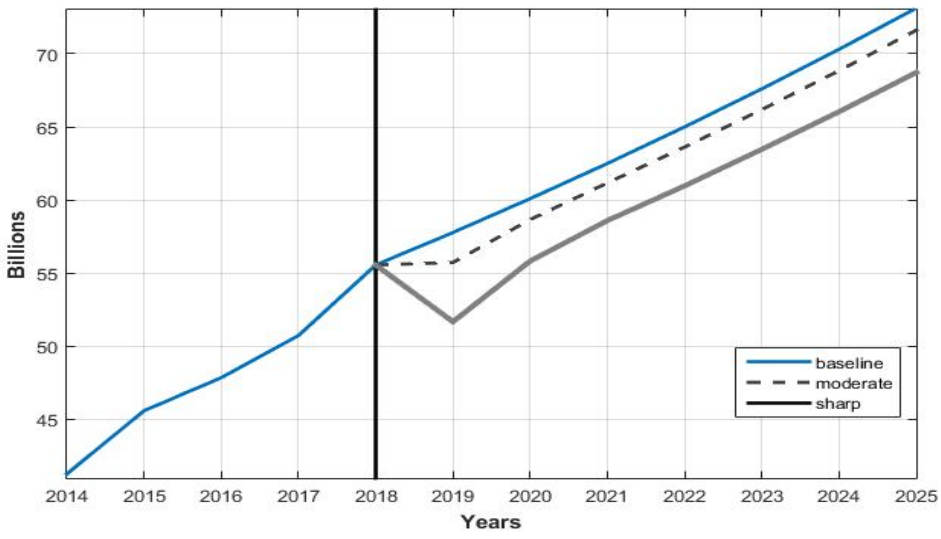
exogenous to the Irish economy. This is because any reversal in the CT windfall is likely to be related to firm-specific decisions of a small number of foreign-owned firms and/or other external shocks.

We consider two fiscal scenarios, namely a 'moderate' decline and a 'sharp' decline in tax revenues. In the 'moderate' scenario revenues drop by €2 billion below their expected trend in the impact year; while in the 'sharp' scenario they decline by €6 billion (these estimates are taken from IFAC, 2019b). We contrast these scenarios with a baseline scenario in which all variables grow at their assumed pre-shock trend. The CT revenue shock in both scenarios is assumed to be persistent, meaning that the associated receipts are expected to remain below their baseline trend for several years after the shock.

Our scope is to isolate the fiscal effect of a sudden drop in revenues, and thus, we abstract from any other external shock (e.g. Brexit); furthermore we assume that policymakers do not implement discretionary fiscal measures to react to this fiscal gap; instead all the key tax-spending instruments remain constant at their baseline values. As our point of departure we choose the latest year for which we have outturn data, i.e. 2018. This assumption is not restrictive as our model-based analysis can be extended forward to any arbitrary year.

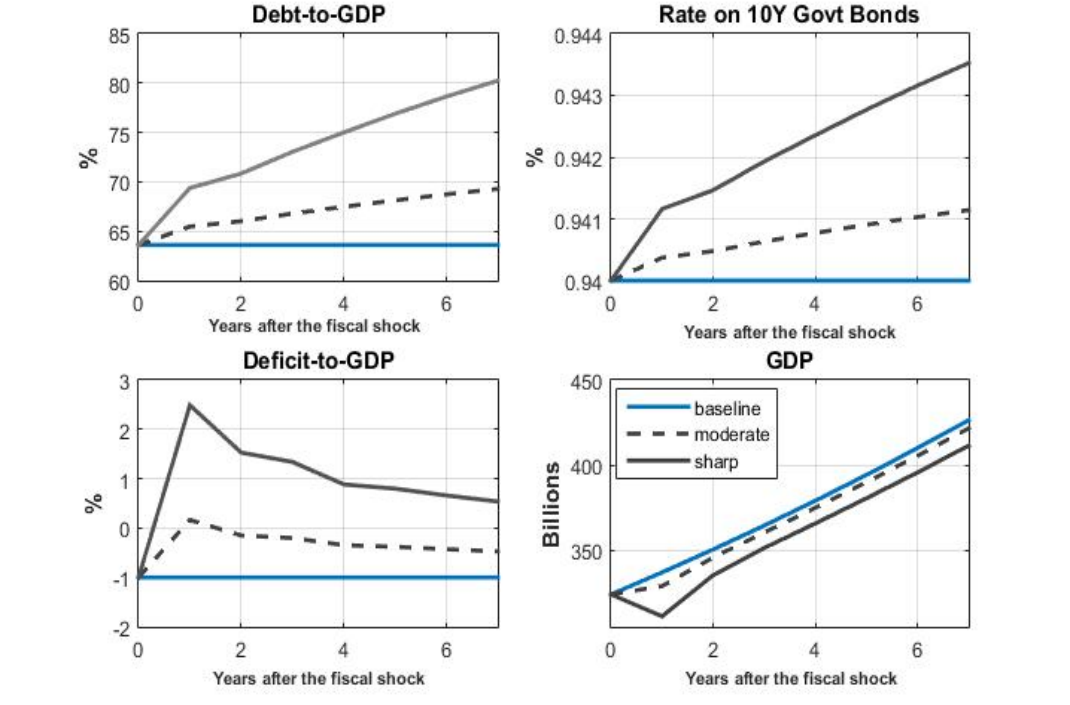
Figure C presents total tax revenues in billions. If the fiscal shock occurs, tax revenues would grow slower in the 'moderate' scenario or fall significantly in the 'sharp' scenario. Tax revenues would remain below their baseline over the coming years in both scenarios. The difference can be thought of as the fiscal gap that would emerge in the public finances due to a collapse in the windfall element of CT receipts. Figure D presents the dynamic responses of the debt- and deficit-to-GDP ratios, the 10-year government bonds interest rate and GDP in € billions under the three scenarios. The dynamic paths illustrated in Figure D imply a prolonged deterioration in Ireland's fiscal position. Tables C and D quantify this deterioration in key Ireland's fiscal variables over various time horizons, e.g. after one, five and ten years, for 'moderate' and 'sharp' scenarios respectively.

FIGURE C TOTAL TAX REVENUES IN BILLIONS



Source: Department of Finance and QEC calculations.

FIGURE D KEY FISCAL/MACRO VARIABLES



Source: Central Statistics Office and QEC calculations.

In the 'moderate' scenario, the emerging fiscal gap averages €1.5 billion per annum over the next ten years. In the absence of any specific fiscal policy reaction, this fiscal gap is expected to weaken Ireland's fiscal position. Even a moderate CT reversal can generate a prolonged deterioration in Ireland's fiscal aggregates. Indicatively, the starting point surplus could turn from +1 per cent to a -0.16 per cent deficit as a share of GDP, i.e. a deterioration of 1.16 p.p. in just one year, while it would stay lower than the baseline even after ten years. The debt-to-GDP ratio would persistently increase from 63.6 per cent in 2018 to 68 per cent after five years and surpass the level of 70 per cent after ten years, i.e. increases of 4 and

7 p.p. respectively. Similarly the debt-to-GNI* ratio would increase from 104.3 per cent to 112 per cent and 116 per cent after five and ten years respectively.

TABLE C PUBLIC FINANCES UNDER THE 'MODERATE' FALL SCENARIO

	Debt-to-GDP (%)	Debt-to-GNI* (%)	10Y Govt Bonds Rate (basis points)	Surplus-to-GDP (%)
Starting value	63.6	104.3	0.94	1
1Y	65	107	+5	-0.17
5Y	68	112	+9	0.38
10Y	71	116	+14	0.59

Source: Central Statistics Office and QEC calculations.

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In the 'sharp' CT loss scenario the impact on the fiscal variables will be much stronger. Tax revenues would be lower than the baseline by €4.5 billion per annum on average over the next decade. This would result in a deficit-to-GDP of 2.5 per cent in the first year; while Ireland would run a long-lasting deficit for at least one decade. Finally, the debt-to-GDP ratio would reach 77 per cent and 84 per cent in five and ten years respectively after the initial fall in CT revenues. This translates to an increase in the debt-to-GNI* ratio from 104.3 per cent to 126 per cent and 138 per cent in five and ten years respectively.

TABLE D PUBLIC FINANCES UNDER THE 'SHARP' FALL SCENARIO

	Debt-to-GDP (%)	Debt-to-GNI* (%)	10Y Govt Bonds Rate (basis points)	Surplus-to-GDP (%)
Starting value		104.3	0.94	1
1Y	69	114	+12	-2.5
5Y	77	126	+28	-0.8
10Y	84	138	+45	-0.2

Source: Central Statistics Office and QEC calculations.

Such fiscal shocks would impact Ireland's macro economy through at least two channels. First, through the increase in international cost of borrowing and second through the adoption of the necessary fiscal policy changes if the resulting fiscal gap were to be closed. Here, we assume that fiscal policy does not react. Thus, the effects of the first channel only would see Irish GDP being €8 billion and €26 billion lower in the first year of the shock due to the 'moderate' and 'sharp' scenarios respectively. Over a ten-year horizon, the negative effect is estimated to be around €5 billion and €16 billion per annum on average compared to the baseline under the two scenarios.

Our analysis implies that a potential reversal of the recent windfall elements of CT receipts poses a significant fiscal risk for Ireland. Were this risk to materialise, it would weaken Ireland's public finances for a prolonged period and thus might require restrictive fiscal policy measures to be implemented. This would undoubtedly have a negative impact on Ireland's macro economy. Thus, it is imperative that these windfall amounts are not used on an ongoing basis to fund current Government expenditure. This research further strengthens the argument to build up fiscal buffers to absorb such external shocks (see Casey et al., 2018), in order to mitigate the effects of volatile CT receipts on Ireland's macro economy.

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This Box was prepared by Petros Varthalitis

Budget 2020 saw the Government introduce a package of approximately €2.9 billion of which €2.6 billion consisted of an increase in current expenditure and €800 million went on increased capital spending. Overall there was about €426 million in net tax increases. Due to the non-indexation of taxation and welfare bands and the increase in carbon taxes, most households are likely to pay more in taxation due to the Budget.[20] For some, this will be partly offset by some of the increases in Government expenditure, however, if a No-Deal Brexit does not come to pass in the next year and hence the Government does not spend the resources which were allocated for such an eventuality, then the overall stance of the budgetary package is likely to be contractionary.

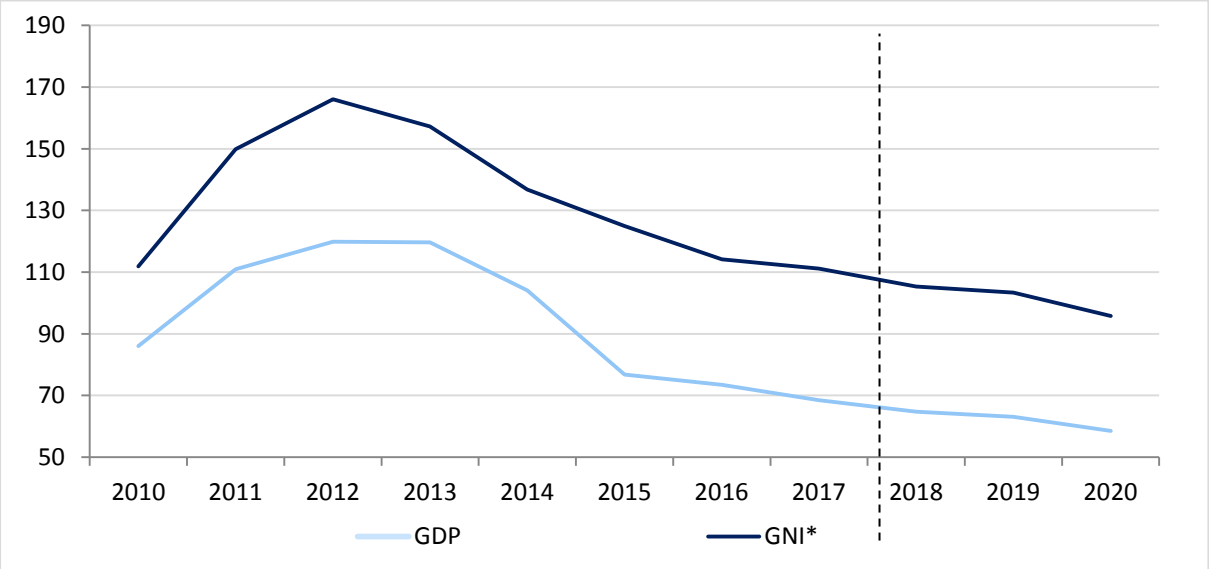
In terms of servicing the sovereign debt, the country is pre-funded until Q1 2020. In general, the National Treasury Management Agency, NTMA, has used the period of Quantitative Easing (QE) to lengthen the sovereign's debt maturities and hence lower interest costs and debt repayments. At ten years, the Irish sovereign has one of the longest weighted average maturities in Europe. Interest costs on the sovereign debt, which prior to QE were forecast to be €10 billion, will by the end of 2019 fall below €5 billion.

Under our baseline outlook, and subject to the assumption that actual and profile expenditure remain closely correlated for the rest of the year, we now believe that the General Government Balance is likely to be in balance in 2019. While we

[20] For more on this see: https://www.esri.ie/news/extra-2020-spending-on-public-services-and-pay-funded-by-real-tax-increases

had forecast a mild surplus for 2020 in the previous *Commentary*, the increased expenditure outlined in Budget 2020 means that a mild deficit is now a likelihood next year. We summarise the resulting implications for our forecasts of the debt-to-output ratios in Figure 50. By the end of 2020, we believe the debt-to-GDP ratio will be 54 per cent while debt-to-GNI* will have fallen just below 90 per cent.

FIGURE 50 DEBT-TO-GDP AND DEBT-TO-GNI* RATIOS (%)



Source: *QEC* calculations.

General Assessment

2019 saw the Irish economy demonstrate another resilient performance in the face of significant uncertainty. While the Brexit issue has not gone away and will continue to be a factor in the years ahead, the domestic economy still looks set to register growth of approximately 5.8 per cent in 2019. This is quite remarkable as it means the economy has grown on average by 4.5 per cent per annum since 2010.[21] To put this in perspective, the European Union has only witnessed growth of 1.6 per cent per annum for the same period.

It is still too early to assess whether recent Brexit related developments have ameliorated the uncertainty which exerted contractionary pressures on the domestic economy over the past 12 to 14 months. However, in the short-run at least, it does appear that the possibility of a 'No-Deal' exit by the United Kingdom has receded. Our forecast for the Irish economy in 2020, subject to the assumption that no change in the trading relationship between the UK and the EU will take place within the forecast horizon (i.e. either a deal with transition scenario materialises or a further extension is granted), is for growth of 3.3 per cent. This more moderate rate compared with previous years reflects the relatively slow rate of growth now likely in key trading partners for the year ahead.

While the most recent agreement reached between the UK Government and the European Union does appear to have averted a 'No-Deal' exit in the short term, the stated preference of the UK for a free trade agreement over the longer term will give rise to some difficult choices for both domestic and European policymakers in the years ahead. Indeed there is considerable potential for both intra and inter country tension within the European Union as it considers various UK proposals in future negotiations. To date, these tensions have been largely absent during the Withdrawal Agreement phase and the European side has been characterised by strong unity of purpose. Given the complexity of negotiating a free trade agreement, it means that continued uncertainty is set to befall certain sectors of the Irish economy over the medium term. The agricultural sector, the fishing sector and the tourism sector more broadly will have to contend with the consideration of different possible policy regimes, some of which may have radical implications for the sectors concerned.

[21] This is even after including an observation of 5.5 per cent for 2015 as opposed to the official rate of 23 per cent. The 5.5 per cent rate was estimated as the underlying rate of economic growth for the Irish economy in 2015 in the *Quarterly Economic Commentary* (2016).

Against this backdrop Budget 2020 proved to be a broadly prudent package with relatively few changes in personal taxation rates. Indeed given the non-indexation of taxation rates and welfare bands and the introduction of the carbon tax, the package, in the absence of a No-Deal Brexit,[22] is likely to be mildly contractionary. From a macroeconomic perspective, given the underlying pace of growth in the Irish economy at present, this is probably the optimal policy. However, as identified by Doorley and Roantree (2020), freezing most tax thresholds and benefits rates in cash terms will leave household incomes lower than under a neutral budget. This will be offset partially for some households by increases in certain areas of Government expenditure.

The overall state of the fiscal accounts in 2019 is likely to benefit from another increase in corporation tax receipts. For the year to November, these receipts have increased by over 2 per cent. However, this contrasts with the profile or target increase outlined by the Irish Department of Finance at the start of the year which expected these receipts to decline by 2 per cent for the present year. The volatility of these receipts has given rise to concerns about the potential 'windfall' nature of a certain component of corporation tax returns. In a Box in the current *Commentary*, Varthalitis, using a recently specified dynamic stochastic generated equilibrium (DSGE) model of the Irish economy, examines the implications of a reduction in the windfall component of corporation receipts on key fiscal metrics. The results of the analysis highlight the vulnerability of the Irish public finances to significant variations in these receipts. This variation is mainly associated with the transactions of certain multinational firms which operate in the Irish economy. Furthermore, the results reiterate the need for the Government to ensure that current expenditure is funded purely on the basis of sustainable elements of taxation revenues. If agreement is reached during the ongoing international discussions at an OECD level on corporation tax issue (or any subsequent European initiative), this may have implications for the level and structure of multinational activity in Ireland. This further highlights the need to prudently manage the fiscal receipts from corporation tax.

In the current *Commentary* there are two Research Notes published which deal with regional issues in the Irish housing market. The first by Allen-Coghlan, McQuinn and O'Toole (2019) examines house price sustainability at a county level. The Note, which compiles a unique database of regional housing information, uses a variety of finance-based measures including the house price-to-rent ratio in assessing regional markets. The analysis suggests that notwithstanding the significant pace of house price growth observed, current levels are closely related to developments in regional labour markets. However,

[22] Certain funds were set aside as a contingency for a No-Deal Brexit. However, in the absence of a 'No-Deal', these funds will presumably not now be spent.

significant divergence is observed in the pace of house price growth across counties. The Note outlines a Heat Index, which measures the stability or otherwise of regional markets and recommends that this index be updated on a regular and timely basis.

The Note by Allen-Coghlan, Judge, O'Toole and Slaymaker (2019) examines housing affordability for potential first time buyers at the county level. The research estimates the percentage of monthly income that would be spent on mortgage repayments if first time buyers on average incomes were to purchase a property at the average first time buyer price in each county. The findings suggest that, in 2018, potential first time buyers would have faced a mortgage repayment-to-income ratio of more than 30 per cent in Dublin, Wicklow, Kildare and Meath, highlighting the acute affordability pressures in and around the capital city. The mortgage repayment-to-income ratio is also relatively high in the counties of Galway and Cork while affordability pressures are not as evident in other counties.

Building on both pieces of research, in another Box in the *Commentary*, Allen-Coghlan and McQuinn, using housing market data, estimate the degree of convergence across the Irish economy from 2007 onwards. Their analysis suggests that some parts of the country have grown significantly faster than others and that, in general, there has been a divergence rather than convergence in regional economic growth during this period. This is a significant challenge and one the Government is seeking to address in its National Development Plan (NDP)[23] mainly through rolling out significant investment over the period 2018 to 2027. However, in certain areas such as Cork city it appears that there is growing frustration with the pace at which public investment is being put in place.[24] It may be necessary for Government policy to ensure that key infrastructure can be fast-tracked in certain designated regional growth centres to facilitate faster growth outside of the greater Dublin area.

[23] See https://www.gov.ie/en/policy-information/07e507-national-development-plan-2018-2027/ for more details.

[24] See Cork Chamber of Commerce: https://www.corkchamber.ie/economic-trends/ and https://www.corkindependent.com/news/topics/articles/2019/09/04/4179167-dunkettle-delay-depressing/

DETAILED FORECAST TABLES

FORECAST TABLE A1 EXPORTS OF GOODS AND SERVICES

	2017	% change in 2018		2018	% change in 2019		2019	% change in 2020		2020
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	192.9	8.0	13.8	208.2	10.4	9.0	229.7	6.6	5.0	245.0
Tourism	5.0	5.3	3.5	5.2	4.0	4.0	5.4	3.6	3.6	5.6
Other Services	154.7	10.1	5.4	170.3	12.7	11.0	191.9	9.3	8.0	209.7
Exports of Goods and Services	352.6	8.9	10.3	383.8	11.3	9.7	427.3	7.8	6.1	460.4
FISM Adjustment	7.1			12.6			13.4			14.4
Adjusted Exports	359.7	8.9	8.9	396.4	5.6	4.2	440.7	5.8	4.3	474.8

FORECAST TABLE A2 INVESTMENT

	2017	% change in 2018		2018	% change in 2019		2019	% change in 2020		2020
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Housing	5.6	28.0	25.8	7.1	19.3	14.9	8.5	22.4	17.5	10.4
Other Building	12.7	14.7	7.1	14.6	21.3	12.0	17.7	18.0	9.0	20.7
Transfer Costs	1.1	24.4	14.0	1.4	17.9	8.0	1.6	17.1	7.0	1.9
Building and Construction	20.4	18.8	12.5	24.2	20.3	12.5	29.1	19.2	11.6	34.7
Machinery and Equipment	72.8	-29.1	-30.4	51.7	63.6	59.7	84.5	4.6	2.6	88.4
Total Investment	93.2	-18.6	-21.1	75.9	49.8	45.0	113.6	8.4	4.7	123.1

FORECAST TABLE A3 PERSONAL INCOME

	2017	% change in 2018		2018	% change in 2019		2019	% change in 2020		2020
	€ bn	%	€ bn	€ bn	%	€ bn	€ bn	%	€ bn	€ bn
Agriculture	0.7	1.6	0.0	0.7	2.4	0.0	0.7	1.2	0.0	0.7
Non-Agricultural	87.4	5.9	5.1	92.6	6.3	5.9	98.4	6.1	6.0	104.5
Rental Income	10.1	18.4	1.9	12.0	7.8	0.9	12.9	10.0	1.3	14.2
Other Income	15.2	0.1	0.0	15.3	11.5	1.8	17.0	8.4	1.4	18.4
Total Income Received	113.5	6.2	7.0	120.5	7.1	8.6	129.1	6.8	8.8	137.9
Current Transfers	8.1	-2.4	-0.2	7.9	-11.4	-0.9	7.0	-4.0	-0.3	6.8
Gross Personal Income	121.7	5.6	6.8	128.5	6.0	7.7	136.2	6.2	8.5	144.6
Taxes on Income and Wealth	-22.4	7.8	-1.7	-24.1	6.4	-1.6	-25.7	4.0	-1.0	-26.7
Personal Disposable Income	99.3	5.1	5.1	104.3	5.9	6.1	110.5	6.7	7.4	117.9
Consumption	95.6	5.2	5.0	100.5	4.5	4.5	105.0	4.3	4.6	109.6
Personal Savings	11.2	2.8	0.3	11.5	11.8	1.4	12.8	23.9	3.1	15.9
Savings Ratio	10.7			10.5			11.1			12.8
Average Personal Tax Rate	0.18			0.19			0.19			0.18

FORECAST TABLE A4 IMPORTS OF GOODS AND SERVICES

	2017	% change in 2018		2018	% change in 2019		2019	% change in 2020		2020
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	85.2	15.6	13.0	98.5	6.5	5.0	104.9	13.0	11.0	118.6
Tourism	5.8	8.8	8.3	6.3	9.6	8.0	6.9	7.8	6.0	7.5
Other Services	172.2	4.2	3.7	179.5	31.7	30.0	236.4	7.1	5.5	253.1
Imports of Goods and Services	263.3	8.0	-2.9	284.4	22.4	20.3	348.2	9.0	7.3	379.1
FISM Adjustment	30.8			4.6			4.1			4.7
Adjusted Imports	294.0	-1.7	-2.9	289.0	21.7	20.2	351.8	8.9	7.2	383.3

FORECAST TABLE A5 BALANCE OF PAYMENTS

	2017	2018	2019	2020
	€ bn	€ bn	€ bn	€ bn
Exports of Goods and Services	352.6	383.8	427.3	460.4
Imports of Goods and Services	263.3	284.4	348.2	379.1
Net Factor Payments	-61.1	-69.7	-77.9	-80.3
Net Transfers	-3.1	-3.4	-3.7	-4.1
Balance on Current Account	1.5	34.3	-2.5	-3.1
As a % of GNP	0.6	13.6	-0.9	-1.1

FORECAST TABLE A6 EMPLOYMENT AND UNEMPLOYMENT, ANNUAL AVERAGE

	2017	2018	2019	2020
	'000	'000	'000	'000
Agriculture	110.4	107.4	100.6	99.0
Industry	412.1	423.3	435.7	445.7
Of which: Construction	128.7	143.4	147.4	151.8
Services	1,664.5	1,719.5	1,773.4	1,807.9
Total at Work	2,194.2	2,257.6	2,309.9	2,353.2
Unemployed	157.7	137.3	125.0	113.9
Labour Force	2,352.3	2,395.2	2,434.9	2,467.1
Unemployment Rate, %	6.7	5.8	5.0	4.6

Research Note

IRISH HOUSE PRICE SUSTAINABILITY: A COUNTY-LEVEL ANALYSIS

* Matthew Allen-Coghlan, Kieran McQuinn, Conor O'Toole[1]

1. INTRODUCTION

In the wake of a number of high profile property crashes, a question that has come to the fore recently is; are housing booms and busts clustered in specific areas within countries or do they tend to be more pan-regional? Within the United States for example, considerable variation in the boom-bust cycle has been experienced with the so-called 'sand states' (California, Florida, Arizona, and Nevada) showing much greater fluctuations in prices than other regions following the financial crisis.[2] In an Irish context, a significant issue of interest is the apparent divergence between the Dublin property market and other regional markets as well as the difference between urban and rural areas.

Mainly due to a lack of data, few research papers have assessed the sustainability of house prices in Ireland at a regional level. In this *Research Note*, we compile a series of regional housing indicators to provide insights into the regional dimension of price sustainability and explore how the housing market is developing across Ireland. One of these indicators is the rent-to-house price ratio (yield). This can be used as an indicator of market stability, as depressed yields can indicate asset values increasing beyond the cash flows associated with the asset. This paper extends the work of McQuinn (2017)[3] who considers the developments of Irish house prices in recent years and the extent to which they are explained by economic fundamentals. We apply the same model to each county in Ireland to determine the stability of house prices at a more granular level.

In this Note, we also discuss in more detail the research presented in McQuinn et al. (2019) which uses underlying finance theory and the user cost of capital method to present a Heat Index for Irish counties. This approach has the considerable advantage of having a particular theoretical structure and allows us to decompose investors' attitudes to the housing market. The Heat Index

1 This research has been funded by the Irish Department of Housing, Planning and Local Government under the collaborative research programme between the Department and the ESRI. We would like to thank all those in the Department for their comments on a previous draft. Any remaining errors are the sole responsibility of the authors.

2 Bhattacharya and Kim (2011). 'Economic Fundamentals, Subprime Lending and Housing Prices: Evidence from MSA-Level Panel Data', *Housing Studies*, 26(6).

3 McQuinn, Kieran (2017). 'Irish house prices: Déjà vu all over again?', *Quarterly Economic Commentary*: Special Articles, Winter, QEC2017WIN_SA_McQuinn.

* Kieran.McQuinn@esri.ie

captures the extent to which the yield is departing from the underlying risk-free rate (in our case the mortgage interest rate). Relatively high values of the Heat Index indicate a more unstable market.

Undertaking this research has been made feasible due to the bridging of two considerable data gaps in the Irish housing market in recent years. First, since 2010 the CSO has produced granular regional house price data drawing on the new property price register. Second, since Q3 2007 the RTB in conjunction with the ESRI have published quarterly standardised average rents at a county level. Combining these datasets provides the opportunity to explore trends in the rent-to-house price ratio for each county over time.

Overall, reviewing the rent yield across Irish counties, it is clear that at present yields are greater than the current borrowing rate and above the rate they were during the tail end of the housing boom. In general, the critical indicators of sustainability indicate that the market is well explained by fundamentals, though it should be noted the relationship between prices and fundamentals can change rapidly. A sharp increase/decrease in house prices and/or significant change in one of the factors in the user cost model could lead to prices moving out of line with the underlying value of housing. It is therefore proposed that these indicators are updated and used on an ongoing basis as a means of continually assessing property price developments in the Irish market.

Across counties, there is considerable variation in the sustainability indicators with more rural counties appearing to be the least at risk of overheating. This is likely due to failure of house prices to recover in these areas following the major decline in prices after the financial crisis. Counties in the South and South-East appear to have the highest values of the Heat Index, however this is not to be read as evidence that these markets are experiencing unsustainable inflation in prices or that the market is out of sync with fundamentals.

The rest of this *Research Note* is organised as follows: Section 2 outlines the theory for the indicators of price sustainability. Section 3 documents trends in rental yields across Irish counties. Section 4 documents trends in price sustainability using the Heat Index. Section 5 concludes.

2. MEASURING HOUSE PRICE SUSTAINABILITY: A USER COST APPROACH

The price to rent approach to assessing housing markets can be characterised by an underlying notion of arbitrage, with the returns to investing in housing relative to some other asset evaluated, or the costs and benefits of renting a house relative to buying compared. The approach, which builds on the Jorgensen (1963;

1967) theory of the user cost of capital, was first applied to housing markets by Poterba (1984) and assumes that, absent substantial frictions and credit restrictions, arbitrage between owner-occupied and rental housing ensures that the rent-to-house price ratio depends on the real user cost of capital. Himmelberg et al. (2005) construct a variant measure of the user cost of housing; the imputed annual rental cost of owning a home. This measure compares the value of living in a property for a year (the 'imputed rent') and the income lost for not investing in an alternative investment (the 'opportunity cost of capital'). It takes into account differences in taxes, expenses, anticipated capital gains and risk.

$$rent_t = hp_t\left(r_t^{RF} + r_t^{RP} + \sigma_t + \tau_t - {\Delta hp_t^e}/{hp_t}\right) \quad (1)$$

Where hp_t is real house prices, hp_t^e is expected real house prices, $rent_t$ is actual rent levels, τ_t relates to any property taxes to which the homeowner is liable, σ_t is the natural rate of depreciation of the house, r_t^{RF} is the real risk-free interest rate and r_t^{RP} is the additional risk premium to compensate homeowners for the higher risk of owning versus renting.[4]

Re-arranging (1) gives the following

$${rent_t}/{hp_t} = \left(r_t^{RF} + r_t^{RP} + \sigma_t + \tau_t - {\Delta hp_t^e}/{hp_t}\right) \quad (2)$$

Taxation can have a significant impact on the user cost of capital that can either be negative or positive depending on whether the tax is favourable or not for homeowners. For example, Barham (2004) found that due to homeowners not being taxed on capital gains to housing, the user cost of capital was negative over much of the period 1976-2003. However, taxation is not the focus of this paper and its inclusion would require us to use a representative family structure which would reduce our indicators' generality for the market as a whole. For the purpose of obtaining valuable expressions for evaluating the sustainability of the property market we omit both taxation and depreciation. Using data and taking this simplified version of (2), we obtain an expression for the rent yield:

$${rent_t}/{hp_t} = \left(r_t^{RF} + r_t^{RP} - {\Delta hp_t^e}/{hp_t}\right) \quad (3)$$

The simplified rent-to-house price ratio is now a function of three factors: the ratio can be low due to real interest rates being low; or because people feel that

[4] Risk premiums can change over time depending on the volatility of house prices. Large fluctuations in house prices are likely to increase the risk of owning versus renting and thus increase the risk premium.

house prices will grow fast; or they feel good about risk and are prepared to accept a low risk premium.

It is important to note that the expression (3) does not quantify how irrational investors are. The housing market may be overvalued, for example, when either forecasts of price increases are too high or the risk premium is too low. If these concepts are combined together, a 'Heat Index' of the housing market can be provided:

$$Heat\ Index = {}^{\Delta hp_t^e}/_{hp_t} - r_t^{RP} = r_t^{RF} - {}^{rent_t}/_{hp_t} \quad (4)$$

A particular economic or housing related shock may result in households revising their estimate of risk and, consequently, their expected return. A combination of these two factors can cause house prices to increase vis-à-vis their fundamental levels. If a significant deviation between the actual and fundamental price emerges, then estimates of risk are likely to increase until the observed level of risk is so high, housing demand falls and house prices decline sharply.

3. TRENDS IN THE RENT-TO-HOUSE PRICE RATIO ACROSS IRELAND

To begin our assessment of price sustainability at a county level in Ireland, we review trends in the rent-to-house price ratio (yield) across counties to contextualise the discussion. Following the financial crisis in Ireland, both rental prices and house prices plummeted as economic fundamentals deteriorated. The severity of the economic crisis in Ireland was extreme by international standards and highly correlated to the major price inflation for both rents and house prices during the boom phase of the credit cycle, 2002-2007. Though the rise and fall of the Irish property market has been well documented, few papers have considered the regional variation in the Irish house market over this period, with McCann (2016)[5] and Morgenroth (2014; 2016)[6] being notable exceptions. However, neither of these papers considered trends in rental yields as a measure of house price sustainability. One study which does model the change in yields in Ireland is Lyons (2017)[7] who models the effect of credit conditions on rental yields. We build on this research by focusing on exploring trends in the more recent time period (2010-2018) when prices have been recovering rapidly.

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5 McCann, Fergal (2016). 'Exploring developments in Ireland's regional rental markets', No 13/EL/16, *Economic Letters*, Central Bank of Ireland.

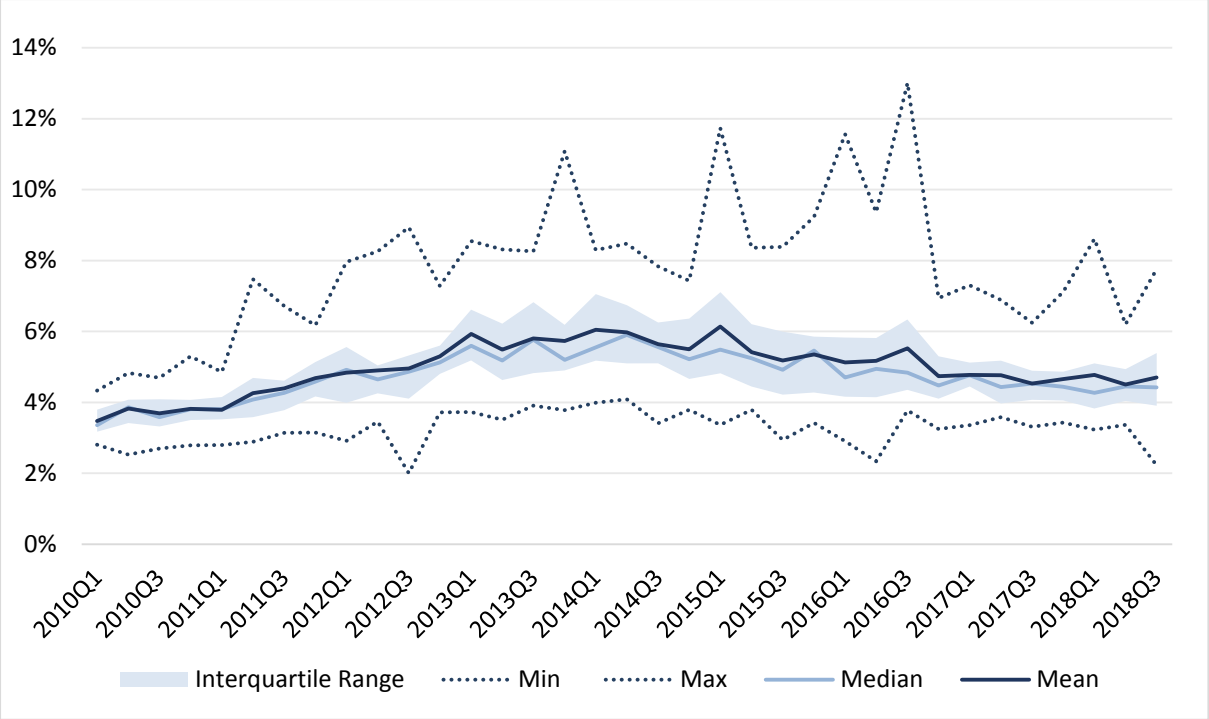
6 Morgenroth, Edgar (2014). *Modelling the Impact of Fundamentals on County Housing Markets in Ireland, MPRA Paper*, University Library of Munich, Germany.
Morgenroth, Edgar (2016). *Housing Supply and House Price Trends at the County Level*, No RN2016/1/1, *Research Notes,* Economic and Social Research Institute (ESRI).

7 Lyons, Ronan (2017). *Credit conditions and the housing price ratio: evidence from Ireland's bubble and crash*, Economic Papers, Trinity College Dublin, Economics Department.

It should be noted that there will be a degree of endogeneity between rent and house prices that may lessen the value of rent yield as a measure for the sustainability of house prices. As house prices increase, less people will be able to afford to purchase a home and more people will be forced into the rental market, which in turn will drive up rent levels. This is especially true in urban areas where housing supply is insufficient to meet structural demand and where the Central Bank macroprudential rules, which place limits on the LTI and LTV ratios, are more binding. If an increase in house prices in a county directly leads to an increase in rents, then the yield will be less informative as a measure of sustainability.

The trend in yield over time in Ireland is presented in Figure 1. The chart presents the national average, the national median and the dispersion in rents across counties. The interquartile range is also presented which allows us to document how varied or compressed yields were across the 26 counties over the period 2010-2018. We use this analysis period as it coincides with the CSO new property price indices which were first released in 2010. The county with the minimum and maximum yields are also presented to give a full description of the underlying distribution. Over the period 2010-2014, yields increased in Ireland from under 4 per cent to just over 6 per cent in Q1 2014. As both house prices and rents decreased over the period, the increase in the yields comes through house prices falling faster than rents. From 2014 to mid-2015, the yield appears to have stabilised before falling again as rental price inflation outpaced house price growth. As of Q3 2018 the national average yield stood at about 4.7 per cent. In terms of the cross-county variation, the narrow band on the interquartile range indicates that most counties in Ireland have similar rental yields. The generalised trend over time shows that many counties co-move with overall country variation. This highlights the interlinkage of the national property market and perhaps lends evidence to the theory that housing booms and busts are pan-regional in nature.

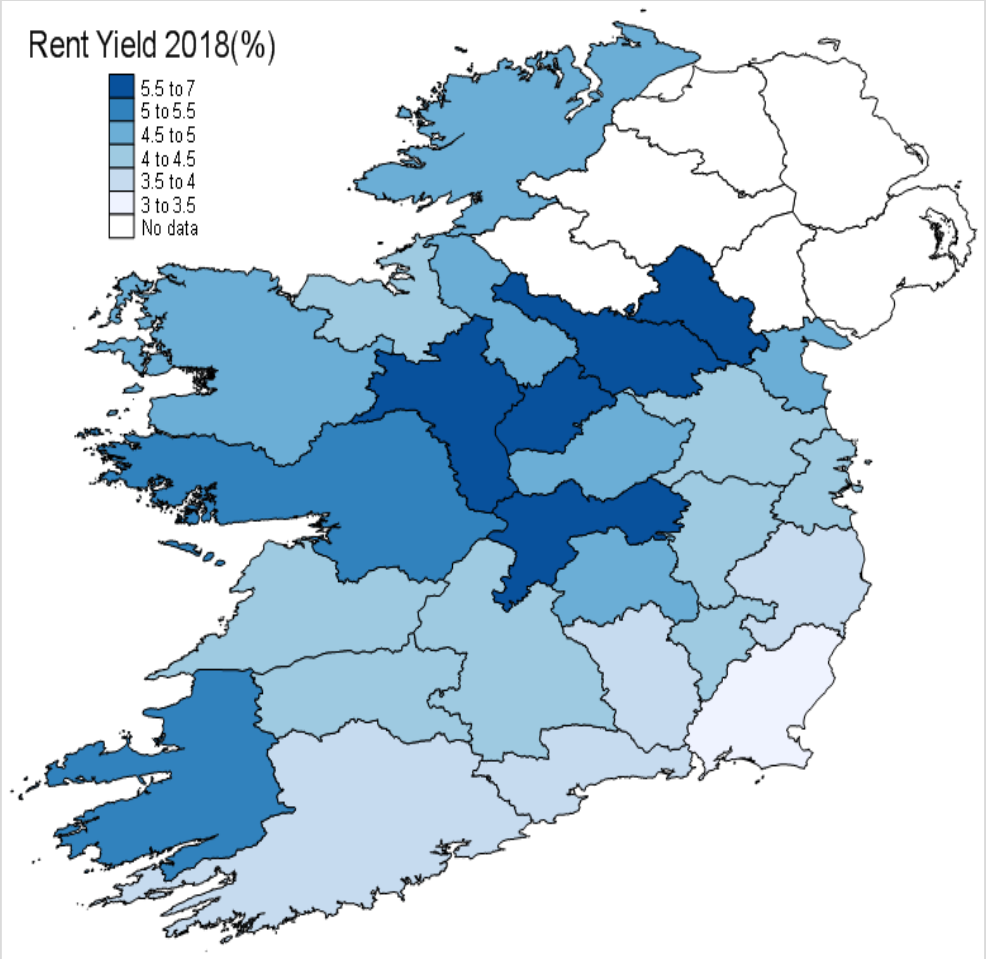
FIGURE 1 DISPERSION OF RENT-TO-HOUSE PRICE RATIO (YIELD, %) Q1 2010- Q3 2018



Source: ESRI analysis of CSO and RTB data.

Figure 2 displays the rental yields across counties for 2018. The highest yields are in the Midland and Border regions. House price declines were steep in these areas following the crisis and have not recovered to the same extent as in Dublin and the larger urban centres where labour market improvements and economic expansion have been greatest. Rents have increased in these areas more recently which has led to an improvement in the yield. The county with the highest yield in Ireland in 2018 was Roscommon at 6.7 per cent, followed by Offaly at 6.2 per cent and Monaghan at 6.0 per cent. The lowest rental yields were in counties in the South-East where house prices have recovered to a greater extent than rental prices. Wexford had the lowest yield in 2018 at 3.4 per cent with Kilkenny and Wicklow on 3.6 per cent.

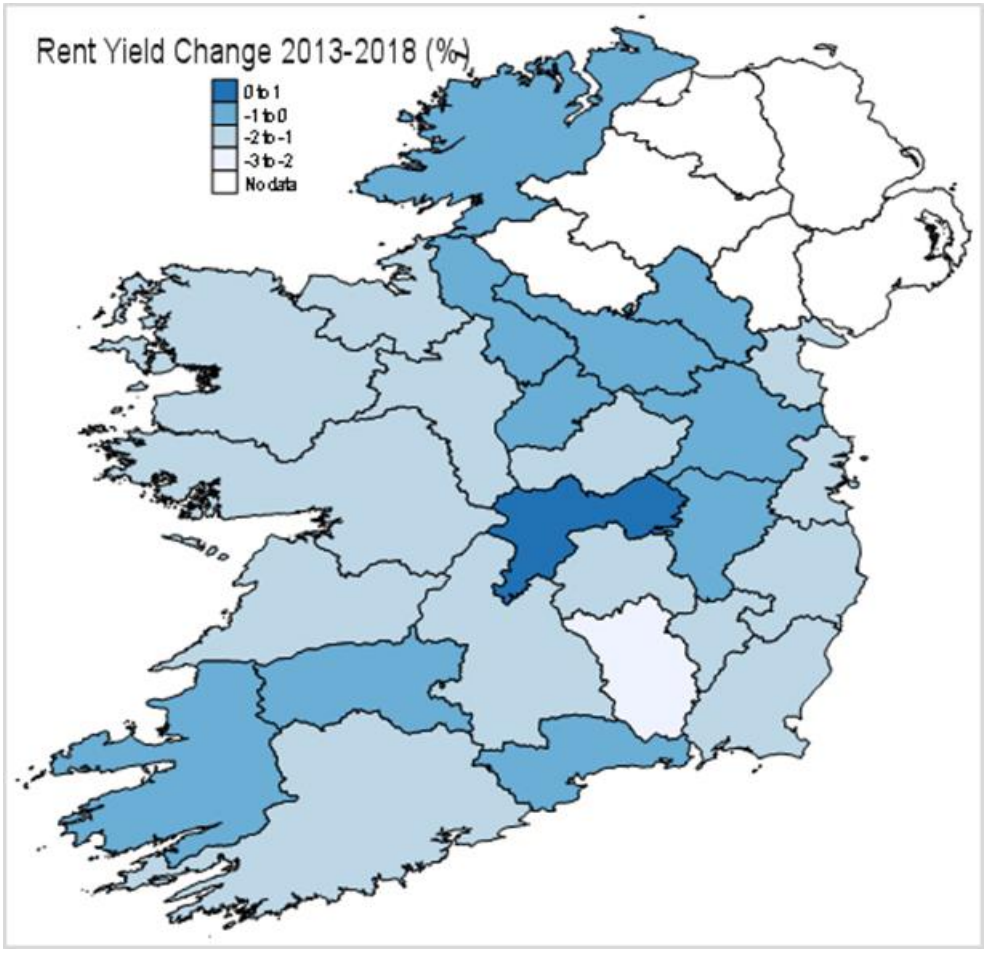
FIGURE 2 MAP OF RENTAL YIELDS ACROSS COUNTIES 2018



Source: ESRI analysis of CSO and RTB data.
Note: The time period combined for 2018 is Q1-Q3.

To provide insight into how yields develop over time, Figure 3 presents a map of the change in rental yields per county over the period 2013-2018. In all counties except Offaly (where yields grew marginally at 0.6 percentage points), yields declined over the period 2013-2018. The biggest decline was 2.1 percentage points in Kilkenny followed by 1.9 percentage points in Wexford, Mayo and Sligo. The national average yield declined by 1.1 percentage points over the period. Dublin yields declined by 1 percentage point from 5.3 per cent to 4.3 per cent while yields in Cork declined by 1.5 percentage points from 5.3 to 3.8 per cent. Table A.1 provides an overview of the figures for all counties.

FIGURE 3 MAP OF CHANGE IN RENTAL YIELDS ACROSS COUNTIES BETWEEN 2013 AND 2018



Source: ESRI analysis of CSO and RTB data.
Note: The time period combined for 2018 is Q1-Q3.

4. ASSESSING COUNTY-LEVEL PRICE SUSTAINABILITY

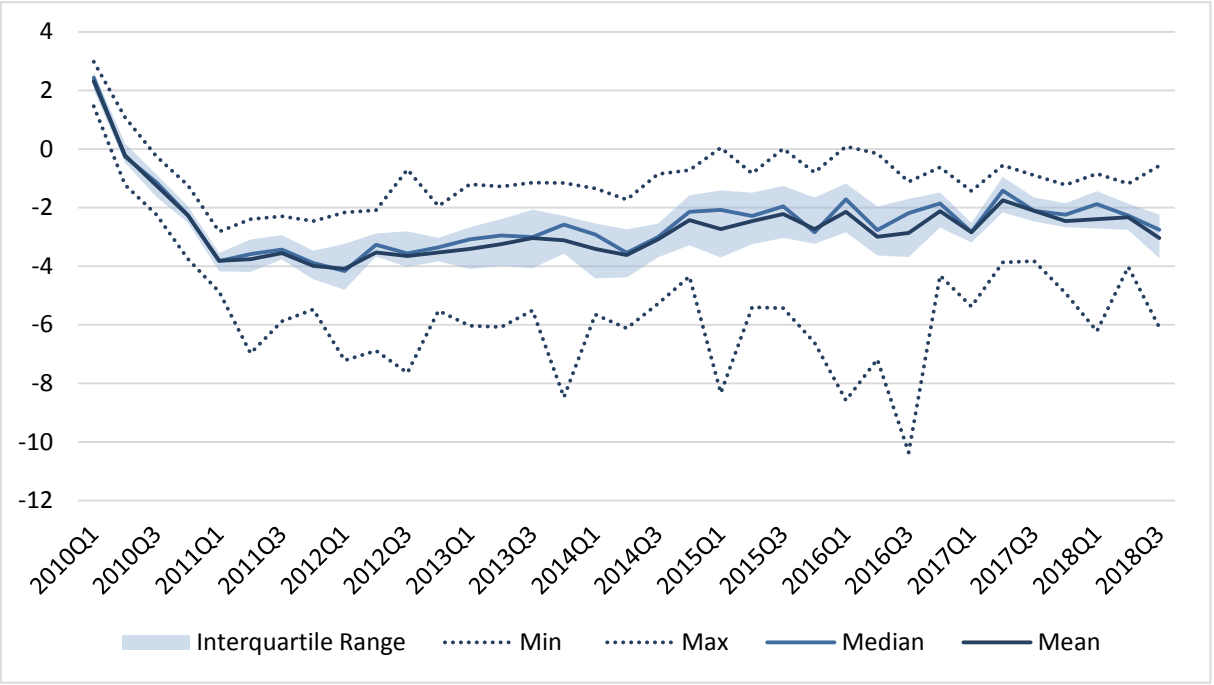
A county-level Heat Index

In this section, we present the results of the Heat Index across Irish counties over the period 2010-2018. The interpretation of the Heat Index is as follows: house prices are more likely to be overvalued when the Index is high, i.e. when the rent yield is low relative to the risk-free rate. This will be the case when expectations of house price growth are high or investors' risk premiums are low. By definition, when the housing market is overvalued, expectations of house prices are *too* high and/or the risk premiums of those who purchase houses are *too* low (i.e. they are undervaluing the level of risk of a house purchase). This leads to the Heat Index being at a higher level than it should be based on the fundamental value of housing. However, whether the housing market is overvalued can only be determined after the fact when past house price expectations are compared against the eventual realised house prices. Even if the Index is high, if house price expectations and risk assessments turn out to be correct then the market cannot be considered overvalued. While the Index can't explicitly tell us if the market is

currently overvalued, by comparing against past levels of the Index we can get an idea if current attitudes towards risk and perceptions about the future growth of house prices bear a resemblance to those seen during periods when the market was frothy.[8]

Figure 4 outlines the dispersion of the Heat Index over time for Irish counties. It includes the mean, median, minimum and maximum levels as well as the interquartile range for each period. Throughout 2010, the Index was declining as the legacy of the housing crash began to abate and the yields rose. In early 2011, the Heat Index had stabilised overall and has remained relatively static through to 2018. The stability of the Index over the past several years and the fact that yields have been significantly above both the risk-free rate and previous yield levels during the tail end of the housing boom suggests that Irish yields are not indicating that the market is currently overheated. This finding is in line with McQuinn (2017) that the Irish housing market appears close to equilibrium with prices explained by fundamentals.

FIGURE 4 DISPERSION OF HEAT INDEX Q1 2010-Q3 2018

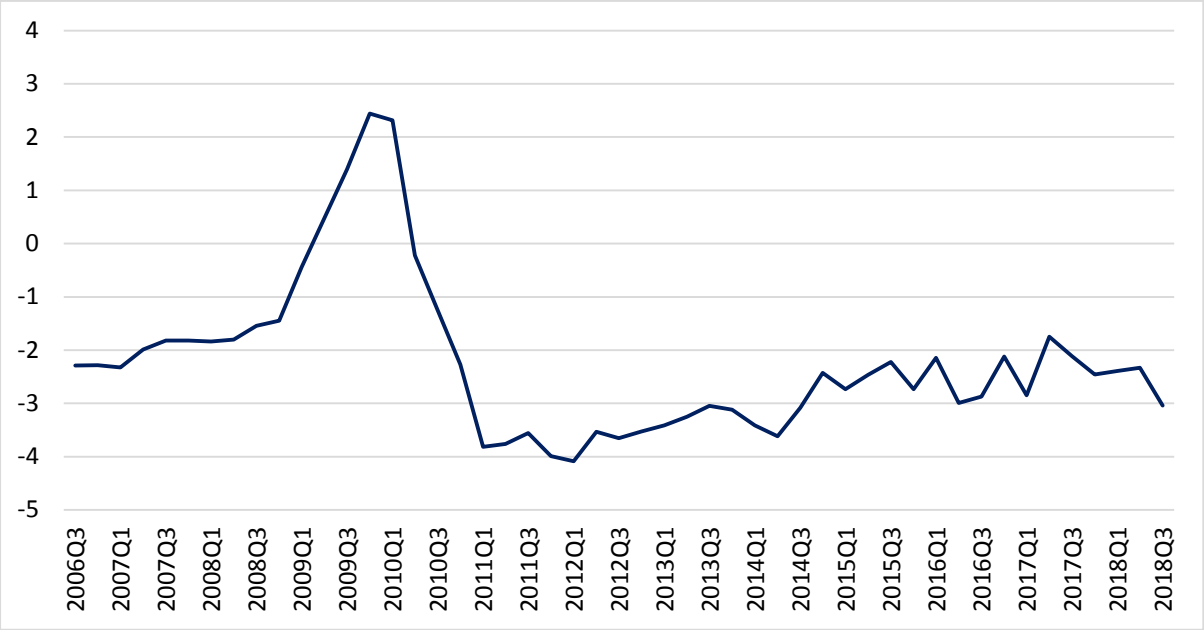


Source: ESRI analysis of CSO and RTB data.

[8] Though housing has the potential to generate returns through rent and capital appreciation it cannot be thought of as strictly a financial asset. Housing has both an investment and consumption component. As it is not purchased solely as an investment there is a limitation to applying a financial model to assessing it. This should be kept in mind when comparing the index between counties as there are likely to be different underlying factors driving demand for housing between counties beyond their risk return outlook.

While the county-level data behind the Heat Index are only available from 2010 onward, a national Heat Index can be calculated going back before the financial crisis. Figure 5 shows that from 2006 there was a sharp increase in the Heat Index which peaked in 2009 before declining sharply in 2010. It is clear that the level of the Heat Index from 2006 to 2009 is significantly higher than the prevailing rate in the post-crisis years. We propose that the Index over this time period be used as a benchmark by which to compare the current level of the Index and thus be used as an indicator as to whether the housing market is showing signs of overheating.

FIGURE 5 HEAT INDEX MEAN Q3 2006-Q3 2018



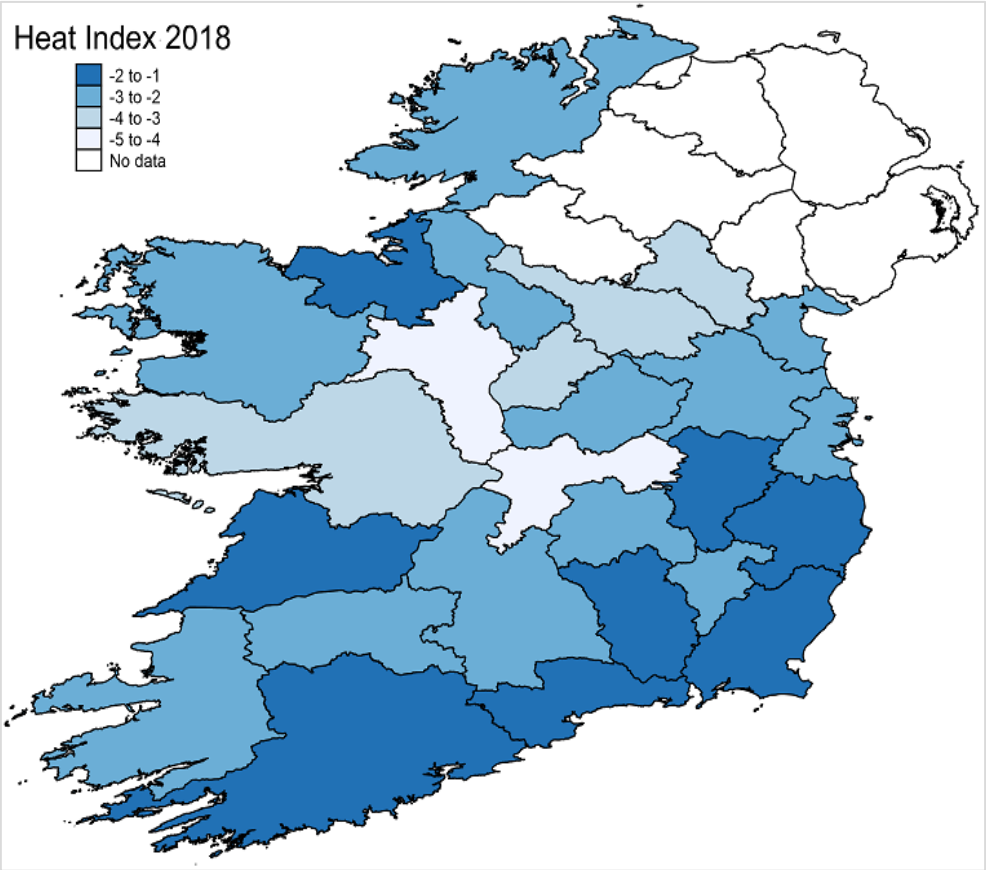
Source: ESRI analysis of CSO and RTB data.

A key contribution of this research is to look at the variation across counties, and to explore the extent to which differences may exist in the alignment of regional market prices to fundamentals. In this regard, it is clear from Figure 6 that, while some county outliers do exist across the country, a majority of counties follow the national picture as the Heat Index is closely dispersed across counties.

Figure 6 displays the Heat Index across counties for 2018. The lighter colour counties are those with the lowest (most negative) values of the Heat Index while the darker counties have the highest (least negative) values. Again, the closer the Heat Index to positive values, the frothier the county market is in comparison to the national average. It is clear that the counties with the highest levels of the Heat Index are along the South and South-East coast. As of 2018, the county with the lowest level of the Heat Index market was Roscommon with a value of -4.65, while Offaly and Monaghan had the second and third lowest levels respectively. In these counties, where house prices dropped dramatically and the convergence

back following the recovery has been slow, it is unsurprising that the risk of overheating is the lowest. The county with the highest number in the Heat Index is Wexford at -1.36, with Kilkenny, Wicklow and Cork close behind. These counties, where house prices have recovered more rapidly than rents, have higher levels of the Heat Index as yields are closer to the risk-free rate.

FIGURE 6 MAP OF HEAT INDEX ACROSS COUNTIES 2018



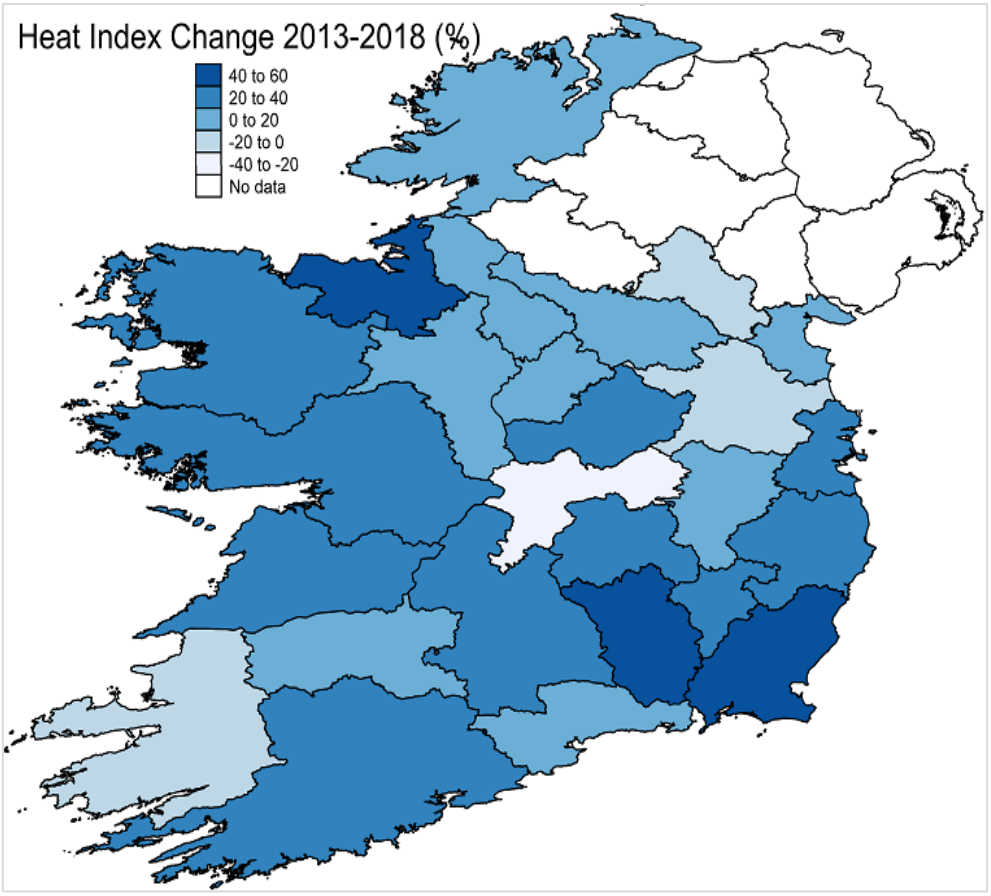
Source: ESRI analysis of CSO and RTB data.
Note: The time period combined for 2018 is Q1-Q3.

To provide insight into the county-level change in the Heat Index over time, Figure 7 presents a map of the change in the Index per county over the period 2013-2018. The biggest increase in the Heat Index was in Wexford, Kilkenny, Mayo and Sligo. The Heat Index declined in a number of counties including Offaly, Meath, Cavan, Monaghan, Clare and Limerick.

Overall, reviewing this critical indicator of price sustainability across Irish counties, it is reasonably clear than the Irish housing market is not currently displaying signs that it is overvalued. Across counties there is some variation with more rural counties, which experienced a major decline in house prices with less of a recovery, appearing to be the least at risk of overheating. Counties in the South and South-East appear to have the highest levels of the

Heat Index, however, this is not to be read as evidence that these markets are experiencing a degree of unsustainable inflation in prices or that the market is out of sync with fundamentals.

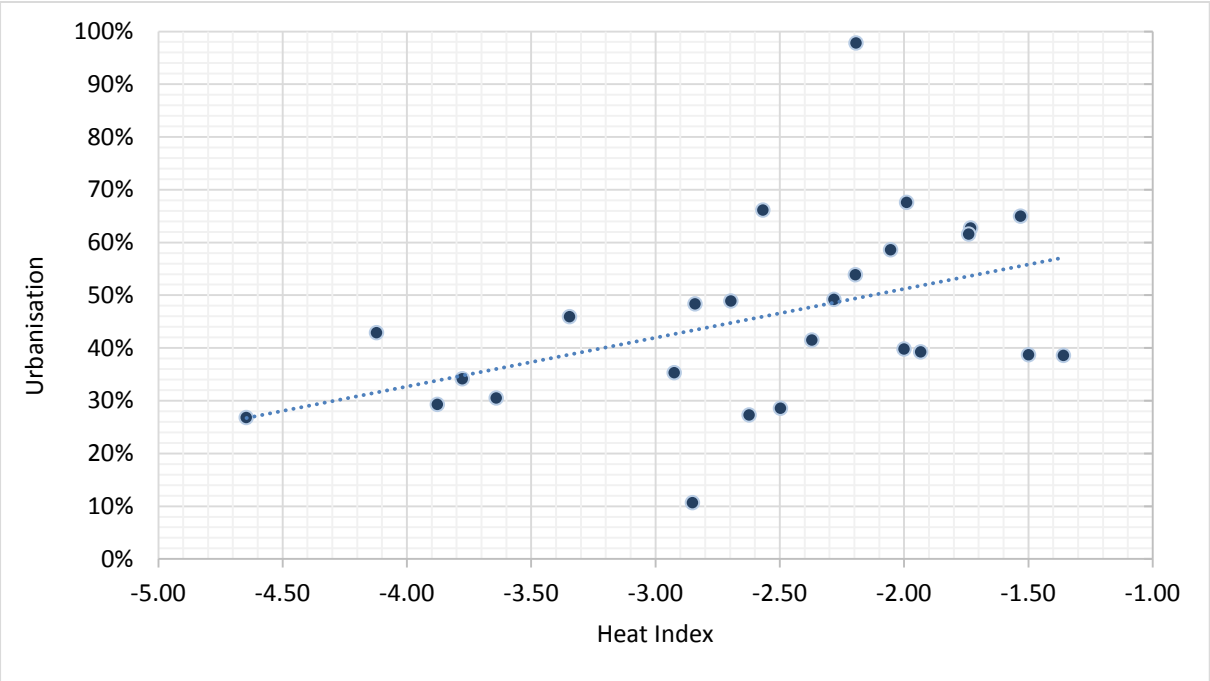
FIGURE 7 MAP OF CHANGE IN HEAT INDEX ACROSS COUNTIES BETWEEN 2013 AND 2018



Source: ESRI analysis of CSO and RTB data.
Note: The time period combined for 2018 is Q1-Q3.

To emphasise the heterogeneity in the property market across Ireland, the relationship between the degree of urbanisation and the Heat Index for each county is presented in Figure 8. This graph shows that counties with the highest levels of urbanisation (the highest proportion of residents living in urban areas) tend to be higher on the Heat Index. This illustrates the point that the risk of markets overheating is less of an issue for rural counties where house prices have yet to fully recover following their collapse in the years after the financial crisis.

FIGURE 8 RELATIONSHIP BETWEEN URBANISATION AND HEAT INDEX 2018



Source: ESRI analysis of CSO and RTB data.

5. CONCLUSION

In this *Research Note*, we explore trends in the rent-to-house price ratio in Ireland for the period 2010-2018 to provide insights into the regional dimension of price sustainability and explore how the housing market is developing across Ireland. The rent-to-house price ratio, or rental yield, can be used an indicator of market stability, as depressed yields can indicate asset values increasing beyond the cash flows associated with the asset.

More specifically, we present a Heat Index for Irish counties. The Heat Index captures the extent to which the yield is departing from the underlying risk-free rate (in our case the mortgage interest rate). Higher than average values of the Heat Index are an indicator that the market may be becoming unstable.

Overall, reviewing trends in the Heat Index as a measure of price sustainability across Irish counties, it is clear that the Irish market is not displaying yields that are below the borrowing rate or that are below yields seen pre-2011. This indicates that at present the Irish housing market is not overvalued from a user cost perspective. Overall the market appears to be explained by fundamentals with some variation across counties. More rural counties which experienced a major decline in house prices and less rebound in the recovery would appear to be the least at risk of overheating. Counties in the South and South-East appear to have the highest levels of the Heat Index, however, this is not to be read as

evidence that these markets are experiencing unsustainable inflation in prices or that the market is out of sync with fundamentals.

From a policy perspective, a number of findings emerge. In general the Irish market does not currently display significant evidence of unsustainable house prices from a macro-financial perspective. We also do not find major differences across counties which would suggest any specific geographic areas are becoming unsustainable. Indeed, the close variation in the regional yields and price sustainability indices would suggest that county markets co-move closely in Ireland. This co-movement in prices may be explained by household mobility, as prospective purchasers react to high prices in one county by purchasing in an adjacent county, thereby increasing demand, and prices, in the latter.

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APPENDIX 1

TABLE A.1 COUNTY YIELDS

County	Rent:HP 2018 %	Rent:HP 2013 %	Difference %
Offaly	6.2	5.6	0.6
Kerry	5.0	5.1	-0.1
Meath	4.1	4.3	-0.1
Monaghan	6.0	6.2	-0.3
Limerick	4.3	4.8	-0.6
Kildare	4.1	4.7	-0.6
Cavan	5.7	6.4	-0.6
Longford	5.9	6.6	-0.7
Leitrim	4.9	5.8	-0.8
Waterford	3.8	4.7	-0.9
Donegal	4.7	5.7	-1.0
Dublin	4.3	5.3	-1.0
Roscommon	6.7	7.8	-1.0
National Average	**4.7**	**5.7**	**-1.1**
Louth	4.6	5.7	-1.1
Wicklow	3.6	4.8	-1.2
Laois	4.9	6.3	-1.4
Cork	3.8	5.2	-1.4
Carlow	4.4	5.8	-1.4
Westmeath	4.8	6.3	-1.5
Clare	4.0	5.6	-1.6
Tipperary	4.4	6.1	-1.6
Galway	5.4	7.2	-1.7
Sligo	4.1	6.0	-1.9
Mayo	4.6	6.5	-1.9
Wexford	3.4	5.4	-1.9
Kilkenny	3.6	5.7	-2.1

Source: ESRI analysis of CSO and RTB data.

TABLE A.2 COUNTY HEAT INDICES

County	Heat Index 2018	Heat Index 2013	Difference %
Kilkenny	-1.50	-3.18	52.9
Wexford	-1.36	-2.83	52.0
Sligo	-2.00	-3.42	41.6
Clare	-1.93	-3.07	37.1
Mayo	-2.50	-3.96	37.0
Cork	-1.73	-2.67	35.2
Wicklow	-1.53	-2.31	33.7
Tipperary	-2.37	-3.54	33.0
Carlow	-2.28	-3.25	29.7
Galway	-3.35	-4.63	27.8
Westmeath	-2.70	-3.72	27.6
Laois	-2.84	-3.74	24.1
Dublin	-2.19	-2.76	20.5
Waterford	-1.74	-2.17	19.9
Louth	-2.57	-3.21	19.9
National Average	**-2.59**	**-3.21**	**19.3**
Donegal	-2.62	-3.14	16.4
Leitrim	-2.85	-3.23	11.8
Roscommon	-4.65	-5.22	11.0
Kildare	-1.99	-2.16	7.9
Longford	-3.78	-4.02	6.0
Cavan	-3.64	-3.82	4.7
Limerick	-2.19	-2.29	4.2
Monaghan	-3.88	-3.68	-5.3
Kerry	-2.92	-2.53	-15.4
Meath	-2.05	-1.72	-19.5
Offaly	-4.12	-3.08	-34.0

Source: ESRI analysis of CSO and RTB data.

A COUNTY-LEVEL PERSPECTIVE ON HOUSING AFFORDABILITY IN IRELAND

* Matthew Allen-Coghlan, Conor Judge, Conor O'Toole, Rachel Slaymaker[1]

1. INTRODUCTION

The issue of housing affordability in Ireland has come to the fore in recent years as house prices have increased significantly following the recovery. In a recent survey, Corrigan et al. (2019a) find that 86.5 per cent of renters expressed a preference for homeownership. However, rising house prices have led to serious concerns about the ability of first time buyers (FTB) to enter the housing market. This group has been cited as one particular pressure point in recent assessments of market affordability (Housing Agency, 2017). Analysis published in the ESRI *Quarterly Economic Commentary* (McQuinn et al., 2018) finds that house price growth has been uneven across the distribution, with cheaper properties growing at faster rates than more expensive properties. This is likely to further exacerbate the affordability concerns of first time buyers, who typically enter the housing market at lower house price levels than second and subsequent borrowers.[2]

To address the issue of first time buyer purchase affordability, a number of Government initiatives such as the Help to Buy scheme and the Rebuilding Ireland Home Loan for first time buyers, have been introduced with the aim of improving affordability.

While house prices have increased substantially in recent years, the national trend in house prices gives no indication of the heterogeneity in house prices across the country. In addition, as both house prices and incomes vary on a regional basis, it is not possible to draw conclusions about housing affordability by simply looking at regional house prices. Understanding which areas face the

[1] This research is a product of a joint research programme between the Department of Housing, Planning and Local Government and the Economic and Social Research Institute. The views presented in this paper are those of the authors alone and do not represent the official views of either the Department of Housing, Planning and Local Government or the Economic and Social Research Institute. Results presented in this paper are based on analysis of strictly controlled Research Microdata Files provided by the Central Statistics Office (CSO). The CSO does not take any responsibility for the views expressed or the outputs generated from this research. Any remaining errors are the authors' own.

[2] Kinghan (2018) shows that in the first half of 2018 the average house price for first time buyers was approximately €287,000, as compared to €412,000 for second anc

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greatest affordability challenges is crucial for policymakers when deciding where best to target supports.

One of the major challenges to assessing housing affordability at a regional level is to obtain granular data on both house prices and incomes. In this Note, we address this by combining data from a number of sources to assess housing affordability challenges at the county level. More specifically, we combine CSO disposable income data from the regional accounts with Survey of Income and Living Conditions (SILC)[3] data which contain information on both income and age, to obtain a measure of potential first time buyer incomes for each county. For house prices we exploit county-level data on first time buyer house prices from the CSO's Residential Property Price Index (RPPI) dataset.

We first document trends in county-level first time buyer house prices and incomes.[4] Then to provide an insight into how affordability has developed for this group we explore the housing costs they would face if they were to enter the homeownership market. More specifically, we calculate the mortgage payment and subsequent mortgage repayment-to-income ratio they would face if they were to purchase a property at the mean first time buyer price in each county. Finally, we explore whether households would be left with sufficient residual income, after paying these housing costs, to attain a minimum essential standard of living as defined by the Vincentian Partnership for Social Justice.

A number of recent studies have considered the issue of housing affordability. Corrigan et al. (2019) provide a detailed evaluation of the trends in housing affordability across existing renter and mortgage holder households in Ireland using the SILC household dataset. While this research provided a comprehensive review of trends in affordability across the market, the research did not specifically focus on the affordability level of new entrants to the housing market. Furthermore, as SILC is a nationally representative dataset with a relatively small number of observations at smaller geographic levels, the authors focused on broader regional breakdowns. One study which does focus on new market entrants is Turnbull (2017). Taking a long-term perspective, he examines whether owning a property is more or less affordable for young couples today compared to in the past. We build on this previous work, particularly Corrigan et al. (2019),

[3] SILC is a voluntary survey that is conducted on annual basis in Ireland by the CSO. It is part of an EU-wide programme which allows policymakers to make comparisons across Member States.

[4] As the purpose of this Note is to determine affordability challenges for the average first time buyer we use the mean first time buyer income and house price in each county. The reason for using the mean is that the county incomes data (from which we obtain our estimate of first time buyer income) only provide mean data. There are no distributional data available to get median income at a county level from the CSO county incomes data.

by providing a more granular, county-level assessment of affordability for first time buyer households.

We find that between the years 2016-2018 the mortgage-to-income ratio for potential first time buyers has increased across all counties. In 2018 the ratio would have been more than 30 per cent in Dublin, Wicklow, Kildare and Meath while in 11 of the 26 counties this ratio was at or below 20 per cent. In terms of residual income, we find that a first time buyer couple should have sufficient income left over after paying their mortgage instalments to attain at least a minimum level of consumption in all counties.

This Note is structured as follows. Section 2 describes the data used in the analysis and presents trends in county-level house prices and incomes. Section 3 examines housing affordability for first time buyers. Section 4 explores trends in the residual income potential first time buyer households would have left after paying their monthly mortgage instalments. Section 5 extends the analysis beyond the county level to focus on key urban centres and Section 6 concludes.

2. DATA

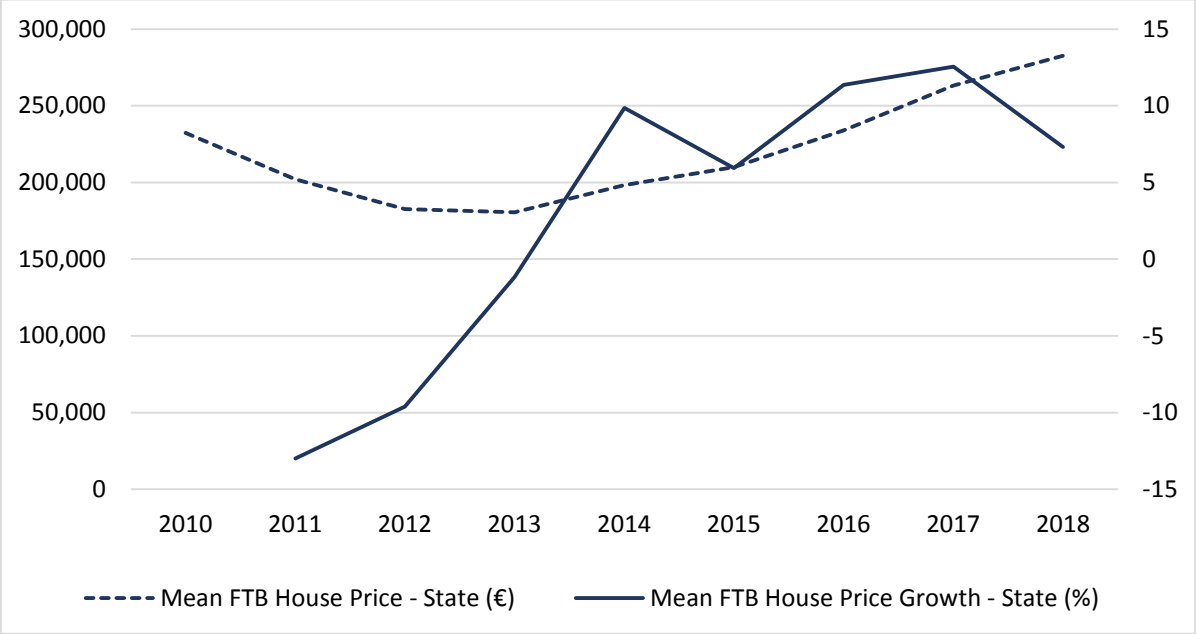
One of the key challenges to assessing housing affordability at a regional level is to obtain granular data on both house prices and incomes. In this section we outline our data sources and our calculations of first time buyer house prices and incomes in each county which enable us to assess county-level housing affordability in Section 3.

2.1 County house prices

To assess the affordability challenges faced by first time buyers, we draw on both house price and income data at the county level. House price data were gathered from the Residential Property Price Index (RPPI) dataset which is compiled by the CSO.[5] The primary source for this dataset is stamp duty receipts which are provided by the Revenue Commissioners. The Index provides data on the average level of prices paid for residential properties in Ireland on a monthly basis. Crucially for this study, the RPPI contains additional indicators on household purchases, including household buyer type. This allows us to gather information about house prices specifically for first time buyers. The dataset also contains a regional dimension which allows us to observe the heterogeneity of these first time buyer house prices across each county in the State.

[5] The RPPI data exclude non-household purchases, non-market purchases and self-builds.

FIGURE 1 FIRST TIME BUYER MEAN HOUSE PRICE AND HOUSE PRICE GROWTH 2010-2018

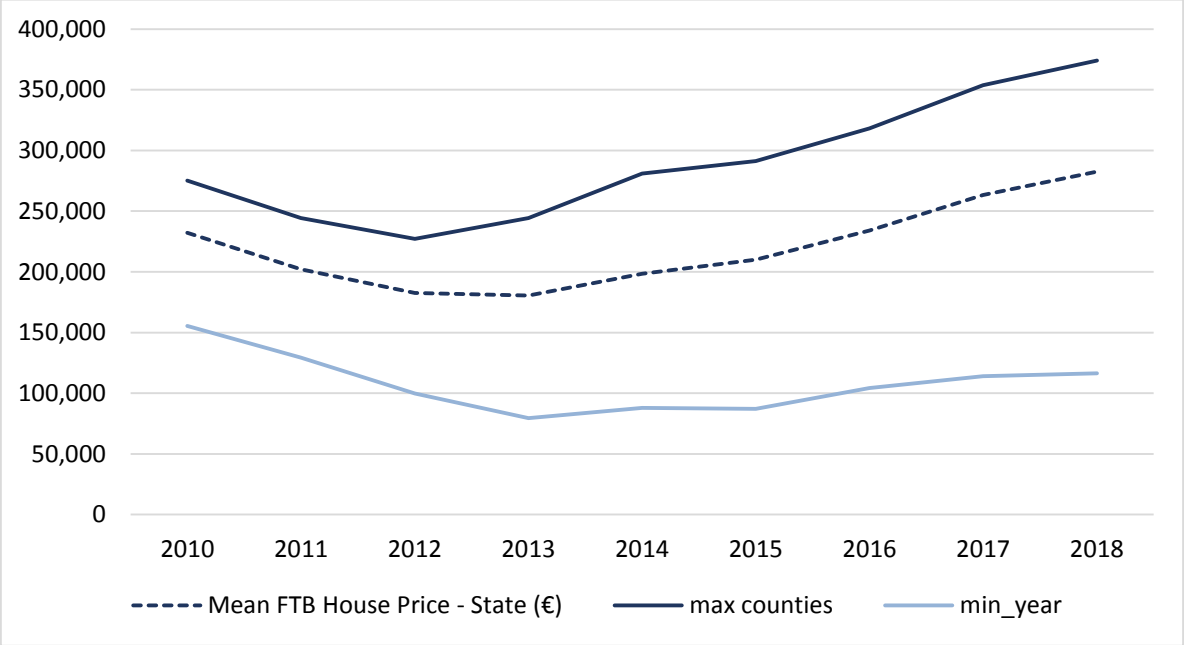


Source: Central Statistics Office.
Note: 2010 is the earliest year for which national house price data are available.

Figure 1 shows the national trend in first time buyer (FTB) house prices from 2010-2018. As illustrated by the dashed line, FTB house prices bottomed out in the country in 2013. Since then prices have risen year-on-year and in 2016 FTB house prices surpassed 2010 levels.

However, this national level trend gives no indication of the heterogeneity of house prices across the country. Figure 2 shows the distribution of FTB house prices looking at the county with the highest and lowest mean house price in each year. Unsurprisingly, Dublin had the highest mean house price in each year, while either Longford or Leitrim had the lowest mean house price in each year. FTB house prices in the lowest priced county are still a long way off the levels they had been in 2010 and have only seen a small recovery in prices from where they were in 2013. FTB house prices in Dublin, on the other hand, have seen strong growth in prices and actually started to recover earlier with prices bottoming out in 2012. In Dublin FTB house prices surpassed 2010 levels in 2014 and have continued to rise year-on-year ever since. Furthermore, in 2018 we observe that at just under €375,000, the mean FTB priced house in Dublin cost more than three times that of the mean FTB priced house in Longford (€116,000).

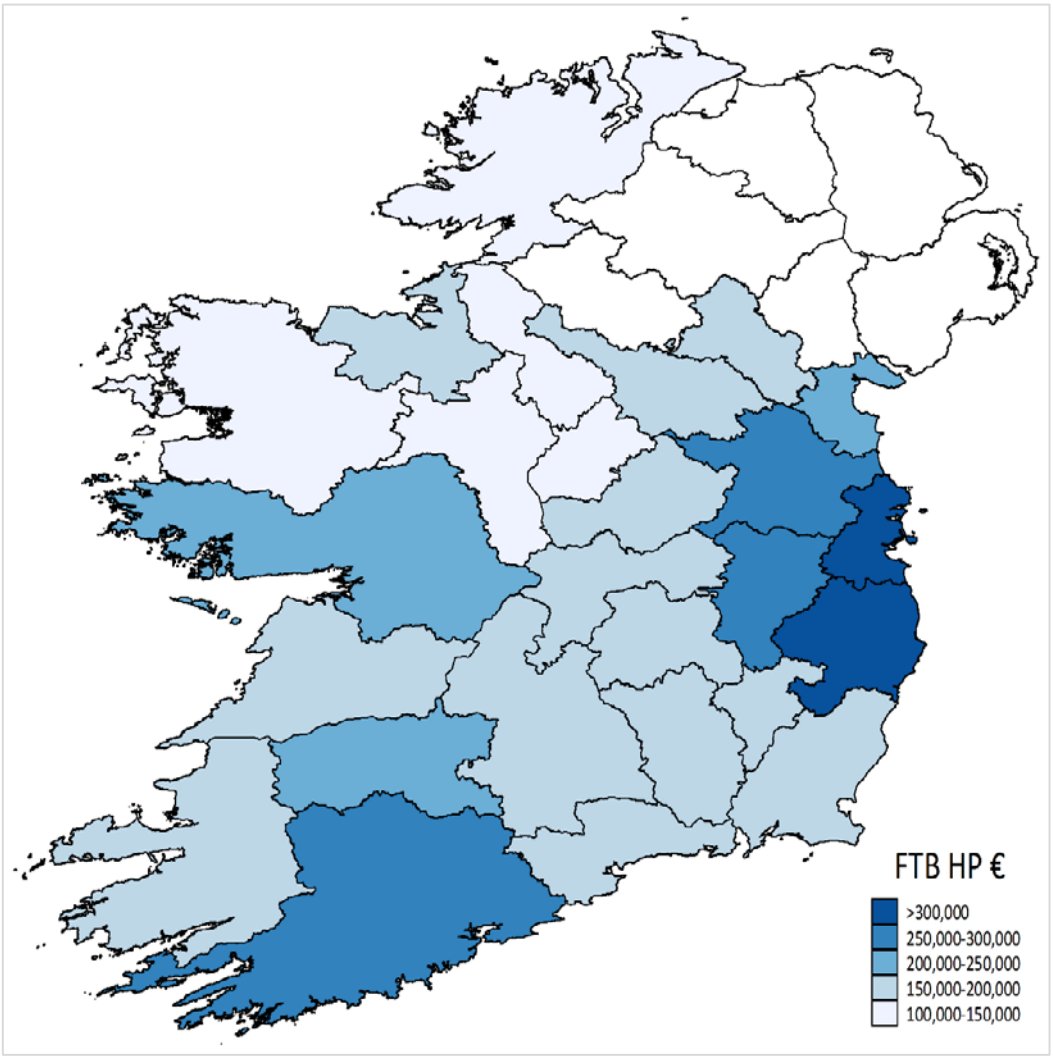
FIGURE 2 FIRST TIME BUYER MEAN HOUSE PRICE DISTRIBUTION 2010-2018



Source: Central Statistics Office.

To examine county-level heterogeneity more closely, in Table 1 we present the mean FTB house price and growth rate for each county in 2018. Only Dublin, Wicklow and Kildare are above the national FTB average of €283,000, while the mean FTB house prices remain below – and in many cases well below – €200,000 for 18 of the 26 counties. Figure 3 illustrates graphically this disparity in FTB house prices across the country. In addition to seeing the highest prices in Dublin and the Greater Dublin Area (GDA), the next highest priced counties are Cork, Galway, Limerick and Louth, while prices are lowest in the North-West of the country.

FIGURE 3 FIRST TIME BUYER MEAN HOUSE PRICE BY COUNTY 2018



Source: Central Statistics Office.

In terms of house price growth, from Table 1 we see that on average FTB house prices increased by 7.3 per cent between 2017 and 2018, a slowing of the 12.6 per cent growth seen between 2016 and 2017. Taking a longer-term perspective, we see that on average FTB house prices increased by 56.4 per cent over the period 2013-2018.[6] Higher than average growth over that period was observed in counties surrounding Dublin; Louth, Meath and Kildare, as well as in Cork, Laois, Monaghan, Waterford and Wexford.

[6] 2013 is used as this was the year in which the mean national first time buyer house price reached its nadir. However, it should be noted that the low point for house prices varies by county, with prices not bottoming out in some counties until 2015.

TABLE 1 FIRST TIME BUYER MEAN HOUSE PRICE AND HOUSE PRICE GROWTH BY COUNTY

County	Mean FTB HP 2018 (€)	FTB HP growth 2017-2018 (%)	FTP HP growth 2013-2018 (%)
All Counties	282,505	7.3	56.4
Carlow	182,957	10.2	52.6
Cavan	152,272	7.9	49.9
Clare	187,401	15.0	51.3
Cork	255,780	9.9	58.9
Donegal	134,344	0.8	34.0
Dublin	374,041	5.7	53.0
Galway	226,884	4.8	53.3
Kerry	180,137	2.1	31.8
Kildare	296,656	5.6	61.1
Kilkenny	191,497	11.5	38.8
Laois	182,600	17.5	71.8
Leitrim	119,725	2.3	46.3
Limerick	213,252	14.7	51.7
Longford	116,396	2.0	46.3
Louth	212,962	10.7	69.5
Mayo	149,949	3.4	26.5
Meath	275,356	7.9	66.6
Monaghan	168,591	6.5	56.6
Offaly	161,067	-1.0	45.4
Roscommon	133,498	10.5	36.6
Sligo	155,188	15.0	36.6
Tipperary	159,571	2.7	42.6
Waterford	187,474	5.0	64.7
Westmeath	178,721	11.1	55.4
Wexford	182,380	12.5	66.5
Wicklow	319,915	4.4	49.6

Source: CSO Table HPA02: Residential Dwelling Property Transactions by County, Dwelling Status, Stamp Duty Event, Type of Buyer, Type of Sale, Year and Statistic. Growth rates based on ESRI calculations.

2.2 County incomes

The most challenging aspect of assessing FTB housing affordability at a regional level is the lack of a suitable existing source of income data. In order to obtain a measure of first time buyer incomes, we combine data from two sources. First, we take the CSO per person disposable income excluding rent series 2000-2016.[7] As the most recent data available are for 2016, we use the annual growth in Average Hourly Earnings (McQuinn et al., 2019) to estimate income levels for 2017-2018. In order to account for regional variation in the growth rate of incomes, we use the data for 2000-2016 to create a compound average growth

[7] The exclusion of rental income is used as the county National Accounts include the rental income from landlords in the total income calculations. As we are attempting to gain information on first time buyers, we take the dataset which excludes the rental returns to landlords as this income should not accrue to non-homeowners.

rate for each county and then apply the relativities between this and the national annual growth from the QEC to create a regionally adjusted mean per person income for 2017-2018. As our focus in this Note is on first time buyers, we transform these per person figures into first time buyer couple household figures by multiplying them by 2.[8]

Second, we then exploit the Survey of Income and Living Conditions (SILC). SILC provides a detailed micro-level dataset of income and living conditions of households across Ireland and is conducted by the CSO on an annual basis. The advantage of using SILC is that it provides both income and age information for households. We proxy first time buyer incomes with the income of households aged 40 or under.[9] In order to ensure sufficient observations for each county, we pool the data for 2014-2016. This gives us a measure of mean income for households of all ages and for those aged 40 or less in each county. We then apply the ratio of the income of those aged 40 or less to all aged households' income from the SILC data to our adjusted CSO disposable income estimates to obtain an estimate of the mean annual first time buyer disposable income for each county. As the mean age of a first time buyer in 2018 in Ireland was 34[10] (Kinghan, 2018), we believe that adjusting the CSO per person disposable income levels by this age ratio from SILC provides a good proxy for potential first time buyer incomes.

In Figure 4 we plot the distribution of FTB couples' net after tax disposable incomes looking at the county with the highest and lowest mean income in each year. We see an increase in incomes from 2014 onwards, with the mean FTB couple's disposable income reaching approximately €43,250 in 2018. In addition, Dublin has had the highest mean income each year, reaching €48,900 in 2018, while Donegal consistently had the lowest income, reaching just under €33,900 in 2018. The mean FTB couple gross and disposable incomes for each county are reported in Table 2. In Figure 5 we present the mean FTB couple's income in 2018 graphically for each county. Figure 5 clearly shows that incomes are generally higher in the East and the South of the country.

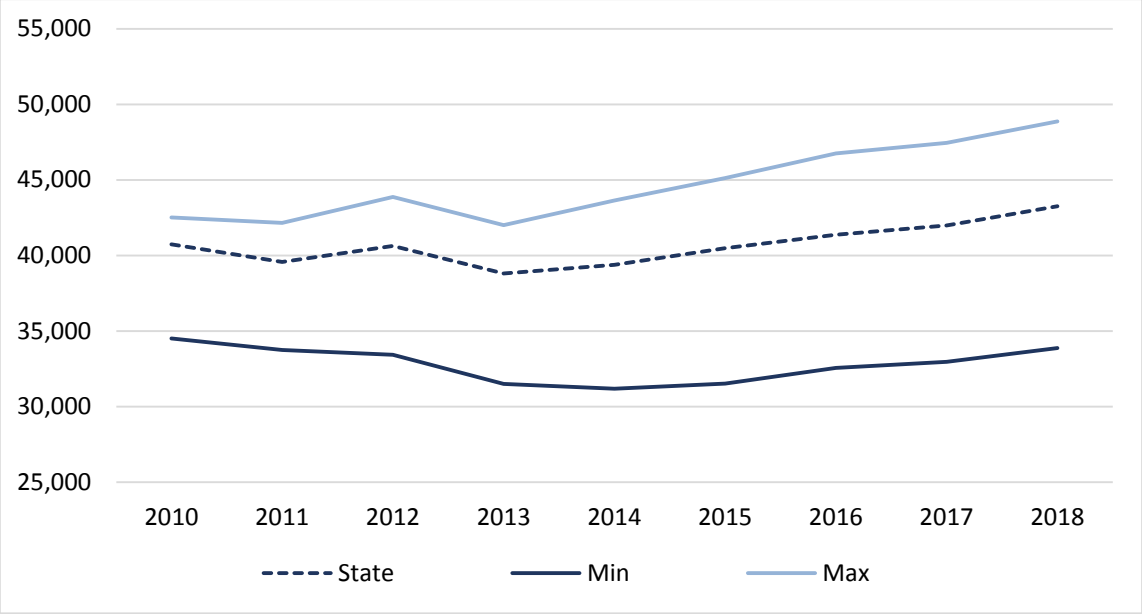
8 It should be noted that there may be regional variation in the proportion of potential FTB who are single. Regions in which there is a greater proportion of single FTB are likely to face greater affordability challenges relative to regions with a greater proportion of FTB couples.

9 We are unable to focus solely on private renters due to the insufficient number of observations for private renters at the county level in SILC.

10 While the average age of first time buyers is likely to vary on a regional basis, we have no data on this at a regional level so are unable to explore this further.

A direct comparison between our estimated potential first time buyer mean income figures and another source is not possible.[11] However, at this point it is useful to compare our estimates with the income levels of actual first time buyers accessing mortgage credit through the banking sector. New mortgage lending data from the Central Bank reports that the mean gross income of first time buyers in 2018 was €73,536.[12] This is considerably higher than our national level potential FTB estimated mean gross income for 2018 of €56,825 reported in Table 2. That our figure is considerably lower is unsurprising as currently those households who are able to obtain a mortgage are situated in higher parts of the income distribution. Indeed Lydon and McCann (2017) show that more than 90 per cent of first time buyer purchases in 2014 were to households in the top 60 per cent of the population income distribution. Our measure is instead a measure which estimates the mean income of younger households (aged less than 40); those who are potential homeowners rather than actual homeowners. The difference in these two figures highlights the difficulty that these young, potential first time buyers have in actually becoming homeowners.

FIGURE 4 POTENTIAL FIRST TIME BUYER MEAN DISPOSABLE INCOME BY COUNTY DISTRIBUTION 2010-2018



Source: Central Statistics Office.

11 As a very approximate comparison point we use CSO aggregate data on the average weekly household income by household composition and income decile which come originally from the Household Budget Survey 2015. This gives a national level mean annual disposable income of €44,148 for a two-adult household and a figure of €41,340 for the average of the 5th and 6th decile (as a proxy for the median) of the income distribution. Our 2015 calculated national disposable income level for a potential first time buyer couple of €41,038 therefore seems reasonable.

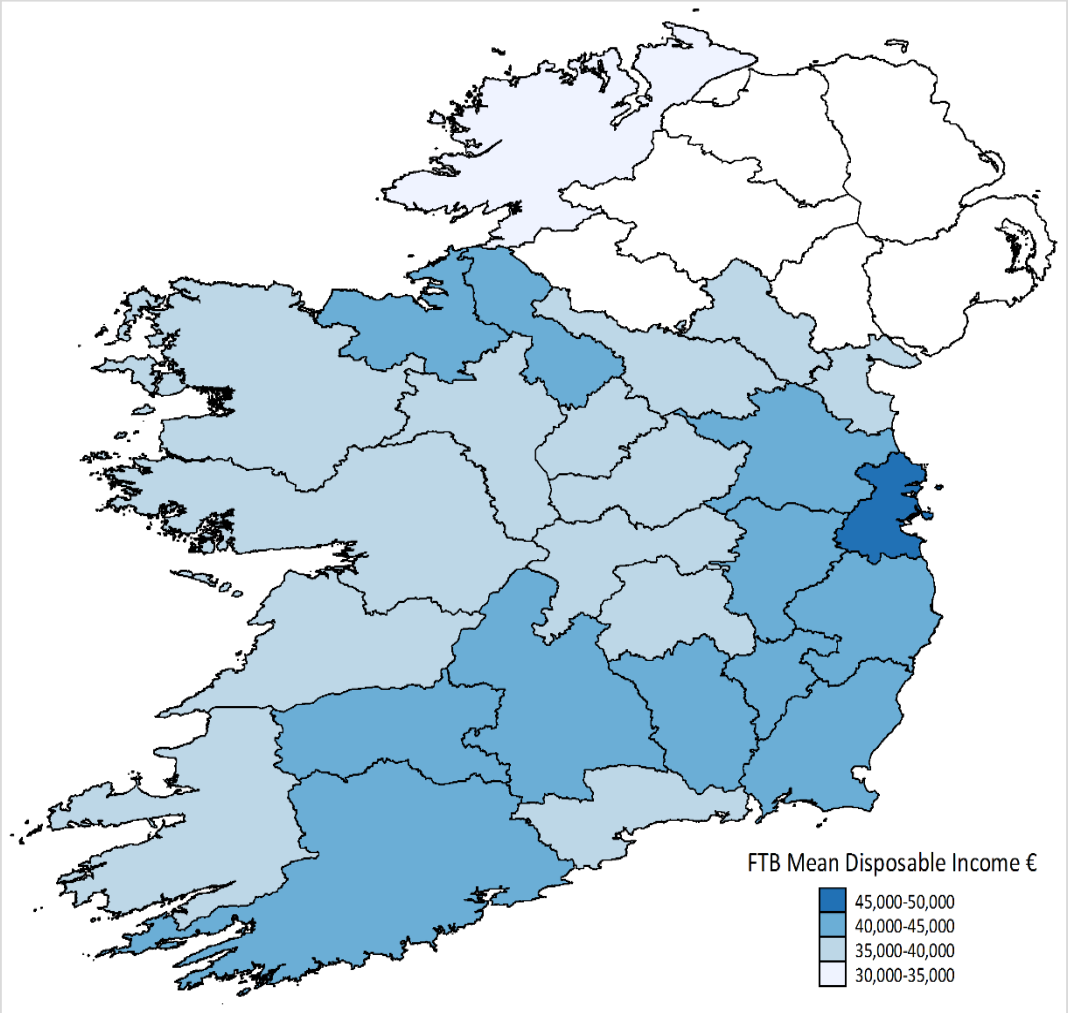
12 See Central Bank of Ireland, New Mortgage Lending Data 2018.

TABLE 2 MEAN GROSS AND DISPOSABLE INCOME OF POTENTIAL FIRST TIME BUYER COUPLE BY COUNTY 2018

County	Mean Gross Income (€)	Mean Disposable Income (€)
All Counties	56,825	43,256
Carlow	53,986	42,713
Cavan	49,374	39,064
Clare	48,307	38,220
Cork	56,596	43,191
Donegal	42,825	33,882
Dublin	66,922	48,867
Galway	47,182	36,712
Kerry	50,264	39,769
Kildare	56,324	42,122
Kilkenny	51,239	40,540
Laois	47,783	37,806
Leitrim	51,344	40,623
Limerick	53,548	42,366
Longford	47,645	37,696
Louth	48,700	38,531
Mayo	47,114	37,276
Meath	53,513	40,020
Monaghan	47,929	37,921
Offaly	45,811	36,245
Roscommon	45,717	36,171
Sligo	52,310	41,387
Tipperary	53,967	42,698
Waterford	49,435	39,112
Westmeath	49,496	39,161
Wexford	51,147	40,467
Wicklow	54,178	40,517

Source: Central Statistics Office.

FIGURE 5 POTENTIAL FIRST TIME BUYER MEAN DISPOSABLE INCOMES BY COUNTY 2018



Source: Authors' calculations based on data from Central Statistics Office and Survey of Income and Living Conditions.

3. HOUSING AFFORDABILITY

In order to examine how affordable the mean FTB priced house would be for a couple on the mean FTB income, we follow the approach discussed in Corrigan et al. (2019). To do this we calculate what the monthly payment would be on a mortgage if these households were to purchase the mean FTB priced house in each county. To calculate the payment, we use the following amortisation formula:

$$Payment_{it} = LTV_{it} * HP_{ct} * \left(\frac{r(1+r)^{\tau}}{((1+r)^{\tau}) - 1} \right)$$

As first time buyers, these households would face the maximum loan-to-value ratio (LTV) of 90 per cent, allowed by the Central Bank's macroprudential mortgage rules. We take the average new business rate for household loans (3.02 per cent in 2018) from the Central Bank as the interest rate and use a standard 30-year term mortgage which is the most prevalent duration in the

market at present for first time buyers. Using this payment, we then calculate a mortgage repayment-to-income ratio (MRTI) for these households to test how affordable or not the market would be if they were to enter the mortgaged-owner segment at the mean FTB house price. It must be noted that our assessment of repayment to income is not conducted from the lens of mortgage credit access. Borrowers would face higher interest rate stress tests when banks are looking at their affordability from a lending and viability perspective.

In Table 3 we present these hypothetical monthly repayments and MRTIs for each county, without taking into account whether it would indeed be possible to achieve a mortgage under the current credit market conditions. Table 3 shows that FTB households in Dublin, as well as the surrounding commuter counties of Wicklow, Meath and Kildare would have to pay more than 30 per cent of their monthly income on their mortgage instalments.[13] In Wicklow and Dublin, the MRTI is greater than or equal to 35 per cent, which is a commonly used benchmark in Irish policy on affordable housing. In Galway and Cork the figures are 28 and 27 per cent respectively. In contrast, in many of the more northern and western counties, households would pay less than 20 per cent of their incomes on these mortgage instalments. These instalments would exceed €1,000 per month in Dublin, Wicklow, Meath and Kildare, with the mean payment in Cork just falling short of €1,000 per month.

[13] 30 per cent is used as a simple benchmark measure, one that is commonly used in the international housing affordability literature; it should not be seen as an absolute affordability cut-off. At the household level, Corrigan et al. (forthcoming) highlight the importance of a measure of affordability which combines both housing costs and income. As our focus in this Note is specifically on whether the mean potential FTB income would allow the purchase of the mean FTB priced house, we believe that this simple 30 per cent measure provides a useful guide to affordability.

TABLE 3 MEAN FIRST TIME BUYER MONTHLY MORTGAGE PAYMENT AND MORTGAGE REPAYMENT-TO-INCOME RATIOS BY COUNTY 2018

County	Payment (€)	MRTI		County	Payment (€)	MRTI
Carlow	696	0.20		**Longford**	443	0.14
Cavan	579	0.18		**Louth**	810	0.25
Clare	713	0.22		**Mayo**	570	0.18
Cork	973	0.27		**Meath**	1,048	0.31
Donegal	511	0.18		**Monaghan**	641	0.20
Dublin	1,423	0.35		**Offaly**	613	0.20
Galway	863	0.28		**Roscommon**	508	0.17
Kerry	685	0.21		**Sligo**	590	0.17
Kildare	1,129	0.32		**Tipperary**	607	0.17
Kilkenny	728	0.22		**Waterford**	713	0.22
Laois	695	0.22		**Westmeath**	680	0.21
Leitrim	455	0.13		**Wexford**	694	0.21
Limerick	811	0.23		**Wicklow**	1,217	0.36

Source: Authors' calculations based on data from Central Statistics Office, Central Bank of Ireland and Survey of Income and Living Conditions.

In Figure 6 we present the MRTI for each county for 2016-2018 separately. Despite interest rates declining and income in each county increasing over this period, the MRTI ratio is shown to be increasing across a large range of counties. This is due to the rate of growth in house prices outstripping income growth over this period. The three maps reinforce the message from Table 3 that first time buyer affordability concerns are particularly concentrated in Dublin and the Greater Dublin Area (GDA). Furthermore, these maps illustrate how the MRTI has risen in a short space of time in certain areas. In particular between 2016 and 2017 the MRTI rose above 30 per cent in Kildare and Meath. The MRTI also rose above 20 per cent in Kerry, Clare, Limerick, Waterford, Laois, Westmeath and Offaly, while in 2018 the MRTI rose above 25 per cent in Louth. It is important to note that counties still represent a fairly large geographical area. For instance differences are likely between the urban area of Galway city and the more rural remainder of Galway county, and similarly for Cork. We address this in Section 5. There may also be other, smaller pockets of affordability challenges that we are unable to capture in this county-level analysis. One other point to note is that our analysis only focuses on a dual-earning couple. For single income households, the affordability challenges would be even more acute in those areas where prices are relatively high.

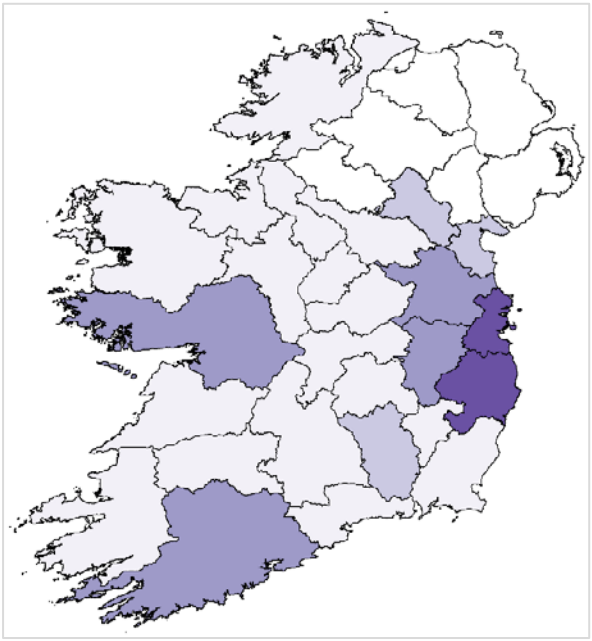
In this analysis, we have not explored the feasibility of borrowing by the illustrative households. To successfully obtain a mortgage, such households would have to comply with both bank-specific underwriting standards (such as on affordability, income verification etc.) and regulations governing mortgage market activity in Ireland, in particular the macroprudential regulations which are critically important for financial stability. In some of the areas where we find high repayment-to-income levels (in particular Dublin and the surrounding counties), the implied loan-to-income ratio would likely be

above the limit allowable without exemption from the current regulations. Such households would have to purchase a house at a lower price than the average to meet current borrowing limits.

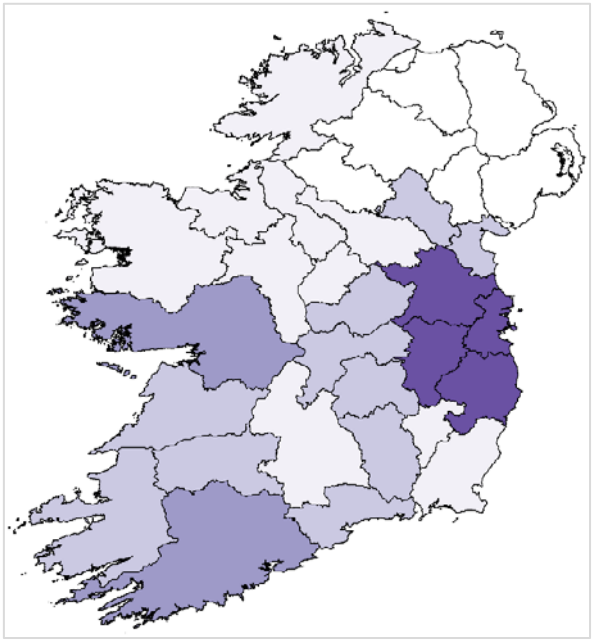
This last point above points to a limitation with the current methodology that should be noted. By taking the mean house price for first time buyers and matching this to the mean income for potential first time buyers, we may overstate the affordability challenge facing such households. This is due to the fact that the average price facing potential FTBs at present is determined by the income levels of those FTBs who were able to purchase and whose income exceeds the average potential FTB income by some margin (Lydon and McCann, 2017). A potential FTB with the mean income can alternatively purchase a house with a price below that of the mean FTB house. If this is the case, then affordability would likely improve for this buyer as the house price would be lower. A fuller analysis which accounts for the differences across the price distribution is worthy of future research.

FIGURE 6 FIRST TIME BUYER MEAN MORTGAGE REPAYMENT-TO-INCOME RATIO 2016-2018

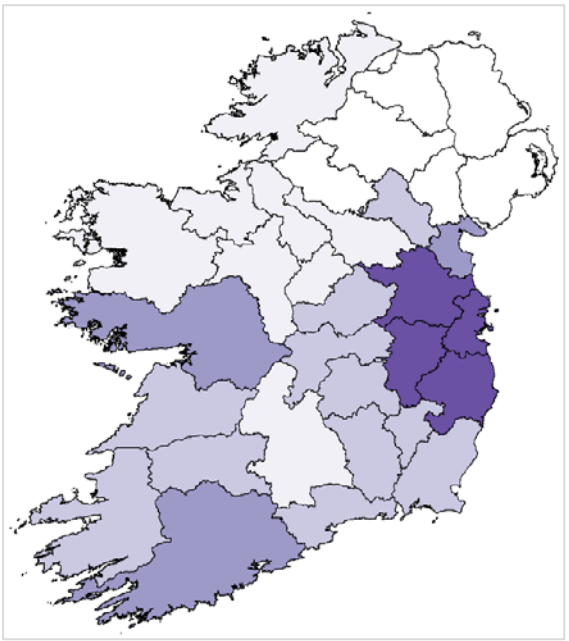
(a) 2016



(b) 2017



(c) 2018



Source: Authors' calculations based on data from Central Statistics Office, Central Bank of Ireland and Survey of Income and Living Conditions.

4. RESIDUAL INCOME

The analysis in Section 3 focused on the proportion of income spent on mortgage instalments as a measure of affordability. An alternative measure of affordability is to examine whether the residual income that remains after paying this mortgage instalment is sufficient to ensure some minimum level of consumption.

To explore this, we take the Minimum Essential Standard of Living (MESL) income for a childless working age couple defined by the Vincentian Partnership for Social Justice.[14] They produce separate household budget expenditures for rural and urban areas on an annual basis. Based on whether it is possible to live in an area without car ownership, we classify all counties as rural except for Dublin.[15] It is important to note that any measure of the minimum level of required income is somewhat subjective.

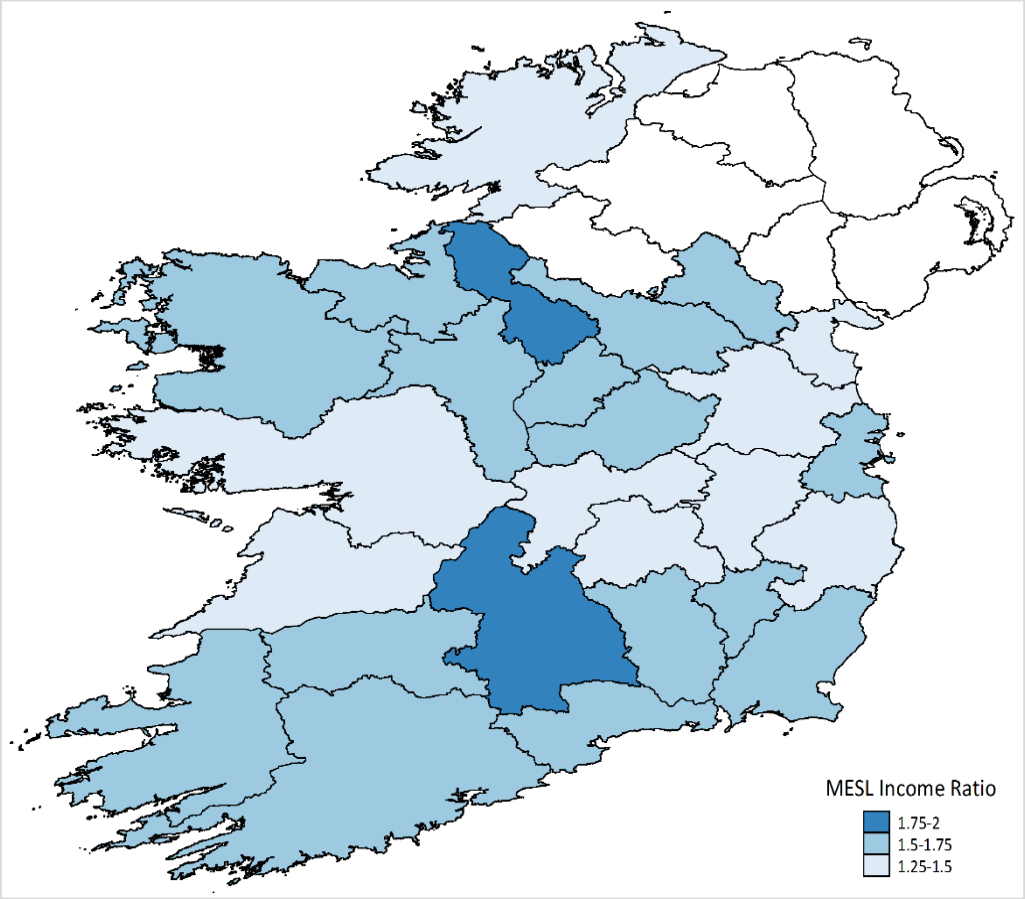
In Figure 7 we map the ratio of residual income to MESL income as an alternative indicator of homeownership affordability for a first time buyer couple.[16] The first thing to note is that this ratio is greater than 1 in all counties. This indicates that a first time buyer couple on the mean income buying the mean FTB priced house will have sufficient income left over after paying their mortgage instalments to attain at least a minimum level of consumption. However, it must be noted that we conduct this analysis of residual income based on the household expenditure of a working age childless couple. Inevitably some of these young couples will wish to start a family and this analysis would not take these increased expenses of children and childcare costs into account. Furthermore, while a ratio of 1.25-1.5 would enable a couple to attain a minimum level of consumption, it would not leave them with a significant amount of residual income. In terms of the variation across the country, the lowest ratios are observed in Galway, Clare, Donegal, Offaly, Laois and Louth as well as in the GDA counties of Wicklow, Kildare and Meath. However, though they share a similar low ratio of residual income to MESL, the reasoning behind the low ratio varies by county. For example in Donegal the ratio is low due to relatively low income in that county while in the GDA the ratio is low due to the relatively high price of housing.

[14] The Minimum Essential Standard of Living (MESL) income measure includes spending on the following items: food, clothing, personal care, healthcare, household goods, household services, communications, social inclusion, education, transport, household energy, personal costs, insurance, savings and contingencies. This measure excludes childcare and the effects of secondary benefits.

[15] In practice the differences between these rural and urban series for a couple without children are relatively small and make little difference to our estimates.

[16] As the purpose of this paper is to assess affordability for a first time buyer couple, the MESL we use for this exercise is for a couple without any children. As the number of children within a family increases, the MESL for that family will also increase, leading to a decrease in the income to MESL ratio. The ratios that we present can therefore be thought of as base cases that will likely deteriorate the more dependants there are in a family.

FIGURE 7 RATIO OF RESIDUAL INCOME-TO-MINIMUM ESSENTIAL STANDARD OF LIVING INCOME BY COUNTY 2018



Source: Authors' calculations based on data from Central Statistics Office, Central Bank of Ireland, Survey of Income and Living Conditions and Vincentian Partnership.

5. A FOCUS ON THE URBAN CENTRES

In Section 3 we noted that counties still represent a fairly large geographical area. As previously discussed, differences are likely between the urban area of Galway City and the more rural remainder of Galway County, and similarly for Cork. Given the already substantial challenges of obtaining data which permit analysis of housing affordability at the county level, analysis at a more granular regional level is not possible for much of the country. Nevertheless, in this section we do provide a more granular regional analysis for Dublin, Cork and Galway. Specifically, we split Dublin into its four local authorities, namely Dublin City, South Dublin, Fingal and Dún Laoghaire-Rathdown, and we separate Cork and Galway into City (urban) and County (rural).

From Table 4 it is evident that there are significant differences in the price of FTB houses between different areas in the same counties. In Dublin, Dún Laoghaire-Rathdown had by far the highest mean FTB house price of €520,000 which was 57 per cent greater than Fingal, the lowest priced area in the capital. In Galway

there was a significant difference in price between Galway City and Galway County (rural) of €54,000. This urban rural gap is smaller in Cork where mean house prices in Cork City are roughly €15,000 higher than in the county (rural).

TABLE 4 FIRST TIME BUYER MEAN HOUSE PRICE AND HOUSE PRICE GROWTH BY AREA 2018

Area	Mean FTB HP (€)	FTB HP growth 2017-2018 (%)	FTB HP growth 2013-2018 (%)
Dublin City	382,344	8.8	68.4
South Dublin	339,445	5.2	56.9
Fingal	330,640	6.3	53.7
Dún Laoghaire-Rathdown	519,767	6.4	41.1
Cork County	252,990	8.3	55.7
Cork City	268,139	16.8	72.6
Galway County	208,589	7.8	53.7
Galway City	262,638	4.3	52.9

Source: CSO Table HPA03: Market-based Household Purchases of Residential Dwellings by Dwelling Status, Stamp Duty Event, RPPI Region, Type of Buyer, Year and Statistic. Growth rates based on ESRI calculations.

In Table 5 we present both gross and disposable potential FTB incomes by within county area. As with house prices, Dún Laoghaire-Rathdown has by far the highest income in Dublin, with a mean gross income of more than €12,000 more than in Dublin City. Incomes are higher in Cork County than City, but the opposite is true for Galway with higher incomes in the city area. This highlights the fact that housing affordability is likely to be more nuanced than a simple rural/urban divide.

TABLE 5 MEAN GROSS AND DISPOSABLE INCOME OF POTENTIAL FIRST TIME BUYER COUPLE BY AREA 2018

Area	Mean Gross Income 2018 (€)	Mean Disposable Income 2018 (€)
Dublin City	60,158	43,928
South Dublin	63,425	46,313
Fingal	73,103	53,380
Dún Laoghaire-Rathdown	77,162	56,344
Cork County	58,137	44,367
Cork City	49,120	37,487
Galway County	43,112	33,545
Galway City	58,665	45,647

Source: ESRI calculations based on CSO disposable income per person excluding rent, gross income per person and SILC data.
Note: Incomes are calculated using the method discussed in Section 2.2. We use the relativities between income levels for these areas in SILC to obtain estimates for these within county areas based on the CSO data.

In Table 6 we present the hypothetical mean monthly mortgage instalment, MRTI and the MESL residual income ratio for each area. We observe substantial

variation in MRTI ratios across Dublin, ranging from 28 per cent in Fingal up to 42 per cent in Dún Laoghaire-Rathdown, with the most central area of Dublin City not far behind at 40 per cent. In Cork there is a substantially higher MRTI of 33 per cent in the city area compared to 26 per cent in the county. In Galway the difference is much smaller, with a slightly higher MRTI of 28 per cent in the county compared to 26 per cent in the city, likely driven by the substantially lower levels of income observed in Galway County.

TABLE 6 MEAN FIRST TIME BUYER MORTGAGE REPAYMENT, MRTI, AND MESL INCOME RATIOS BY AREA 2018

Area	Payment (€)	MRTI	MESL Income Ratio
Dublin City	1,454	0.40	1.38
South Dublin	1,291	0.33	1.61
Fingal	1,258	0.28	2.00
Dún Laoghaire-Rathdown	1,977	0.42	1.70
Cork County	962	0.26	1.64
Cork City	1,020	0.33	1.32
Galway County	794	0.28	1.20
Galway City	999	0.26	1.76

Source: Authors' calculations based on data from Central Statistics Office, Central Bank of Ireland, Survey of Income and Living Conditions and Vincentian Partnership.

6. CONCLUSION

In this *Research Note* we provide an examination of housing affordability for potential first time buyers at the county level in Ireland. More specifically, we calculate the mortgage payment and subsequent mortgage repayment-to-income ratio they would face if they were to purchase a property at the mean first time buyer price in each county.

We find that the proportion of income potential first time buyers would have to spend on mortgage repayments increased between 2016 and 2018. In 2018 these potential first time buyers would have faced a mortgage repayment-to-income ratio of more than 30 per cent in Dublin, Wicklow, Kildare and Meath, while in 11 of the 26 counties this ratio remained at or below 20 per cent In terms of residual income. We show that a first time buyer couple on the mean income buying the mean FTB priced house will have sufficient income left over after paying their mortgage instalments to attain at least a minimum level of consumption in all counties.

In this Note our analysis only focuses on a dual-earning couple who earn the mean first time buyer income, attempting to buy the mean first time buyer priced

house in each county. The affordability challenges for potential first time buyers at the lower end of the income distribution will be even greater, particularly in the Dublin, GDA, Cork and Galway areas. In areas where those earning the mean income are unable to borrow at a 90 per cent LTV and meet the LTI limits, they are likely to purchase houses at the lower end of the house price distribution. This may represent a further challenge to lower-income potential homeowners. The affordability challenges faced by single earner households will also be greater than for dual-earner households. An examination of this is outside the scope of this study. Further research could also explore the rent-to-income ratio and undertake a deeper dive of affordability trends in the private rental market at a county level.

Several subsidy schemes for FTBs have been introduced in recent years, such as the Help to Buy incentive and the Rebuilding Ireland Home Loan. However, these instruments must be complemented by the expansion of the housing stock and the provision of alternative rental models.

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