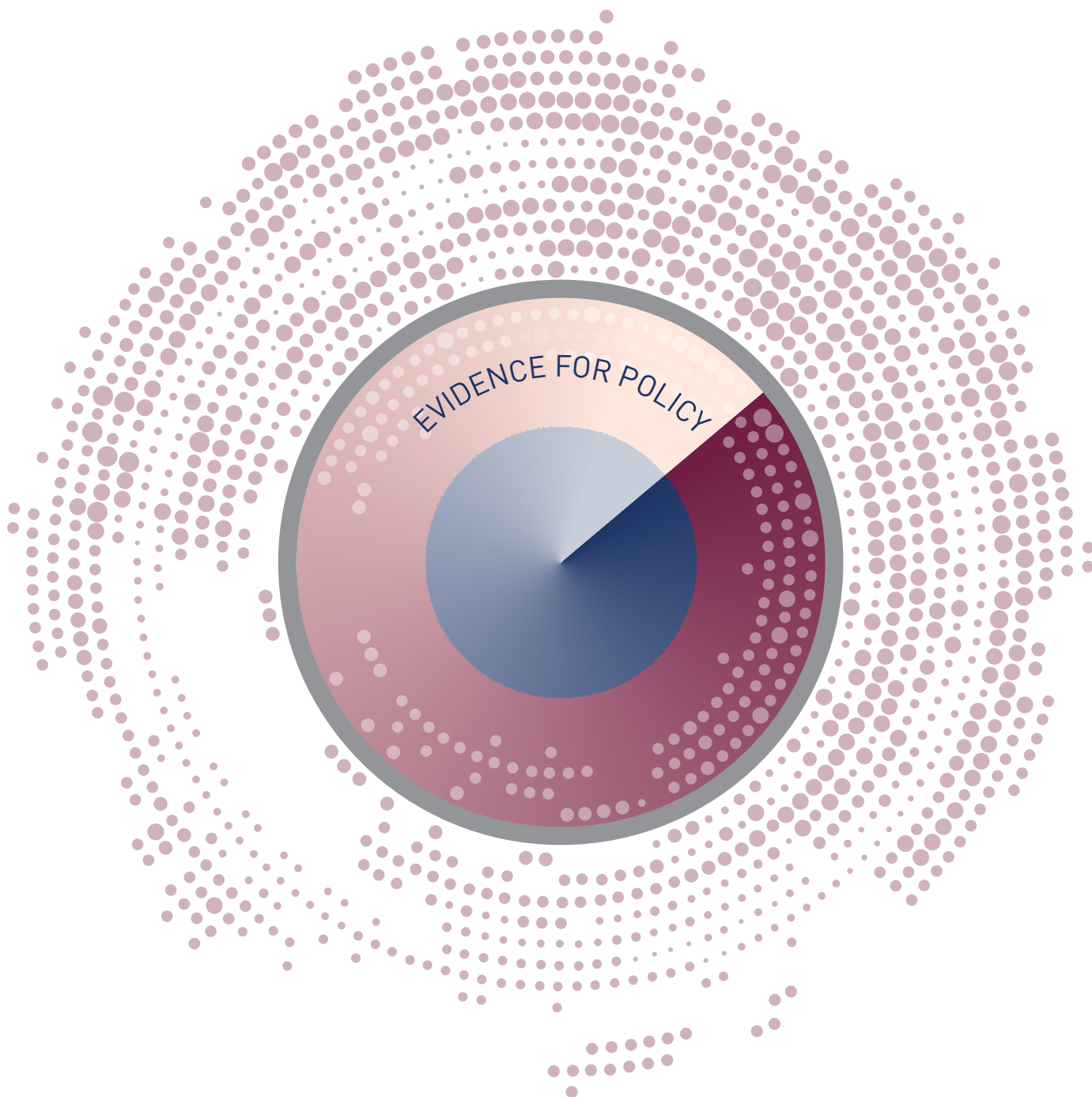


MACRO
ECONOMIC
FORECASTING
Summer 2017

QUARTERLY ECONOMIC COMMENTARY

SUMMER 2017

KIERAN MCQUINN, DANIEL FOLEY, CONOR O'TOOLE



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Kieran McQuinn

Daniel Foley

Conor O'Toole

Summer 2017

The forecasts in this *Commentary* are based on data available by 9 June 2017

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

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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Re-evaluating Irish energy policy in light of Brexit

M. Á. Lynch

SUMMARY TABLE

	2014	2015	2016	2017	2018
Output (Real Annual Growth %)					
Private Consumer Expenditure	1.7	4.5	3.0	3.1	3.0
Public Net Current Expenditure	5.4	1.2	5.3	2.5	2.6
Investment	18.2	32.7	45.5	9.6	8.7
Exports	14.4	34.4	2.4	5.9	5.6
Imports	15.3	21.7	10.3	7.6	7.7
Gross Domestic Product (GDP)	8.5	26.3	5.2	3.8	3.6
Gross National Product (GNP)	9.2	18.7	9.0	3.5	3.3
Prices (Annual Growth %)					
Consumer Price Index (CPI)	0.2	-0.3	0.0	0.6	1.1
Growth in Average Hourly Earnings	1.6	2.9	2.3	2.5	2.5
Labour Market					
Employment Levels (ILO basis ('000))	1,914	1,964	2,020	2,087	2,134
Unemployment Levels (ILO basis ('000))	243	204	172	136	121
Unemployment Rate (as % of Labour Force)	11.3	9.4	7.9	6.1	5.4
Public Finance					
General Government Balance (€bn)	-7.2	-5.0	-1.5	-1.4	-0.8
General Government Balance (% of GDP)	-3.7	-2.0	-0.6	-0.5	-0.3
General Government Debt, % of GDP	105.2	78.7	75.4	70.6	66.9
Balance of Payments Current Account (€bn)	3.2	26.2	12.5	7.4	2.2
Current Account (% of GNP)	2.0	12.9	10.5	4.1	2.3

Note: Detailed forecast tables are contained in an Appendix to this *Commentary*.

NATIONAL ACCOUNTS 2016

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2015	2016	Change in 2016		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	92.4	96.1	4.0	1.0	3.0
Public Net Current Expenditure	27.0	28.0	3.7	-1.5	5.3
Gross Fixed Capital Formation	54.1	80.8	49.3	2.6	45.5
Exports of Goods and Services	317.2	318.5	0.4	-1.9	2.4
Physical Changes in Stocks	1.3	1.0			
Final Demand	492.0	524.4	6.6	-0.9	7.6
less:					
Imports of Goods and Services	236.0	256.0	8.5	-1.6	10.3
Statistical Discrepancy	-0.2	0.0			
GDP at Market Prices	255.8	268.3	4.9	-0.3	5.2
Net Factor Payments	-53.2	-41.8			
GNP at Market Prices	202.6	226.6	11.8	2.6	9.0

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2015	2016	Change in 2016	
	€ bn	€ bn	€ bn	%
Agriculture	3.3	3.4	0.1	2.5
Non-Agriculture: Wages, etc.	77.6	81.7	4.1	5.3
Other	94.1	97.0	2.8	3.0
Adjustments: Stock Appreciation	0.2	0.2		
Statistical Discrepancy	0.2	0.0	-0.1	-93.5
Net Domestic Product	175.5	182.3	6.8	3.9
Net Factor Payments	-53.2	-41.8	11.4	-21.4
National Income	122.3	140.5	18.2	14.9
Depreciation	61.6	66.3	4.8	7.7
GNP at Factor Cost	183.9	206.8	23.0	12.5
Taxes less Subsidies	18.8	19.7	0.9	5.0
GNP at Market Prices	202.6	226.6	23.9	11.8

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2015	2016	Change in 2016
	€ bn	€ bn	€ bn
X – M	81.2	62.5	-18.7
F	-53.2	-47.4	5.8
Net Transfers	-3.1	-2.7	0.4
Balance on Current Account	24.9	12.4	-12.5
as % of GNP	12.3	5.6	-5.7

NATIONAL ACCOUNTS 2017

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2016	2017	Change in 2017		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	96.1	100.1	4.1	1.0	3.1
Public Net Current Expenditure	27.6	28.8	4.4	1.9	2.5
Gross Fixed Capital Formation	80.8	90.9	12.6	2.8	9.5
Exports of Goods and Services	318.5	346.4	8.7	2.7	5.9
Physical Changes in Stocks	1.0	2.0			
Final Demand	524.0	568.1	8.4	2.6	5.7
less:					
Imports of Goods and Services	256.0	284.7	11.2	3.3	7.6
Statistical Discrepancy	0.01	0.0			
GDP at Market Prices	268.0	283.4	5.8	1.9	3.8
Net Factor Payments	-47.4	-51.6			
GNP at Market Prices	220.6	231.8	5.1	1.6	3.5

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2016	2017	Change in 2017	
	€ bn	€ bn	€ bn	%
Agriculture	3.4	3.5	0.1	3.0
Non-Agriculture: Wages, etc.	81.7	86.8	5.1	6.3
Other	97.0	101.3	4.7	4.8
Adjustments: Stock Appreciation	0.2	0.2		
Statistical Discrepancy	0.0	0.0	0.0	0.0
Net Domestic Product	182.0	191.8	9.9	5.4
Net Factor Payments	-47.4	-51.6	-4.2	8.8
National Income	134.5	140.2	5.7	4.2
Depreciation	66.3	71.1	4.8	7.2
GNP at Factor Cost	200.8	211.3	10.5	5.2
Taxes less Subsidies	19.7	20.5	0.8	4.0
GNP at Market Prices	220.6	231.8	11.3	5.1

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2016	2017	Change in 2017
	€ bn	€ bn	€ bn
X – M	62.5	61.7	-0.9
F	-47.4	-51.6	-4.2
Net Transfers	-2.7	-2.7	0.0
Balance on Current Account	12.4	7.4	-5.0
as % of GNP	5.6	3.2	-2.2

NATIONAL ACCOUNTS 2018

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2017	2018	Change in 2018		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	100.1	105.1	4.0	1.0	3.0
Public Net Current Expenditure	28.8	30.1	4.4	1.7	2.6
Gross Fixed Capital Formation	90.9	102.5	12.7	3.7	8.7
Exports of Goods and Services	346.4	375.7	8.5	2.7	5.6
Physical Changes in Stocks	2.0	3.0			
Final Demand	568.1	615.4	8.3	2.5	5.7
less:					
Imports of Goods and Services	284.7	316.8	11.3	3.3	7.7
Statistical Discrepancy	0.0	0.0			
GDP at Market Prices	283.4	298.6			
Net Factor Payments	-51.6	-53.8			
GNP at Market Prices	231.8	244.7	5.6	2.1	3.4

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2017	2018	Change in 2018	
	€ bn	€ bn	€ bn	%
Agriculture	3.5	3.6	0.1	2.5
Non-Agriculture: Wages, etc.	86.8	91.1	4.3	4.9
Other	101.3	109.1	7.8	7.7
Adjustments: Stock Appreciation	0.2	0.2		
Statistical Discrepancy	0.0	0.0	0.0	
Net Domestic Product	191.8	204.1	12.2	6.4
Net Factor Payments	-51.6	-53.8	-2.2	4.3
National Income	140.2	150.2	10.0	7.1
Depreciation	71.1	73.6	2.5	3.6
GNP at Factor Cost	211.3	223.9	12.5	5.9
Taxes less Subsidies	20.5	20.9	0.4	1.8
GNP at Market Prices	231.8	244.7	12.9	5.6

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2017	2018	Change in 2018
	€ bn	€ bn	€ bn
X – M	61.7	58.9	-2.7
F	-51.6	-53.8	-2.2
Net Transfers	-2.7	-2.7	0.0
Balance on Current Account	7.4	2.4	-5.0
as % of GNP	3.2	1.0	-2.0

The Irish Economy – Forecast Overview

2017 has seen certain countervailing trends emerge as to the overall performance of the Irish economy. On the positive side, labour market data illustrate that the pace of employment creation and subsequent reduction in unemployment increased in the present year. In the previous *Commentary*, we had believed the Irish economy would experience an unemployment rate of just under 5.5 per cent by the end of 2018, we now believe this will happen earlier in that year. While most sectors of the economy are experiencing employment growth, the construction sector, along with the information and communications sector, registers the largest recent increase.

Less encouragingly, the state of the public finances and the performance of different taxation headings in particular have been significantly less robust in the present year. Apart from VAT receipts, most other tax headings either display weak growth or substantial declines; excise duty, capital gains and capital acquisitions receipts have all shown double digit declines with respect to the same time last year. Surprisingly, given the strength of the labour market, associated taxation items such as income tax and PRSI receipts are both experiencing weaker than expected increases.¹

The reduction in taxation receipts from revised forecasts now suggests that the general government balance will be larger than had been expected at the start of the year; we now believe there will be a deficit in 2017 of -0.5 per cent of GDP, compared with -0.1 per cent in the previous *Commentary*. This suggests that the budgetary strategy for 2018 needs to be more cautious than had been originally intended.

Overall, on the basis of these trends, we have left our forecasts for GDP unchanged at 3.8 per cent for 2017 and 3.6 per cent in 2018.

The need for caution on the public finances is reinforced by the results of analysis presented in the *Commentary* using the new structural model of the Irish economy (COSMO). The analysis uses the model to examine the impact on Irish potential output of different Brexit possibilities. The results indicate that a ‘hard’ Brexit would reduce Irish potential output by more than 3 per cent over the medium term. While this has a number of important policy implications, it has

¹ ‘Expected’ in the sense of previous *QEC* forecasts.

specific relevance for the public finances as it is central to the expenditure rule in the Stability and Growth Pact (SGP). It essentially means that there will be less fiscal space available to the Government than would otherwise be the case. Our estimates indicate that that the fiscal space available could be reduced by over half a billion Euro for the first three years of a 'Hard Brexit'.

More generally, the *Commentary* presents several summary statistics illustrating the greater concentration of the Irish taxation base since 2008. As taxation receipts have come from the more stable source of income tax, this has come at the expense of an increasingly concentrated taxation base. A more balanced combination of different taxation items is optimal as it improves revenue stability, particularly, in the face of economic volatility.

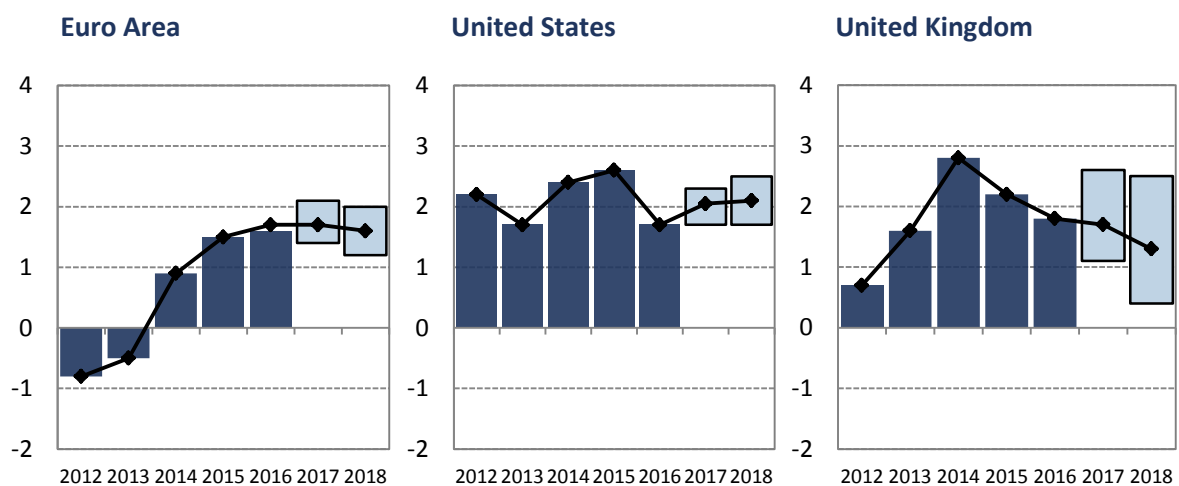
The issue of Brexit also arises in the context of a special article to the present *Commentary*. Lynch explores the issue of 'Brexit-proofing' policy in the energy and climate areas. The paper notes that while Brexit does raise pertinent issues for domestic climate policy, policymakers need to retain their focus on other key issues such as competitiveness, carbon pricing, taxation and infrastructure.

The International Economy

Global economic activity is expected to gain momentum in 2017 and 2018 according to consensus forecasts. In particular a variety of soft as well as hard data indicate a pickup in growth in the Euro Area in 2017. Growth in Q1 2017 came in above the expectations of consensus forecasts at 0.6 per cent. Most recent quarterly data from the US indicate that in Q1, GDP grew by 0.3 per cent, a slowdown compared to previous quarters. The outlook continues to remain positive however, as a labour market heading towards full employment is expected to support consumption over the next two years. On the other hand, the UK economy is, potentially, starting to show signs of the impact of Brexit, with annual growth in the first quarter of the year slowing to 0.2 per cent.

Figure 1 shows the forecasts for GDP growth by some of the major institutions in the respective economies. The outlook overall continues to remain positive over the next two years. The wide bands around the UK forecast for 2017 and 2018 indicate that uncertainty regarding the outcome of Brexit on the UK economy is still pronounced with GDP forecasts for 2018 ranging from 0.4 per cent to as high as 2.5 per cent.

FIGURE 1 REAL GDP GROWTH (% CHANGE, YEAR-ON-YEAR)



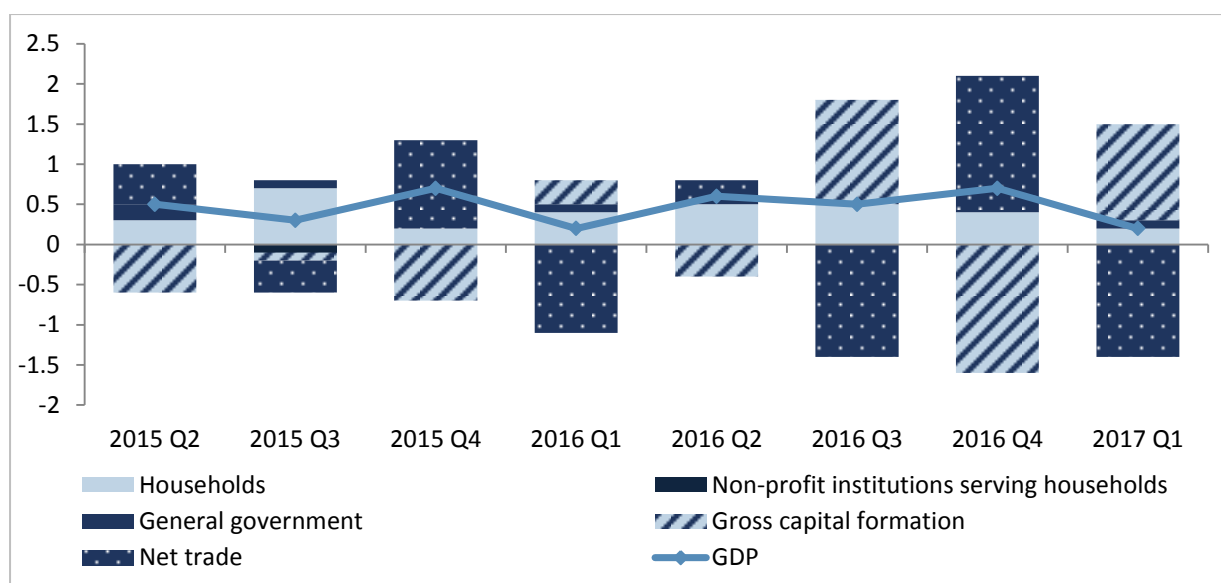
Sources: FocusEconomics, IMF, OECD, HM Treasury and Federal Reserve.

THE UK ECONOMY

UK economic activity remained surprisingly resilient in the six months following the Brexit vote. In the first three months of 2017, however, the economy grew by 0.2 per cent, its slowest rate in a year. Data from Q1 indicate that consumption in

particular slowed as high inflation and low wage growth are increasingly putting pressure on household incomes. Latest data from the Office of National Statistics (ONS) show that inflation is now growing at an annual rate of 2.6 per cent, 0.4 percentage points higher than Average Weekly Earnings. Despite a very low unemployment rate, wage growth continues to remain quite subdued. As a result, further downward pressure on real disposable incomes is expected to continue as the Bank of England forecasts inflation to average 2.7 per cent in 2017. Figure 2 shows the quarterly contribution of the expenditure components to overall GDP. The major factor contributing to growth in Q1 2017 was investment as measured by Gross Fixed Capital Formation. New investment in Q1 contributed 1.2 percentage points to the growth in GDP. This was however, offset by a 1.4 percentage point negative contribution on the trade side largely as a result of an increase in imports over the quarter. Household spending continues to exert a positive effect on GDP growth and this has been a common trend over the last two years. The contribution in the latest quarter, however, has eased to 0.2 percentage points indicating that consumer spending has started to wane.

FIGURE 2 PERCENTAGE CONTRIBUTION TO GDP GROWTH BY SECTOR (Q2 2015-Q1 2017)



Source: Office of National Statistics (ONS), may be errors due to rounding.

Despite rising inflation as a result of Brexit, the Bank of England has chosen to remain accommodative in their monetary policy stance as they try to balance maintaining price stability and economic growth.

The outlook for the UK economy over the next two years remains mixed. Contributions from trade are expected to increase following declines in the value of Sterling. The wider uncertainties and impacts of Brexit are however, expected to act as a drag on domestic demand. Investment is expected to fall this year as

uncertainty regarding future UK trading relations still remains elevated. HM Treasury forecasts suggest that, overall, the short term outlook for the UK is still broadly positive with growth in GDP of 1.7 per cent in 2017 before easing to 1.3 per cent in 2018.

Although the outlook over the next two years appears positive, the longer term effects of Brexit on the UK economy are still expected to be negative. The potential long term effects of Britain's exit from the EU are presented in National Institute of Economic and Social Research (NIESR)² in the UK. The authors consider a variety of different trade arrangements that the UK will likely have following their departure from the EU. Under the worst case scenario – i.e. a WTO style arrangement – they find that, by 2030, GDP will be between 2.7 and 3.7 per cent lower relative to the baseline scenario. Following the recent election result in the UK, the uncertainty surrounding the outlook for the UK economy has increased. The result may signify a call from voters to soften Britain's stance on the potential post-Brexit relationship with the EU, making a 'hard Brexit' or WTO style scenario less likely. The result could also delay Brexit negotiations and there is a risk that a trade deal with the EU will become significantly more difficult to negotiate.

THE US ECONOMY

Following healthy annual growth in GDP in Q4 2016, data released for the first quarter of 2017 were weaker than the previous quarter at 1.2 per cent. Consumer spending pulled back in the first quarter of the year expanding by only 0.6 per cent annually compared to 3.5 per cent the previous quarter. Despite the slowdown in consumer spending, sentiment continues to trend up as perceptions of current conditions remain optimistic. Consumers also remain upbeat about the economic environment in the coming year, with sentiment increasing annually by 3.3 per cent indicating that perhaps the spending slowdown is only temporary and could pick up in the remaining months of the year.³

The labour market continues to perform strongly with unemployment at 4.3 per cent as total non-farm payroll employment increased by 138,000 persons in April. Despite many labour market indicators suggesting an economy nearing full employment, wages are still relatively subdued. Daly et al. (2016)⁴ suggest a few potential reasons for this. The first possible explanation relates to compositional effects in the labour force during and after the recession. During the recession,

² Ebell, M. and J. Warren (2016), 'The Long-Term Economic Impact of Leaving the EU', *National Institute Economic Review*, May, Issue 236.

³ University of Michigan Consumer Sentiment Survey May results.

⁴ Daly, M.C., B. Hobijn and B. Pyle (2016). 'What's up with Wage Growth?' *FRBSF Economic Letter*, 2016-07. San Francisco.

the composition of the workforce kept wages relatively high as there was a disproportionate number of low wage workers fired. As these workers left, the remaining employees generally tended to have higher than average wages. At present, higher wage workers are beginning to retire and many low wage workers who became unemployed during the Great Recession are now finding work again, consequently holding down average wages. Another possible explanation is that sluggish wage growth is linked to low productivity growth, which has characterised many advanced economies for a number of years.

The US economy is largely expected to perform well this year and next with consensus forecasts suggesting GDP growth of 2.1 per cent in 2017 and 2018. The gradual recovery in inflation has prompted the Federal Reserve to increase policy rates three times since December 2015 with further tightening expected in the coming year. The Trump administration has also announced a large fiscal stimulus consisting of tax cuts and infrastructure spending which is set to provide a boost to the economy. The lack of clarity on the infrastructure spending and the excess strain on the public finances from a large tax cut means that getting all the measures through the US Congress in their current form is unlikely. Any spending increases or tax cuts, however, should support the economy over the short run which will likely positively affect global demand.

EURO AREA

Quarterly GDP growth in the Euro Area has been positive since 2015, remaining in the range of 0.3 to 0.8. The labour market has also been steadily improving over the same time period with the unemployment rate falling to 9.3 per cent in April. A range of soft indicators also suggest an economy that is performing strongly this year. In May, the composite PMI (Purchasing Managers' Index) remained strong and reached a six-year high reflecting job growth and expanding output among Eurozone firms. European Commission indicators of consumer and business confidence have also been on an upward trend as the employment outlook improves and businesses expect increasing demand from consumers over the next 12 months.

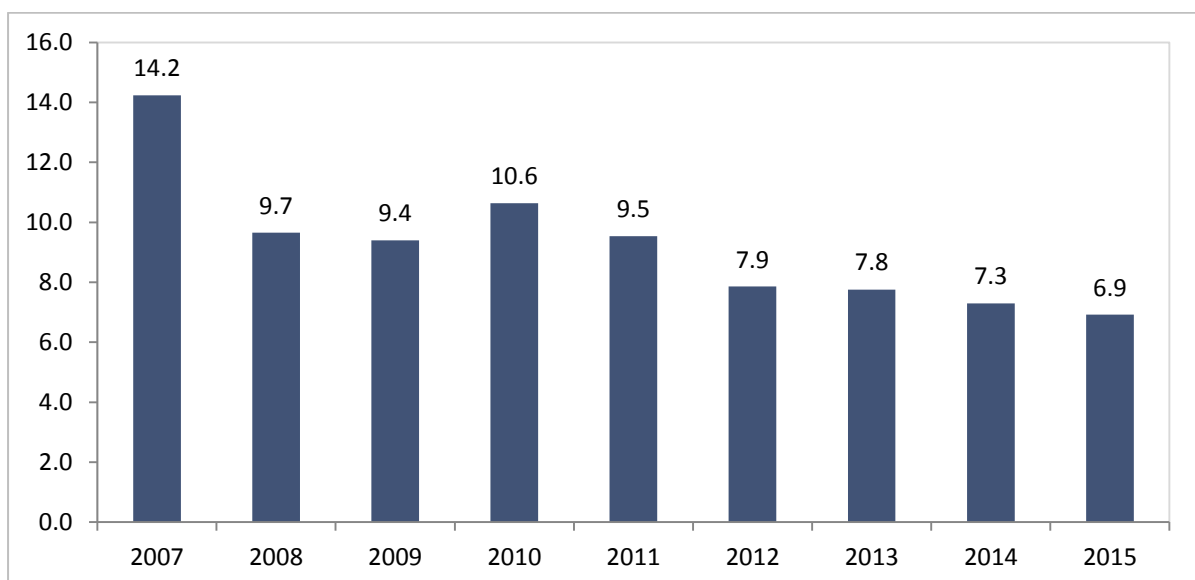
The recovery in the Euro Area is expected to gain momentum in 2017 and 2018. External demand is expected to increase as global growth is forecast to rise by 3.5 per cent in 2017 according to the IMF's World Economic Outlook. The labour market across the Euro Area is also expected to continue to strengthen, providing a boost to incomes further supporting consumption growth. There does, however, remain a substantial difference in unemployment rates across member countries. Germany, for example, has an unemployment rate of 3.9 per cent, the

lowest level since January 1991 while countries such as Spain and Italy have much higher rates at 18.2 and 11.7 per cent respectively.⁵ Headline inflation has also picked up in 2017 and has reached 1.4 per cent in May. Despite this, Mario Draghi, President of the ECB, has indicated that he will maintain an accommodative monetary policy stance for the Euro Area. Overall, the outlook for the Euro Area economy remains optimistic with consensus forecasts from FocusEconomics expecting growth in annual GDP to be 1.7 per cent and 1.6 per cent in 2017 and 2018 respectively.

CHINA

China's economy continues to expand at a relatively rapid pace by international standards. The economy grew by 6.9 per cent annually in the first quarter of 2017. Figure 3 shows annual growth in GDP in China since 2007. There are a couple of interesting points to note about China's performance over the period. First, the financial crisis does not seem to have had a major impact on real economy activity. This is mainly due to a substantial fiscal stimulus and extensive monetary easing implemented by the Chinese authorities following the crisis. The stimulus aimed to support economic growth by offsetting the decline in global trade. Secondly, annual GDP growth has visibly slowed in recent years as the economy transitions towards a more consumption-led services oriented economy.

FIGURE 3 ANNUAL GDP GROWTH CHINA (2007-2015)



Source: World Bank.

⁵ April 2017 European Commission figures.

The trend in GDP growth seems to suggest that the Chinese economy is heading towards a more moderate rate of future growth. Notwithstanding this, the economy continues to perform reasonably well. Official statistics indicate that the unemployment rate⁶ reached 3.97 per cent in Q1 2017 which should continue to support growth in consumption. Over the same time period annual growth was driven by investment and manufacturing, however there continues to be a significant increase in credit provision in the Chinese economy. In the longer term, continued increases in credit, particularly when it is in excess of GDP growth can lead to a misallocation of resources towards more unproductive sectors of the economy. Ultimately, this may reduce the efficiency of capital and distort competitiveness (Dollar and Wei, 2007).⁷ Despite these concerns, the Chinese government and Central Bank will likely remain as accommodative as possible in order to achieve target growth of approximately 6.5 per cent this year.

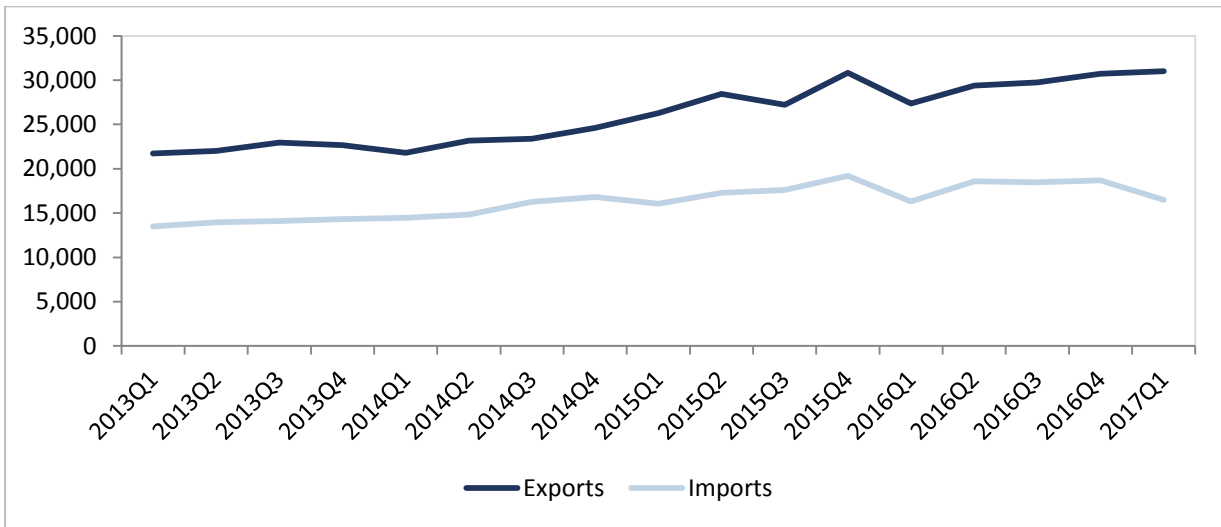
IMPLICATIONS FOR IRISH EXPORTS, IMPORTS AND THE BALANCE OF PAYMENTS

Figure 4 shows trends in the value of goods imports and exports since 2013. The value of goods exported continues to trend up despite a strengthening Euro against Sterling since mid last year. External demand for Irish exports continues to remain robust as many of our major trading partners' economies grew strongly in the first quarter of this year. Monthly trade data which are unaffected by contract manufacturing and, therefore, a reasonable barometer of Irish goods exports shows an increase of nearly €1 billion or 10 per cent compared to March 2016. What is noticeable from the graph is that while there does appear to be a slowdown in goods imports over the last quarter, this seems to be driven primarily by a fall in the volatile other transport equipment (including aircraft) component.

⁶ Registered urban unemployment rate.

⁷ David Dollar and Shang-Jin Wei, 2007. 'Das (Wasted) Kapital: Firm Ownership and Investment Efficiency in China,' IMF Working Papers, Vol. 07(9).

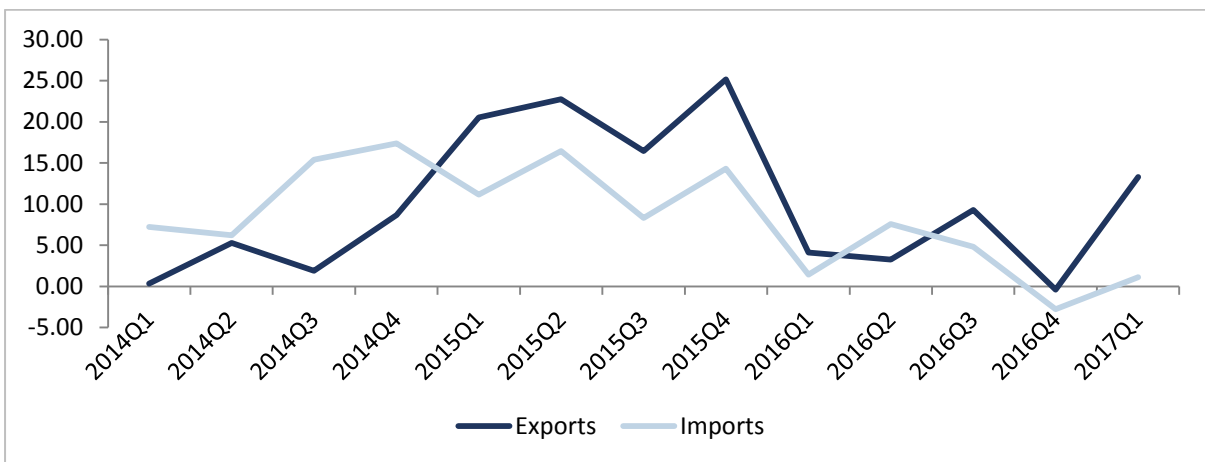
FIGURE 4 GOODS EXPORTS AND IMPORTS VALUE (QUARTERLY)



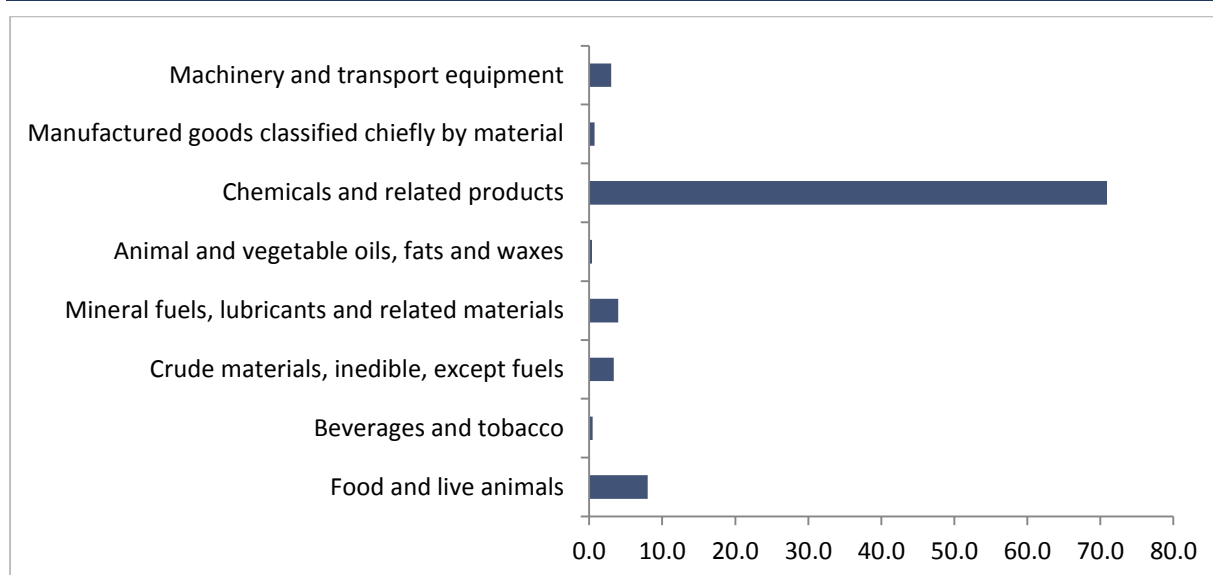
Source: Central Statistics Office.

Figure 5 shows the annual growth in the value of goods imports and exports since 2014. It is clear that during 2015, significant growth in both goods imports and exports occurred, reaching a high of approximately 25 per cent in Q4 2015. More recently the growth rates have moderated but still remain quite strong. A sectoral breakdown of the annual changes (Figure 6) highlights that certain key sectors are driving the majority of the increase in goods exports. In particular, chemicals and related products alone account for over 70 per cent of the total increase compared to last year. By conducting a simple exercise where we keep goods exports of chemicals and related products constant for the year, we find that growth in goods exports is 3.1 per cent which is more in line with growth in world demand and also shows that, even excluding some particular volatile factors, there is still relatively strong underlying external demand across sectors.

FIGURE 5 ANNUAL GROWTH OF GOODS EXPORTS AND IMPORTS VALUE



Source: Central Statistics Office.

FIGURE 6 ANNUAL CHANGE IN GOODS EXPORTS BY SECTOR (PROPORTION OF TOTAL) MARCH 2017

Source: Central Statistics Office.

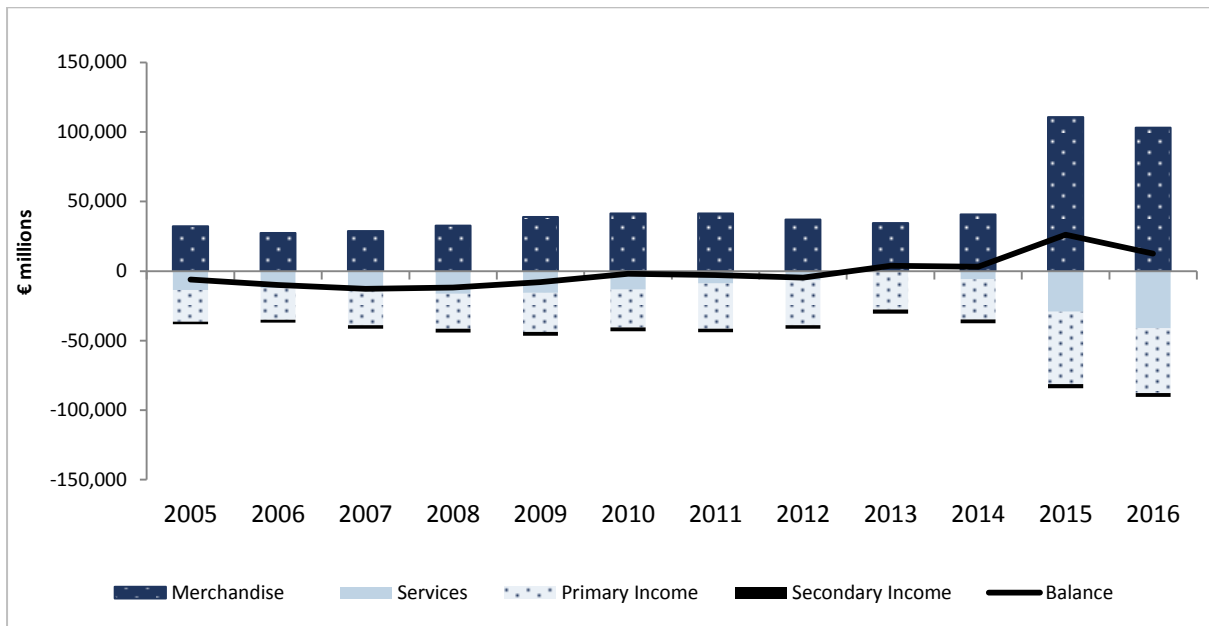
If we compare the value of goods exports compared to last year across some of our main trading partners, we see that demand for Irish goods has increased significantly. The total value of goods exports to the EU for example has increased by 9 per cent in March year-on-year. Demand in the US has particularly picked up with a 17 per cent increase in the value of exports going to this destination. Exports to the UK have dropped, however, albeit by just under 1 per cent over the same period.

We also take into account certain key sentiment indicators such as the Markit Purchasing Managers' Index (PMI) when collating our forecasts. The latest trends are consistent with the monthly trade data and point to a continuing expansion of new export orders for both the services and manufacturing sectors in 2017.

Figure 7 shows a decomposition of the current account balance since 2005 as per the latest Balance of Payments data release.⁸ The strong demand for Irish goods is clear with merchandise exports having a positive contribution to the current account across the years, particularly in 2015 and 2016. The large jump in 2015 and again in 2016 largely reflects a higher level of contract manufacturing. The negative contribution from the services component reflects a larger level of service imports compared to exports over the period. This was particularly pronounced in 2016 leading to a decline in the overall balance on the current account down to €12.5 billion from €26.2 billion a year earlier.

⁸ CSO Q4 2016 Balance of Payments.

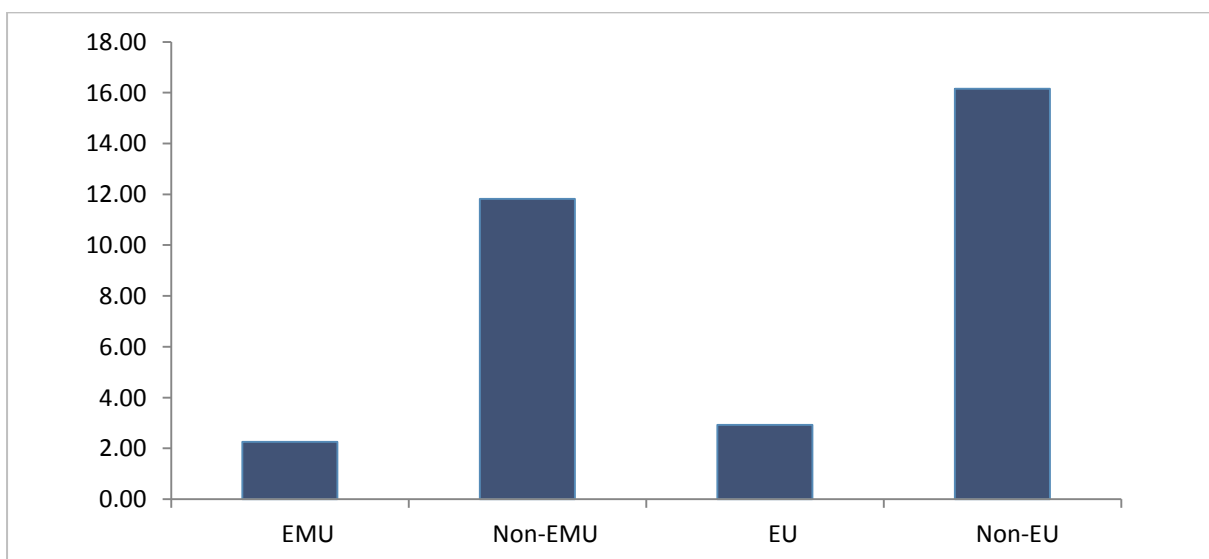
FIGURE 7 CURRENT ACCOUNT DECOMPOSITION (2005-2016)



Source: Central Statistics Office.

Growth in both services imports and exports was strong in 2016, increasing by 9 and 15 per cent respectively. Recent trends, by geographical region, indicate that world demand remained robust in 2016 with an increase of service exports across all regions as shown in Figure 8.

FIGURE 8 GROWTH (%) IN SERVICE EXPORTS BY REGION 2016



Source: Central Statistics Office.

Based on the latest trends and the expectations of strong growth in our major trading partners, it is likely that exports will grow by 5.9 per cent in 2017 followed by 5.6 per cent in 2018 (Figure 9). The strong rate of growth in employment and high domestic activity levels underpin our expectation of import growth of 7.6 per cent this year and growing a further 7.7 per cent in 2018 (Figure 9). Overall the net contribution to GDP from trade is expected to be moderately negative both in 2017 and 2018 driven by a continuing strong level of demand for service imports. Given the previous impacts of unpredictable factors such as contract manufacturing and intellectual property, there remains an elevated level of uncertainty surrounding these particular forecasts.

FIGURE 9 IMPORT AND EXPORT GROWTH (2017-2018 FORECASTS)



Source: QEC calculations.

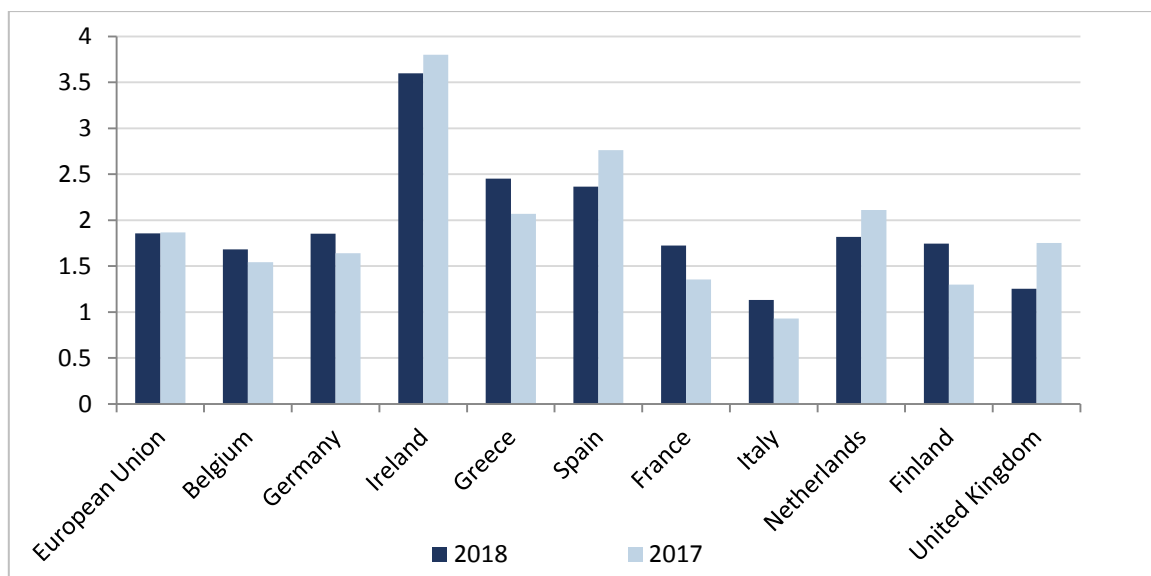
The Domestic Economy

OUTPUT

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 and earnings 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.

For the present year, notwithstanding the slowdown in the growth rate of taxation revenues we continue to believe the economy will increase by 3.8 per cent for GDP. We have also left our forecast growth rate of 3.6 in 2018 unchanged. Most of the growth in the economy will be due to changes in domestic sources of growth such as (core) investment and consumption. While we still see export growth over the forecast horizon, overall we feel the growth in imports due to expected increases in disposable income and reduction in unemployment will be larger. Consequently, net trade will contribute negatively to growth in 2017 and 2018. The expected performance of the Irish economy can be compared with the latest cross-country growth rates from the European Commission for a selected group of European economies (Figure 10).

FIGURE 10 EXPECTED GDP GROWTH RATES (%) FOR 2017/2018 FOR A SELECTED GROUP OF EUROPEAN ECONOMIES



Sources: QEC calculations.

From the graph the strong performance of the Irish economy relative to other European economies is apparent.

In the previous *Commentary* we outlined the new estimate of potential output produced by COSMO – the new structural model of the Irish economy. In the following box Garcia Rodriguez outlines the likely impact for Irish potential output of a hard Brexit. Amongst the many implications this will have for the Irish economy, one practical consequence is the reduction in the fiscal space which is available to the Irish Government.

BOX 1 THE IMPACT OF BREXIT ON IRISH POTENTIAL OUTPUT BY ABIAN GARCIA RODRIGUEZ

Potential output represents the maximum level of output, measured by real gross domestic product, that an economy can produce when all resources are employed on a sustainable basis over the long term. Potential output is a function of tangible aspects of the economy like its workforce, capital endowment or energy utilisation, and also more nebulous elements like the technology level, management skills or institutional factors. Long term sustainability is a key component of potential output; for example, levels of actual GDP consistently above potential output may lead to inflation, as the demand for factors of production exceed supply, thereby giving rise to price or cost pressures in the economy.

Despite some methodological disagreement on how to properly capture the potential output of an economy, this measure remains a key indicator for policymakers. The importance of potential output is twofold: on one hand, potential output is an indication of the path we expect economic growth to follow over the long run. Therefore, policy measures aimed at increasing its value, like labour activation measures, incentives to investment or improvements in productivity, can enhance the long term growth of the economy. On the other hand, potential output is used to estimate the position of the economy over the economic cycle. An economy with a large output gap, that is, where a large difference exists between potential output and actually produced output, may require a change in discretionary fiscal or monetary policy as policymakers seek to close the gap. Under the European Commission Stability and Growth Pact (SGP), a measure of potential output, and the associated measures of the output gap and structural deficit, are an integral part of the determination of the fiscal space for the Irish economy.

Potential output can be impacted by external shocks. For example, Brexit has the potential to damage the long-term growth prospects of the Irish economy, therefore affecting potential output and, consequently, the fiscal space available. Previous work has already explored the estimated impact of Brexit in Ireland (Bergin et al., 2016). Using the COSMO model, (Bergin et al., 2017) and following the projected impact of Brexit on the British economy and the global macroeconomic scenario described by NIESR (Ebel and Warren, 2016), Bergin et al. (2016) estimate that Irish GDP will fall between 2.3 per cent and 3.8 per cent relative to a no-Brexit scenario ten years after the initial impact of Brexit.⁹ The exact scale of the decline will depend on the post-Brexit trade deal between the UK and EU. We expand the previous

⁹ Analysis of Brexit related implications at an aggregate level does not necessarily factor in issues such as changes in FDI flows and other micro issues.

analysis by exploring the impact of Brexit on potential output as well as the actual level of output.

In COSMO, an underlying production function drives medium term growth and potential output. Productive capacity in each sector of the model (traded, non-traded and government sectors) is described by a production function with constant returns to scale and labour augmenting technical progress. Output is produced as a combination of three factors: net productive capital stock, fossil fuel consumption and total hours. The impact of Brexit on potential output, therefore, is captured through its impact on the different components of the model. We focus on a ‘hard Brexit’ scenario, where it is assumed that following the two-year Article 50 negotiation, the trade relation between the UK and the EU reverts to WTO rules.

Under that scenario, ten years after the end of the negotiations, potential output of the Irish economy is expected to be 3.2 per cent below what it otherwise would have been in a no-Brexit scenario. This figure is slightly smaller than the projected 3.8 per cent decrease of actual output (Bergin et al., 2016). The traded sector is the most significantly impacted by Brexit with a reduction in potential output of 3.6 per cent. The intensity of the loss in the traded sector is a consequence of the nature of the shock: Brexit is expected to impact Ireland mainly through the loss of trade with the UK, both because of the new expected trade barriers between both countries and the fact that UK output will be below what it would have otherwise been in a no-Brexit scenario, which reduces external demand. The loss of output in the traded sector, and the associated reduction below base in employment, wages and consumption, reduces activity in the non-traded sector. Potential output in this sector is expected to be 3.1 per cent lower than in the baseline. The importance of the traded sector in the Irish economy and its relatively larger contraction means that more than 70 per cent of the total loss of potential output under Brexit is due to the loss of potential output in the traded sector.

Focusing on the traded sector then, we can better understand its loss of potential output by looking at the evolution of their different components. Employment, measured in hours, is expected to decline more intensely in the first half of the period of analysis, registering a loss of 4.5 per cent with respect to the baseline after five years. The loss of activity in the sector due to reduced external demand naturally depresses employment with respect to a no-Brexit scenario, in turn reducing the productive capacity of the sector. On the other hand, the capital stock of the traded sector is expected to register a continuous decline below where it otherwise would have been; at the end of the period of analysis, the stock is 3.4 per cent down with respect to the baseline. In this case, the decline is a consequence of the reduction of investment on the traded sector, which, in the model, is a function of general economic activity. Overall, after ten years, the loss of productive capital is responsible for close to 55 per cent of the total loss of potential output with respect to the baseline, whereas the decline in the labour market represents 41 per cent of the loss. The decline in potential output due to energy and productivity are of lesser importance.

References:

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MONETARY AND FINANCIAL CONDITIONS

Private sector indebtedness

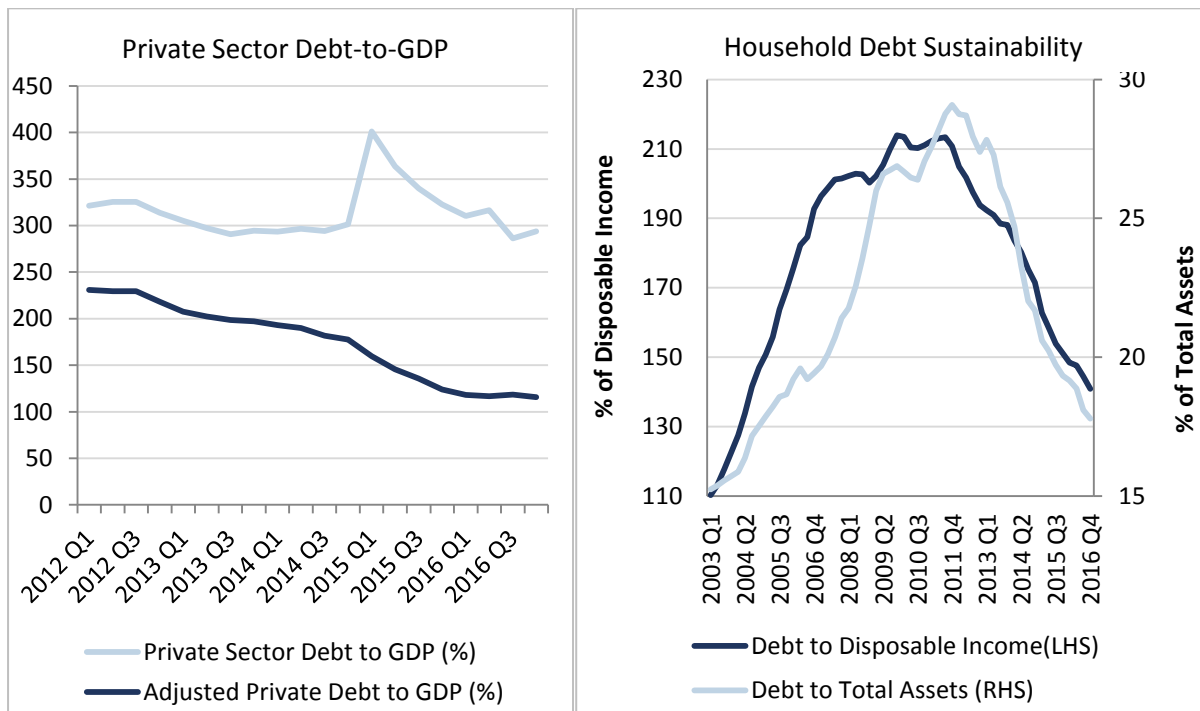
The level of indebtedness of Irish households and non-financial corporates (NFCs) remains high in a historical domestic, and current international, context. As of Q4 2016, the total private sector debt-to-GDP ratio stood at 293.9 per cent, having increased 7.6 per cent from the previous quarter. This increase is mainly driven by the stock of NFC loans which rose by €21.9 billion over the same period. However, NFC debt in Ireland is significantly affected by the activities of multinational corporations and their international balance sheet management practices. In this regard, large movements in debt levels can be observed from 2014 which are due to multinational company (MNC) debt restructuring.

Given that these debts are owed mainly by foreign corporations, they present less risk to Irish domestic firms and households and can distort assessments of indebtedness. To provide a more accurate metric, Figure 11 also presents an adjusted private debt-to-GDP measure excluding NFC loans owed to rest of the world entities and focuses on loans owed by Irish NFCs to domestic monetary financial institutions and other domestic firms. This measure stood at 115.7 per cent of GDP down from 118.3 in Q3 2016.¹⁰ This highlights the continued deleveraging by domestic economic agents. It must be noted that the GDP figures themselves are affected by MNC activities and future assessments should be based on more appropriate measures of the domestic economy such as GNI* (Lane, 2017).¹¹

¹⁰ It must be noted that GDP figures themselves are inflated by the impact of multinational companies and using this denominator potentially under represents the debt picture relative to domestic economic activity.

¹¹ Lane, P. (2017), 'The Treatment of Global Firms in the National Accounts', Economic Letters, EL/17/01, Central Bank of Ireland.

FIGURE 11 OVERVIEW OF IRISH PRIVATE SECTOR INDEBTEDNESS



Sources: Central Bank of Ireland, Quarterly Financial Accounts data.
Notes: Adjusted Private Debt includes only loans to households and NFC loans provided by other resident non-financial corporates, resident monetary financial institutions and other financial institutions. Loans owed to the rest of the world are excluded.

Focusing on household debt, deleveraging continued in Q4 2016 with outstanding debt falling to €143.8 billion. Irish households also decreased their debt-to-income and debt-to-asset ratios improving the sustainability of household financing in the quarter. The debt-to-income ratio stood at 140.9 per cent in Q4 2016 down by 3.6 percentage points on Q3 2016. Continued reductions in the debt-to-income and debt-to-asset ratios should provide households with improved buffers against financial shocks. Indeed, the Central Bank recently reported that Irish household debt has fallen more than any other EU country as a proportion of disposable income in recent years (Central Bank of Ireland, 2017a).

However, many households remain highly indebted and could be vulnerable to increases in interest rates and unanticipated unemployment shocks. In particular, holders of mortgage tracker rates would automatically suffer if policy rates were to rise. In the medium term, any reversal of the ECBs accommodative monetary stance would affect these borrowers considerably. Byrne et al. (2017)¹² show that tracker rates have protected many borrowers from mortgage default while

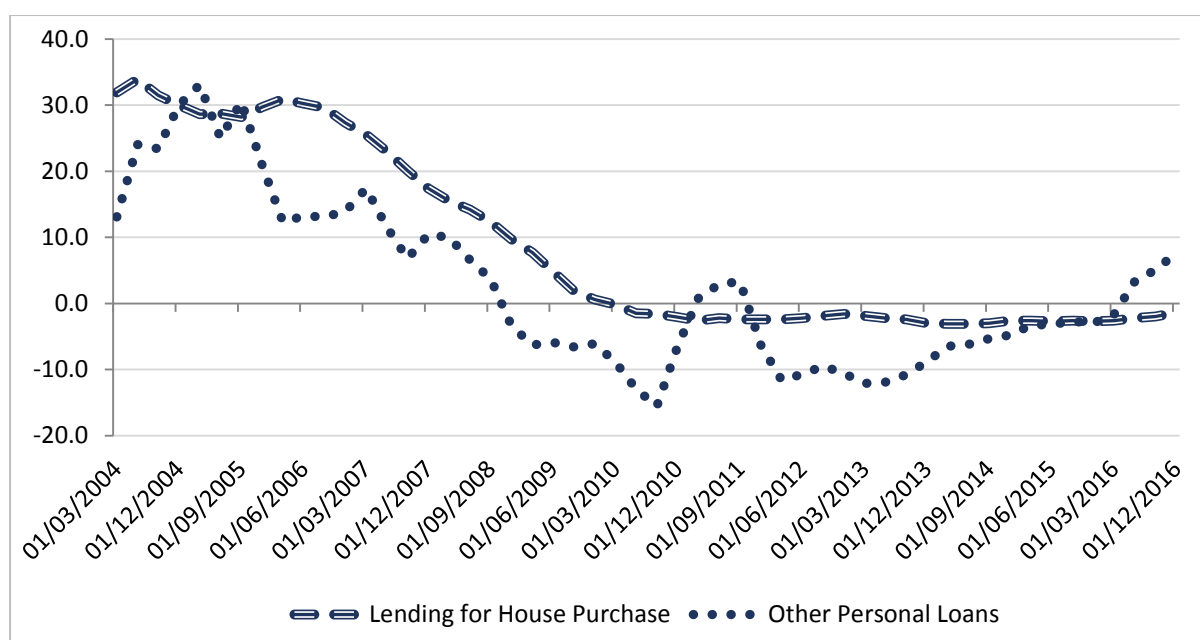
¹² Byrne, D., R. Kelly and C. O’Toole (2017). ‘How does monetary policy pass through affect mortgage default? Evidence from the Irish mortgage market’, Research Technical Papers, 04/RT/17, Central Bank of Ireland.

Fasianos et al. (2017)¹³ note that a 1 per cent increase in the ECB policy rate would decrease disposal incomes by nearly 2 per cent for tracker mortgage holders aged 35-44. As these households currently have low savings rates, any increase in the cost of debt servicing would have to be financed out of lower consumption which would be a drag on the domestic economy. This highlights the continued pockets of vulnerability remaining in Ireland.

Trends in lending, deposits and interest rates

Disentangling the continued deleveraging of households, Figure 12 presents the growth rates of credit to households from Irish resident credit institutions.¹⁴ The data are split by loans for house purchase and other personal loans (auto finance, credit cards, student loans etc.). The credit continues to decrease, down -1.4 per cent in Q4 2016 year-on-year with repayments of existing debt still outstripping new lending activity. However, the pace of deleveraging has moderated; the rate of decline has fallen from -2.7 per cent in Q4 2015. Indeed, non-housing related household loans have begun to increase following many years of decline; other personal loans grew 7.6 per cent in Q4 2016 having posted positive increases since Q2 2016. These loans include auto financing and the increase in motor sales in 2016 is related to the increase in this loan type.

FIGURE 12 GROWTH RATES OF CREDIT TO HOUSEHOLDS (%)



Sources: Central Bank of Ireland, Credit, Money and Banking Statistics.

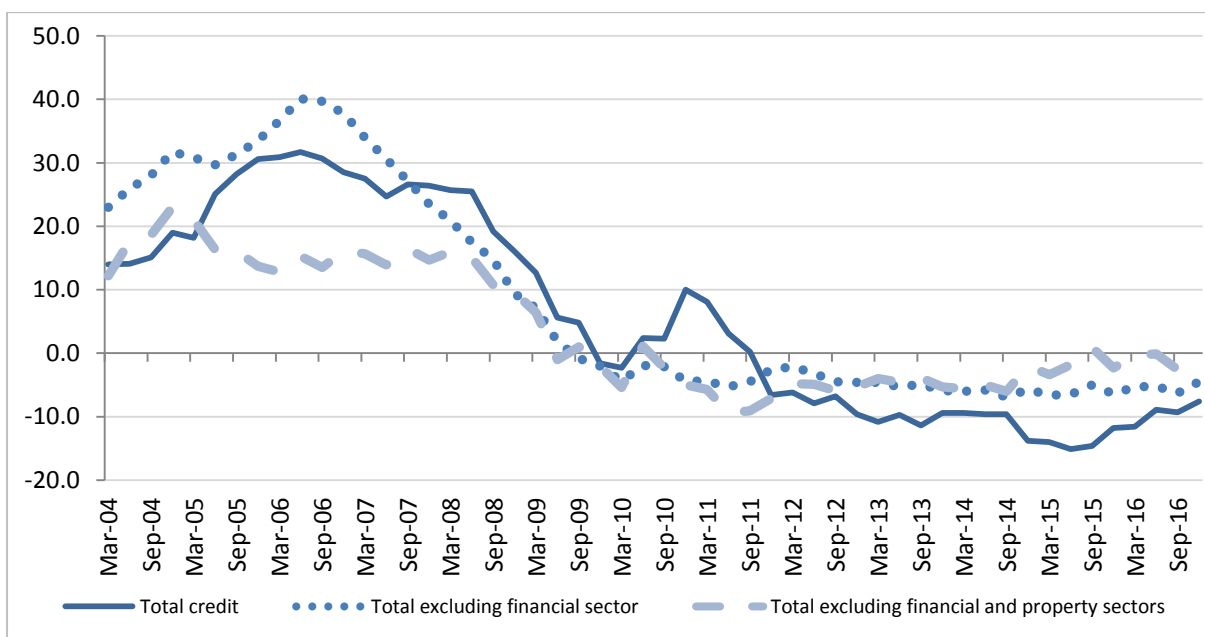
Notes: Data are taken from Central Bank of Ireland data release A.18, growth rates series codes 777 and 1,252.

¹³ Fasianos, A., R. Lydon and T. McIndoe-Calder (2017). 'The Balancing Act: Household Indebtedness Over the Lifecycle', *Quarterly Bulletin Articles*, April, Central Bank of Ireland.

¹⁴ See CBI for details.

A similar picture emerges regarding credit to private sector enterprises (Figure 13). The overall stock of credit is continuing to decline, down by -7.6 per cent in Q4 2016 year-on-year. However, the pace of deleveraging is continuing and the decline is less than the Q4 2015 figure of -11.8 per cent. Furthermore, excluding credit to the financial and property related sectors, overall credit grew by 1.2 per cent in Q4 2016 year-on-year. This indicates that credit for real, non-property activities in the Irish economy is beginning to recover after a very protracted period of decline.

FIGURE 13 GROWTH RATES OF CREDIT TO PRIVATE SECTOR ENTERPRISES (%)



Sources: Central Bank of Ireland, Credit, Money and Banking Statistics.

Notes: Data are taken from Central Bank of Ireland data release A.14, growth rates series codes 17, 17.1 and 17.2.

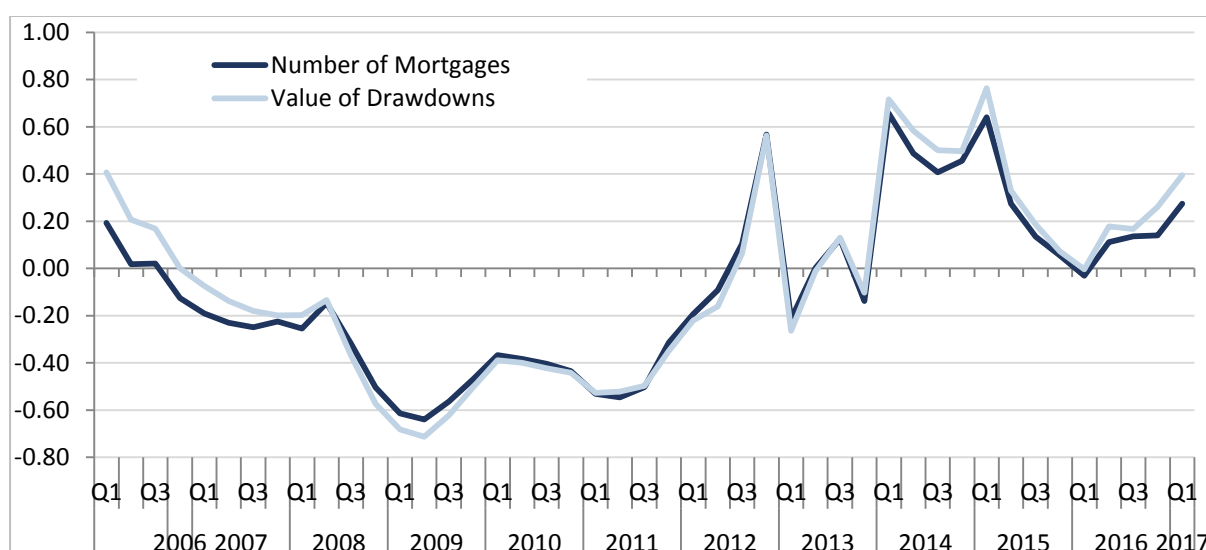
Both the reduction in the pace of deleveraging in mortgages, and the rise in credit for consumer loans and non-finance, non-property enterprises, illustrate the diminishing role of the Irish financial crisis. A return to credit growth can provide a positive stimulus to economic activity as credit constrained households and firms increase consumption and investment. However, given that many households and firms are still highly indebted, and the existing literature highlights the negative consequences of debt overhang on economic activity,¹⁵ the benefits of new credit growth must be balanced against financial stability concerns.

¹⁵ Lawless, M., B. O’Connell and C. O’Toole (2015). ‘SME Recovery Following A Financial Crisis: Does Debt Overhang Matter?’, *Journal of Financial Stability*, 19 (C), pp.45-59.

A more telling gauge for current economic activity is new lending flows. In line with the recovery in the housing market, new mortgage credit has increased rapidly in the most recent quarter (Figure 14). Throughout 2016, new mortgage lending activity accelerated. Year-on-year to Q1 2017, the number of mortgages drawn down increased by 27 per cent while the value of mortgages drawn down increased by nearly 40 per cent.

With such rapid increases in mortgage credit, it is important to understand whether such trends are sustainable or whether they constitute a financial stability risk? Currently, existing evidence suggests that the credit risk of new lending is low and as such does not pose a threat to banking sector stability. Kinghan et al. (2017)¹⁶ highlight the lending conditions under which Irish mortgages were originated in 2016 and loan-to-value (LTV) and loan-to-income (LTI) ratios were broadly unchanged relative to 2015. These levels are well below those originated during the boom period, with the median LTV standing at circa 80 per cent and the median LTI at 3. Additionally, Lydon and McCann (2017)¹⁷ highlight that mortgages are being issued to borrowers with much higher relative incomes as compared to the boom period. This evidence suggests the credit risk of new lending is relatively low. However, the very rapid increase in credit volumes coupled with rising house prices requires continued monitoring in regard to any potential vulnerability that may arise. If such rapid growth persists, corrective policy action may be required.

FIGURE 14 YEAR-ON-YEAR GROWTH RATE OF NEW MORTGAGE DRAWDOWNS (%)



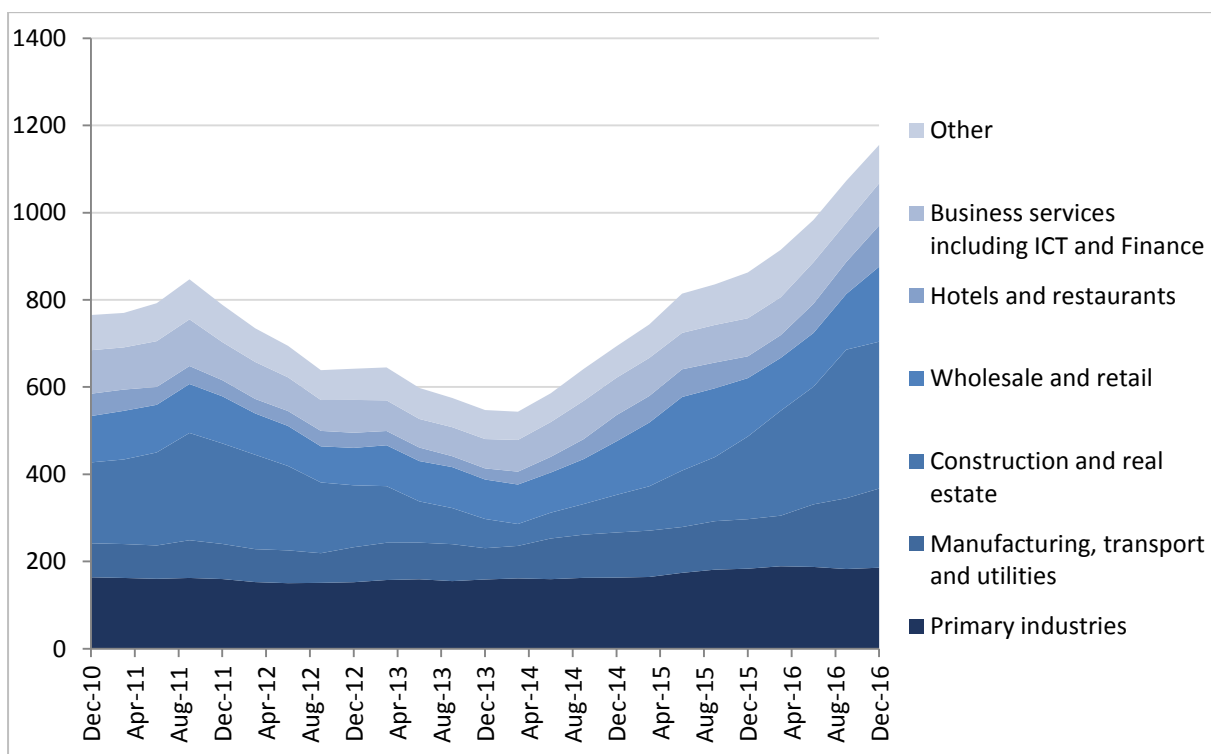
Sources: Banking and Payments Federation Ireland.

¹⁶ Kinghan, C., P. Lyons, Y. McCarthy and C. O'Toole (2017). 'Macroprudential Measures and Irish Mortgage Lending: An Overview of Lending in 2016', Central Bank of Ireland Economic Letter No.6.

¹⁷ Lydon, R. and F. McCann (2017). 'The income distribution and the Irish mortgage market', Central Bank of Ireland Economic Letter No.5.

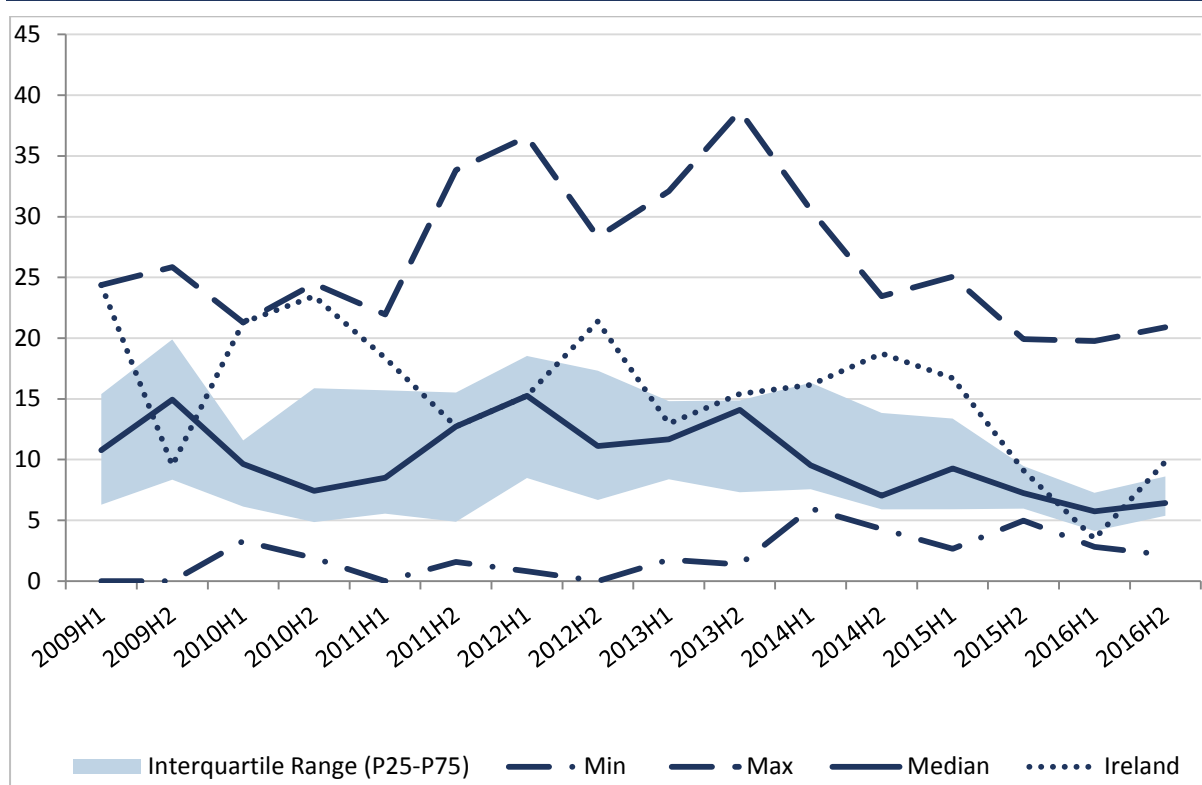
Loans to Irish small- and medium-sized enterprises (SMEs) have also grown steadily in 2016 (Figure 15). This continues the trend in overall SME lending which began to increase in 2015 from mid-2014 lows. Gross new lending was €1,339 billion in Q4 2016, up from €1,011 billion one year earlier. There has also been a change in the sectoral flow of credit with large increases in loans to construction related SMEs (both construction firms and loans for real estate activities) and to domestically oriented services sectors such as the wholesale, retail and hotels and restaurants industries. Increased credit extension to these sectors is consistent with the broadening of the recovery in the domestic economy.

FIGURE 15 QUARTERLY NEW LENDING TO IRISH SMES BY SECTOR (4-QUARTER ROLLING AVERAGE)



Sources: Banking and Payments Federation Ireland.

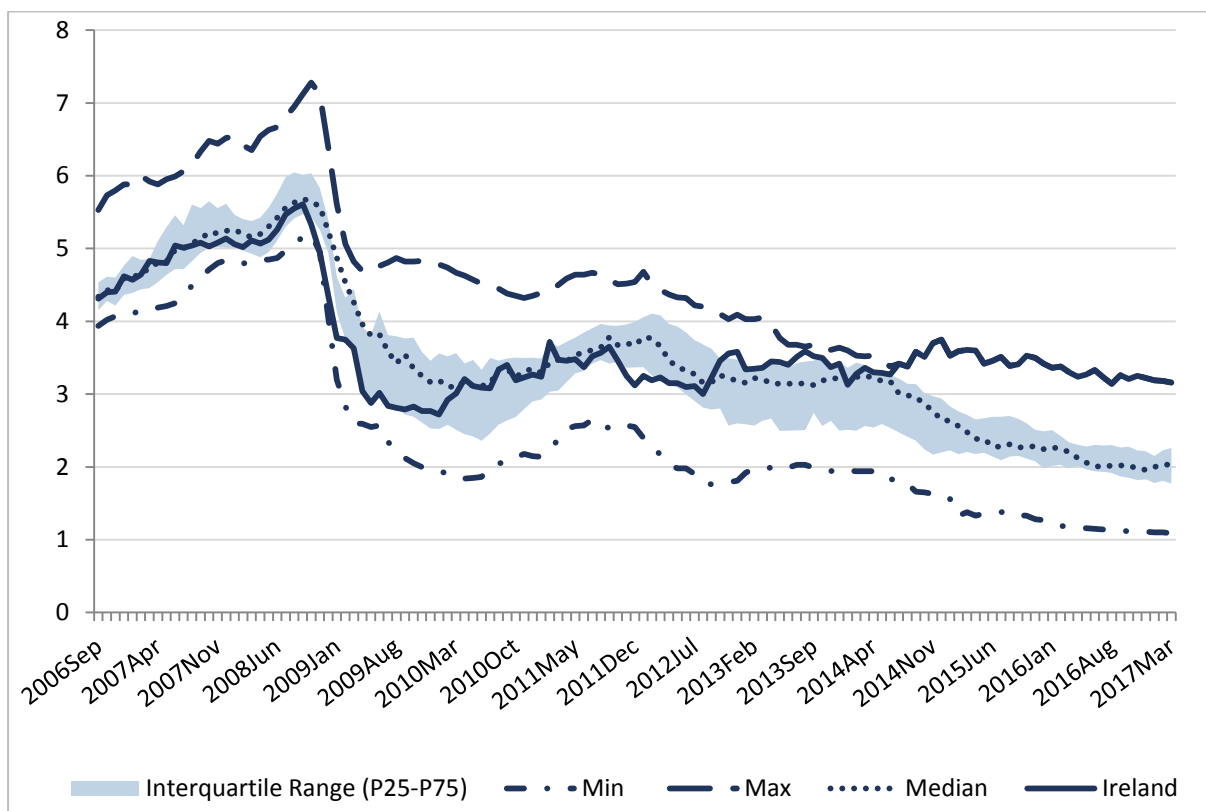
Further proof of the improved financing availability for Irish firms is the continued reduction in rejection rates for bank financing. Data from the ECB Survey on Access to Finance for SMEs (SAFE) provide a benchmark for rejection rates in Ireland relative to other European economies. These are presented in Figure 16. Following the financial crisis, rejection rates for Irish firms increased considerably, and were amongst the highest in the Eurozone. Since mid-2014 rejection rates have been declining in Ireland relative to other countries and by early 2016 were well below the median in the Euro Area. The most recent data for end 2016 indicate a pickup in rejection rates, however, more data are needed to understand whether this relates to a trend break or a once-off.

FIGURE 16 AVERAGE REJECTION RATE FOR BANK LOANS – IRISH AND EUROPEAN SMES

Sources: ECB SAFE Survey.

While access to credit appears to be improving for both Irish households and firms, the interest rates charged on new and existing loans are high by European comparison. The standard variable rate on new mortgage loans in Ireland stood at 3.38 per cent as of Q1 2017; this is down moderately year-on-year from 3.63 in Q1 2016. However, comparing Irish new house purchase loans relative to other Eurozone economies, it can be seen that new lending rates are the highest of the comparison group (Figure 17). Since mid-2014, the Irish rates have decoupled from other countries as these have fallen in line with the easing of ECB policy rates whereas Irish rates have remained high.

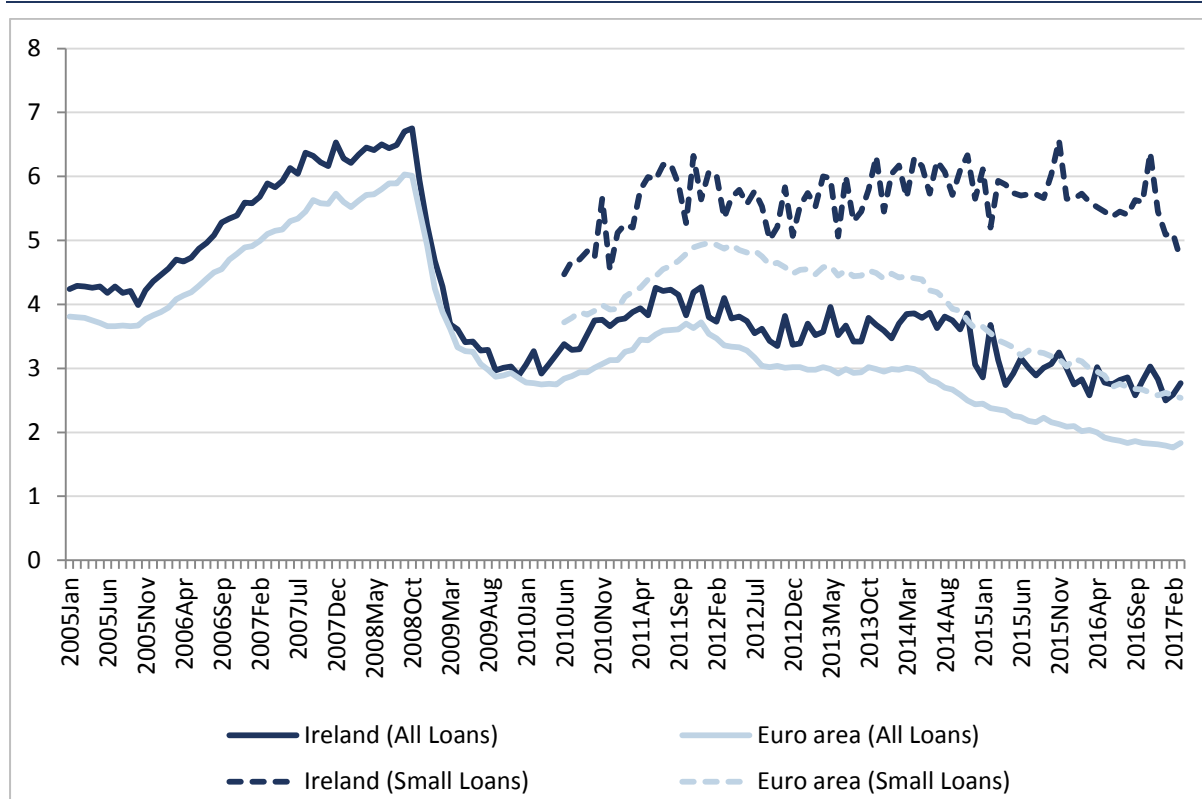
FIGURE 17 INTEREST RATES ON NEW HOUSE PURCHASE LOANS TO HOUSEHOLDS – EUROPEAN COMPARISON



Sources: ECB MFI data.

Notes: Countries included are: Austria, Belgium, Estonia, Spain, Finland, France, Ireland, Italy, Lithuania, Netherlands, Portugal, Slovenia. 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.

Figure 18 presents the interest rates on new business loans for non-financial corporates in Ireland relative to the average for the Eurozone. Two series are presented: (i) covering all loans and (ii) capturing loans of less than €250,000 which is used as a proxy for loans for SMEs. In March 2017, the average rate on new loans for all Irish corporates was 2.77 per cent and the Eurozone average was 1.83 per cent. For small Irish corporate loans, the interest rate in March 2017 was 4.7 per cent compared to the Eurozone average of 2.54 per cent. In general, the rates for both all and small loans are on a downward trend but higher than in other European countries.

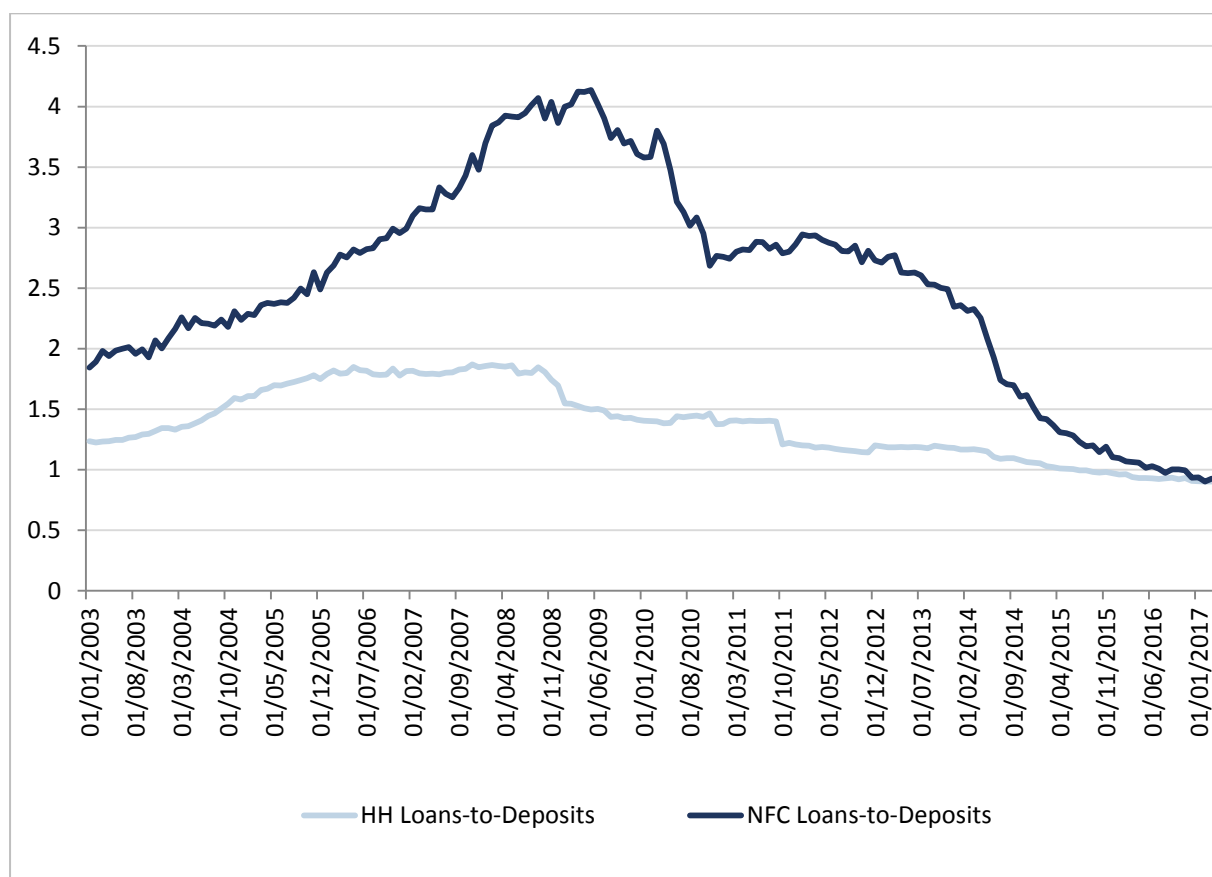
FIGURE 18 INTEREST RATES ON NEW HOUSE PURCHASE LOANS TO HOUSEHOLDS – EUROPEAN COMPARISON

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

This dislocation in the transmission of policy rates to lending rates poses challenges for the effectiveness of monetary policy. While the ECB is currently following a very accommodative policy stance and has indicated a willingness to keep interest rates at present levels beyond the net asset purchase programme (currently forecast to run to December 2017),¹⁸ rising inflation in core economies may increase the pressure on policymakers to revise their position on interest rates. For a highly indebted economy like Ireland with relatively high current lending rates, such increases in the policy rate in the medium term could have negative consequences for both the macroeconomy and debt sustainability if rises are passed through to consumers and firms.

In March 2017, household deposits at resident credit institutions grew by 3.1 per cent while non-financial corporate deposits increased by 5.1 per cent. The total levels stood at €98.1 and €45.5 billion respectively. Loan-to-deposit ratios, presented in Figure 19, continued to be less than 1 indicating that both corporates and households are net funders of the Irish banking sector.

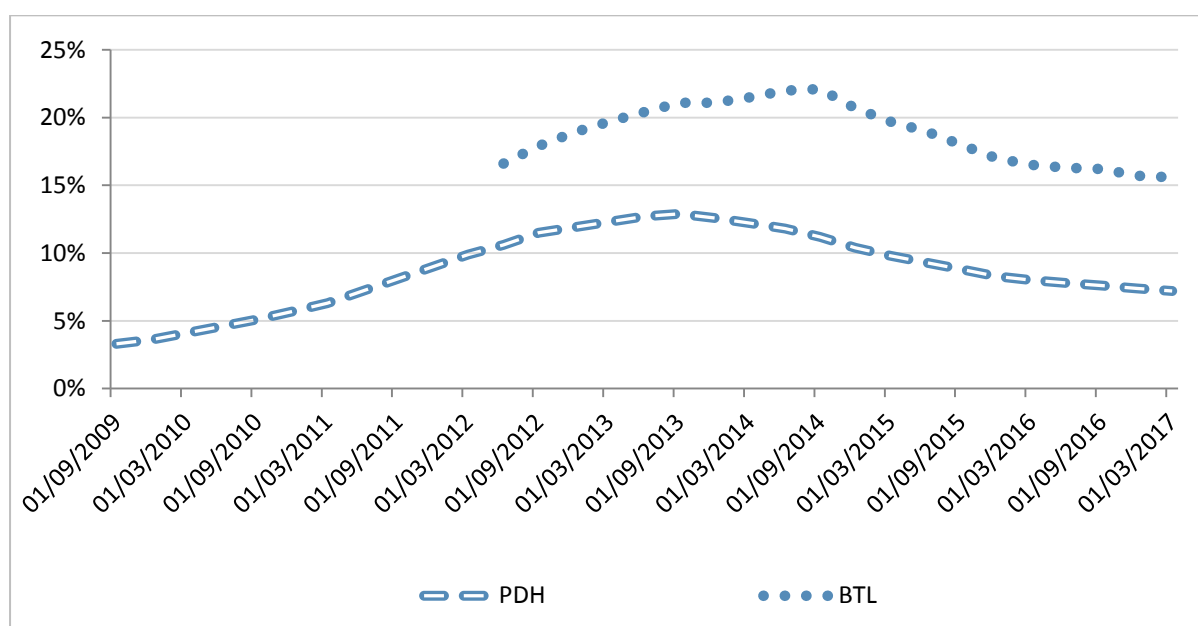
¹⁸ ECB Press release following April Governing Council meeting, 26 April 2017.

FIGURE 19 LOAN-TO-DEPOSIT RATIOS FOR IRISH HOUSEHOLDS AND FIRMS

Sources: Central Bank of Ireland data. Table A.1 columns 1, 5, 12, 15. It must be noted that these loans and deposits relate to only those held on resident credit institutions reporting to the Central Bank of Ireland's Credit, Money and Banking data. Securitised loans serviced by these institutions are not included in the above calculations.

Loan performance

One of the most visible legacies of the Irish financial crisis has been the stubbornly high share of non-performing loans. This is particularly pertinent in the mortgage market where the share of principal dwelling house mortgages in arrears peaked at 12.9 per cent in Q3 2013. This represented 17.3 per cent of the value of outstanding mortgages. More recently, there has been a marked fall in the share of loans in arrears to 7.2 per cent as of Q1 2017. This constitutes a total of 10.8 per cent of the balance of outstanding PDH mortgages. The default rate on buy-to-let (BTL) loans has also reduced. The reduction in mortgage arrears has been driven by falling unemployment, recovering house prices as well as concerted policy action to provide modifications to distressed borrowers.

FIGURE 20 IRISH HOUSEHOLD MORTGAGE ACCOUNTS IN ARREARS BY TYPE OF LOAN (%)

Sources: Central Bank of Ireland, Mortgage Arrears Statistics.

Notes: PDH refers to principal dwelling houses loans while BTL are buy-to-let loans. Loans are defined as being in arrears if payment is more than 90 days past its due date.

Notwithstanding the improvement in mortgage arrears in recent quarters (Figure 20), a considerable challenge and vulnerability remains for the Irish banking sector from the issue of non-performing loans. In total, 17.5 per cent of the value of loan books of the domestic retail banks are still classified as non-performing;¹⁹ as of September 2016, a total of 15 per cent of SME/Corporate loans and nearly 40 per cent of construction and real estate loans were still non-performing (Central Bank of Ireland, 2016a).²⁰ Indeed, recent analysis by the Central Bank of Ireland highlights that non-performing loans for households and corporates are high in a European context (Central Bank of Ireland, 2016b; 2017).²¹ Further improvements in the domestic economy will act to reduce the share of non-performing loans in particular in the mortgage market. However, continued action by the banking sector is required to deal with non-performing loans and to improve the sustainability of balance sheets.

Summary of financial conditions

The slowing in the pace of deleveraging plus the fall in non-performing loans both point to the continued normalisation of activity in the Irish banking sector. However, high debt levels and high interest rates pose challenges to firms and

¹⁹ Speech to Banking and Payments Federation Conference entitled 'Drivers of Change in the Banking Sector', May 2017, Philip R. Lane, Governor Central Bank of Ireland.

²⁰ Central Bank of Ireland (2016a). 'Macro-Financial Review', Central Bank of Ireland, Dublin.

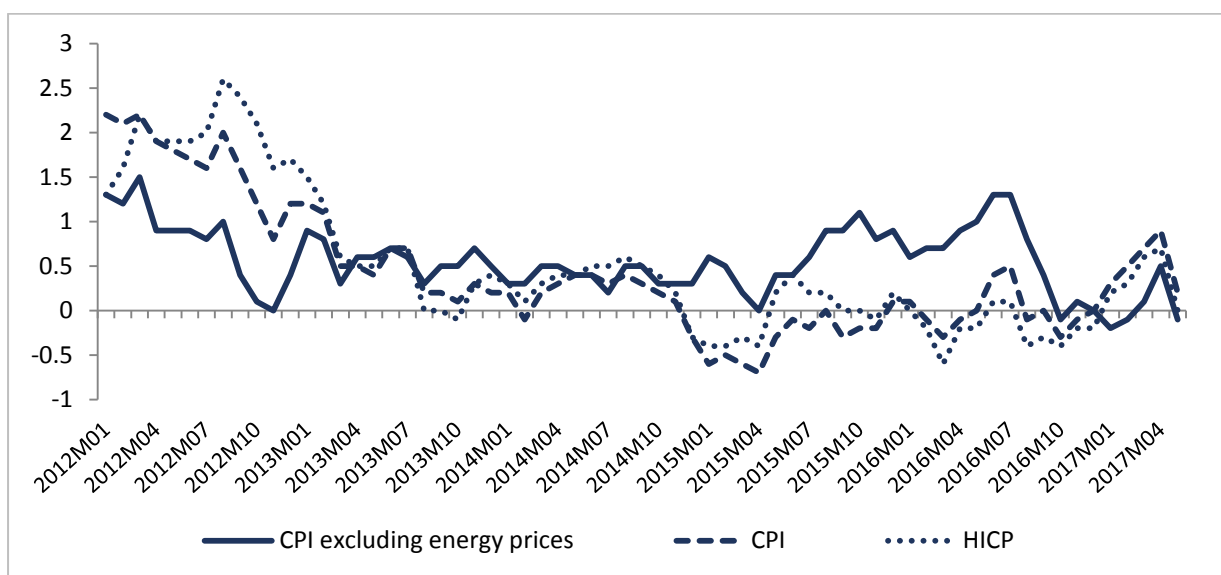
²¹ Central Bank of Ireland (2016b). 'Mortgage Default: European Comparison', Box 3 in *Household Credit Market Report*, H2 2016. Central Bank of Ireland (2017a). 'Quarterly National Accounts – Q4 2016', Statistical Release, Central Bank of Ireland.

households and point to potential underlying vulnerabilities. New credit is growing rapidly in particular for mortgages and loans to construction SMEs. Currently, this acceleration in new lending does not appear to be at the expense of good credit risk assessment. However, if mortgage and credit for construction continue to grow at rapid rates, in particular coupled with accelerating house prices, corrective policy action may be required.

PRICES AND EARNINGS

After average annual inflation of 0 per cent in 2016, the Consumer Price Index (CPI) has been on an upward trend since the beginning of 2017 as shown in Figure 21. More recently however, the CPI retreated back to 0.2 per cent while the Harmonised Index of Consumer Prices (HICP) dropped from 0.7 per cent in April to 0.0 per cent in May. It seems that the main cause of the fall in the month to May was as a result of a fall in airline fares, decreasing by over 24 per cent compared to the previous month. More generally, the recovery in prices of energy products, rising by 3 per cent annually has been a contributing factor to higher inflation since the beginning of the year. Continuing increases in rents are also having a significant impact on inflation. Inflation data from the CSO show that there were notable price increases in areas such as transport, education and restaurants and hotels, increasing by 2.2, 1.7 and 1.8 per cent on an annual basis in May. Trends in the HICP have also been positive since the start of the year, more recently being influenced by price increases in areas such as education and transport.

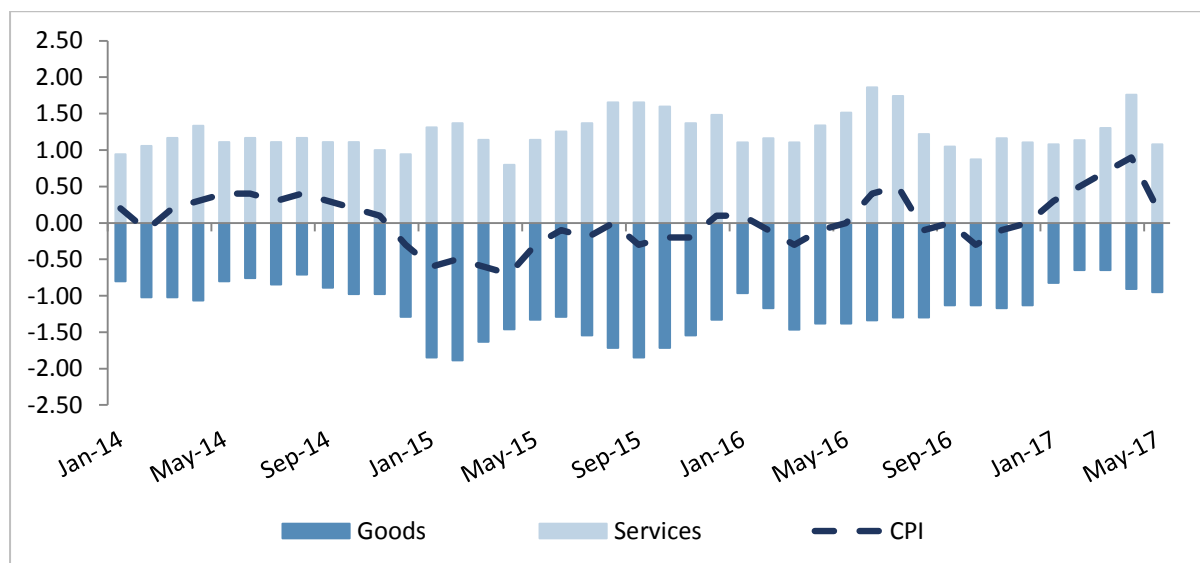
FIGURE 21 ANNUAL GROWTH IN INFLATION (%)



Source: Central Statistics Office.

The underlying recent trends in the CPI (Figure 22) have been steady for some time with goods contributing negatively to the overall inflation rate while the services component continues to exert a positive effect on overall prices. For the most part, this trend is continuing in 2017 but it does seem, however, that the goods component has gradually become less negative as prices begin to recover for many items in the goods category.

FIGURE 22 DECOMPOSITION OF ANNUAL (%) CPI GROWTH INTO GOODS AND SERVICES GROWTH

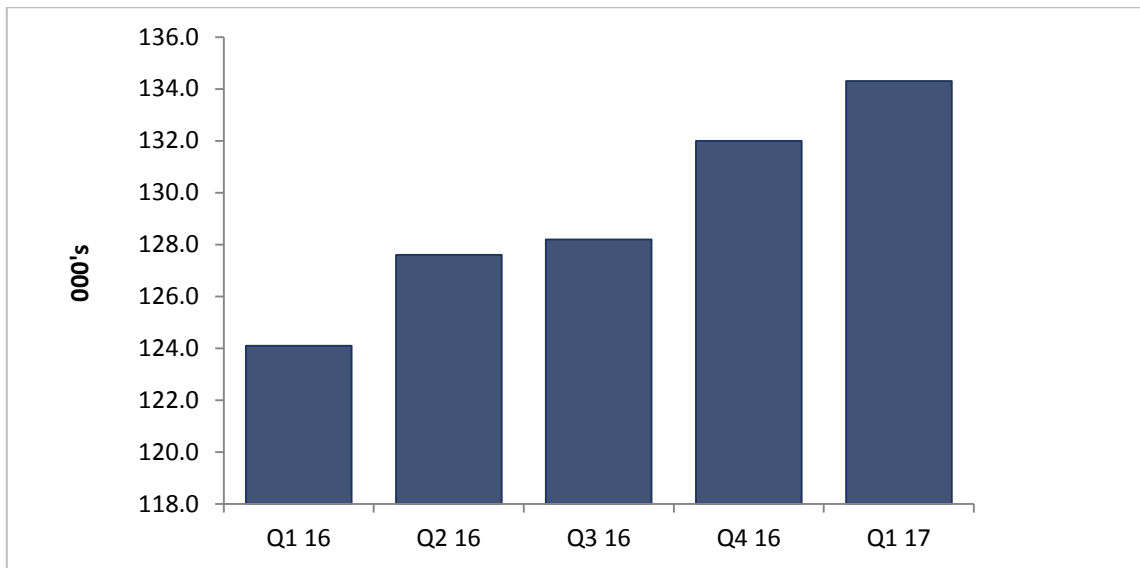


Sources: Central Statistics Office.

Q1 earnings data from the CSO show that seasonally-adjusted Average Hourly Earnings increased by 0.5 per cent compared to Q4 2016. On an annual basis they increased by 0.7 per cent up to €22.68. Of the 13 sectors in the economy, nine of them experienced an increase in Average Hourly Earnings. The largest increase was observed in the transportation and storage sector rising by 3.0 per cent. Other notable increases occurred in the construction and financial and real estate sectors rising by 2.5 per cent and 2.3 per cent respectively. This is consistent with the growing demand for labour in these sectors (Figure 23) due to the pickup in construction activity in the first quarter of the year. Comparing the public and private sector, similar increases in Average Hourly Earnings were observed in the year to Q1 2017 of 0.7 and 0.9 per cent. Average Hourly Earnings in the public sector, however, remain higher at €28.29 compared to €21.08 in the private sector.

Trends over the period Q1 2012 to Q1 2017 indicate an overall increase of 1.9 per cent in Average Hourly Earnings. The largest increase was recorded in the administrative and support services increasing by 12.7 per cent up to €18.09. Of the three sectors where earnings fell, the education and public administration and defence sectors both declined by 4.7 per cent.

FIGURE 23 EMPLOYMENT TRENDS IN THE CONSTRUCTION SECTOR (Q1 2016-Q1 2017)



Source: Central Statistics Office.

The low rate of inflation for much of 2015 and 2016 helped support real incomes and consumer spending in the economy. The data suggest that pricing pressures are beginning to build in the economy as domestic activity picks up, with the level of employment and wages in particular increasing. The strong increase in prices on the services side as well as steady expected increases in rents should result in constant upward pressure on inflation this year. Nominal wages are expected to improve in line with employment over the period and grow at a faster rate than inflation implying households will continue to benefit from rising real income over the forecast period. On balance this suggests an annual average inflation rate of 0.8 per cent in 2017 and a further 1.1 per cent in 2018 (Table 1).

TABLE 1 INFLATION MEASURES

	2015	2016	2017	2018
	Annual Change %			
CPI	-0.3	0	0.8	1.1
HICP	0.0	-0.2	0.3	0.9

Sources: Central Statistics Office and ESRI forecasts.

DEMAND

Household Sector Consumption

Household consumption continued to grow throughout 2016, following a robust performance in 2015. The drivers of the increase in household spending have been continued improvement in labour market conditions (through sustained falls in unemployment and some increases in earnings) as well as continued

improvement in household balance sheets. The latter issue has enabled households to repair their balance sheets. The annual per cent change in retail sales for April 2017 is presented in Table 2.

TABLE 2 ANNUAL GROWTH IN SELECT RETAIL SALES (VOLUME) ITEMS (APRIL 2017)

Retail Business – NACE REV 2	Volume of Sales
	Annual % change
Motor trades	-3.7
Non-specialised stores (excluding department stores)	4.2
Department stores	8.3
Food beverages and tobacco	0.4
Clothing, footwear and textiles	8.1
Furniture and lighting	20.7
All businesses excl. motor trades	6.4
All businesses	1.6

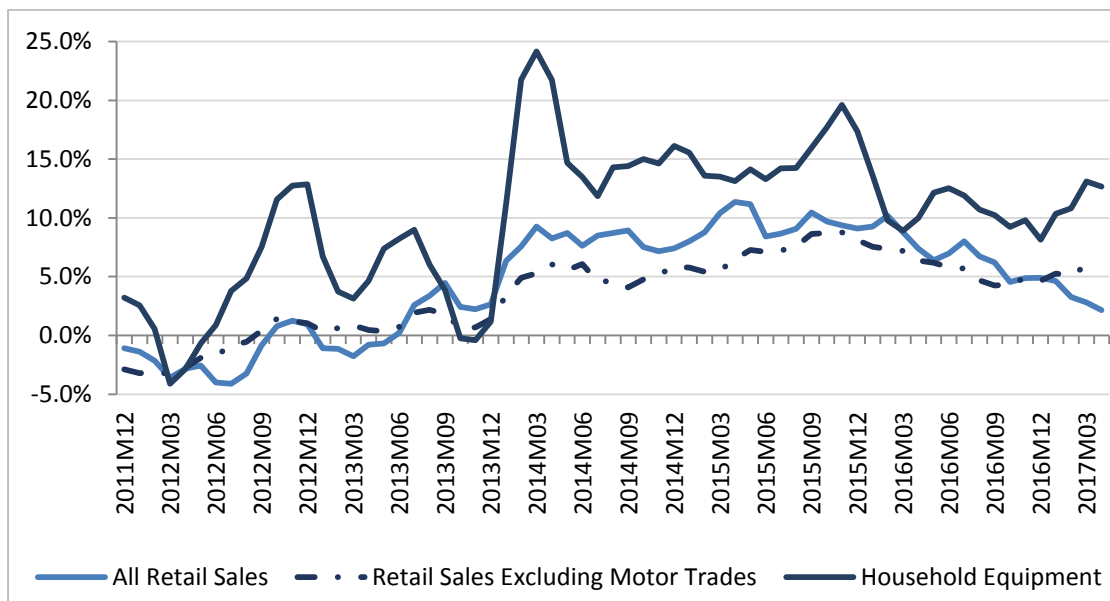
Source: Central Statistics Office.

While the overall index grew on an annual basis by 1.6 per cent, there was considerable variation across different types of products sold. Motor trade sales fell considerably, down -3.7 per cent on an annual basis. This reverses the positive trend in sales of motor vehicles in 2016 and is more than likely attributable to the decline in value of Sterling since mid-2016. Excluding motor trades, the retail sales grew by a robust 6.4 per cent on an annual basis. Significant growth can be particularly observed in furniture and lighting products.

These trends can be more clearly observed on a longer time horizon. Figure 24 presents the annual growth rate in retail sales adjusted for quarterly seasonal effects.²² While the growth in the overall index is slowing, the pace of expansion excluding the motor trade continues to accelerate. The increase in the rate of growth is particularly marked in household equipment. This correlates with the ongoing increase in activity in the housing market that occurred through 2016 and into 2017. These aspects of consumption can be expected to continue to increase in line with the growth envisaged in housing activity.

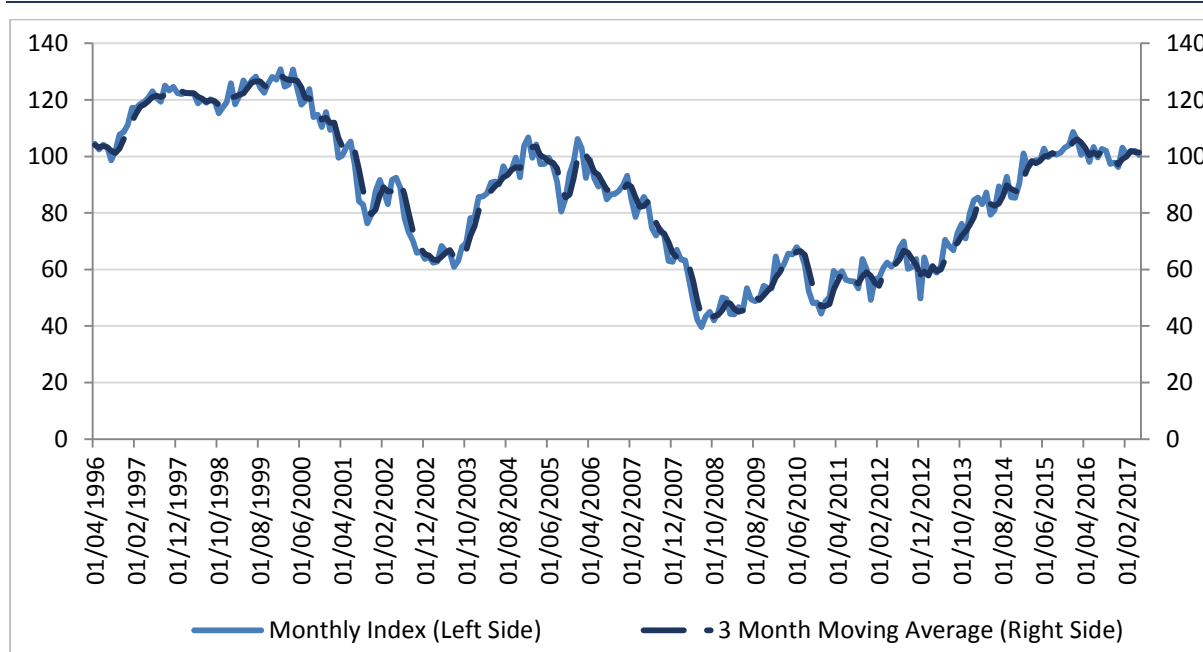
²² The annual growth rates are smoothed over the quarter by applying a 3-month rolling average calculation.

FIGURE 24 ANNUAL GROWTH RETAIL SALES INDEX VOLUME ADJUSTED (BASE 2010 = 100), QUARTERLY ROLLING AVERAGE



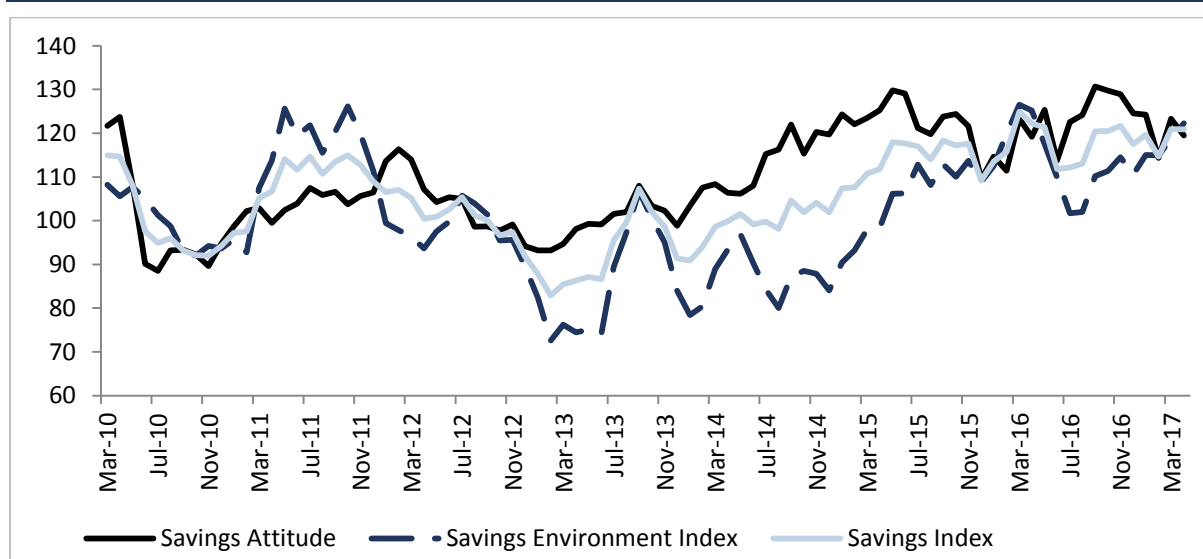
Source: Central Statistics Office.

Reflecting global policy uncertainties, as well as the outcome of the Brexit referendum, the ESRI/KBC Consumer Sentiment Index had declined somewhat towards the end of last year (Figure 25). There was a marginal increase from February 2017 through to April 2017, but the overall sentiment slipped back slightly in May 2017. The index is down on a year-on-year basis. Focusing on the sub-components of the index year-on-year to May 2017, consumers are increasingly pessimistic regarding the prospects for the broader economy and the employment situation. Concerning the buying climate, while consumers feel it a better time to purchase relative to 12 months previously, the most recent data point to a slight reversal in this position for May.

FIGURE 25 ESRI/KBC CONSUMER SENTIMENT INDICATORS

Source: ESRI / KBC.

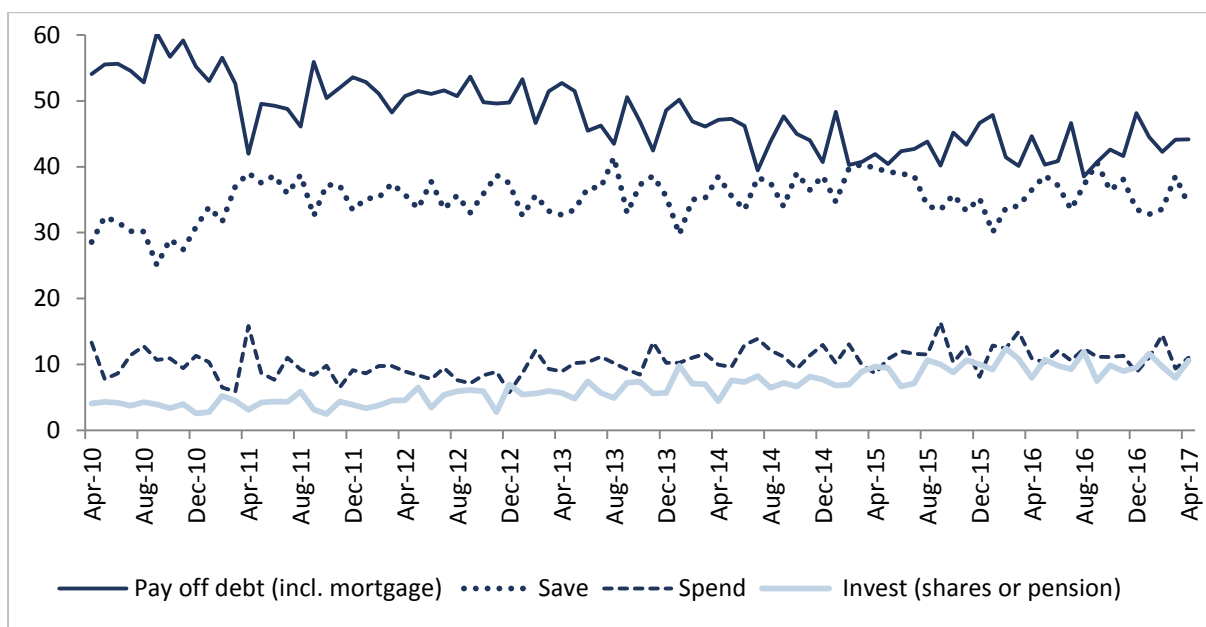
In addition to understanding trends in consumer sentiment, further insight into Irish households' appetite for spending, and views on economic activity, can be drawn from their savings behaviour. Figure 26 presents the ESRI Savings Index (overall) and two sub-indices regarding households' attitudes to savings and the broader savings environment. While the overall index has plateaued in the most recent period, households continue to report increasingly positive views on the savings environment, in line with the positive trend observed since 2016. Attitudes to savings do register a decline in the most recent period.

FIGURE 26 ESRI SAVINGS INDICES

Source: ESRI Savings Index.

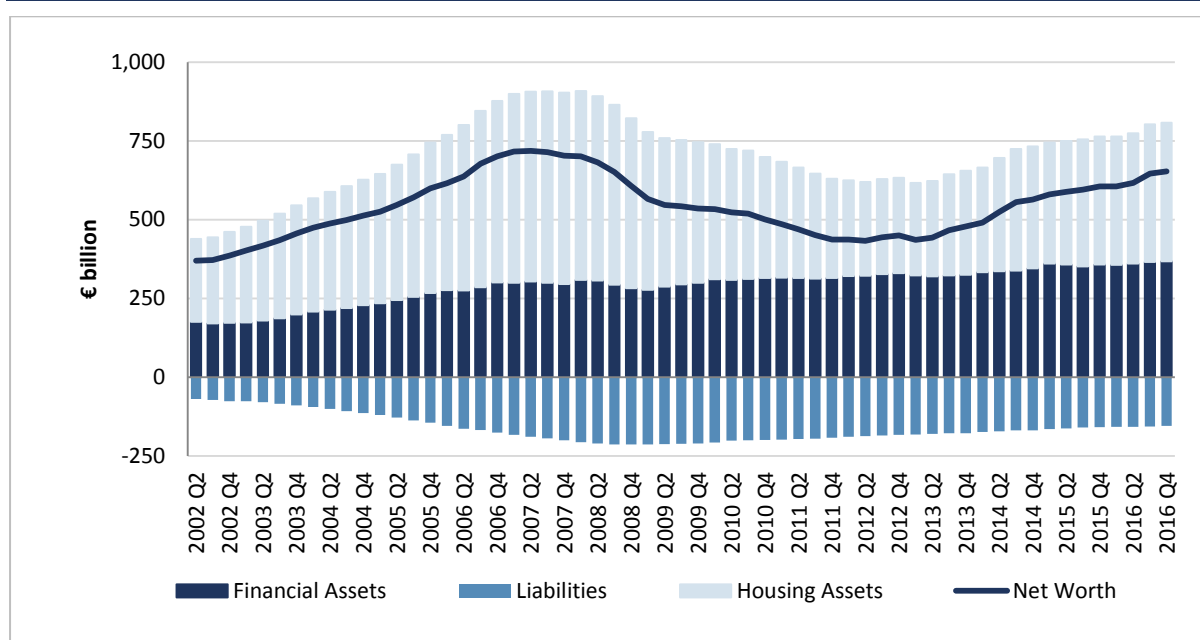
Figure 27 illustrates the trends in households’ intentions for any surplus money. Households continue to highlight the importance of paying down debt, which has been reported as the most likely activity if households saved more than expected. There does, however, appear to be some increase in the share of households willing to save excess money. Given the broader economic and political uncertainties globally, it is unsurprising that households would wish to increase precautionary levels of saving to protect against adverse shocks. Interestingly, there has been a marginal increase in the most recent data of households indicating a willingness to invest excess money. Increased household investment is a crucial component of funding for enterprises and broader economic activity.

FIGURE 27 CONSUMERS’ INTENTIONS FOR ANY SURPLUS MONEY



Source: ESRI Savings Index.

The overall position of Irish households’ net worth, which is the stock of financial and housing assets minus the stock of liabilities, can be observed in Figure 28. Total household net worth increased in Q4 2016. This was driven by households continuing to wind down debt balances as well as increases in portfolio values through rising house prices and financial markets valuations. In the period prior to 2008, the expansion of net worth was largely driven by the rapid growth in the value of housing assets. The fall in property prices following the financial crisis was the main reason for the decline in net wealth in the period 2009-2013. As the property market has recovered, and valuations in other asset markets continued to increase, Irish households’ net worth has recovered. Housing assets continue to be the largest contributor to Irish household wealth highlighting the ongoing reliance of Irish households on property markets as a store of wealth.

FIGURE 28 IRISH HOUSEHOLD NET WORTH

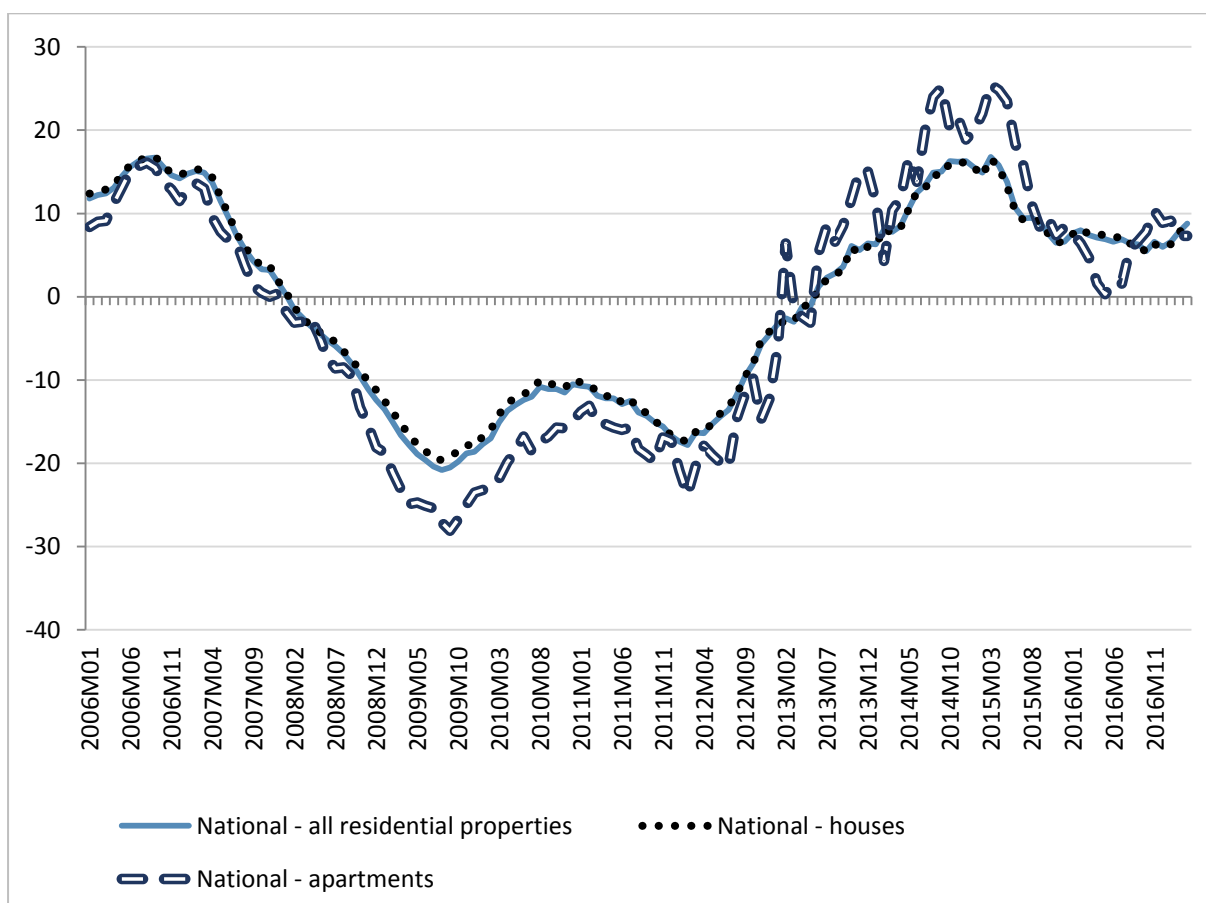
Source: Central Bank of Ireland, Quarterly Financial Accounts.

Given the expected strong performance of both the housing and labour market over the short to medium term, we expect to see a further significant contribution to growth from consumption. This is particularly the case in products complementary to housing purchases. We, therefore, expect consumption to increase by 3.5 and 3.2 per cent in 2017 and 2018 respectively.

Property Market Developments

Figure 29 plots the annual rate of residential property price growth for the national, national excluding Dublin and Dublin categories. Following a slowing in the pace of growth in 2015, house prices increased at a faster pace in 2016. The rate of increase further accelerated towards the end of 2016 and for the first three months of 2017. This is mainly driven by the price of houses which has experienced a faster rate of growth than apartments. Nationally, prices were up 10.5 per cent year-on-year to April 2017.

FIGURE 29 ANNUAL HOUSE PRICE GROWTH (%)

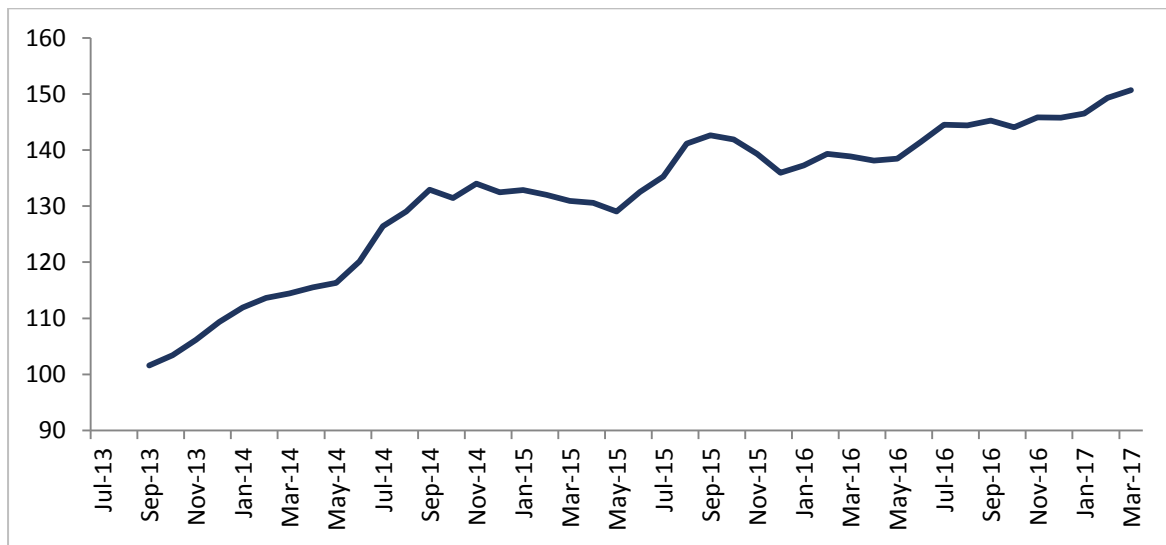


Source: Central Statistics Office.

It is likely that some of the acceleration in the rate of price increases is driven by recent policy measures such as the government’s Help to Buy Scheme for first time buyers as well as the revisions to the macro-prudential measures in the mortgage market by the Central Bank which came into effect in early 2017. These measures would both have increased the purchasing capacity of potential borrowers.

Figure 30 plots the latest ESRI/AIB housing market indicator. The index comprises questions on market participants’ attitudes to selling property, market risk as well as short to medium term house price expectations. The index began to increase from mid-2016 and has continued to accelerate through March 2017. Coupled with the increased rate of growth in house prices, the overall picture points towards a significant acceleration in activity in the housing market.

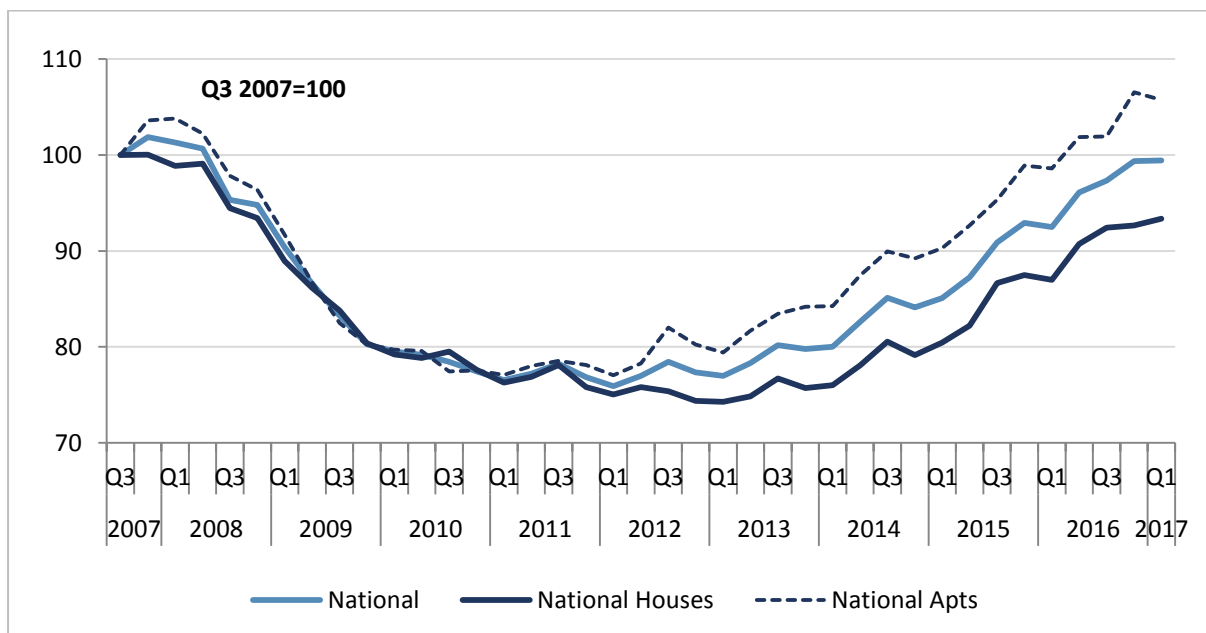
FIGURE 30 ESRI/AIB HOUSING MARKET INDEX



Source: AIB/ESRI Housing Market Index.

The latest data from the RTB Rental Index confirm that rents nationally continue to increase at a significant rate. Rents in Q1 2017, nationally, increased by 7.4 per cent on an annual basis. It can be seen that the pace of growth in the rental market has moderated (Figure 31), in particular for apartments.

FIGURE 31 RESIDENTIAL TENANCIES BOARD NATIONAL RENTAL INDEX: Q3 2007 = 100



Source: Residential Tenancies Board (RTB).

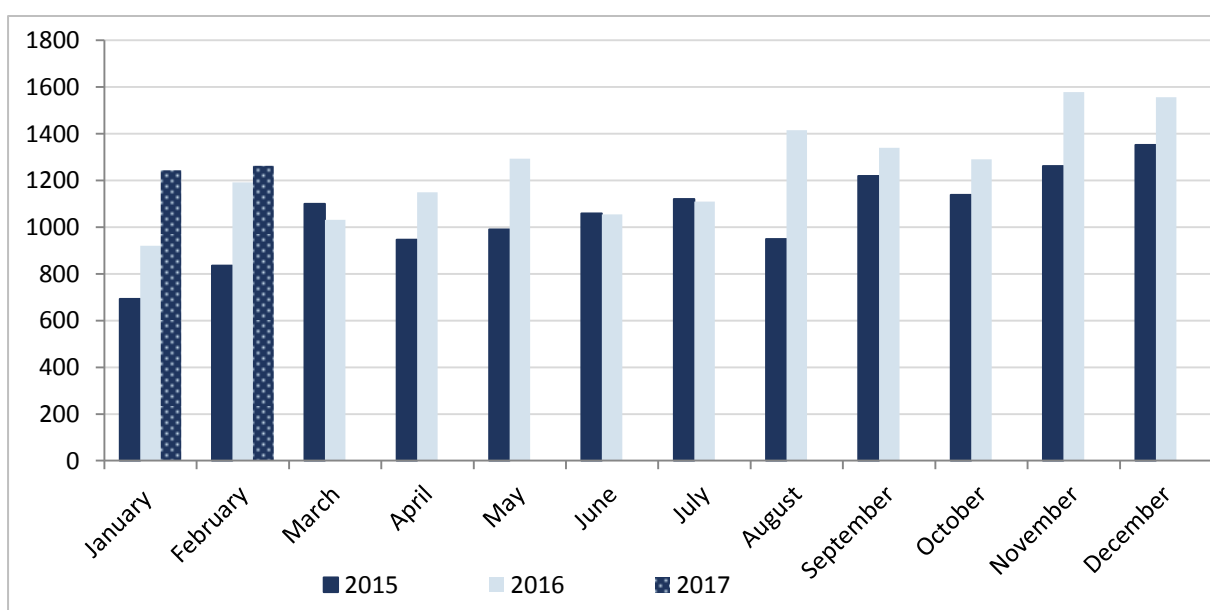
In late 2016 the RTB asked researchers at the Institute to explore the possibility of compiling rental indices at a more granular regional level. These indicators are

now used to underpin the implementation by the Department of Housing of the rent pressure zones policy. Indicators are estimated from Q3 2007 to the present for the 137 local electoral areas (LEAs). In particular, an area qualifies to be included as a rent pressure zone if two considerations arise (i) if the area experiences an annual rate of rental growth of 7 per cent or more in four of the last six quarters and (ii) the average rent for tenancies registered with the RTB must be above the average national rent. The first RTB Rent Index using the new approach was published in 2017.

These data provide much more granular local information on the rental market on a highly disaggregated regional basis. While this information is clearly of benefit in the framing of the rent pressure zone policy, it also provides highly useful information in understanding both housing and more general economic trends at a regional level.

As documented in the previous *Commentary*, the level of housing completions increased steadily in 2016 relative to 2015 on a month-by-month basis (Figure 32). While there is still some uncertainty about the exact measurement of housing supply (see Box 2), the increased demand for housing does finally appear to be working through to supply. For the first two months of 2017, completions were up on an annual basis following the trend set in 2016. The total number of houses built was just under 15,000 in 2016 and our expectation is that this will increase to 18,500 units in 2017, with the number increasing to 23,500 units in 2018.

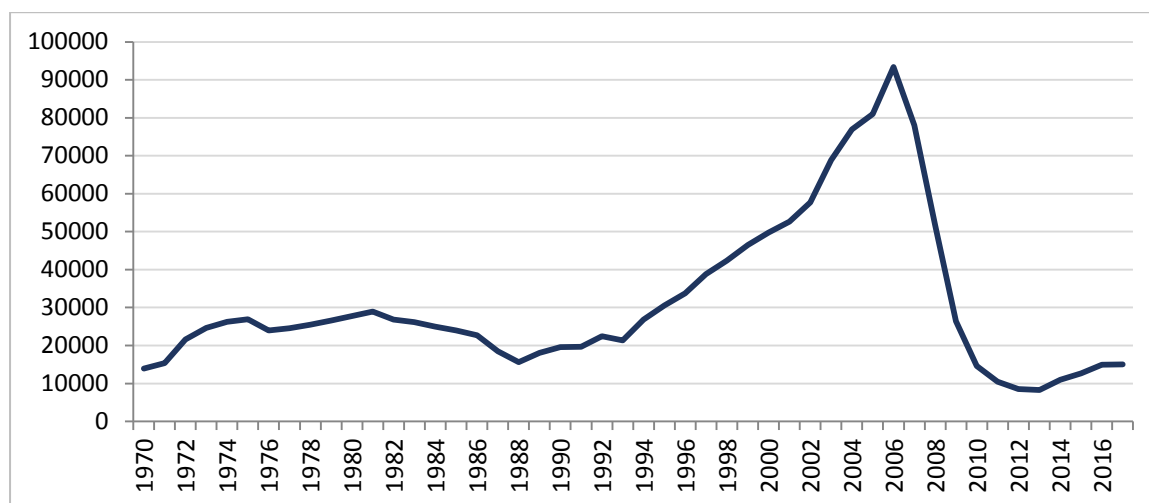
FIGURE 32 MONTHLY LEVELS OF HOUSING SUPPLY



Source: Department of Housing Planning and Local Government and QEC calculations.

However, it must be noted that completions are well below historical levels. Figure 33 highlights completions per month going back to the mid-1970s. While a tentative recovery began in 2016, monthly completions remain the lowest on record. A continued emphasis on delivering housing units will be required to meet fundamental demand going forward. Duffy et al. (2016)²³ suggested that long-run housing demand in the Irish economy was now in the region of 30,000 to 35,000 units per annum.

FIGURE 33 TIME SERIES OF HOUSING COMPLETIONS, 1970-2017



Source: Department of Housing Planning and Local Government and QEC calculations.

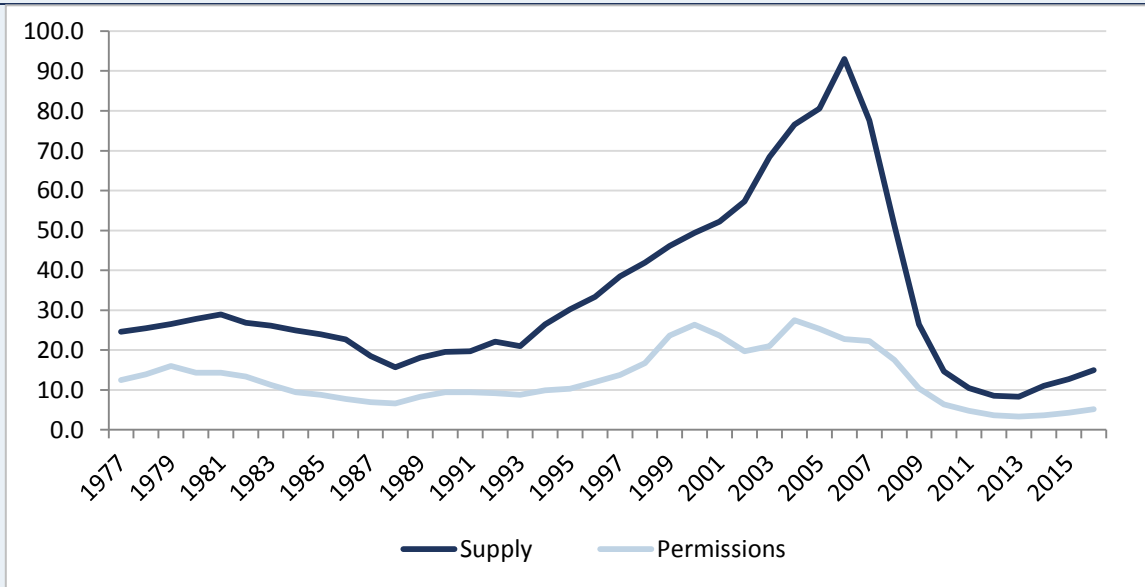
²³ Duffy, D., D. Foley, N. Mc Inerney and K. McQuinn (2016). 'Demographic Change, Long-Run Housing Demand and the Related Challenges for the Irish Banking Sector', Book Chapters, in: *Ireland's Economic Outlook: Perspectives and Policy Challenges*, Economic and Social Research Institute (ESRI).

BOX 2 THE RELATIONSHIP BETWEEN HOUSING SUPPLY AND PLANNING PERMISSIONS BY KIERAN MCQUINN

Recent commentary has suggested that the actual number of housing units built in the Irish State maybe somewhat less than the official figure published by the Department of Housing. These figures state that in 2016, 14,932 units were built with 12,666 units completed in 2015. The present approach of the Department of Housing is to use connections of electricity services by the ESB; only when a house is finished and ready for occupation is the electricity ‘switched on’. However, with a large number of units partially built in the run up to 2007, it may well be that recent increases in activity are capturing the fact that some of the earlier stock is merely being finished off and hence only now being connected to the electricity grid. Some estimates have suggested the level of housing construction could be as low as 50 per cent of the official figures. The release of the recent census data also appeared to cast some doubt on the official supply numbers, however some subsequent analysis did appear to reconcile the two different sets of figures (FitzGerald, 2017).²⁴

In this box we compare the actual supply figures with the official data compiled by the Central Statistics Office on planning permissions. In Figure A we plot the two series since data became available in 1977.

FIGURE A ACTUAL HOUSING SUPPLY AND PLANNING PERMISSIONS GRANTED (000 UNITS)



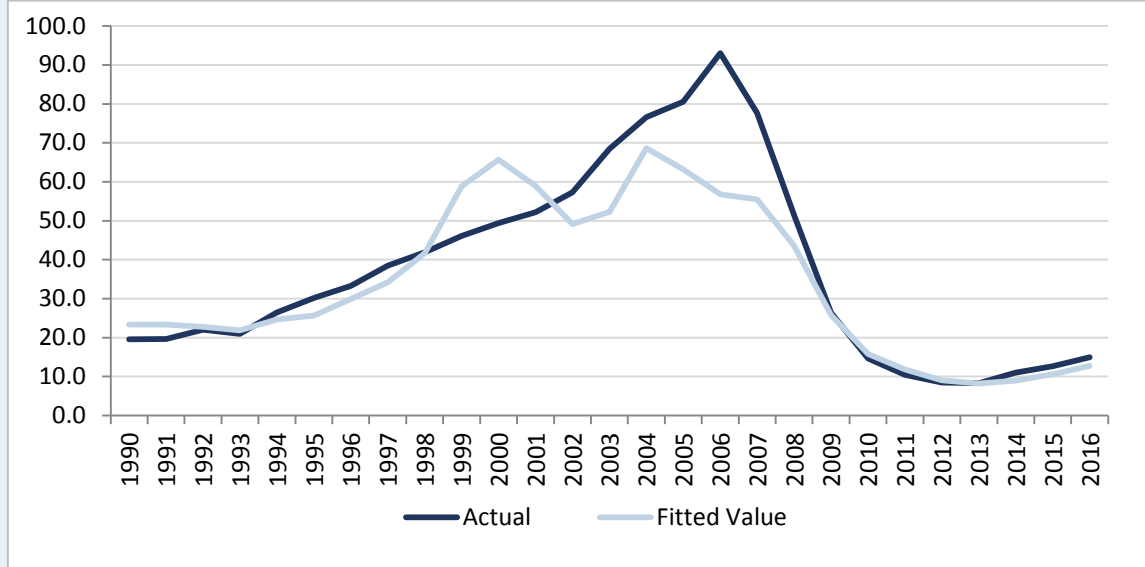
Over the full period it is evident that a close relationship exists between new housing supply and planning permissions granted; the relationship does break down during the period of the Celtic Tiger (1999-2008). This probably reflects the growth in number of apartments during this period where the number of planning permissions granted would be much less than the actual number of units built. Post-2008, as the level of housing activity

²⁴ Irish Times article May 5, 2017.

sharply declines, the two sets of figures again move together.

Running a standard OLS model where housing supply is regressed on planning permissions provides us with an estimate of housing supply based on the planning permissions numbers. In Figure B we plot the actual and fitted values from such a model.

FIGURE B ACTUAL HOUSING SUPPLY AND FITTED VALUE FROM MODEL (000 UNITS)



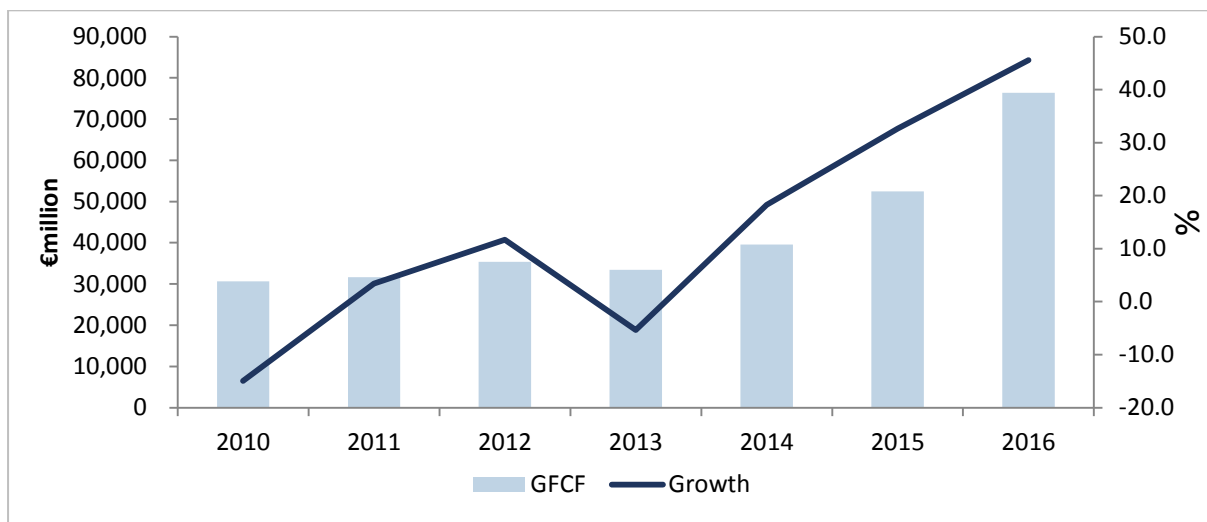
Again, from the Figure it is evident that the actual and fitted values track each other very well apart from the 2004-2008 period. The fitted value in 2016 suggests a supply level of 12,700 units as opposed to the official figure of 14,900 units.

SUPPLY

Investment

Total Investment as measured by Gross Fixed Capital Formation (GFCF) has been growing strongly since 2014, as shown by Figure 34. In 2016, annual growth was 45 per cent, up from 33 per cent in 2015. This significant growth is largely being driven by an increase in intangible assets which reflect changes in national accounting treatment. Despite the overall rate being inflated by these factors, the other components are also trending upwards.

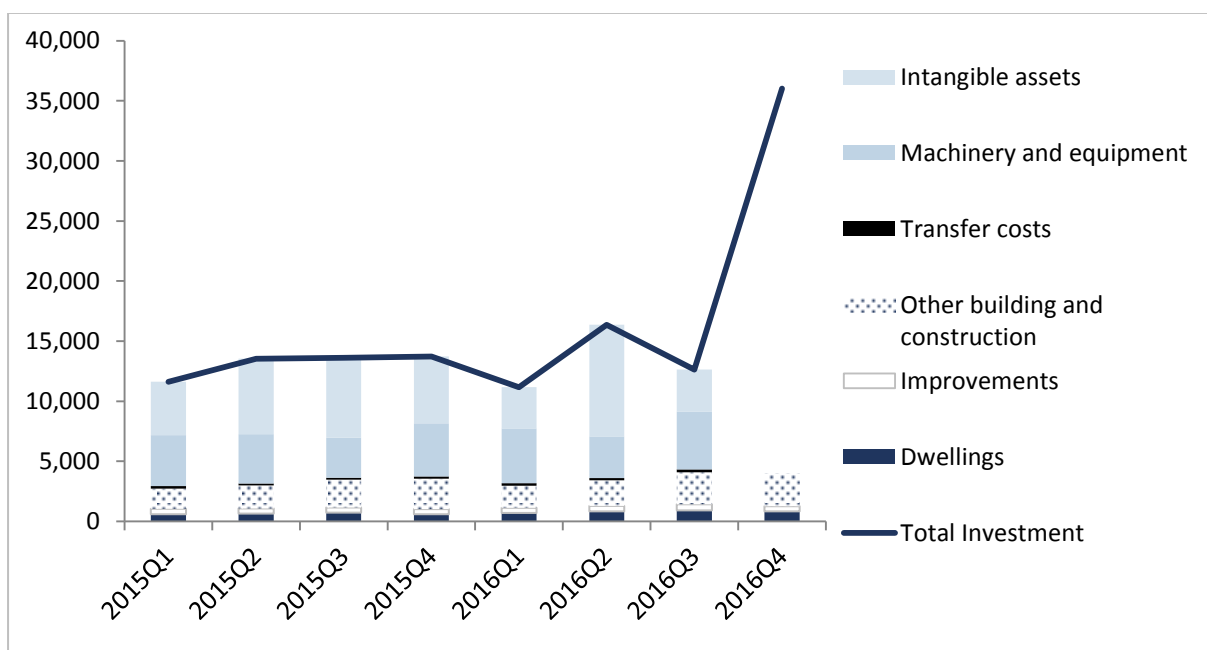
FIGURE 34 GROSS FIXED CAPITAL FORMATION LEVELS AND GROWTH RATES (2010-2016)



Sources: Central Statistics Office and QEC calculations. Some data have been withheld by the CSO for data privacy reasons.

Due to the sensitive nature of the data in components relating to machinery and equipment and intangible assets, the exact details of the data are unknown. We do know, however, that in the aggregate, these components increased by approximately 57 per cent over the year. Figure 35 shows the substantial impact that these two investment categories can have on the overall rate. Of the €36 billion of capital formation in the last quarter of 2016, approximately only €4 billion is accounted for in the quarterly National Accounts data release. This makes it substantially more difficult to understand the underlying trends in these components.

FIGURE 35 COMPONENTS OF INVESTMENT AS A PROPORTION OF TOTAL

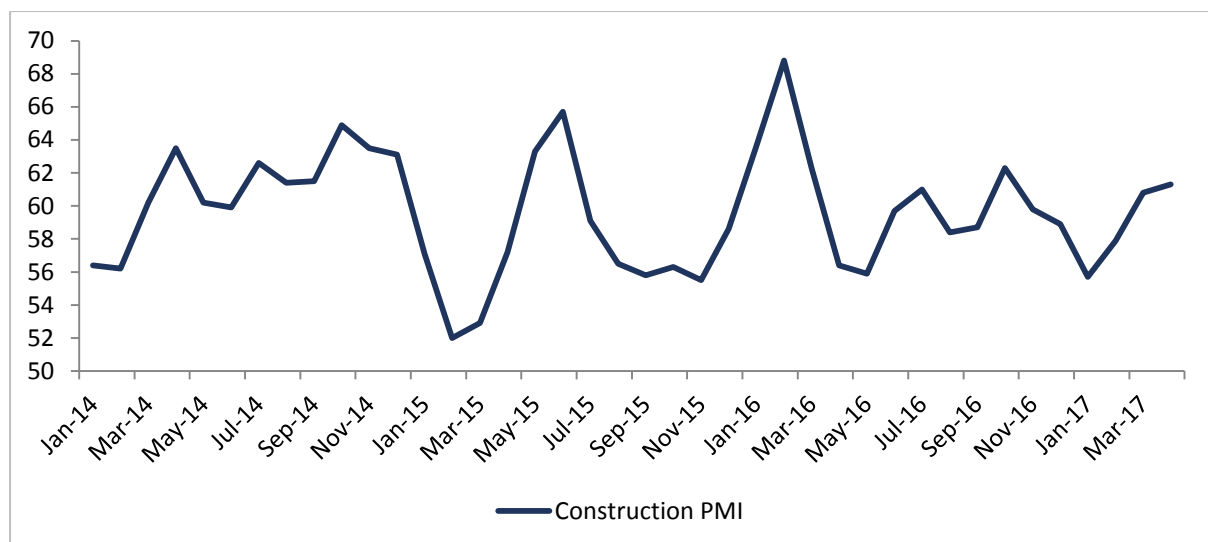


Sources: Central Statistics Office and QEC calculations. Some data have been withheld by the CSO for data privacy reasons.

In light of these circumstances and the significant forecasting challenge they pose, we focus on the components of investment that are less volatile and are a much better indication of real domestic investment activity (i.e. ‘core investment’). The relative proportion of investment (excluding intangibles and aircraft) has been increasing since, with latest data available suggesting that between Q3 2015 and Q3 2016, other building and construction increased by 4 percentage points up to 42 per cent of the total. A similar trend is observed in the dwellings component, increasing by 2 percentage points over the same timeframe. These trends suggest the domestic construction industry is becoming an increasingly important component of investment.

The Markit Construction PMI, a business survey which provides another source of activity in the construction sector is shown in Figure 36. A reading above 50 indicates an expansion and in the first few months of 2017 we can see that the index is beginning to trend upwards. The latest reading in April at 61.3 indicates that businesses are seeing a further pickup in construction activity compared to the start of the year.

FIGURE 36 CONSTRUCTION PMI FOR IRELAND

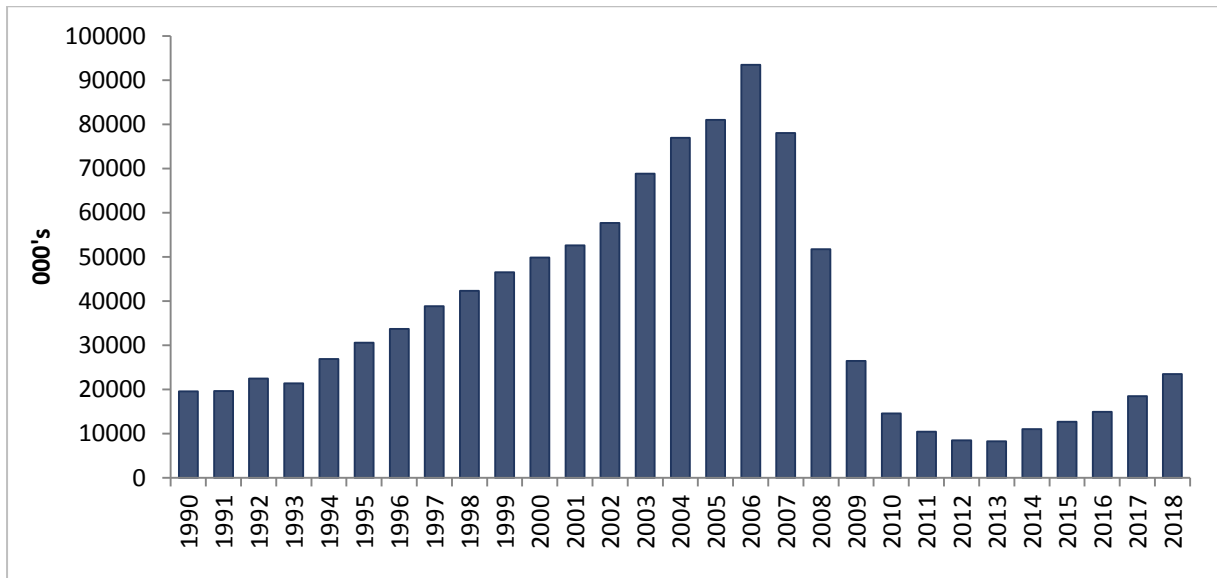


Source: Markit Purchasing Managers' Index.

Similar to the previous *Commentary*, we continue to believe that residential property will be a significant driver of real investment this year. Our forecasts are underpinned by an increasingly active construction sector as shown by the pickup in soft indicators such as the Construction PMI as well as other factors such as construction employment and housing completions data. All in all, if these trends continue we can expect to obtain somewhere in the region of 23,500 housing completions by 2018 (Figure 37).

Consequently, we maintain an optimistic outlook for overall Investment in 2017 and 2018, although we do assume a return to more moderate rates of growth compared to previous years. In particular, we expect annual average growth in investment of 9.5 per cent in 2017 and 8.7 per cent in 2018.

FIGURE 37 ANNUAL HOUSING COMPLETIONS (2017-2018 FORECASTS)

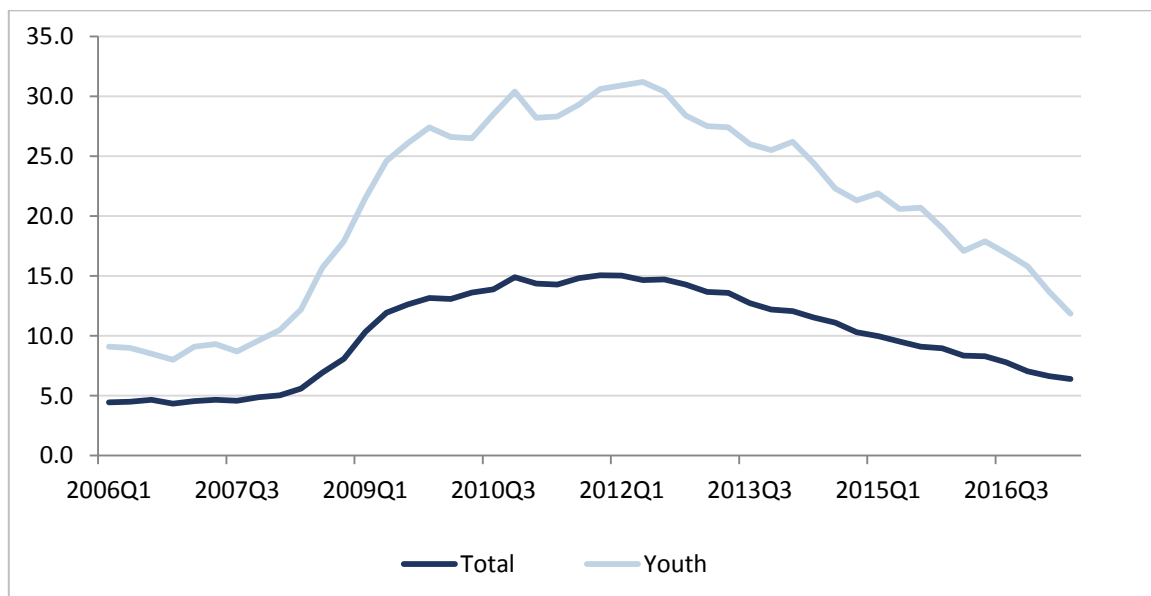


Sources: Department of Environment and QEC Forecasts.

LABOUR MARKET

Unemployment

The Irish labour market continues to perform very strongly into the second quarter of 2017. The seasonally-adjusted unemployment rate for May 2017 was 6.4 per cent, unchanged from the previous month but down from 8.4 per cent in the same month last year. The seasonally-adjusted number of persons unemployed was 140,700 in May 2017, a decrease of 42,800 when compared to May 2016.

FIGURE 38 UNEMPLOYMENT RATES (%): Q1 2006 – Q2 2017

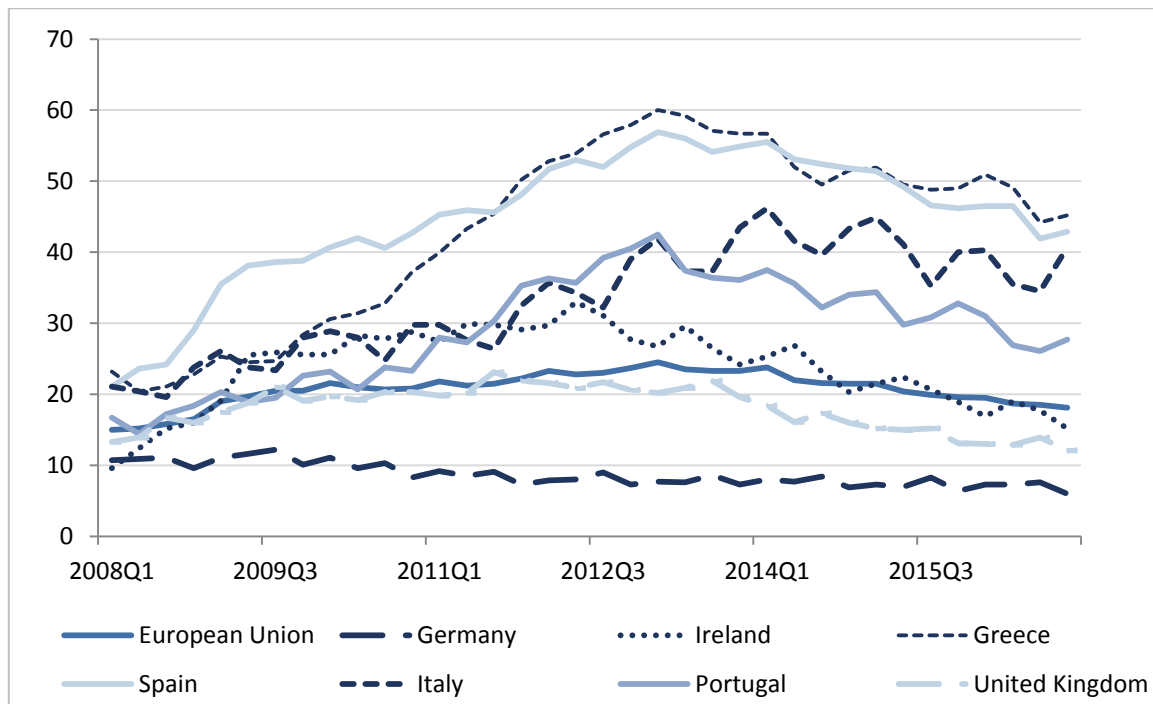
Source: Central Statistics Office.

As can be seen from Figure 38, the unemployment rate is quickly approaching the pre-crisis level.

In terms of a breakdown of the unemployment rate by gender, the seasonally-adjusted unemployment rate for men was 7.1 per cent in May, down from 9.6 per cent the previous year, while the seasonally-adjusted unemployment rate for females was 5.5 per cent down from 6.9 per cent in May 2016. The youth unemployment rate (aged 15-24), was 11.7 per cent in May, a significant decrease from 18.0 per cent the same time in 2016. The youth unemployment rate is also presented in Figure 38.

It is interesting to compare the youth unemployment across Europe; in Figure 39 the rate is plotted for select European countries as well as the European Union as a whole.

FIGURE 39 SELECT EUROPEAN YOUTH UNEMPLOYMENT RATES (%): Q1 2008-Q4 2016



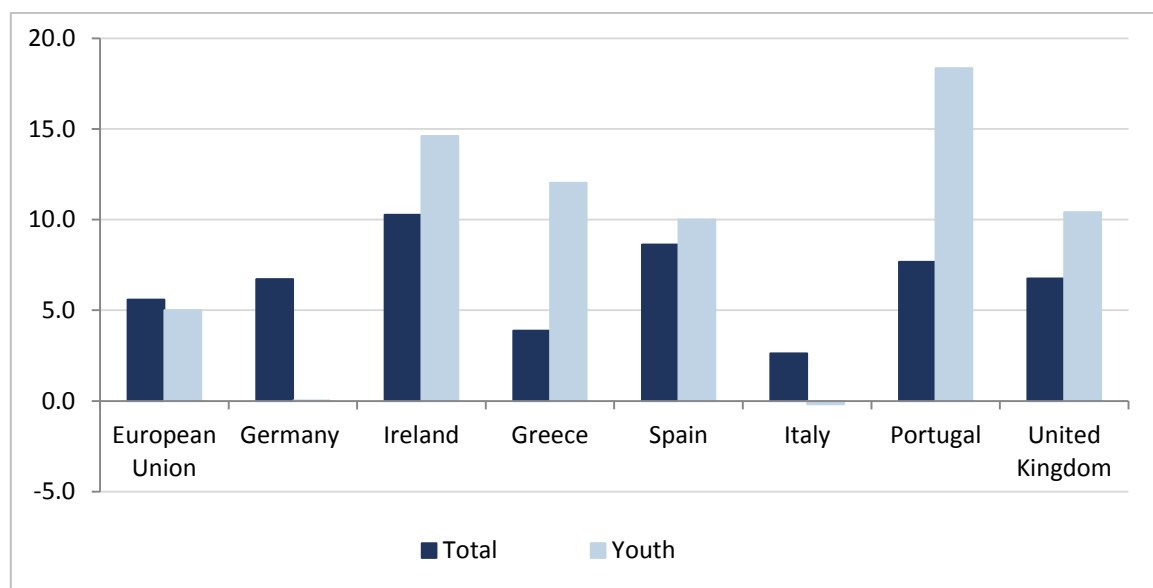
Source: European Commission.

While there has been some improvement since 2013 in the case of the Greek and Spanish markets, the scale of the problems confronting these markets is evident. The deterioration in the Italian youth labour market is also apparent with youth unemployment rates actually increasing from 2013 onwards. Ireland’s performance, on the other hand, is in line with the European Union average.

Employment

The latest QNHS data indicate there was an annual increase in employment of 3.5 per cent or 68,600 to Q1 2017. This compares with an annual increase of 3.3 per cent for the previous quarter and brings total employment in the State to 2,045,1000. The increase in employment of 68,600 was comprised of an increase in full-time employment of 5.5 per cent and a reduction in part-time employment of 3.4 per cent. Construction, along with the information and communications sectors, registered the largest year-on-year increases of 9 per cent each with only agriculture reporting a decline in employment levels for the same period. Total employment in the construction sector now stands at 142,500, however, this is still just over half the amount employed in the sector in Q2 2007.

Figure 40 plots employment growth for the total and youth labour markets across the same countries in Figure 33. While providing an overview of labour market performances across Europe, it also places the recent Irish labour market performance in context. We take Q1 2013 as our starting point as this generally reflects the starting point for the post-financial crash recovery.

FIGURE 40 SELECT EUROPEAN YOUTH AND TOTAL LABOUR MARKET EMPLOYMENT GROWTH (%): Q1 2013 – Q4 2016

Source: European Commission.

The Irish performance is quite impressive by comparison with only youth employment in the Portuguese market registering a stronger performance.

The latest results from the QNHS give a breakdown of the performance of Irish regional labour markets. In Table 4 we show the change in levels and also the growth in employment observed between Q1 2016 and Q1 2017 in all regions in the country. From the table we can see that employment growth for the period occurred in all regions with the exception of the Border area; the West and the Mid-East reported the largest percentage increases (10.4 per cent and 5.3 per cent). Employment levels in Dublin grew by 2.5 per cent or 15,500. In terms of unemployment, the Midlands witnessed the largest decline in percentage terms (33.3 per cent), while the South East saw the largest decline in the level of unemployment (7,200).

TABLE 4 EMPLOYMENT GROWTH BY REGION

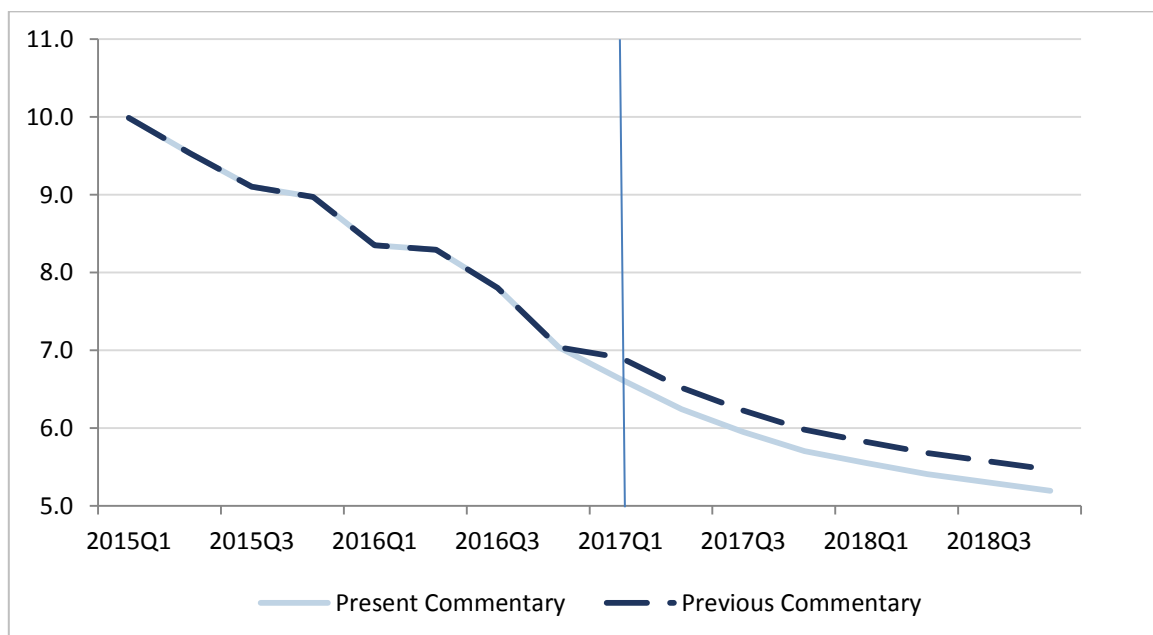
Employment (000's)	Q1 2016	Q1 2017	Level Change	Y-o-Y
				(% change)
Border	195.7	195.4	-0.3	-0.2
Midland	117.4	121.3	3.9	3.3
West	176.6	194.9	18.3	10.4
Dublin	611.7	627.2	15.5	2.5
Mid-East	231.4	243.6	12.2	5.3
Mid-West	153.9	157.9	4.0	2.6
South East	204.4	214.3	9.9	4.8
South West	285.4	290.5	5.1	1.8
State	1,976.5	2,045.1	68.6	3.5

Sources: Central Statistics Office.

Labour Market Forecasts

The continued strong performance of the labour market has resulted in a downward revision in our expected unemployment rate (see Figure 41).

FIGURE 41 ACTUAL AND FORECAST UNEMPLOYMENT RATES (%): Q1 2006 – Q2 2017



Source: Central Statistics Office and QEC calculations.

Our expectation now is that the unemployment rate will drop to 6.1 in 2017 and will fall below 5.5 per cent by Quarter 2, 2018. As noted in the previous *Commentary*, an unemployment rate below 5.5 per cent in the Irish case indicates that the economy could begin to experience capacity constraints resulting in significant upward pressure on wages. The remainder of our forecasts are summarised in Table 5. Based on the better than expected trends in the most

recent labour market data, we forecast that the total number of people in employment will now increase to 2.087 million in 2017 and 2.134 million in 2018.

TABLE 5 LABOUR MARKET FORECASTS

	2012 (‘000)	2013 (‘000)	2014 (‘000)	2015 (‘000)	2016 (‘000)	2017 (‘000)	2018 (‘000)
Agriculture (‘000)	86	107	109	110	113	110	110
Industry: (‘000)	336	343	348	374	394	417	433
Construction (‘000)	102	102	109	125	136	149	162
Other Industry (‘000)	234	241	239	248	258	268	272
Services (‘000)	1,414	1,430	1,453	1,474	1,507	1,558	1,592
Total Employment (‘000)	1,835	1,880	1,914	1,964	2,020	2,087	2,134
Employment Growth Rate (Per cent)	-0.5	2.4	1.8	2.6	2.9	3.3	2.3
Unemployed (‘000)	316	282	243	204	173	136	121
Reduction in Unemployment (Per cent)	-0.3	-10.7	-14.0	-16.1	-15.0	-21.3	-11.2
Unemployment rate (‘000)	14.7	13.1	11.3	9.4	7.9	6.1	5.4
Labour Force (‘000)	2,154	2,163	2,157	2,167	2,193	2,223	2,255

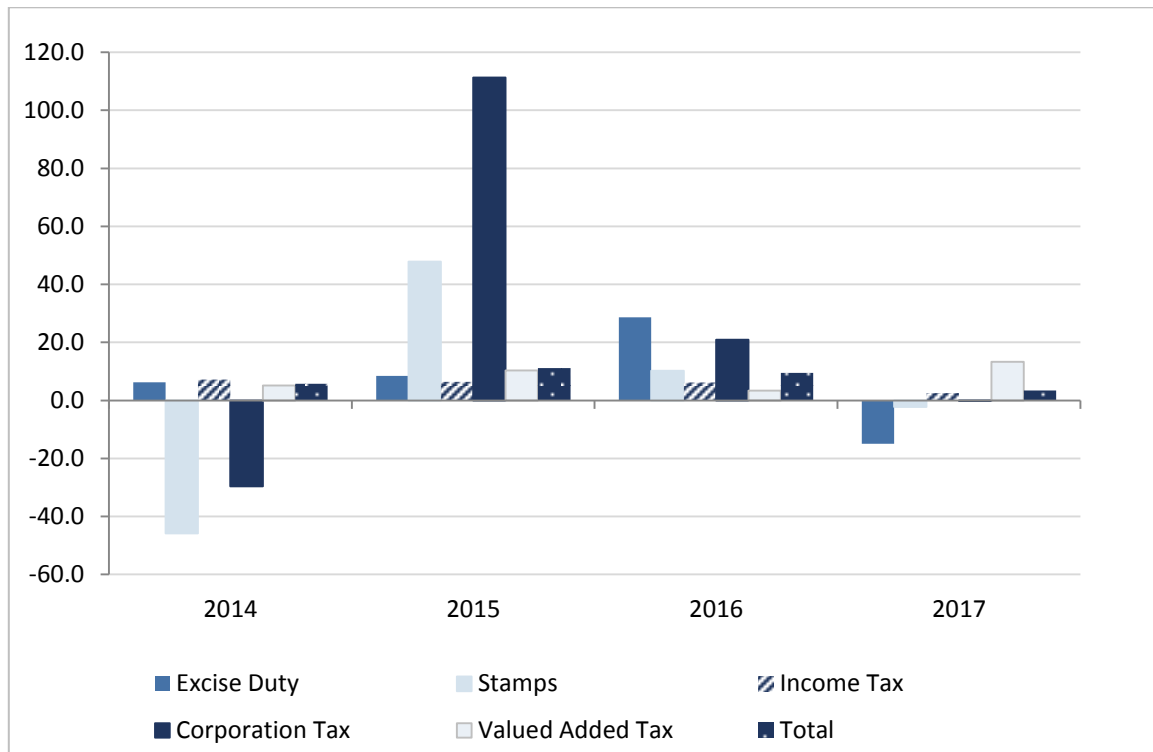
Sources: Central Statistics Office and ESRI Forecasts.

In the Output section of the *Commentary*, Garcia Rodriguez outlines the implications for Irish potential output of a hard Brexit. One of the channels through which the impact occurs is the labour market; namely Irish unemployment over the longer-term is likely to be higher than what it would be in the absence of a ‘hard Brexit’. Bergin and Garcia Rodriguez estimate that over the medium term, Irish employment levels are likely to be 4.5 per cent lower under a hard Brexit scenario. This, along with the lower rate of investment in the economy due to the scenario, reduces the productive capacity of the Irish economy over the medium term. As noted in the public finances section this has particular implications for the budget.

PUBLIC FINANCES

Apart from value added taxes (VAT) most of the other major tax headings have either reported stagnant or negative growth rates in 2017. To put the recent movements in context, in Figure 42 we report the annual changes in taxation returns for the period January-May for the last four years for the main tax categories as well as the overall total amount.

FIGURE 42 ANNUAL CHANGES IN MAJOR TAX SUB-COMPONENTS (%) FOR THE PERIOD JANUARY - MAY



Sources: QEC calculations.

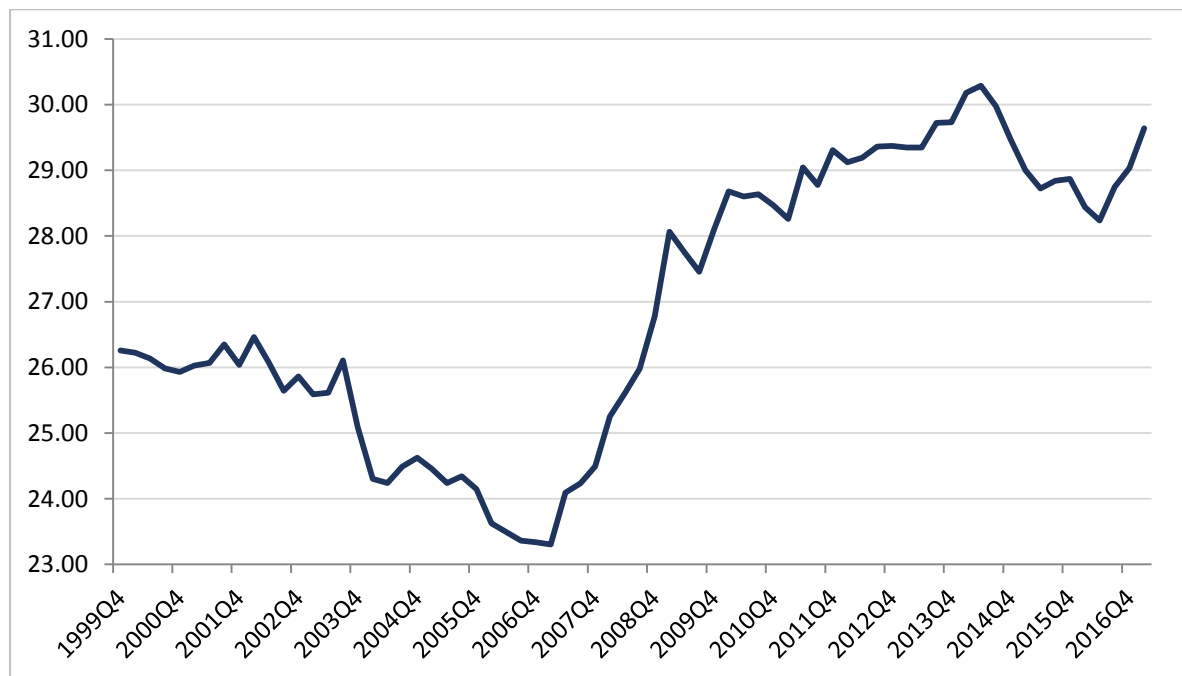
While the two most significant months for corporation tax returns, June and November, are not included in this timeframe, the overall picture for taxation receipts so far this year is for a significant slowdown in growth.

While some of this downturn may be related to the significant fall in the value of Sterling, the relatively weak performance of labour related taxation revenues is somewhat puzzling. Pay related social insurance contributions are increasing by just over 2 per cent for the same period while income tax itself is up 3.4 per cent. This is against the backdrop of an accelerated fall in unemployment since late 2016. One possible reason for this may be the changes in Universal Social Charge (USC) in Budget 2017; if most of the employment growth is centred in lower wage jobs, this may not yet translate into significant increases in taxation returns.

Given the variations in taxation revenues it is informative to examine general trends in the composition of the overall Exchequer returns. In particular, in Figure 43 we calculate a ‘Herfindahl -Hirschman Index’ for the different taxation headings over the period 1999 to 2016. A Herfindahl -Hirschman index is a popular measure of concentration in industrial economics, with an increasing score indicating that the overall revenue take is becoming more concentrated amongst certain components. Many of the reports which accompanied the substantial decline in

Irish taxation revenues post-2008 have advocated a diversification of the taxation base.

FIGURE 43 HERFINDAHL-HIRCHMAN INDEX (HHI) OF IRISH TAXATION RETURNS



Sources: QEC calculations.

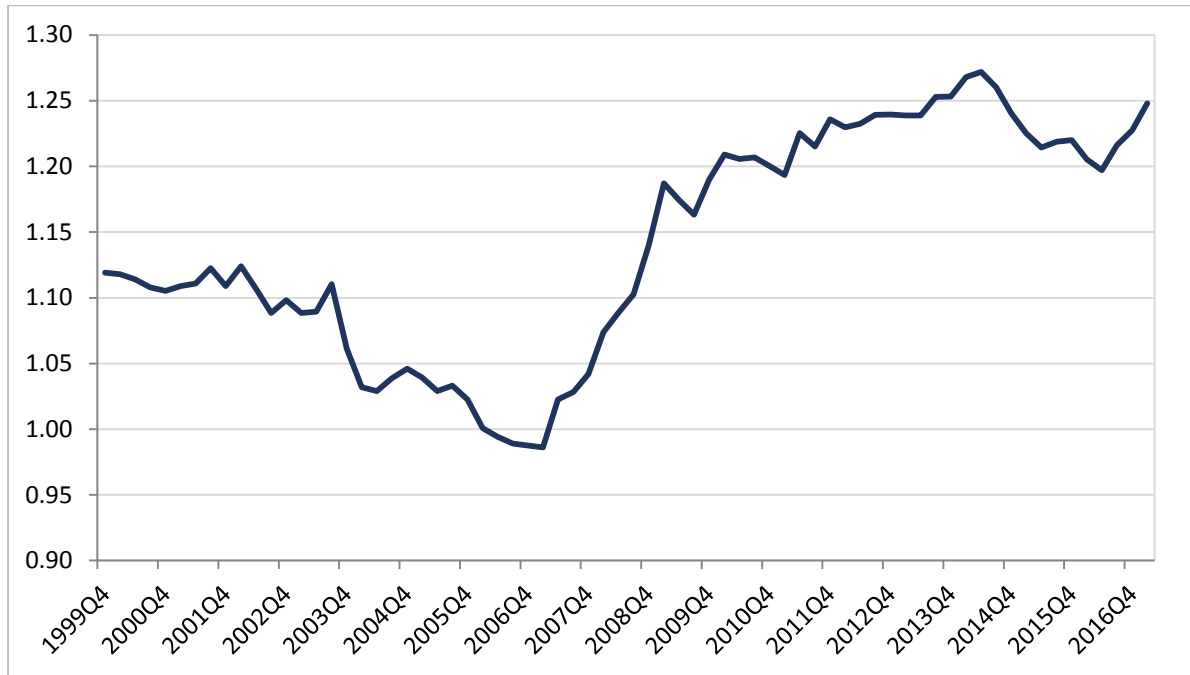
Ironically as the taxation base became more diversified through the Celtic Tiger era, it was also becoming more unsustainable. This was due to the rapid expansion in the construction sector which, as noted in Addison-Smyth and McQuinn (2016) and (2010),²⁵ impacted on a variety of taxation headings. Since 2007, income tax has become a more significant component of overall taxation receipts, thereby increasing the concentration of returns. While income tax is typically a more stable source of revenue than other headings, the growing concentration of revenues does underscore the need to diversify the Irish taxation system particularly in light of the recent decision on water charges. As noted by the European Commission,²⁶ a balanced composition of different tax sources and broader tax bases improves revenue stability in the face of economic volatility.

²⁵ Addison-Smyth D. and K. McQuinn (2016). 'Assessing the sustainable nature of housing-related taxation receipts: The case of Ireland'. *Journal of European Real Estate Research*, Article first published online: June, 2016 and Addison-Smyth D. and K. McQuinn (2010). 'Quantifying revenue windfalls from the Irish housing market', *The Economic and Social Review*, Vol. 41(2), pp.201-223.

²⁶ See www.consilium.europa.eu for details.

As a related exercise in Figure 44 we also calculate the coefficient of variation for Irish taxation revenues again over the period 1999 to 2016. The coefficient is a standardised measure of dispersion of a distribution. It is defined as the ratio of the standard deviation to the mean.

FIGURE 44 COEFFICIENT OF VARIATION OF IRISH TAXATION REVENUES

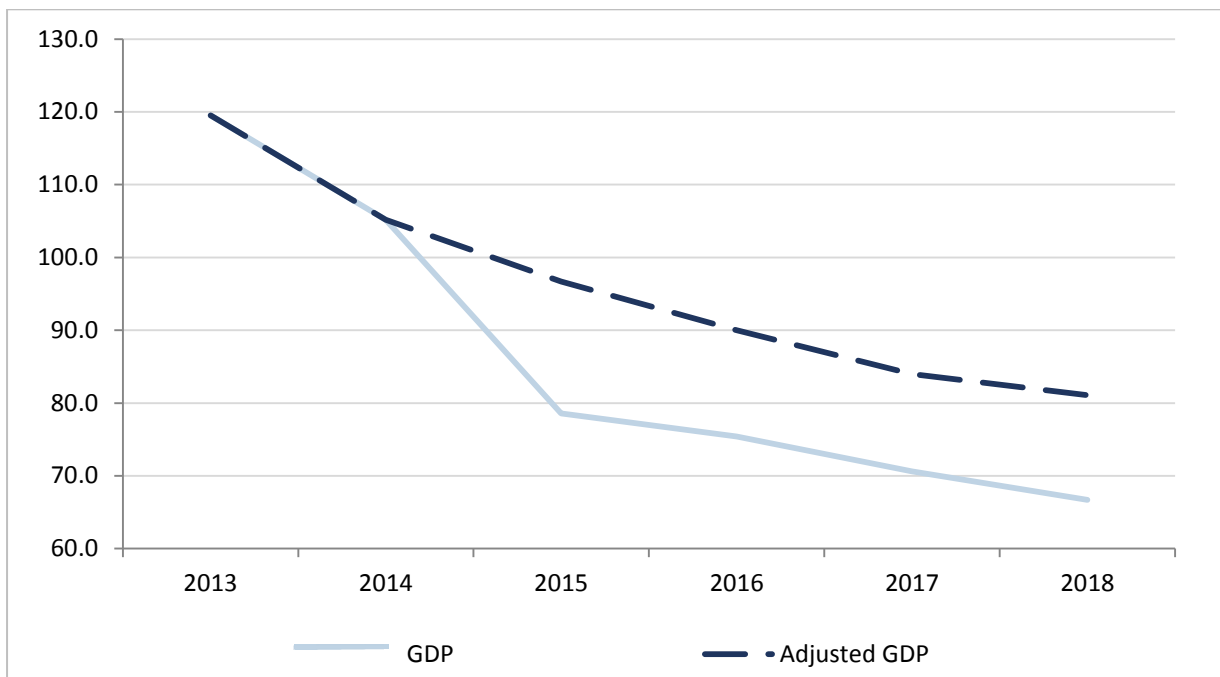


Sources: QEC calculations.

Corresponding with the concentration measure, the coefficient also indicates that the variance of Irish taxation revenues has increased since 2007.

Given the slowdown in Exchequer returns in 2017, we have modified our revenue forecasts downwards. Reflecting the faster than expected decline in unemployment we have also reduced our expected levels of transfer payments. Overall, however, our deficit for the present year has increased to 0.5 per cent of GDP compared with our expectation of 0.1 per cent in the previous *Commentary*. We now believe that there will be a mild deficit in 2018 of 0.3 per cent, having expected a surplus in 2018 in the previous *Commentary*.

In Figure 45, following previous *Commentaries* we plot two sets of debt-to-GDP ratios over the period 2013 to 2018; one with the official GDP series and one with the GDP series estimated for 2015. The adjusted series provides a more accurate reflection of the economy’s ability to sustain the overall level of debt. Based on the adjusted series, we expect to see the debt-to-GDP ratio fall to 84 per cent in 2017 and then to 81.1 per cent in 2018.

FIGURE 45 ALTERNATIVE DEBT-TO-GDP RATIOS (%)

Sources: QEC calculations.

In the Output section of the *Commentary* a box highlights the impact of a hard Brexit on Irish potential output. This has significant implications from a growth perspective generally, however it has particular implications for the public finances. Estimates of potential output are a crucial component of the Stability and Growth Pact (SGP); a spending growth rate beyond the medium-term potential economic growth rate must be compensated by additional discretionary revenue measures. All else equal, the reduction in potential output envisaged under a hard Brexit would likely reduce the amount of fiscal space available to the Irish Government cumulatively by nearly €600 million for the first three years of such a scenario.

General Assessment

While the outlook for the Irish economy is still positive, developments in key headline indicators suggests certain countervailing forces at play in the domestic economy. On the positive side, the accelerated increase in employment growth witnessed in the latter part of 2016 continues into 2017. As noted in the previous *Commentary*, the most recent QNHS data indicate that, while most sectors of the economy experienced increases in employment, the construction sector experienced the largest rate of expansion. Our forecasts for the unemployment rates in both 2017 and 2018 have now been lowered to 6.2 and 5.2 per cent respectively. Increases in consumption are still set to be an important source of growth this year with both sentiment and harder economic data indicating greater levels of activity amongst consumers.

However, developments in Exchequer receipts aside from value added taxation (VAT) indicate that growth in taxation revenues has significantly slowed in 2017. Certain Exchequer headings such as excise duties, capital acquisitions and capital gains have for the year to date registered significant declines vis-à-vis the same period last year. Despite the strength of the labour market, labour related taxes such as income tax and pay related social insurance (PRSI) have only exhibited modest increases for the same period.

Overall in light of these developments we see no reason to change our GDP forecasts for 2017 and 2018 of 3.8 and 3.5 per cent growth respectively. We have however increased our forecast for the deficit in 2017 to -0.5 per cent of GDP up from -0.1 per cent in the previous *Commentary*. We also now believe that there will be a mild deficit in 2018.

The slowdown in revenue growth has clear implications for the budget. There are a number of impending pressures on the public finances with greater investment sought in the health, education, social housing, crime prevention and water infrastructure areas amongst others. Additionally, talks concerning future public sector pay are now underway in light of the recent report by the Public Sector Pay Commission. It is increasingly likely that Budget 2018 will have to be framed against the backdrop of lower than expected taxation revenues.

Further complications for the public finances are due to Brexit and the recent decision on funding water provision. Previous work on Brexit, using the new Core Structural Model of the Irish Economy (COSMO), focused on the impact of a hard

Brexit on actual, headline Irish economic variables. In the present *Commentary*, Garcia Rodriguez has expanded this analysis to focus on the impact different Brexit scenarios are likely to have on the productive capacity of the Irish economy and, in particular, the rate of potential output growth. Potential output growth is a crucial metric as far as the fiscal rules of the European Commission are concerned.

Under the Stability and Growth Pact (SGP), a spending growth rate beyond the medium-term potential economic growth rate must be compensated by additional discretionary revenue measures. In a box in this *Commentary*, Garcia Rodriguez demonstrates that a hard Brexit over the first three years of such a policy would reduce potential output growth in the Irish economy by approximately 2.5 per cent relative to its baseline level. Over the same period, this would reduce the amount of fiscal space in the Irish economy by approximately €600 million. Therefore, as a hard Brexit will impact on the productive capacity of the Irish economy (and the labour market in particular), this will reduce the extent to which Government expenditure can be increased over the medium term. By adversely impacting the growth rate of Irish potential output, this analysis highlights the long-term impact Brexit is likely to have on the domestic economy.

The recent political agreement on the funding of water services will see legislation enacted soon to abolish domestic water charges. Notwithstanding the fact that the final draft legislation includes an amendment seeking to ensure compliance with the EU water directive, the ultimate consequence of the move is that water charges will now almost entirely be funded out of 'central taxation'. This is particularly disappointing and illustrates that one of the main lessons to have emerged from the fiscal difficulties experienced post-2007 has not been heeded. A significant body of research now argues for a greater diversification of the Irish taxation base with less of a dependence on the traditional components of Irish taxation revenue; income tax, corporation tax and VAT. The potential for water charges along with the Local Property Tax to diversify the domestic tax base would have been one real and tangible improvement in national taxation policy, particularly as these charges are less sensitive to the economic cycle than taxation headings such as corporation tax and stamp duties. Additionally, the reliance on central taxation for water charges in light of the growing list of other requirements mentioned earlier poses further challenges on the public finances front. Even under a very optimistic scenario for growth in traditional taxation revenues, it would be impossible to maintain the budgetary balance within the parameters of the SGP were all of these demands met from central taxation. In

that respect it is worth noting the conclusions of Lawless and Lynch (2016)²⁷ concerning the implications of a wealth tax and the potential revenue which would be gained from this type of taxation. Lawless and Lynch (2016) clearly spell out some of the necessary policy choices required if a significant amount of revenue were forthcoming from such a source.

Given the ongoing challenges of Brexit and the softening of taxation revenues this year, the scope for increased spending in the forthcoming budget would appear to be quite limited. This is particularly pertinent in light of the negotiations on public sector pay, which have recently concluded. The deal, which is estimated to cost the Exchequer €887 million by 2020, will see pay increases of approximately 7 per cent over the next three years for civil servants up to an income level of €55,000. In return the renamed Additional Superannuation Contribution (ASD) which will essentially replace the old pension levy, will see a charge of 10 per cent on earnings in excess of €34,500. While any deal needs to be mindful of the necessity to maintain competitiveness in a small open economy, it is prudent to link reform of public sector pensions with overall national pay agreements.

The economic performance of our main trading partners has, to date in 2017 been decidedly mixed; while the US and UK, at the outset of the year, appeared to be performing better than had originally been expected, recent data from both countries suggest a weakening of economic growth into the second quarter of the present year. The performance of the UK warrants particular attention in light of Brexit and the recent general election result. Much of the reason for the relatively surprising growth performance of the UK economy through the latter part of 2017 was down to the greater than expected increases in consumption and consequent decline in the savings ratio. However the recent softening of economic performance may indicate that more UK consumers are starting to realise that Brexit will indeed mean they are worse off. It may also reflect the fact that much of the strong consumption at the end of 2016 was due to increased purchases of overseas goods before prices went up as a result of the Brexit depreciation.

In Q2 the US administration announced plans to reduce the tax rate paid by public corporations to 15 from 35 per cent, and allowing multinationals to bring in overseas profits at a tax rate of 10 per cent versus 35 per cent now. The tax plan will also, if implemented in full, potentially remove the current incentive for US companies to establish subsidiaries overseas which results in a reduction in their overall corporate tax bill. This could result in a smaller number of US

²⁷ Lawless, M. and D. Lynch (2016). 'Scenarios and Distributional Implications of a Household Wealth Tax in Ireland', Papers WP549, Economic and Social Research Institute (ESRI).

companies setting up foreign bases in economies such as Ireland which have offered lower tax locations. At 35 per cent the taxation rate charged on US corporate taxes is one of the highest rates across countries and this has provided the motivation for many US multinationals investing in foreign jurisdictions. As noted in the previous *Commentary*, however, it is by no means certain that there will be sufficient agreement across the US Government for the proposal to be enacted. It is estimated, for example, that reducing the US corporation tax rate to 15 per cent could reduce federal taxation revenue over the next decade by up to \$2.4 trillion (Nunns et al., 2016).²⁸ The speaker of the US House of Representatives, Paul Ryan, has publicly stated that any tax plan would ultimately have to pay for itself.

Nonetheless, these developments merely underscore the continued underlying vulnerability of the domestic economy to external factors.

House prices and rents continue to grow at elevated rates illustrating the continued gap between supply and demand in the Irish residential sector. Updated analysis in Duffy et al. (2016) suggested that long-run housing demand in the Irish economy was now in the region of 30,000 to 35,000 units per annum, up on previous estimates of 25,000. This compares with an actual annual average housing supply over the past three years of just under 13,000 units. However, the scale of the imbalance between supply and demand could be further complicated by whether official housing supply figures may actually overstate the actual level of activity. Currently, a housing unit is designated as complete by the Department of Housing when it is connected to the electricity services by the ESB. However, it may be that more recent increases in housing supply are actually units which were partially built in the run up to 2007/2008 and which are only now being finished. This would suggest that the official statistics are actually overstating the present rate of construction activity in the domestic economy. In this *Commentary* we examine the level of supply based on the historical relationship between supply and the number of planning permissions in a given year. Our estimates suggest that, based on this relationship, the level of supply in 2016 is 12,700 units – less than the actual figure but not as low as other estimates suggest. This still does highlight the significant deviation between actual supply and demand and the likelihood that both prices and rents are set to increase for the foreseeable future.

In light of recent commentary concerning the possible presence of a bubble in domestic construction, a significant amount of attention in the monetary and

²⁸ Nunns J., L. Berman, B. Page, J. Rohaly and J. Rosenberg (2016). *An analysis of Donald Trump's revised tax plan*.

financial section is devoted to the rate of credit expansion. Overall, our assessment would indicate that, while new credit is growing strongly in the residential market and to construction SMEs, this increase does not appear to have occurred at the expense of good credit risk assessment. However, particularly in light of the recent credit bubble witnessed in the Irish economy, prudent and ongoing monitoring of credit levels is required.

The result of the UK referendum on EU membership has prompted a re-evaluation of many Irish policies with a view to ‘Brexit-proofing’ them. Energy and climate policy are one such area. A *Research Note* in this *Commentary* briefly examines whether and how the policy context in this area has changed in light of Brexit. In summary, when it comes to energy and climate policy, policymakers should focus on the key issues (competitiveness, carbon pricing and taxation and infrastructure) rather than concentrating to an excessive degree on issues arising from Brexit, which may prove peripheral in determining the degree to which the energy sector impacts on the welfare of the Irish people.

DETAILED FORECAST TABLES

FORECAST TABLE A1 EXPORTS OF GOODS AND SERVICES

	2015	% change in 2016		2016	% change in 2017		2017	% change in 2018		2018
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	195.4	-4.8	4.0	186.0	7.1	4.5	199.3	6.6	4.0	212.4
Tourism	4.3	8.4	7.4	4.7	5.0	4.0	4.9	4.0	4.0	5.1
Other Services	117.3	13.8	10.5	127.9	11.2	8.0	142.3	11.2	8.0	158.2
Exports Of Goods and Services	317.2	0.5	2.4	318.8	8.7	5.9	346.7	8.5	5.6	376.0
FISM Adjustment	0.0			-0.3			-0.3			-0.3
Adjusted Exports	317.2	0.4	2.4	318.5	8.7	5.9	346.4	8.5	5.6	375.7

FORECAST TABLE A2 INVESTMENT

	2015	% change in 2016		2016	% change in 2017		2017	% change in 2018		2018
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Housing	4.6	41.3	38.0	6.5	17.1	12.9	7.6	19.2	15.2	9.0
Other Building	8.9	12.4	7.5	10.0	14.5	9.6	11.4	17.7	11.5	13.5
Transfer Costs	0.8	8.2	3.0	0.9	8.2	3.0	0.9	9.2	3.0	1.0
Building and Construction	14.2	21.4	17.0	17.3	15.2	10.5	19.9	17.8	12.5	23.5
Machinery and Equipment	39.9	59.2	55.4	63.5	12.9	9.2	71.0	11.3	7.7	79.0
Total Investment	54.1	49.3	45.5	80.8	13.4	9.5	90.9	12.7	8.7	102.5

FORECAST TABLE A3 PERSONAL INCOME

	2015	% change in 2016		2016	% change in 2017		2017	% change in 2018		2018
	€ bn	%	€ bn	€ bn	%	€ bn	€ bn	%	€ bn	€ bn
Agriculture, etc.	3.3	2.5	0.1	3.4	3.0	0.1	3.5	2.5	0.1	3.6
Non-Agricultural Wages	77.6	5.3	4.1	81.7	6.3	5.1	86.6	4.9	4.3	91.1
Other Non-Agricultural Income	19.1	18.0	3.4	22.6	1.5	0.3	22.9	29.5	6.8	29.7
Total Income Received	100.0	7.6	7.6	107.6	5.2	5.6	113.2	9.8	11.1	124.3
Current Transfers	24.1	2.5	0.6	24.7	0.5	0.1	24.8	-4.0	-1.0	23.8
Gross Personal Income	124.1	6.6	8.2	132.3	4.3	5.7	138.0	7.4	10.1	148.1
Direct Personal Taxes	28.2	3.8	1.1	29.3	2.2	0.6	29.9	2.3	0.7	30.6
Personal Disposable Income	95.9	7.4	7.1	103.0	4.9	5.0	108.1	8.7	9.4	117.5
Consumption	92.4	4.0	3.7	96.1	4.1	4.0	100.1	4.0	4.0	104.1
Personal Savings	3.5	97.3	3.4	6.9	15.5	1.1	8.0	67.7	5.4	13.4
Savings Ratio	3.7			6.7			7.4			11.4
Average Personal Tax Rate	22.7			22.1			21.6			21.5

FORECAST TABLE A4 IMPORTS OF GOODS AND SERVICES

	2015	% change in 2016		2016	% change in 2017		2017	% change in 2018		2018
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	84.8	-1.7	1.2	83.3	10.5	8.2	92.1	10.0	7.7	101.2
Tourism	5.1	7.8	2.5	5.5	4.3	2.8	5.8	4.5	3.0	6.0
Other Services	145.8	31.5	19.6	168.4	11.8	7.5	188.2	12.1	7.8	211.0
Imports of Goods and Services	236.0	9.0	10.3	257.2	11.2	7.6	286.0	11.3	7.7	318.2
FISM Adjustment	0.0			-1.1			-1.3			-1.4
Adjusted Imports	236.0	8.5	10.3	256.0	11.2	7.6	284.7	11.3	2.7	316.8

FORECAST TABLE A5 BALANCE OF PAYMENTS

	2015	2016	2017	2018
	€ bn	€ bn	€ bn	€ bn
Exports of Goods and Services	317.2	318.8	346.7	376.0
Imports of Goods and Services	236.0	257.2	286.0	318.2
Net Factor Payments	-53.2	-47.4	-51.6	-53.8
Net Transfers	-3.1	-2.7	-2.7	-2.7
Balance on Current Account	25.0	12.4	7.4	2.4
As a % of GNP	12.3	5.6	3.2	1.0

FORECAST TABLE A6 EMPLOYMENT AND UNEMPLOYMENT, ANNUAL AVERAGE

	2015	2016	2017	2018
	'000	'000	'000	'000
Agriculture	109.9	112.8	109.5	109.5
Industry	373.7	393.8	417.1	433.0
Of which: Construction	125.5	135.9	148.8	161.5
Services	1,474.1	1,506.6	1,557.6	1,591.5
Total at Work	1,963.5	2,020.0	2,086.8	2,134.0
Unemployed	203.6	173.0	136.2	120.9
Labour Force	2,167.2	2,193.0	2,222.9	2,254.9
Unemployment Rate, %	9.4	7.9	6.1	5.4

Research Note

RE-EVALUATING IRISH ENERGY POLICY IN LIGHT OF BREXIT

* Muireann Á. Lynch¹

1. INTRODUCTION

The result of the UK referendum on EU membership has prompted a re-evaluation of many Irish policies with a view to ‘Brexit-proofing’ them. The areas of energy and climate policy are no different. As things stand, much of Irish energy and climate policy is shaped at EU level, and so the UK leaving the EU would have implications for Irish policy irrespective of the strong ties between the Irish and UK energy systems. Re-evaluation of Irish energy policy in light of Brexit is therefore understandable and advisable. However, many issues facing Irish, and indeed EU, energy and climate policy are independent of Brexit, and should not be neglected in the public debate. This paper briefly examines some of these issues, with a particular view as to whether and how the policy context has changed in light of Brexit.

2. IMPLICATIONS OF BREXIT FOR ENERGY POLICY

2.1 Electricity market membership and participation

One of the main effects of Brexit on energy policy is an increase in uncertainty, particularly surrounding the future of energy market structures. An all-island single electricity market (SEM) has existed in Ireland since 2007 (Barrett et al., 2015) and the SEM is part of the wider EU Internal Market for Electricity, as is the electricity market in Great Britain (European Commission, 2009). The SEM is currently undergoing a significant redesign (Di Cosmo and Lynch, 2016) in order to comply with European regulations on electricity market design. At an institutional level, the Irish Transmission System Operator participates in the European Network of Transmission System Operators for Electricity (ENTSO-E)² and the regulators North and South participate in the Agency for the Cooperation of Energy Regulators (ACER) (Everis and Mercados, 2010). The SEM is underpinned by legislation in Ireland and Northern Ireland that was enacted under the framework of the 2006 Memorandum of Understanding between the Governments of Ireland and the United Kingdom (Barrett et al., 2015). Therefore its existence should not automatically be called into question as a result of Brexit, although the legislation will have to be revised as it is currently framed in the

¹ Lynch acknowledges funding from the Energy Policy Research Centre as well as helpful comments and suggestions from Mel Devine, John FitzGerald, Valeria Di Cosmo, Valentin Bertsch and members of the EPRC.

² See www.entsoe.eu/about-entso-e/inside-entso-e/member-companies/Pages/default.aspx.

context of the EU Internal Energy Market. Indeed, the UK and Irish governments have confirmed that the SEM should be maintained in Brexit negotiations (Department for Exiting the European Union, 2017; Irish Government, 2017).

The consequences of any disruption to the SEM would have implications for both consumers and producers, particularly in terms of costs. Should Northern Ireland cease to participate in the SEM, the market would serve a smaller number of consumers, and some economies of scale would be lost. There would be a reduction in the number of players in both generation and supply markets, and this would lead to a reduction in competition. This reduction in competition would impose extra regulatory burdens and could also lead to an increase in prices. The Moyle interconnector, which runs from Northern Ireland to Scotland, would no longer connect directly to the SEM, bringing further implications for efficiency and competition. There could also be increases in the costs of integrating variable renewable generation, such as wind generation, as there would be more barriers to exporting electricity at times of high wind and importing electricity at times of low wind. In general the SEM has been a success in increasing efficiency and decreasing costs for consumers (Gorecki, 2013) and so the maintenance of the SEM post-Brexit should be a top priority for policymakers. It should be noted however that given the strong commitment by Irish, UK and EU officials to the maintenance of the SEM the probability of the SEM being disrupted or dismantled is low.

It is certainly possible that the electricity market of Great Britain (BETTA) will continue to participate in the European electricity market post-Brexit, and this is also desirable both from an Irish and a European perspective. Great Britain currently has electricity interconnection to France and the Netherlands, as well as Ireland, and more interconnection to Norway is planned. The UK therefore has an incentive to remain integrated with the EU market in order to use these existing and planned interconnectors to their full potential. Electricity trading currently takes place between EU and non-EU countries, for example between Russia and Finland and the Baltics. Furthermore there are currently two examples of non-EU electricity markets that participate in the European electricity market (Pollitt, 2017) and their experience is instructive. Norway is fully integrated into the EU market through its membership of the European Economic Area (EEA) and of the European Free Trade Area. Switzerland, in contrast, is fully physically integrated into the EU market but does not participate fully in the market following the failure of the Swiss referendum on freedom of movement in 2014. In particular, Swiss energy companies are restricted in their rights to participate in EU energy markets, while Norwegian energy companies do not face such a restriction.

Neither the Norwegian nor the Swiss regulators are members of ACER³ but both their Transmission System Operators participate in ENTSO-E.

Drawing on the Swiss experience, Great Britain's continued full participation in the European electricity market is not guaranteed, especially considering the fact that the physical links between the British and European electricity markets are much weaker than in the Swiss case. As Great Britain is the only electricity market that is physically linked to the SEM there could be implications for the ease with which the SEM participates in the EU electricity market should Great Britain cease to be a full participant. In particular, without common rules for the trading of electricity over interconnectors, there is potential for perverse interconnection flows, where electricity flows from the expensive region to the cheaper region, rather than the other way around. Ending such perverse flows is a major aim of the European electricity market (European Commission, 2009a). Even in the absence of tariffs over interconnectors, if the timing of the purchase and sale of electricity over interconnectors is not aligned across markets, this can lead to suboptimal usage and means the markets will not be properly linked.

It should be noted that the UK is likely to remain a member of both the European gas and electricity markets, but not guaranteed. It is however unlikely that the UK will remain a member of the electricity market but not the gas market, or vice versa. Ireland and the UK are both net energy importers, and so unlike other forms of trade, there is a clear common interest in maintaining the status quo – it is not a case of there being winners and losers should the UK leave the European energy markets. However the UK remaining as part of the European internal energy market is not guaranteed and clarity regarding the UK's future participation in European energy markets would be helpful for all parties. In particular, the future shape of the UK's involvement, and whether they are 'rule takers' or 'rule makers', would have implications for Irish energy policy. Should the UK fail to remain a member of EU energy markets, World Trade Organisation regulations on the trade of energy would apply.

2.2 Interconnection and market integration

The degree to which the electricity systems in Ireland and Great Britain are physically integrated with each other and with the electricity systems in mainland Europe by means of interconnection is important in determining market integration (Gorecki, 2013). EirGrid, along with the French TSO RTE, is currently exploring the possibility of an electricity interconnector between Ireland and

³ The Norwegian regulator is a member of the Council of European Energy Regulators (CEER), a Belgian not-for-profit association established for the cooperation of independent energy regulators in Europe. See www.ceer.eu.

France.⁴ Should BETTA, the electricity market in Great Britain, leave the European internal electricity market, this link would provide the only means of Ireland having a direct physical link to the EU electricity market and therefore may appear as an attractive proposition. The European Council has called for total interconnection capacity of 10 per cent of the installed capacity to be present in each Member State. All of Ireland's interconnection is currently to Great Britain and so post-Brexit, Ireland's interconnection to another EU Member State will be zero. In spite of this, a new interconnector to France should only proceed if it enhances welfare in Ireland and France, as Irish and French consumers will ultimately pay for the investment. As a Project of Common Interest, the project would qualify for an EU subsidy, and so the entire cost of the project would not fall on Irish and French consumers. Welfare can be enhanced by decreasing electricity costs and/or prices, but there is also the potential for non-monetary benefits, including reduced uncertainty surrounding electricity prices or increased security of electricity supply. The impacts of interconnection are difficult to accurately quantify and so there should be a clear net benefit before this, or indeed any, infrastructural project is approved. If there is no clear net benefit Ireland should instead argue for an exemption from any requirement to have a given level of interconnection with another EU Member State rather than pursue suboptimal interconnection to France or elsewhere.

Ideally, the determining factor when trading electricity over interconnectors would be the relative price of electricity⁵ which would include the carbon price. Carbon emissions from the electricity sector are priced as part of the EU Emissions Trading System (ETS). The carbon price arising from the ETS is much lower than anticipated and the system arguably requires reform (Cameron and Teytelboym, 2017). This low price for carbon provided the impetus for the UK's implementation of a carbon price floor in 2013.⁶ As a result, electricity generated in Great Britain has a different carbon price to electricity generated elsewhere in the EU. EU trading rules currently preclude Britain from taxing electricity imports according to their carbon content. However, should Great Britain leave the EU single market for electricity, they may attempt to impose tariffs on imported electricity according to the carbon content of the electricity generated in the exporting country. Pollitt (2017) argues that such a strategy may be desirable to UK policymakers in order to remove the incentive to invest in interconnection between Great Britain and other European countries purely for the purposes of taxation arbitrage. At times of high wind, Ireland has exported electricity to Great

⁴ See www.eirgridgroup.com/the-grid/projects/celtic-interconnector/the-project.

⁵ In practice perverse flows exist over many interconnectors in Europe, see www.eprg.group.cam.ac.uk/wp-content/uploads/2015/07/2a-Newbery.pdf.

⁶ See the UK Climate Change Act, in particular Statutory Instrument 2013/713.

Britain in order to avoid curtailing⁷ this electricity. The carbon content of this electricity is zero, and so under a regime in which electricity exports to Great Britain were taxed according to their carbon content would have a competitive advantage compared to electricity generated from fossil fuels in France,⁸ Belgium or the Netherlands. This would lead to higher electricity exports from Ireland which could in turn raise prices in Ireland.⁹ In general, any changes to electricity trading undertaken by the UK outside of the IEM have the potential to have consequences for Ireland. The particular effects on consumers and generators would depend on the particular changes that occur.

2.3 Renewable energy policy in the UK

In recent years the environmental impact of energy supply has emerged as a specific consideration of energy policy. The UK has been a main driver of EU climate policy (Cameron and Teytelboym, 2017) and indeed can be seen to have gone beyond the requirements of EU climate policy by implementing a carbon price floor in response to the low carbon price emerging from the EU ETS. The future of UK climate policy following Brexit is unclear however, particularly given the current political climate. In particular, the UK may choose to abandon specific targets for renewable energy and may pursue carbon emission reduction through other means (Pollitt, 2017), if at all. This would have implications primarily for the all-island electricity market if there is a lower level of renewable electricity generation in Northern Ireland relative to the Republic. Renewable generation depresses wholesale electricity prices and also increases the costs associated with accommodating higher levels of renewable electricity. Di Cosmo and Malaguzzi Valeri (2017) find that from 2008 to 2012 the reduction in prices was greater than the increase in the costs of accommodating the renewable electricity. As the amount of renewable electricity increases to 40 per cent of demand and beyond, the relative magnitudes of these effects may change. Consumers North and South will therefore experience the same net effect of renewable generation on their bills, even if the levels of renewable generation in each jurisdiction (and the associated subsidies) diverge.

In general, divergence of energy policies between Northern Ireland and Ireland could put strains in the SEM and ISEM. It is in part for this reason, for example, that the carbon price floor was not implemented in Northern Ireland. Policymakers have an incentive to maintain broad agreement between renewable

⁷ Curtailment of renewable electricity is where the electricity is not used on the system but is in effect wasted as the electricity demand at the time is not of a sufficient magnitude or flexibility to accommodate the renewable generation.

⁸ The majority of French electricity is generated by nuclear; however the marginal generator is the generator of interest.

⁹ Higher prices in the energy market could in turn reduce capacity prices in the new capacity market but only if the market is sufficiently competitive. The new capacity market is as yet untested.

policy in the North and South even if the UK as a whole pursues a different level of renewable generation post-Brexit.

2.4 Security of gas supply

Much of the discussion regarding the impact of Brexit on energy has focused on supply security. This is primarily due to the fact that Ireland is heavily dependent on gas supplies via Great Britain. While the Corrib field met 55 per cent of demand in its first year of operation, the Moffat link with Great Britain is expected to be re-established as the dominant gas supply point from as early as 2018 onwards (Gas Networks Ireland, 2016). Great Britain has a more diversified gas supply, sourcing gas through imports via Norway, Belgium and the Netherlands, as well as Liquefied Natural Gas (LNG) imports (mainly from Qatar).¹⁰ Gas is an important fuel in Ireland both for heating and for electricity generation, and has the advantage of being relatively low in carbon emissions. Ireland currently has three sources of gas supply; a gas pipeline from Moffat in Scotland, the Kinsale field and the Corrib gas field, although the contribution from Kinsale is almost negligible at this stage (Gas Networks Ireland, 2016). Corrib and Kinsale are not in a position to meet all of Ireland's annual gas demand and so Ireland will continue to rely on gas via Great Britain for the foreseeable future. Furthermore, Kinsale is expected to cease production by 2020/2021 while Corrib production is projected to decrease to 50 per cent of its initial levels by 2025.

EU regulations currently prevent individual Member States interrupting energy supplies to other Member States should an energy crisis emerge (European Commission, 2010) and new stronger regulations are currently in preparation (European Commission, 2016). The new regulations include details concerning the technical calculation of gas supply security both at national and regional level. In an EU context, Ireland and the UK are considered to be one region for the purposes of gas security. Negotiations surrounding the new stronger regulations are ongoing and the regulations themselves are subject to change. However, in their current form, Ireland may thus find itself as an isolated energy 'region' within the EU post-Brexit¹¹ and may therefore require exemptions from some EU regulations concerning security of energy supply at regional level.

Ireland and the UK have separate intergovernmental agreements from 1993 and 2003 on sharing gas supplies which may remain in place even if the UK is no

¹⁰ www.gov.uk/government/statistics/digest-of-united-kingdom-energy-statistics-dukes-2016-main-chapters-and-annexes.

¹¹ In contrast to the case of electricity, there is no precedent for non-EU countries participating as full members of the EU gas market. Neither Switzerland nor Norway forms part of any of the EU regions with respect to gas markets, and their gas TSOs are observers rather than full members of ENTSO-G. Thus if Great Britain were to remain a fully integrated member of the EU gas market it would be a departure from current norms and it is more likely that Ireland will be an isolated 'region'.

longer subject to EU requirements on energy supplies.^{12,13} These agreements, coupled with the fact that it is impossible to cut supply to the Republic of Ireland without simultaneously cutting supply to Northern Ireland, may temper fears of supply interruptions in the unlikely event of an energy emergency. The impact of Brexit on the probability of gas supply interruptions is therefore probably small but is not non-existent and so the context for policy decisions relating to energy security can be said to have changed slightly due to Brexit.

The possibility of importing Liquefied Natural Gas (LNG) is an obvious means of diversifying gas supply. LNG has an advantage over new pipelines as the gas can be imported in liquid form from many different gas markets worldwide. The LNG project in County Kerry has planning permission but currently is not being developed (Gas Networks Ireland, 2016). A Floating Storage and Regasification Unit (FSRU)¹⁴ is an alternative means of importing LNG. Increased gas imports from LNG also allow for the possibility of exporting gas to Great Britain should it prove profitable to do so.

Investing in more gas storage is another measure that can be taken to increase the security of energy supplies in Ireland. A cheaper alternative to gas storage is increasing storage of distillate. Gas fired power plants can be run on distillate, and so increased distillate storage would reduce the probability of electricity shortages should there be an interruption to gas supplies. EU regulations currently require Member States to store 90 days' worth of average daily imports, or 61 days of oil consumption, within the EU to mitigate against supply uncertainty (European Commission, 2009). Ireland currently stores part of its required oil allocation in the UK. Post-Brexit these stores will obviously no longer be situated within the EU and so Ireland may require an exemption from this Directive. Finally the possibility of increased domestic production of gas would also obviously enhance the security of Ireland's energy supply.

The impacts of any such measures to enhance security of supply on the domestic gas market, and the consequent net benefit, are unknown, and research in this area should be prioritised. A project such as an LNG terminal would be privately owned infrastructure and so the investment decision is a commercial one. On the other hand, requirements regarding distillate back-up in order to generate electricity can be imposed on generation firms by the regulatory authorities. In

¹² [treaties.fco.gov.uk/docs/fullnames/pdf/1993/TS0073%20\(1993\)%20CM-2377%201993%2030%20APR,%20DUBLIN%3B%20AGREEMENT%20BETWEEN%20GOV%20OF%20UK,%20NI%20&%20IRELAND%20RELATING%20TO%20TRANSMISSION%20OF%20NATURAL%20GAS%20BY%20PIPELINE.pdf](https://treaties.fco.gov.uk/docs/fullnames/pdf/1993/TS0073%20(1993)%20CM-2377%201993%2030%20APR,%20DUBLIN%3B%20AGREEMENT%20BETWEEN%20GOV%20OF%20UK,%20NI%20&%20IRELAND%20RELATING%20TO%20TRANSMISSION%20OF%20NATURAL%20GAS%20BY%20PIPELINE.pdf)

¹³ www.dfa.ie/media/dfa/alldfawebsitemedia/treatyseries/uploads/documents/legaldivisiondocuments/treatyseries2007/no-19-of-2007.pdf

¹⁴ A FRSU is a special type of ship that can both transit and regasify LNG. Importing gas via this emerging technology does not require an onshore regasification unit, in contrast to the proposed LNG facility in County Kerry.

general, significant infrastructural investment decisions of any type should be justified on the basis of a thorough cost-benefit analysis and should not be taken on the basis of the (real or perceived) threats of Brexit.

3. FURTHER DISCUSSION ON ENERGY POLICY IN IRELAND

The above is a summary of the areas of energy policy that may be impacted by Brexit. In addition, however, it is prudent to re-evaluate energy policy in general at regular intervals, particularly as new research sheds light on energy policy objectives and outcomes. In this spirit, the remainder of this paper outlines the main areas of concern surrounding energy policy that are largely unchanged as a result of the Brexit vote, but which are no less important.

3.1 Techno-economic rationale of energy policy

In order to minimise energy costs, it is imperative that Ireland's energy policy strategies are informed by sound techno-economic analysis. To date, much of Irish energy policy has focused on a mix of objectives, including cost reduction, energy poverty considerations, supply security, emissions reduction, efficiency targets, renewable targets, research and development goals and job creation and retention (see for example DCENR, 2015). This mix of objectives leads to overly-costly energy policy, except of course in the case where the differentiated objectives and targets perfectly align with those that would arise under the least-cost policy pathway. Once the objectives of energy policy have been determined, the optimal pathway to meeting those objectives, taking into account the preferences and priorities of the Irish people, should be identified and pursued.

Some of the inconsistencies and extra costs of Irish energy policy, such as dividing carbon emissions between the ETS sector and the non-ETS sector, have their roots in EU regulations. The EU has been to the forefront in combating carbon emissions but has done so through a mix of targets for carbon reduction, energy efficiency and renewable energy (European Commission, 2009b), all to be achieved by the year 2020. Within the renewable energy sector there are also differentiated national targets for total renewable energy along with a separate target for renewable energy in transport. The EU is shaping future energy policy for 2030 and beyond¹⁵ as part of the Clean Energy Package.¹⁶ The package is subject to ongoing negotiation. Current proposals involve an overall EU target of 27 per cent of total energy to be met by renewable energy, but no differentiated national renewable energy targets or specific targets for the transport sector as there were for 2020.

¹⁵ See ec.europa.eu/clima/policies/strategies/2030_en.

¹⁶ See eur-lex.europa.eu/resource.html?uri=cellar:fa6ea15b-b7b0-11e6-9e3c-01aa75ed71a1.0001.02/DOC_1&format=PDF.

Given an emissions reduction target, there is no strong economic argument for differentiated targets for renewable generation or energy efficiency (Böhringer et al., 2009), nor is there a strong argument for differentiated national targets (Aune et al., 2012). From an economic efficiency point of view, the change in European policy from differentiated national renewable targets therefore represents an improvement on the 2020 targets. The challenge for Irish policymakers is now to design the optimal set of policies to meet the objectives of the Clean Energy Package. There is an argument for resisting the temptation to include new renewable energy targets in domestic policy, and instead to show a firm commitment to a technology-neutral carbon reduction target. Determining the optimal pathway to a particular carbon reduction target will bring about gains for consumers both in terms of cost and transparency. The costs of failing to meet EU targets would ideally be included in any cost-benefit analysis.¹⁷ However these costs are currently unknown, which presents a further challenge for energy policy.

Furthermore, as a result of EU policy, carbon emissions are treated differently depending on whether they originate in the ETS sector or the non-ETS sector.¹⁸ This is suboptimal as the effect of carbon emissions on the environment is the same regardless of their origin. Another problem associated with ETS design is that it taxes the production, but not the consumption, of carbon emissions. There is thus an incentive to consume carbon-heavy goods produced in countries that do not tax carbon to the same degree as the EU, known as carbon leakage (Kuik and Hofkes, 2010). On a related note, for example, Curtis et al. (2013) found that a carbon price floor in the UK decreased carbon emissions from the UK but increased carbon emissions elsewhere.

While many of these design flaws with the EU ETS have been acknowledged, unless there is a strong shift in policy at EU level, Irish policymakers will have to design energy policy within the limitations of the EU policy regime. In particular, there may be an economic argument for requiring separate regulation and/or subsidisation policies for the ETS sector. Di Cosmo and Malaguzzi Valeri (2017) show how renewable electricity from 2008-2012 simultaneously delivered a lower electricity price and lower emissions, in spite of the weak ETS price. Lynch and Curtis (2016) show that wind generation has a value in its ability to reduce the probability of very high price spikes and increasing certainty around energy prices, apart from any price-reduction contribution. In the absence of a strong ETS price signal, separate subsidisation programmes for renewable generation

¹⁷ Ireland is currently one of the few EU countries projected to miss the 2020 target for total renewable energy, see <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017DC0057&qid=1488449105433&from=EN>.

¹⁸ See ec.europa.eu/clima/policies/ets_en.

may therefore be a second-best policy. However any such subsidy scheme should still follow the principles of least cost and technology neutrality, for example by determining subsidisation levels for renewable electricity through a technology-neutral auction process. The optimal level of renewable energy in Ireland, in all three energy sectors, is still unknown and research in this area should be prioritised in order to inform policy.

At present the 2020 target for renewable electricity, at 40 per cent, is much higher than the targets for the heating and transport sectors, at 12 per cent and 10 per cent respectively.¹⁹ There are several arguments for shifting the Irish focus from the electricity sector towards the heating and transport sectors. The first argument is the relative size of the sectors – the electricity sector accounts for just under 20 per cent of total final energy demand,²⁰ and so the current target of meeting 40 per cent of electricity demand with renewable generation equates to meeting just under 8 per cent of total energy demand with renewables. Secondly, the benefits of each additional unit of renewable energy in each sector, both in terms of costs and emissions, are likely to reduce as the total amount of renewable energy increases.²¹ The costs associated with the integration of ever higher amounts of renewable electricity will also increase. There are concerns about social acceptability of renewable electricity generation also (see Bertsch et al., 2016 and Hyland and Bertsch, 2017). The public desire for higher levels of renewable electricity should be compared with the acceptance of renewable technologies in the heating and transport sectors, as well as the acceptance of other carbon-reducing technologies, and should form part of the analysis informing energy policy post-2020. Thirdly, reducing carbon emissions in the ETS sector in Ireland will not reduce total European emissions, but instead shifts those emissions to another European Member State.²² Emission reductions in the non-ETS sector, however, result in a global decrease in emissions. Finally, there is considerable uncertainty surrounding future ETS prices, which means low carbon investments in the ETS sector face a risk premium. Strong government commitment to the principle, if not the level, of carbon taxation in the non-ETS sector means there is more certainty around the future cost of carbon and so there is less risk associated with investing in low carbon technologies.²³ This means that carbon-reduction technologies in the heating and transport sectors would have less uncertainty surrounding their future profitability compared to technologies in the electricity sector. In the heating sector, for example, certainty

¹⁹ These targets were set as part of the National Renewable Energy Action Plan, see [www.dccae.gov.ie/en-ie/energy/topics/Renewable-Energy/irelands-national-renewable-energy-action-plan-\(nreap\)/Pages/Action-Plan.aspx](http://www.dccae.gov.ie/en-ie/energy/topics/Renewable-Energy/irelands-national-renewable-energy-action-plan-(nreap)/Pages/Action-Plan.aspx).

²⁰ www.seai.ie/Publications/Statistics_Publications/Energy_in_Ireland/Energy-in-Ireland-1990-2015.pdf.

²¹ This is a standard Diminishing Marginal Returns argument.

²² This is known as the waterbed argument, see for example papers.ssrn.com/sol3/papers.cfm?abstract_id=2654641.

²³ See for example Walsh et al. (2014) for a demonstration of how a carbon taxation regime would incentivise investment in CCS technology while a carbon price scheme would not.

surrounding a higher carbon price going forward would lead to an increased incentive to switch from coal and peat to gas, or would provide an incentive to invest in insulation in order to reduce energy bills.

In summary, future energy policies, beyond the 2020 targets, should take into consideration the true impact on global carbon emissions, rather than focusing solely on meeting EU mandated targets for emissions reduction and/or renewable energy production. These policies should be informed by robust analysis, which includes not only the cost of the policies but also the risks associated with them.

3.2 Security of supply

Similar to the case of environmental policy, some of the main policy questions in the area of supply security are actually unlikely to be impacted either way by Brexit. The first is the optimal level of interconnection (independent of which markets Ireland interconnects with), either for gas or electricity. New gas interconnection to Great Britain would have a positive impact on the security of supply for both gas and electricity, as the probability of an electricity shortage arising from a gas shortage would be reduced. New electricity interconnection would have a positive impact on the security of supply for electricity but any impact on gas security would be very small. However electricity interconnection can have a greater diversification effect, as the electricity supply is supplemented by the entire electricity generation fleet of the neighbouring system, which includes generation from multiple fuel types, while a gas interconnector connects to one fuel only (albeit a fuel that may have multiple supply sources, e.g. indigenous supply, pipeline supply, LNG, etc.). Furthermore, new electricity interconnection to France is possible, bringing with it the benefits of diversification by interconnecting to a new market. New gas interconnection would most likely only supplement the existing interconnection with Great Britain. Finally the tariffs for flows over interconnectors would have to be well-designed by the Commission for Energy Regulation (CER) as the flows over gas interconnectors have implications for flows over electricity interconnectors and vice versa. There are also considerations regarding competition and market power. A robust examination of the strategic choice between gas and electricity interconnection should be conducted in order to inform sound policy. This examination should take account of the interaction of the tariffs on gas and electricity interconnectors, as well as any alternative measures that can be taken to enhance energy security, such as those outlined in the discussion on gas security above.

Within the Irish electricity market, new interconnection is required between North and South in order to ensure security of electricity supply in Northern

Ireland from 2021. The System Operator of Northern Ireland (SONI) has gone so far as to state that they cannot be confident they can ‘keep the lights on’ past 2021 without the North-South interconnector (House of Commons Northern Ireland Affairs Committee, 2017). The interconnector is estimated to reduce costs in the SEM by €30 million per year and wholesale electricity prices by 0.9 per cent (Curtis et al., 2013). These financial benefits would accrue to consumers on the whole island.

Finally the policy of running the three peat stations at maximum capacity, regardless of whether it is economic to do so, is justified by means of a security of supply argument (Tuohy et al., 2009). Consumers cover the extra costs of this policy through a Public Service Obligation levy included on their bills²⁴ and this levy is recalculated every year (see for example CER, 2016). This policy, which is due to expire in 2020, has led to overly expensive carbon-heavy electricity generation. The PSO levy is applied to all consumers’ bills regardless of electricity consumption or of ability to pay and so is a regressive policy (Farrell and Lyons, 2015). In an effort to reduce carbon emissions from the peat stations, a policy decision to co-fire the stations with 30 per cent biomass was made. However this policy is also far more expensive than alternative generation options (O’Mahoney et al., 2013).

The policy of prioritising high-cost electricity generation from peat has been questioned from as far back as 1992 (Nic Giolla Choille, 1992). Regional benefits including employment in the Midlands have featured as arguments for maintaining the policy, although the actual justification is based on a security of supply argument. The existence of the peat stations is sufficient to contribute to security of supply and there is no added security benefit from running the stations at maximum capacity. Reversing this policy, which would bring about benefits for Irish consumers (Tuohy et al., 2009) regardless of Brexit, would aid the cost and environmental arms of energy policy with no consequence for security. While the policy has all but run its course, it serves as a reminder of the potential for various arms of energy policy (affordability, sustainability and security of supply) to conflict, as well as the danger of including supplementary objectives (such as regional employment) in energy policy.

3.3 Competition in electricity markets

The level of competition, both in wholesale and retail markets, is a very important driver of electricity prices. The level of wholesale competition is influenced to some degree by the amount of interconnection with other

²⁴ The PSO levy also covers the costs of various electricity support schemes such as renewable energy and, until recently, gas plants deemed necessary for security of supply.

countries. Given the move to the new electricity market design, competition is even more important to ensure competitive wholesale prices (Di Cosmo and Lynch, 2016). Fully integrating our energy market with EU markets may be a draw for more players and therefore more competition in energy retail markets. However energy markets are highly unlikely to reach perfectly competitive levels on their own (Oderinwale and van der Weijde, 2016) and so there will always need to be robust regulation in place to protect the consumer. To date, analysis of competition in the retail sector has included the level of switching between energy supply companies (see for example CER, 2017). While consumers switching supplier can aid competition, it is not a definitive measure of competition, not least because it does not account for the possibility that the same consumers regularly switch suppliers, while being cross-subsidised by consumers who remain with one supplier. More robust analysis of the level of competition in Irish energy markets should be prioritised in order to protect consumers.

4. CONCLUSION

The consequences of Brexit for the energy sector, particularly in the area of security of supply, should certainly inform Irish energy policy in the short and medium term. However, this should not be to the neglect of other salient issues. In summary, when it comes to energy and climate policy, policymakers should focus on the key issues (competitiveness, carbon pricing and taxation and infrastructure) rather than concentrating to an excessive degree on issues arising from Brexit, which may prove peripheral in determining the degree to which the energy sector impacts on the welfare of the Irish people.

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