

2. Endorsement and Assessment of the Macroeconomic Forecasts

Key Messages

- The Council endorsed the *SPU 2017* macroeconomic forecasts to 2021. Taking into account the uncertainties and judgements involved, it was satisfied that these forecasts were within an endorsable range. The Council welcomes the fact that these forecasts are now consistent with the Government's stated fiscal policy.
- While there is much uncertainty over the exact cyclical position of the economy, it would appear that any remaining negative output gap is small and closing rapidly. Given that the economy is likely to be close to its potential level of output, and relatively strong growth is forecast for the coming years, there is a possibility that overheating will occur in the years ahead, especially if the construction sector responds to persistent supply shortfalls.
- The *SPU 2017* forecasts assume a hard Brexit occurring. Having previously been considered as an adverse scenario, it is now the central scenario envisaged. Despite the assumption of an adverse outcome related to Brexit, downside risks to SPU forecasts remain, as the impact of Brexit is uncertain and may be larger than assumed.
- The main risk to the forecasts comes from the external environment, primarily through the uncertain impact of Brexit and future tax arrangements among Ireland's trading partners. Although the main risks relate to external conditions, there are also important domestic risks. The housing market and the highly concentrated industrial base are the most pertinent. While *SPU 2017* notes that risks surrounding the forecasts are "quite firmly tilted to the downside", the Council assesses that risks to the SPU forecasts are more balanced, including upside risks to GDP in the near term, and overheating risks in the coming years.
- To avoid a repeat of past failures of macroeconomic and budgetary management, it is essential that the Government's forecasts for the medium term are well-founded. This requires a strengthening of the Department of Finance's current toolkit for medium-term macroeconomic forecasting. Signs of overheating may be missed if the Department continues to rely almost entirely on the CAM. A coherent projection for the medium term needs to be fully developed and communicated. The Council welcomes the Department's commitment to develop an alternative to the CAM for medium-term forecasts in the coming 12 months, alongside continuing to produce the CAM estimates to meet legal requirements.

2.1 Introduction

The Council's eighth endorsement exercise covers the set of macroeconomic projections in *SPU 2017*. The endorsement exercise includes the full range of forecasts (2017 to 2021). The timeline for the endorsement process is detailed in Appendix B.

To support the endorsement and assessment functions, the Council has continued to develop and update its own suite of models with an expanded set of tools used for both short-term and medium-term forecasting. These are essential for assessing the cyclical position of the economy, as well as for understanding the economy's medium-term supply side potential. Since the previous *Fiscal Assessment Report*, a working paper (Conroy and Casey, 2017) has been published, detailing the methodologies used to produce the benchmark short-term forecasts of the Irish economy used by the Council.

Section 2.2 outlines the endorsement process as it applied to the *SPU 2017* forecasts. Section 2.3 discusses the *SPU 2017* forecasts and puts these in context relative to the forecasts of other agencies. Section 2.4 provides an assessment of the uncertainty and risks surrounding the economic outlook. Three boxes are included: the first (Box B) examines the use of fan charts; the second (Box C) examines potential output, overheating and the Department's commitment to developing an alternative to the CAM for medium-term forecasting; and the third (Box D) considers alternative macroeconomic indicators in light of the 2015 National Accounts.

2.2 Endorsement of the SPU 2017 Projections

This section details the eighth endorsement exercise undertaken by the Council covering *SPU 2017*, outlining the Council's considerations around the time of the endorsement, and the process itself (Appendix B details the timeline). Data available at that time may differ from that available for the purposes of this assessment. In a welcome change from the previous approach, the Department's assumptions for government consumption are on an *ex-post* basis, assuming that all of the fiscal space estimated to be available is used throughout the forecast period, in line with the government's stated fiscal policy.

The Council endorsed the *SPU 2017* macroeconomic projections to 2021. It was satisfied that the central scenario outlined was within its endorsable range, taking into account the methodology and the plausibility of the judgements made. The endorsement process focuses on three key

dimensions: the plausibility of the methodology used; the pattern of recent forecast errors; and comparisons with the Council's Benchmark projections and other projections.¹

First, focusing on the methodology used by the Department of Finance, the Council is satisfied that short-term projections broadly conform to standards set by other forecasting agencies. The Department provides information on models and judgement used in the development of its forecasts for assessment by the Council. In relation to medium-term projections, both the Council and the Department have noted that the CAM is unsuitable for Ireland. While judging the methodology itself to be unsuitable, the correct application of the CAM was verified by the Council. In the endorsement letter to the Secretary General, the Council welcomed the commitment of the Department to develop an alternative to the CAM for medium-term forecasts in the coming 12 months. Developing alternative models is needed to provide a better assessment of the risk of overheating and medium-term prospects. The Council notes that future endorsement of the forecasts will be at risk if sufficient progress is not achieved in providing a better basis for the Department's view of medium-term growth prospects.

Second, in terms of the pattern of errors in Department of Finance forecasts, the Council has in the past emphasised some evidence of systematic bias related to the domestic and external split of aggregate demand. As detailed in recent *Fiscal Assessment Reports*, the previously observed bias is no longer apparent. The Council will continue to monitor the composition of the forecasts and accuracy for forecasts for different components of demand.

Third, comparisons with the full set of Benchmark projections (Appendix A) showed some deviation from the Department's forecasts in 2017, with smaller differences in the later years. The Department's estimates for growth were assessed to be within an endorsable range, despite being lower than the IFAC Benchmark projections for 2017. This mainly reflects the Council's greater emphasis on the use of information from quarterly data, which – although subject to large revisions – have been shown empirically to be an unbiased predictor of estimates for the same period. The lower weight the Department places on the quarterly information, when taken at face value, implies an unexpected path of quarter-on-quarter growth rates which is not explained (see section 2.3.2). While the Department's forecasts were well below the Council's Benchmarks, they were towards the upper range of consensus forecasts available at the time. In terms of composition, the Council's Benchmark projections suggest a larger contribution to growth from domestic demand

¹ The IFAC Benchmark projections are prepared by the Secretariat for the endorsement exercise (see Appendix A).

from 2019-2021, than the forecasts of the Department of Finance, leading to a somewhat higher forecast of overall growth.

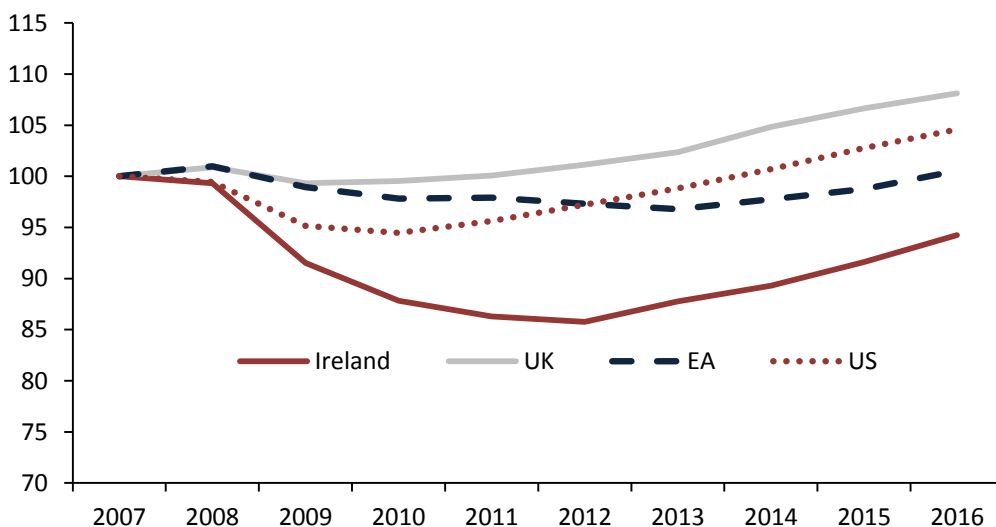
2.3 An Assessment of the Macroeconomic Forecasts in SPU 2017

2.3.1 Macroeconomic Context

Initial estimates suggest that the impressive recent growth performance of the Irish economy continued in 2016, with growth estimated at 5.2 per cent (GDP) and 9.0 per cent (GNP). While there is some uncertainty over what measures of activity should be used (Box D explores some of these), it is clear that there has been a rapid recovery in the Irish economy in recent times. Looking at net national product for example, which should provide a better reflection of what is happening in the domestic economy, it can be seen that there has been growth in excess of 6 per cent in 2013, 2014 and 2015. Looking beyond National Accounts metrics, employment is a reliable indicator of the progress of the economy, and there has been growth averaging 2.4 per cent for the past four years. The speed of this recovery compares favourably to international comparators, albeit coming from a more severe downturn. Figure 2.1 shows employment in Ireland, US, UK and the Euro Area since the peak (2007).

Figure 2.1: Employment Developments, International Comparison

Index (2007 = 100)



Source: Eurostat; CSO; US Bureau of Labor Statistics; and Internal IFAC calculations.

Previous *Fiscal Assessment Reports* have noted the role played by favourable external conditions in driving much of the recovery in the Irish economy from 2012-2015. Last year saw less favourable external conditions, with the sharp appreciation of the Euro against sterling and slower growth in trading partners. Offsetting this to a lesser extent, oil prices continued to fall and monetary policy remained accommodative. Despite external conditions being broadly less favourable, underlying net exports (this excludes imported aircraft and intangible assets) still made a strong contribution to growth in 2016. In the aftermath of the UK's vote to leave the EU, and developments in the US,

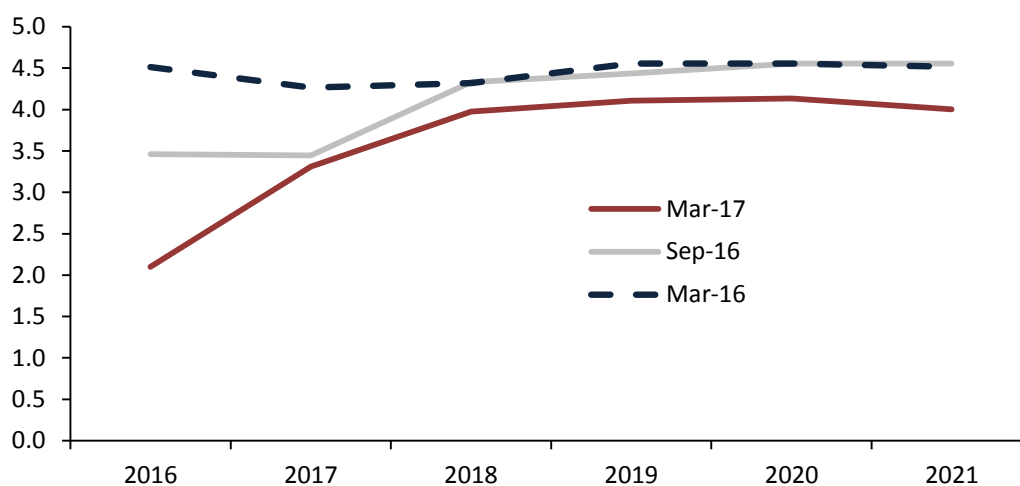
future external conditions look both more uncertain and more unfavourable than previously assumed. While the UK economy has performed better than expected in the immediate aftermath of the referendum on leaving the EU, forecasts of future growth have been revised down.

Figure 2.2 shows how IFAC estimates of external demand have been revised down over the past year. The most optimistic projections came prior to the UK referendum on EU membership (March 2016). The two more recent sets of projections show weaker external demand growth in the medium term. More generally, global trade growth was weak and in 2016 trade growth was below that of GDP growth, which is highly unusual. The World Trade Organisation (2017) is forecasting a modest increase in trade growth for 2017 and 2018.

Looking at the high frequency indicators available so far this year, a mixed picture emerges. For the first quarter, core retail sales have been quite positive and industrial production in the traditional sector is up 2.8 per cent compared to last year. Tax returns also give an indication of activity and demand, with many of the major headings only marginally above last year's values. Tax revenue for the first four months is only 0.5 per cent higher than for the same period last year, which is weaker than expected.

Figure 2.2: Vintages of External Demand Growth Projections

% Change (Year-on-Year)



Sources: Internal IFAC calculations; and IMF and European Commission forecasts for trading partners.

Note: External demand is calculated as a trade weighted average of forecast import growth in Ireland's export markets. This variable is used as an input into the Council's Benchmark models of exports.

2.3.2 SPU 2017 Short-Term Forecasts, 2017-2018

The SPU 2017 forecasts project that last year's strong **personal consumption** growth is expected to continue in 2017 and 2018 (see Table 2.1 for a summary of SPU 2017 forecasts). As has been the case in recent years, growth in consumer spending is forecast to be driven mainly by goods

consumption. Given the recent strong momentum in employment and income, the forecasts of the Department appear reasonable. In addition, given the pattern of revisions in previous years, there may be upward revisions to recent quarters, which would bring services consumption into closer alignment with the employment and income data seen last year. The high-frequency data on retail sales are broadly supportive of a positive outlook, particularly when the softer motor trade data are excluded.

Table 2.1: SPU 2017 Macroeconomic Forecasts (to 2018)

Percentage Change in Volumes Unless Otherwise Stated

	2015*	2016*	2017**	2018**
GDP	26.3	5.2	4.3	3.7
GDP Deflator	4.9	-1.2	1.2	1.3
Nominal GDP	32.4	3.9	5.5	5.0
GNP	18.7	9.0	4.2	3.5
Personal Consumption	4.5	3.0	2.8	2.7
Investment	32.7	45.5	-17.1	5.4
Government Expenditure on Goods and Services	1.1	5.3	2.6	2.1
Exports	34.4	2.4	5.0	5.1
Imports	21.7	10.3	-2.0	5.3
Stock Changes (pp contribution)	-0.8	0.3	0.0	0.0
Current Account (% of GDP)	10.2	4.7	10.9	10.4
Employment	2.6	2.9	2.7	2.4
Unemployment Rate	9.4	7.9	6.4	5.8
Inflation (HICP)	0.0	-0.2	0.6	1.2
Nominal GDP (€ billions)	255.8	265.8	280.6	294.7

Sources: CSO and SPU 2017. * Denotes latest outturns. ** Denotes SPU 2017 forecasts.

Recent data on headline **investment** growth have been subject to large movements related to intangible assets. While headline investment grew by 33 per cent in 2015, most of this was driven by investment in intangibles.² A similar story appears to have developed in 2016, with big increases in the last quarter of 2016 linked to investment in intangibles.³ Given that firms may continue to adjust to the changing worldwide Corporation Tax regime, it is possible that there could be further investment in intangible assets in the future.⁴

² It would seem that outright purchases of R&D assets played a more significant role in the increase in intangibles investment for 2016 relative to 2015.

³ The exact quantity cannot be confirmed, however, as parts of the Q4 2016 investment data have been redacted by the CSO for confidentiality reasons.

⁴ While such activity would lead to higher levels of recorded investment, it would also increase imports, hence having no impact of GDP.

Underlying investment appeared to grow much more modestly last year, mainly due to weaker underlying machinery and equipment.⁵ *SPU 2017* forecasts that underlying investment will grow by just under 10 per cent in both 2017 and 2018. This strong growth is forecast to be driven mainly by the building and construction sector, albeit from a low base. Estimates of the number of housing completions needed to meet demand, due to demographics and new household formation, vary, but all point towards a significant recent shortfall in completions. This is likely to lead to significant pent-up demand.⁶ Given that there has been a limited supply response so far, some structural factors may be hindering supply.⁷ If these factors were to ease, there could be a rapid pickup in completions. Previous studies have estimated that an additional 10,000 completions would add one percentage point to GNP growth (see Duffy, 2005 and Bergin *et al.*, 2013). *SPU 2017* forecasts a steady, modest increase in completions of around 3,000 each year out to 2021, when completions are forecast to reach 30,000 per annum. If completions were to increase more rapidly than this, to meet pent-up demand, then there would be higher output growth, in line with estimates cited above.

While there is uncertainty over the level of completions required to keep up with demand, there is also uncertainty surrounding the actual level of completions. Recently released Census data show that the housing stock increased by only 8,800 over the period 2011-2016. By contrast, data on completions from the Department of Housing indicate that there were over 50,000 housing completions for the same period (Appendix Figure AC.4H), which depending on the assumed rate of obsolescence, could imply a much bigger increase in the housing stock. While these data are attempting to capture housing completions, they in fact record the number of units being connected to the electricity network. Since some vacant properties have recently been reconnected to the grid, these figures on completions may not correspond to additions to the housing stock. This would have implications for the extent to which any recent shortfall in supply relative to demand might contribute to the emergence of supply pressures in future years.

In previous *Fiscal Assessment Reports*, the underlying investment to GDP or GNP ratio was examined as a yardstick for current investment levels, relative to historical standards. Using GDP or GNP is less informative, due to the developments that led to the step change in the National Accounts for 2015. With this in mind, Figure 2.3 shows underlying investment as a percentage of underlying domestic demand. When using this denominator, the Department of Finance forecasts

⁵ Underlying machinery and equipment excludes investment in aircraft, which are imported and hence GDP neutral.

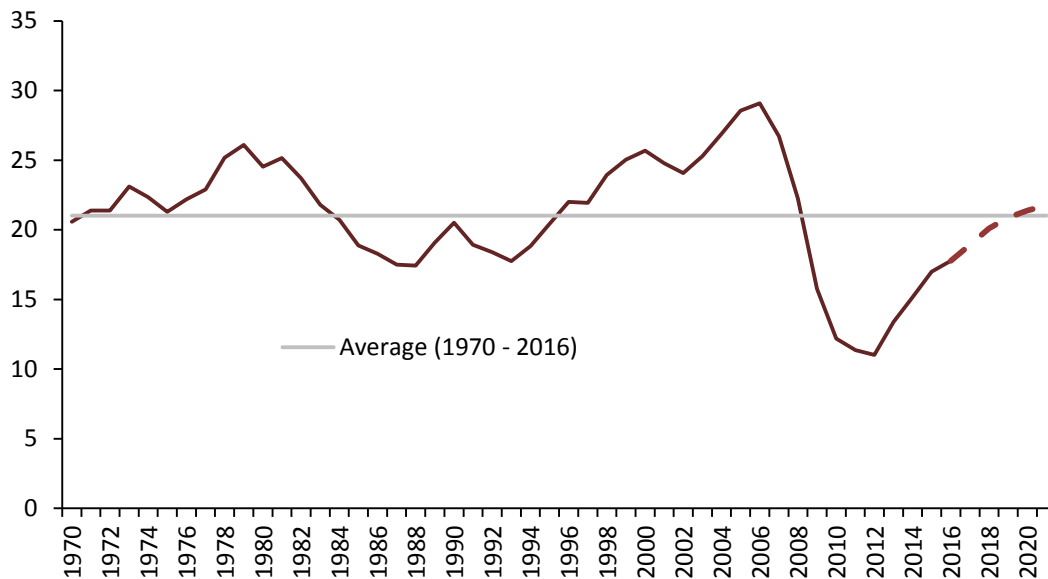
⁶ Lyons (2017) estimates of 50,000 are much higher than the 30,000 in Duffy et al (2016). These higher estimates reflect different assumptions for obsolescence and demographics.

⁷ While prices remain well below pre-crisis peaks, costs have not fallen substantially, which may be preventing a large scale response also (see Appendix C).

indicate that underlying investment will be just above its historical average at the end of the forecast horizon.

Government consumption grew faster than expected last year, with growth of 5.3 per cent. *SPU 2017* forecasts slower growth in 2017 (2.6 per cent) and 2018 (2.1 per cent). In contrast to previous publications, *SPU 2017* forecasts are consistent with use of the estimated fiscal space for the forecast period, in line with the government’s stated intentions, resulting in faster growth in the later years of the forecast, compared to the figures published in *Budget 2017*.

Figure 2.3: Underlying Investment
Percentage of Underlying Domestic Demand



Sources: CSO, *SPU 2017*; and Internal IFAC calculations.

Note: Both underlying measures exclude investment in aircraft and intangibles. While there are no data on investment in these two items prior to 1997, they are likely to be small and are assumed to be zero here for illustrative purposes. The dashed line represents *SPU 2017* forecasts.

Forecasting **exports** has proven difficult in recent times. Goods exports recorded in the National Accounts have diverged substantially from those recorded in the trade data in recent years, largely due to developments around contract manufacturing. In 2015, the value of goods exports in the National Accounts rose by 71 per cent, while those recorded in the monthly trade data increased by 21 per cent.⁸ In 2016, by contrast, goods exports in the National Accounts declined (-4.8 per cent), while the trade data showed growth of 4.6 per cent. The forecasts in *SPU 2017* are for exports to grow somewhat faster than external demand, due to compositional effects. This is because of Irish exports being concentrated in high growth sectors.

⁸ Both are in nominal terms. While there has often been a substantial gap between goods exports in the National Accounts and those recorded in the merchandise trade data, up until recently these differences had been broadly GDP neutral, as there had been corresponding increases in imports of royalties (see Box A, IFAC (2016b)). However, following the on-shoring of many of the intellectual properties underpinning these imports of royalties, the associated export activities are no longer being affected in the main.

The outlook for external demand for Irish exports is now both more uncertain and less positive, primarily due to Brexit (Figure 2.2). There was a substantial appreciation of the euro against sterling in the second half of last year, which looks set to carry over into this year. **Import** growth is also set to slow significantly in the Department's projections, albeit that figures for 2016 and 2017 are distorted by the changes in investment in intangible assets, which are assumed to be imported.⁹

SPU 2017 forecasts real **GDP** growth of 4.3 per cent this year, followed by a 3.7 per cent expansion in 2018. The carryover into 2017 now stands at a substantial 4 per cent, reflecting the strong quarter-on-quarter growth recorded in the second half of last year. The carryover for 2017 refers to the growth rate that would be observed in 2017 if seasonally adjusted real GDP remained unchanged at its Q4 2016 level for all four quarters of this year. It appears that the Department is placing little or no weight on the information contained in the most recent quarterly GDP data, particularly for GDP itself. The question of how much weight to place on the quarterly data is an empirical one. While the quarterly data are highly volatile (Conroy, 2015) and heavily revised, the direction of such revisions is not found to be biased in any one direction over time (Casey and Smyth, 2016). While trade components are prone to substantial revisions, domestic expenditure components are typically more stable (especially when intangibles and aircraft imports are removed from investment).

Taken at face value, the *SPU 2017* forecasts imply that an average quarter-on-quarter growth rate of only 0.1 per cent would be needed this year to be consistent with the Department's 4.3 per cent forecast for annual GDP growth in 2017, given the large carryover effect from 2016 (Table 2.2). Conversely, the forecasts imply strong quarter-on-quarter growth in 2018 (+1.4 per cent on average) to achieve the 3.7 per cent annual growth forecast in *SPU 2017*. Despite the Quarterly National Accounts being highly volatile, it seems unlikely that there would be such a dramatic change in the quarterly pace of growth. Assuming that the 2016 quarterly data remain unchanged, then even moderate quarter-on-quarter growth would lead to strong annual growth in 2017 (Table 2.3).

Table 2.2: Average Quarter-on-Quarter Growth Rates for Each Year Implied by Annual Estimates

	2014	2015	2016	2017	2018
<i>SPU 2017</i>	2.5	6.6	1.6	0.1	1.4

⁹ The Department assumes that investment/imports of intangible assets revert to closer to 2015 levels, implying a 37 per cent decline. Underlying imports (excluding aircraft and intangible assets) are forecast to grow by over 5 per cent in 2017.

Source: CSO, SPU 2017 and Internal IFAC calculations.

Notes: 2014, 2015 and 2016 figures refer to the average quarter on quarter growth rate in those years. 2017 refers to the growth rate required to achieve the 4.3 per cent growth forecast in SPU 2017. The 2018 figure refers to the average quarter-on-quarter growth needed to achieve the SPU 2017 forecast of 3.7 per cent growth.

Table 2.3: Range of Annual GDP Growth Rates for 2017 for Different Quarterly Growth Rates.

Quarter-on-Quarter Growth	Annual 2017 Growth
0.0	4.0
0.1	4.3
0.5	5.3
0.7	5.8
1.0	6.6
1.5	8.0

Source: CSO and Internal IFAC calculations.

Real **GNP** growth is forecast to be similar to real GDP growth, with a 4.2 per cent growth forecast for this year and a 3.5 per cent in 2018. This reflects the assumption that net factor flows are forecast to grow at similar rates to GDP.

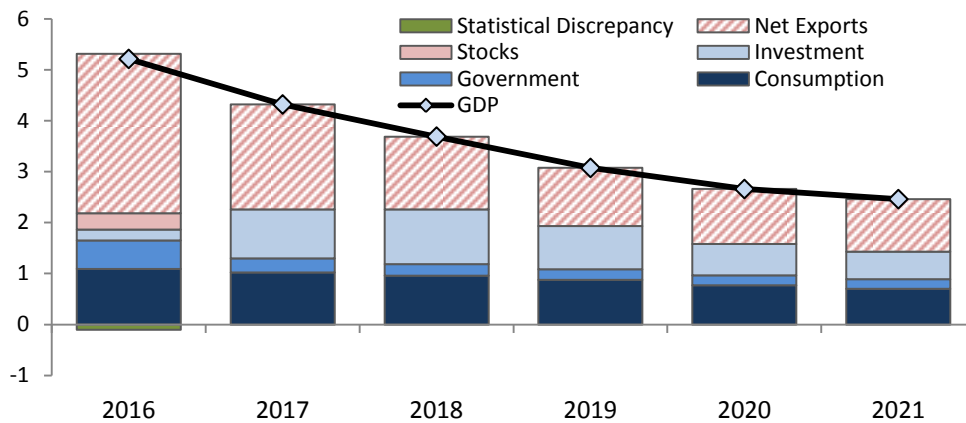
The **GDP deflator** saw negative growth in 2016, primarily driven by terms of trade effects. These effects were mainly because of the appreciation of the euro, most dramatically against sterling in the second half of the year. With limited exchange rate movements assumed for this year and beyond, the deflator is driven primarily by domestic elements in the forecast, with consumption making the largest contribution.

2.3.3 Analysis of Contributions to Growth in SPU 2017 Forecasts

Figure 2.4 shows the underlying contributions to GDP growth in SPU 2017. For 2017, growth is forecast to be driven by underlying net exports along with personal consumption and underlying investment, with government consumption making a smaller contribution. The declining growth rates thereafter are due to steadily declining contributions from both underlying net exports and underlying domestic demand. This reflects a deteriorating external environment, largely due to the assumed impact of Brexit, and weaker underlying investment.

Figure 2.4: SPU 2017 Underlying Contributions

Percentage Point Contributions to Real GDP growth



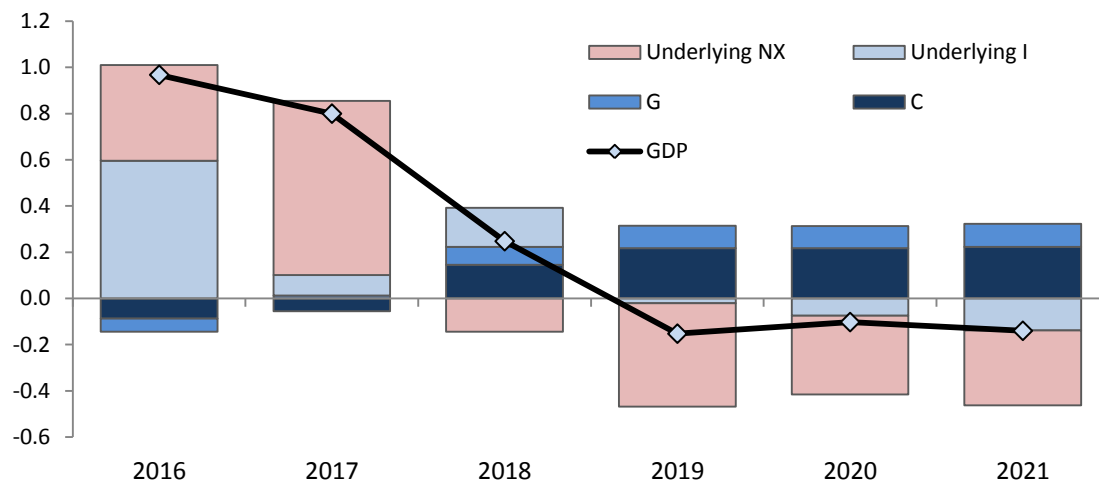
Sources: Department of Finance; CSO; and internal IFAC calculations.

Note: Underlying investment and net exports strip out intangibles and aircraft purchases in full as these are, in the main, imported, with little impact on real GDP.

Figure 2.5 examines the revisions to the forecasts of these underlying contributions since *Budget 2017*. There are large forecast revisions for this year, with the contribution from underlying net exports revised up, leading to stronger growth. From 2018 on, the contribution from underlying net exports has been revised down, reflecting the fact that the external environment is expected to be less favourable. Stronger domestic demand contributions in the outer years are driven by the Department’s move to presenting forecasts on an *ex-post* basis, which assumes the available fiscal space is fully utilised. This leads to stronger government consumption and disposable income, with the result that personal consumption is also revised up.

Figure 2.5: Changes in the Underlying Contributions to GDP Growth: *SPU 2017* vs *Budget 2017*

Percentage Point Contributions, *SPU 2017* Forecasts Less *Budget 2017* Forecasts



Sources: Department of Finance; CSO; and internal IFAC calculations.

Note: Underlying investment and net exports strip out intangibles and aircraft purchases in full as these are, in the main, imported, with little impact on real GDP. NX = Net Exports, I = Investment, G = Government expenditure on goods and services, C = Personal consumption on goods and services.

Box B: Fan Charts for Components of GDP and Employment

This Box examines the use of fan charts to show the uncertainty surrounding forecasts for different parts of the Irish economy. Fan charts can be a useful tool for graphically representing the magnitude of historical forecast errors. While previous *Fiscal Assessment Reports* (IFAC, 2012b) have outlined the use of fan charts for forecasts of GDP, this Box highlights the use of these charts for employment, personal consumption, investment and government consumption.¹⁰

While there is uncertainty around forecasts of current and future levels of a series, there is also some uncertainty around the historical values given that substantial revisions can often occur (Casey and Smyth, 2016). With this in mind, there are fans surrounding the historical data as well as the forecasts for future periods, as there is still some uncertainty around the eventual outcomes.

Various methodologies can be used in constructing fan charts. The approach taken here is to examine previous forecast errors at different time horizons. Using errors from actual forecasts is the standard approach (Office for Budget Responsibility, 2011), in part because of the reliance on judgement in making macroeconomic forecasts, rather than the mechanical use of macroeconomic models. This standard approach assumes that the probability distribution around the central forecast remains constant over time.

If forecast errors have been larger (in absolute terms, on average) at a particular horizon, then the fans will be wider, representing the larger range of likely outcomes. The forecast errors that are used are those from previous SPU and Budget publications. Using forecasts going back to 2000, the Root Mean Squared Error (RMSE) can be calculated not just for GDP, but for other parts of the forecast. Fan charts have been constructed for employment, personal consumption, investment and government consumption. The largest errors are found to be for investment, which has often been noted to be difficult to forecast and this is also the case in Ireland (Bergin *et al.*, 2013 and Conroy and Casey, 2017).¹¹ As investment has the largest errors, it has the widest fans surrounding the central forecast, reflecting the elevated level of uncertainty associated with the forecast. However, from examining the charts, it is clear that there is also considerable uncertainty surrounding forecasts of government consumption and to a lesser extent, personal consumption. Historical forecast errors for employment growth are lowest of all, as reflected by the narrower fans around the central forecast.

A sample has to be chosen over which to calculate average forecast errors. Both 2008 and 2009 are excluded, as these financial crisis years have forecast errors well above would levels expected in normal times. This approach is in line with that taken in producing the fan charts of GDP.¹² The central forecasts on which the fan charts are built are those taken from *SPU 2017*. The point estimates given in the SPU are taken as the median forecast.

Two simplifying assumptions are used. The forecast distribution is assumed to be symmetric, with the point forecast representing the median (and mean and mode). This assumption is mechanical and should not necessarily be taken to imply that the Council

¹⁰ Ideally one would examine underlying investment (i.e., excluding aircraft and intangible assets); however, historical forecasts have not been made on an underlying basis, therefore historical forecast errors cannot be calculated on an underlying basis.

¹¹ In addition to the normal difficulties of modelling investment in a small open economy, the Irish data now presents additional complications presented by investment in intangible assets and aircraft which are almost exclusively imported (as documented in Box C IFAC (2016)) and are often driven by firm specific factors.

¹² See Annex A of IFAC (2012) for details of the methodology employed.

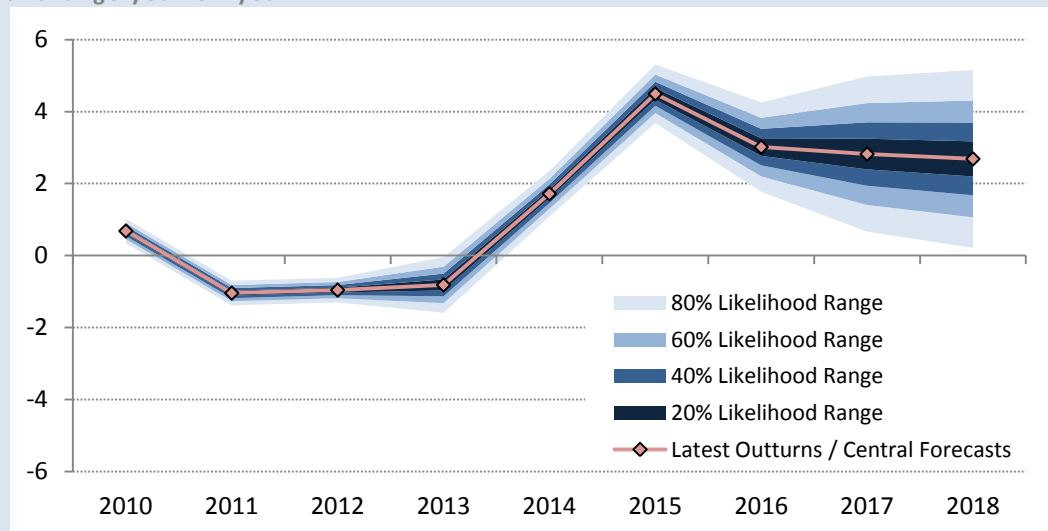
judges risks to be symmetric. It is further assumed that errors follow a normal distribution, though over a sufficiently long sample period, this assumption may be inappropriate, e.g., extreme events may be more common (fat tails).¹³ The fan charts constructed in this report are shown only between the 10th and 90th percentiles because of the difficulty of accurately representing relatively rare and extreme events, based on a limited time span.

Like the fan charts produced for aggregate GDP, the additional fan charts presented here form only one aspect of the endorsement process. In keeping with this, there is no specific range in the fan chart that is deemed to be an “endorsable range”. A number of other considerations are made when deciding whether or not to endorse a set of macroeconomic projections from the Department of Finance. These include an assessment of the methodologies employed by the Department and any patterns in recent forecast errors.

Two example fan charts which have *SPU 2017* projections as the central scenario are shown below, while further fan charts and a table detailing the root mean squared errors are given in Appendix D.

Figure B.1: Real Consumption Fan Chart

% change year-on-year



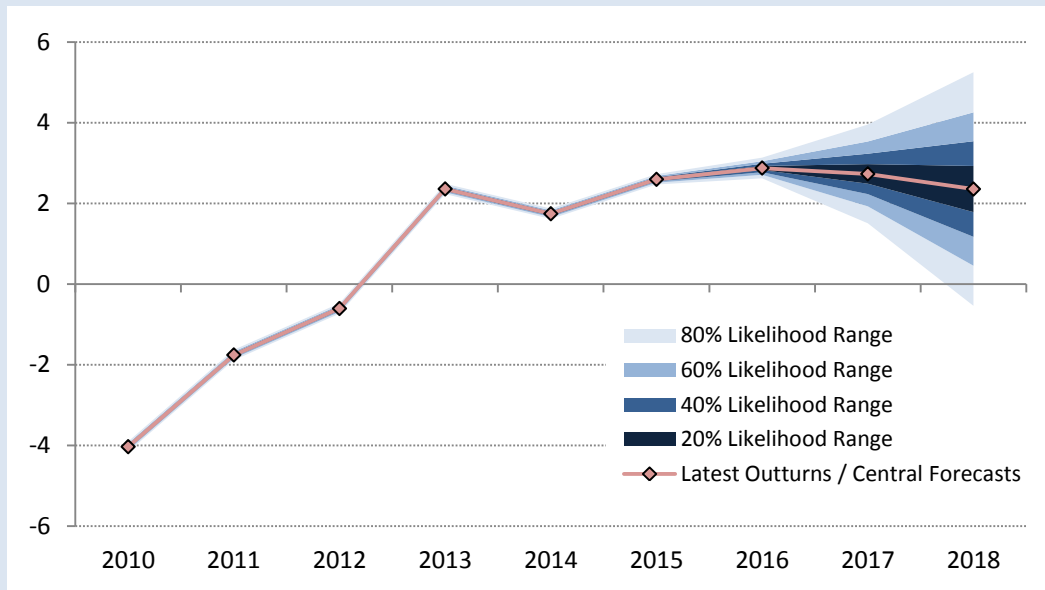
Sources: *SPU 2017*; and Internal IFAC calculations.

Note: Distributions or 'fans' around historical growth estimates are based on previous revisions to real consumption data. Forecast errors based on 2000-07; 2010-15 sample.

Figure B.2: Employment Fan Chart

% change year-on-year

¹³ Given recent economic history in Ireland, this is quite a strong assumption.



Sources: SPU 2017; and Internal IFAC calculations.

Note: Distributions or 'fans' around historical growth estimates are based on previous revisions to employment data. Forecast errors based on 2000-07; 2010-15 sample.

2.3.4 SPU 2017 Medium-Term Forecasts, 2019-2021

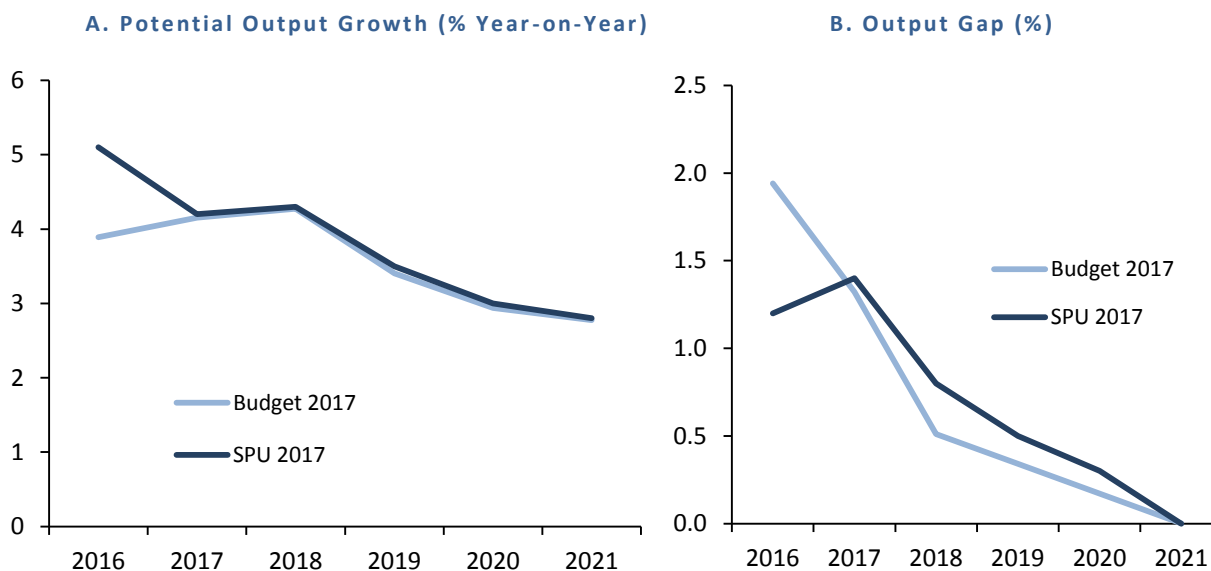
While there have been relatively limited revisions to estimates of potential output growth and the output gap in *SPU 2017* relative to *Budget 2017* (Figure 2.6 and Table 2.4), CAM-based forecasts of potential output for 2016 have been revised up by a full percentage point. This is mainly due to the increased level of investment (specifically intellectual property) which occurred very late in 2016. While this investment may well have increased the capital stock and hence the productive capacity of the Irish economy, it seems unlikely that this impact would be in 2016, given the timing of these investments. While these estimates are similar to those published in October, it is worth examining the plausibility of the estimates of potential output growth and the output gap as they now stand.¹⁴

A positive output gap (1.4pp) is estimated for 2017, gradually falling to zero in 2021. Looking at a range of imbalance indicators and alternative models of potential output, it seems unlikely that there is overheating in the Irish economy as suggested by this positive output gap (see Chapter 1 for IFAC's range of estimates for the output gap). A more plausible path for the output gap would be that it is closed or slightly negative this year, with overheating a possibility in future years, if the recent strong growth were to continue (this is discussed in greater detail in Box C). A key feature commonly applied under the CAM is mechanical closure of the output gap over the medium term, such that estimates, by construction, would not show a non-zero output gap at the end of the

¹⁴ As was noted in the November 2016 *Fiscal Assessment Report* (Appendix D, "Changes to potential output following 26% GDP growth in 2015"), the extraordinary growth recorded in 2015 is largely being treated as structural in order to keep the output gap relatively unchanged.

forecast period. There may, however, be legitimate reasons to believe that a non-zero output gap could emerge or persist over the medium term.

Figure 2.6: Vintages of Medium-Term Projections



Sources: SPU 2017, Budget 2017; and internal IFAC calculations.

Despite being the official methodology for fiscal surveillance by the European Commission, the CAM has many important drawbacks for fiscal/macro surveillance.¹⁵ These have been highlighted in previous *Fiscal Assessment Reports* and by the Department of Finance itself since at least 2003 (Department of Finance, 2003). As a result of this, previous *Fiscal Assessment Reports* have highlighted the need for complementary supply side methodologies to be developed by the Department, rather than relying on it almost exclusively for projection purposes. Further progress in developing and reporting alternatives to the CAM is necessary to improve the quality of the Department's supply-side forecasts. The Council welcomes the Department's commitment to develop an alternative to the CAM for medium-term forecasts in the coming 12 months, alongside continuing to produce the CAM estimates to meet legal requirements.

Table 2.4: Medium-Term Demand and Supply-Side Forecasts

Percentage Change Unless Otherwise Stated

		2016	2017	2018	2019	2020	2021
SPU 2017	Real GDP Growth	5.2	4.3	3.7	3.1	2.7	2.5
	Nominal GDP Growth	3.9	5.5	5.0	4.6	4.4	4.2
	Potential GDP Growth	5.1	4.2	4.3	3.5	3.0	2.8
	Output Gap (% Potential GDP)	1.2	1.4	0.8	0.5	0.3	0.0
Budget 2017	Real GDP Growth	4.2	3.5	3.4	3.2	2.8	2.6
	Nominal GDP Growth	2.8	4.5	4.6	4.5	4.2	4.1

¹⁵ For example, mechanical closure ensures that CAM estimates never show an output gap at the end of the forecast period, meaning potential overheating in future years is never identified.

Potential GDP Growth	3.9	4.2	4.3	3.4	2.9	2.8
Output Gap (% Potential GDP)	1.9	1.3	0.5	0.3	0.2	0.0

Source: Department of Finance.

Notes: The forecasts for SPU 2017 are now on an *ex-post* basis, assuming full use of the available fiscal space.

While the medium-term outlook for overall GDP growth is within a plausible range, it is worth examining the balance of growth between domestic demand and net exports. Table 2.5 shows that the declining growth rates are driven mainly by falling contributions from underlying net exports. This reflects both some erosion in competitiveness as the labour market tightens and as external conditions deteriorate. Domestic demand makes the bulk of the contributions to growth in the outer years, with consumption and investment mainly responsible.

The deterioration in external conditions referenced above relates mainly to the assumed impact of Brexit. The Department is now assuming a hard Brexit, where a World Trade Organisation-based tariff regime comes into effect from 2019. This would previously have been considered a downside risk to forecasts, whereas it is now the baseline scenario. The medium term impact from a hard Brexit is informed by estimates from the COSMO model (Bergin *et al.*, 2016). The use of explicit model-based estimates to inform the forecasts of the impact of Brexit under clear assumptions is welcome. However, one risk is that COSMO estimates assume that the impact on the Irish labour market from a shock to UK output is equivalent to a shock to an average trading partner. However, it would appear more likely that UK-destined exports would have a much higher labour intensity than Irish exports in general, given that these tend to be in the more labour-intensive traditional sector and therefore these estimates may underestimate the medium-term impact of the hard Brexit shock. In addition, while model-based estimates tend to show the economy gradually adjusting to the shock and reaching a new steady state level, it may be more likely in this case that the impact of such a shock would be more sudden. In particular, the approach does not assume a further weakening in the sterling exchange rate.¹⁶

Table 2.5: Real GDP Growth Forecasts and Underlying Contributions

Percentage Change, Unless Otherwise Stated

	2016	2017	2018	2019	2020	2021
Real GDP Growth	5.2	4.3	3.7	3.1	2.7	2.5
Domestic Demand (p.p.) ¹	2.2	2.3	2.3	1.9	1.6	1.4
Net Exports (p.p.) ¹	2.9	2.1	1.4	1.1	1.1	1.0

Source: SPU 2017.

¹ Underlying contributions to real GDP growth rates in percentage points (excludes the effect of investment in aircraft or intangible assets). Domestic demand includes changes in inventories. Rounding can affect totals.

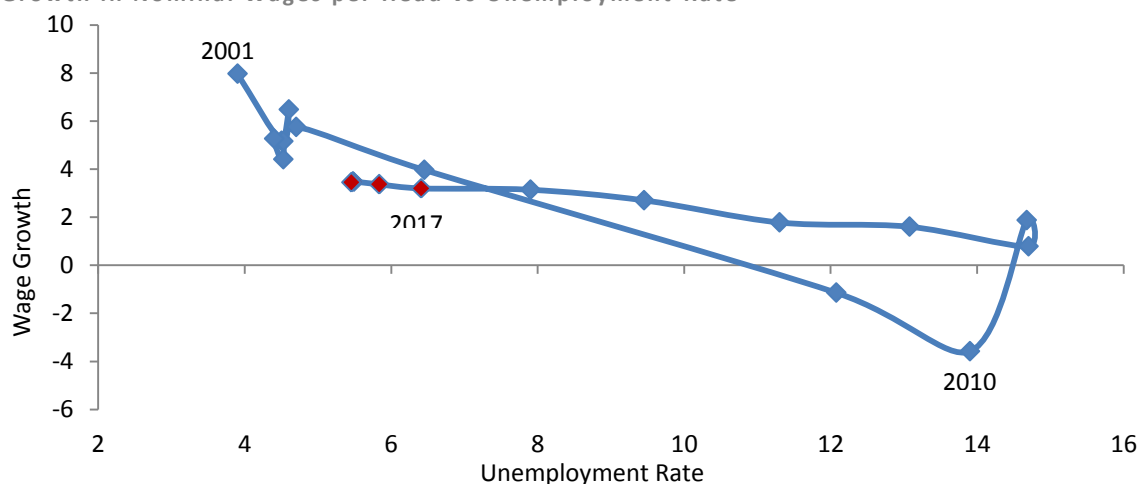
¹⁶ While possible exchange rate movements could be significant, these may be somewhat mitigated by the fact that inflation could be higher in the UK as a result (mainly due to the higher cost of imports). This would mean that the real effective exchange rate would not move as strongly as implied by the depreciation of sterling on its own (IFAC, 2016b).

Given that the labour market is forecast to continue to improve over the forecast period, one might expect that wage growth would accelerate, rather than remaining largely flat, as is forecast.¹⁷

Historically, it has been the case that lower unemployment rates are associated with stronger wage growth (Figure 2.7), but this does not appear to be the case in *SPU 2017* forecasts.

Figure 2.7: Wage Growth vs Unemployment Rate 2001 to 2021

Growth in Nominal Wages per Head vs Unemployment Rate

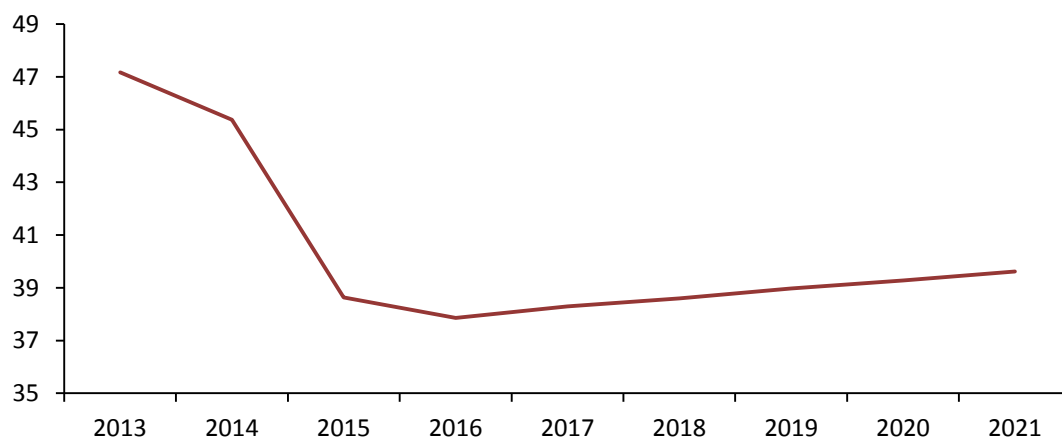


Sources: *SPU 2017*; and internal IFAC calculations.
 Note: *SPU 2017* forecast values (2017 - 2021) in red.

The forecasts in *SPU 2017* indicate an increasing labour share in GNP, albeit from a historically low base (Figure 2.8). This reflects the shift towards contributions from domestic demand in the later years of the forecast – a shift from more high-productivity (exporting) activity to lower productivity sectors.

Figure 2.8: Labour Share

Percentage of GNP



Sources: CSO; and Department of Finance (*SPU 2017*).

¹⁷ The unemployment rate is forecast to fall to 5.5 per cent in 2019 and remain at that level thereafter.

Ascertaining the current cyclical position of the economy is difficult, and the Council uses a modular approach to help assess cyclical developments in the economy (see Appendix C). This involves assessing key sources of imbalances that can help to explain any deviation of the economy from its level of potential output, with a view to examining these “modules” in a more systematic manner. Means of incorporating this information directly into baseline estimates of potential output can then be explored.¹⁸

SPU 2017 forecasts unemployment to be 6.4 per cent on average this year. It is not clear what unemployment rate is consistent with stable inflationary pressures in Ireland. The only anchor of the Department’s forecasts in this regard is the CAM-based Non-Accelerating Wage Rate of Unemployment (NAWRU) estimates, which tend to track actual unemployment quite closely.¹⁹ Despite this uncertainty, it seems highly likely that the NAWRU is lower than the current CAM estimate of 7.7 per cent. Last year saw a return to net inward migration, which could significantly boost labour supply in future years.^{20, 21} Taking all this together, the labour market does not appear to be portraying signs of an overheating economy at present.

Traditionally, the current account has been a key metric to monitor for signs of imbalance in the Irish economy. Along with the publication of the 2015 National Accounts, there were substantial revisions to the current account, with further distortions pushing the surplus up substantially in line with the headline trade balance being revised up. These distortions appear more severe than was previously the case and are not only confined to redomiciled PLCs. Unfortunately, these distortions are not easily corrected for, and as such it is impossible to assess with certainty if the “true” current account is in deficit or surplus. As discussed in Box D, it is hoped that the new adjusted current account metric will give a better indication of the external position of the Irish economy.

Looking at domestic factors for imbalances, investment ratios are shown in Figure AC.3. Although headline investment appears to be above its historical average as a percentage of GDP, this is mainly driven by investment in aircraft and intangible assets. A useful indicator of potential imbalances from investment is to look at building and construction activity. Despite some modest increases in the last few years, output in this sector remains well below historical averages and the

¹⁸ See Box A, Fiscal Assessment Report, November 2015.

¹⁹ NAWRU stands for non-accelerating wage rate of unemployment and is a measure intended to capture the unemployment rate at which wage growth is stable.

²⁰ While significant net inward migration can precede overheating in the labour market, the employment rate for those of working age remains well below its pre-crisis peak (see Appendix C).

²¹ After *Census 2016* estimates are included, there could be substantial revisions to previous population and migration estimates.

unsustainable pre-crisis highs.²² Looking at credit indicators, while both measures suggest that credit remains weak relative to trend estimates as a share of GDP, a very different picture emerges when looking at the adjusted and unadjusted credit-to-GDP levels.²³ The adjusted credit-to-GDP level has continued to fall, reflecting continued deleveraging by Irish households and firms.

Taking all these factors into account and keeping in mind the uncertainties surrounding the cyclical position of the economy, it would appear that the economy is currently operating fairly close to its potential level. With this in mind, the official forecasts for the output gap in *SPU 2017* of 1.4 per cent for 2017 appears to be above what other indicators of the output gap would suggest. However, this situation is one which may change quite rapidly, with economic activity forecast to grow relatively strongly in coming years and unemployment continuing to fall.

²² Even when using alternative denominators, investment in building and construction remains low by historical standards.

²³ The adjusted series excludes firms engaged in financial intermediation activities, and only includes Irish resident private sector enterprises as well as households.

Box C: Potential Output, Overheating and the Department’s Commitment to Developing Alternatives to the Commonly Agreed Methodology (CAM)

Estimates of potential output and the output gap are important inputs into appropriate fiscal and macroeconomic policies. In many previous *Fiscal Assessment Reports*, the shortcomings of the CAM for estimating potential output for Ireland have been highlighted. The Department of Finance has highlighted problems with this methodology going back as far as 2003 (Department of Finance, 2003). Bergin and FitzGerald (2014) also provide a very useful discussion of these difficulties in the context of the structural balance.

The Council recognises the importance of estimates of potential output and the output gap for assessing the fiscal stance and for assessing medium-term forecasts produced by the Department. With this in mind, significant work has been completed in developing alternative estimates to the CAM (see IFAC, 2015b for a summary). A range of alternative estimates has been developed, using various macroeconomic indicators as inputs (GDP, GNP and domestic GVA). This approach of developing a range of indicators is in line with the Councils “suite of models” approach for short-term forecasts.²⁴ This is designed to reduce the risk of a single model giving a misleading signal. In addition to the formal models of potential output, the Council also examines a range of indicators that may point to potential imbalances in the economy. Charts of these indicators are examined and published as an appendix in each *Fiscal Assessment Report* (see Appendix C).

To date, the CAM remains the only publicly stated view of the Department of Finance on medium-term developments and the cyclical position of the Irish economy. Two changes are necessary, given the obvious shortcomings of this methodology. Firstly, the Department should develop alternative methodologies to the CAM that provide a coherent view of the supply-side. Secondly, the Department should state how its views of the medium term differ from those implied by CAM estimates.

In its April 2017 endorsement letter, the Council welcomed the Department’s commitment to develop an alternative to the CAM for medium-term forecasts in the coming 12 months. As has been highlighted previously (IFAC, 2015b), it is not uncommon for finance ministries to publish alternative estimates of potential output or the output gap to the CAM. While there is some variation in the presentational approach, 9 of the 20 EU countries examined showed alternative estimates of potential output, or the output gap.

One of the shortcomings of the CAM is that, by design, the output gap is forced to close at the end of the forecast period. By contrast, the approach taken by the Council is to maintain a range of models of potential output (see Chapter 1 for details), as well as monitoring a range of potential indicators of imbalances in the economy (see Appendix C).

The overheating which occurred in the mid- to late-2000s gives a recent example of symptoms that can be identified. Rapid credit growth was a clear signal of unsustainable growth in the Irish economy. The rapid household credit growth was mainly for house purchase. While there has recently been strong increases in house prices, these have not, as of yet, been driven by household credit growth (in fact, Figure C.4. shows adjusted private sector credit to GDP falling since its peak in 2009). Given that macroprudential regulations have been introduced since the crisis, it seems less likely that unsustainable

²⁴ Reporting a range of estimates also helps to show the uncertainty surrounding estimates of potential output or the output gap.

increases in credit will fuel overheating in the Irish economy in the near-term.

While unsustainable credit growth may be unlikely to contribute to an overheating economy in the near term, a response to persistent supply pressures in the housing market may do so. Estimates of the number of new housing units required to meet demand due to demographics and new household formation vary quite substantially. Regardless of what estimate is used, however, completions are likely to have been well below estimates of annual demand for some time.²⁵ Depending on the extent to which supply now falls short of demand levels, this lack of supply may have led to a significant build-up of pent-up demand, which could have contributed to the significant price increases recently observed.

While supply has yet to show strong evidence of a sharp response to potential significant pent-up demand in the residential property sector, if it were to do so, one could see employment and output in the sector increase rapidly. In the 2000s, the rise in labour demand from the construction sector had two impacts. Firstly, the additional demand for labour contributed to upward pressure on wages, thus leading to competitiveness losses. Secondly, as the economy was already at full employment, substantial inward migration occurred to meet this demand for relatively unskilled labour. Given that unemployment is rapidly falling, any substantial increases in construction related employment could tighten the labour market, in a comparable way to that observed in the mid-2000s. If there has indeed been a build-up of demand in excess of any supply response, it may be reasonable to expect that housing output could exceed equilibrium levels of output (i.e., annual demand) for some time. How the housing sector might then return to more normal levels of activity would have a significant bearing on the cyclical position of the economy. Given that construction activity is quite tax rich, significant changes in the construction sector output, as outlined above, could yield large changes in tax revenue, as was the case in the 2000s.

Another potential indicator of imbalances in the economy relates to its external trading position. As discussed in Box D, it has become increasingly difficult to interpret the current account of the balance of payments. It is hoped that the CSO's new current account indicator due in June may provide a better insight into the external trading position of the Irish economy. Regardless of estimates of the current account of the balance of payments, underlying net exports have contributed substantially to growth in recent times. One would expect that as the output gap closes and the unemployment rate gets close to its equilibrium level, wages may rise, thus putting pressure on competitiveness. This would be consistent with a transition to growth being more domestically focused. If large contributions from net exports were to continue over the next couple of years, the sustainability of this growth would have to be questioned.

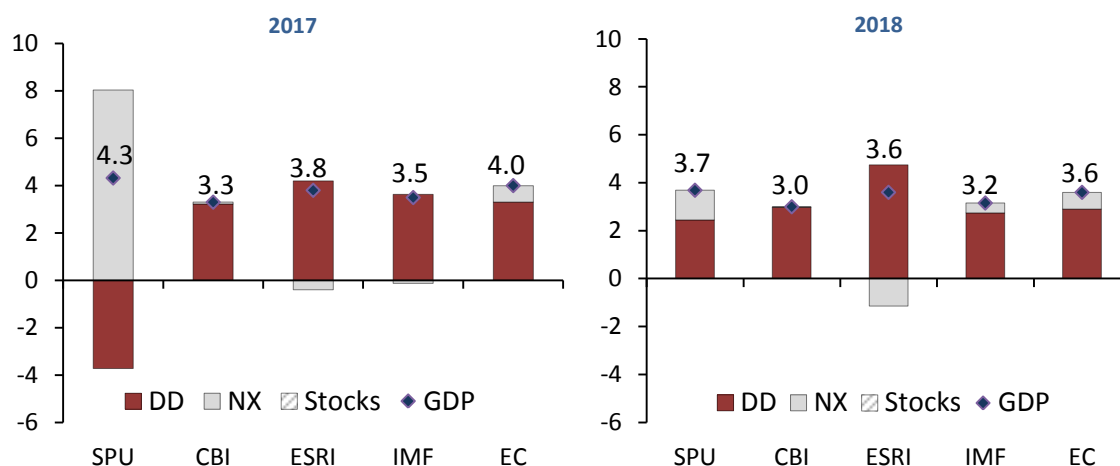
2.3.5 Forecasts of Other Agencies

Most forecasting agencies envisage real GDP growth slowing down significantly, as forecast in *SPU 2017* over the near term, yet the *SPU* forecast of 4.3 per cent growth was above that of the other agencies at the time of endorsement. For 2017, all agencies forecast growth to be mainly due to

²⁵ While figures for housing completions from the Department of Housing are often used, these figures relate to the number of units connected to the electricity network. This means that some vacant dwellings may be reconnected after a period and hence. Figures from the Census indicate that the housing stock increased by only 8,800 in five years. By contrast, completions data from the Department of Housing show 50,000 completions over this period, which depending on the assumed rate of obsolescence could imply a much bigger increase in the housing stock.

domestic demand.²⁶ There are some compositional differences for 2018, with the ESRI forecasting a negative net export contribution.

Figure 2.9: Comparative Real GDP Growth Contributions
Percentage Point Contributions to Real GDP Growth



Sources: SPU 2017; ESRI (*Quarterly Commentary Spring 2017*); IMF (*World Economic Outlook, April 2017*); Central Bank Quarterly Bulletin 2, April 2017; and European Commission (*European Economic Forecast, May 2017*).

Note: All contributions are on a headline basis to ensure comparability across institutions. DD = Domestic Demand; NX = Net Exports.

Box D: Macroeconomic Indicators for Ireland and Multinational Activities

The publication of the *2015 National Income and Expenditure* accounts and the accompanying balance of payments data revealed several distortions relating to multinational activities in Ireland. To deal with these distortions and to develop a greater insight into Irish economic activity, an expert group was assembled to advise the CSO on how to meet user needs.²⁷ The Economic Statistics Review Group (ESRG) compiled a report which was published by the CSO, along with responses from the CSO, on 3rd February 2017.²⁸ This Box examines the group’s main recommendations and the indicators proposed for monitoring the Irish economy in the future.

To begin, it is worth considering what properties are needed to provide useful macroeconomic indicators for Ireland. A very useful measure for the public finances, and for understanding macroeconomic imbalances, would be a comprehensive aggregate that excludes obvious distortionary factors arising from the activities of multinational enterprises, which have little or no impact on domestic incomes and employment. Such an indicator would more closely capture the amount of economic activity that occurs in Ireland, and whose benefits flow to residents here. There are several uses for such a macroeconomic indicator, the most obvious of which include: (1) to examine the growth rate of the economy at any given moment in time; (2) to assess if the economy is above or below its potential level; and (3) to use as a denominator for ratios such as government debt and deficits. In addition to indicators of aggregate economic activity, indicators of

²⁶ The headline SPU contributions are very different as they assume a large fall in intangible investment and imports in 2017, which changes the headline contributions from domestic demand and net exports.

²⁷ See IFAC (2016B) Box A: “Ireland’s Revised National Accounts Statistics” for a review of the issues arising.

²⁸ Seamus Coffey (IFAC Chair) and Thomas Conefrey (then IFAC Chief Economist) were both members of the group.

potential imbalances, like the current account, have also been very difficult to interpret in recent times. This makes it challenging to discern the sustainability of ongoing economic developments.

The ESRG made recommendations under several headings, not all of which are discussed here. It was recommended that an adjusted indicator GNI* (read as 'GNI star') would be published. This indicator would correspond to:

GNI = Gross National Income, less retained earnings of re-domiciled PLCs and less depreciation of foreign-owned domestic capital.*

The first adjustment should ensure that retained earnings of redomiciled PLCs do not impact the recorded level of output in the Irish economy.²⁹ The second adjustment would ensure that balance sheet relocations and transactions would no longer impact on the level of activity recorded in Ireland, which was the case in 2015 (see IFAC (2016c)). These two adjustments would also be applied to the current account of the balance of payments to produce a consistent measure Current Account* (C/A*). It was proposed these adjusted measures would be published at both annual and quarterly frequency. In its response to the report, the CSO committed to producing these two series and publishing them alongside the National Income and Expenditure Accounts from June 2017 on an annual basis, with quarterly series to follow next year.

While no new data are yet published, the adjustments proposed should help move towards a more useful indicator of the level of national income in Ireland. Depreciation of relocated capital assets was associated with the increase in the capital stock, which led the jump in measured output in 2015. Therefore, the adjustment for this item should help to get a more realistic measure of national income in Ireland. The effect of redomiciled PLCs has been an issue for some time, particularly for the current account of the balance of payments and GNP. One would hope that the new C/A* might be able to provide appropriate guidance as to the external position of the Irish economy, and act as an input into assessing the position of the Irish economy relative to its potential.³⁰

To get a better sense of the split between activities of foreign-owned multinationals and the domestic economy, the ESRG recommended that both the National Income and Expenditure accounts and the Non-Financial Corporate Sector of the Institutional sector accounts would be presented in a foreign and domestic ownership split. It was proposed that firms in the CSO's large cases unit (all of which are foreign-owned) and remaining firms (which would mainly, but not exclusively, be domestically-owned) be identified separately. The CSO has committed to implementing this presentation to elements of both the national accounts and sector accounts, and will examine other presentations of data that will be potentially useful to users. This would be a welcome step towards providing better assessments of developments in Ireland, and would help to address long-standing issues.

As has been pointed out in previous publications (IFAC, 2016b; 2016c) using GDP or GNP as denominators for fiscal ratios is now highly inappropriate for Ireland, as these indicators do not accurately reflect the potential revenue-raising capacity of the Irish economy. It is worth considering what a denominator for such ratios should represent. Two aspects would seem desirable. Firstly, the denominator would indicate the revenue-raising potential of the economy. This was one motivation for the Council using government revenue as an alternative denominator for fiscal ratios in recent *Fiscal Assessment Reports*,

²⁹ FitzGerald (2013) notes that the benefits of the retained earnings of re-domiciled plcs are attributed to their foreign owners, with no benefit to the Irish economy.

³⁰ The Council and the Department of Finance have in the past used the current account as a signal of macroeconomic imbalances in the context of estimating potential output for the Irish economy.

as it is an observed value of the revenue that can be raised from activity in the Irish economy. One weakness of this measure is that the amount of revenue raised is influenced by policy. The tax rates and bands set by government can change the level of government revenue raised. However, this does not mean that the economy's revenue-raising potential has changed. A second aspect that would be desirable for a denominator for fiscal ratios would be that international/historical comparisons could be made. This requires that the denominator is comparable to more traditional measures of output (GDP or GNP) as they were before the recent distortions became apparent.

With these considerations in mind, the proposed GNI* metric might serve as a more informative denominator for fiscal ratios. However, there are trade-offs when considering denominators to use for fiscal ratios. For example, the Council previously used a hybrid measure, which reflected the likelihood that the revenue potential of GNP is different from the excess of GDP over GNP. While GNP was assigned a weighting of one, the excess of GDP over GNP was estimated to have a weight of around 0.4. A similar hybrid measure could be constructed when the data on GNI* are released. The corresponding approach would see GNI* assigned a weighting of one, with the excess of GDP or GNP over GNI* getting a lower weight.

While alternative denominators may be desirable for ratios such as government debt and deficits, GDP is likely to remain as the denominator for ratios relating to the fiscal rules. If GNI* serves as an informative denominator for fiscal ratios, then the Department may consider presenting fiscal ratios using this denominator in future.

2.4 Risks

While the near-term prospects for the Irish economy remain relatively positive, substantial risks surround this central forecast. The recovery in the economy since 2012 has been aided by favourable external conditions for Ireland. Exchange rates boosted competitiveness; a looser global monetary policy stance helped alleviate a strained credit environment domestically; and there was some demand growth in Ireland's major trading partners. Last year saw some reversals of these trends, with weaker external demand and a significant appreciation of the euro against sterling. Given the open nature of the Irish economy, changes to the external environment could have a sizeable impact on the economy.

Table 2.6 below shows the macroeconomic risks identified in *SPU 2017*, along with the Department's assessments of relative likelihoods and impacts. This table also includes comments from IFAC on each of the risks identified. Three additional risks, which were not included in *SPU 2017*, are also added here, with the Council's assessment of the respective likelihoods and impacts. Overall, the *SPU 2017* risk matrix presents a comprehensive list of the main macroeconomic risks. While *SPU 2017* notes that "the balance of risk is quite clearly firmly tilted to the downside at the current juncture", the Council assesses risks to be more balanced, with upside risks to GDP in the short run and possibilities over over-heating further ahead. This reflects the view that there are

substantial positive and negative risks to the forecasts. Positive cyclical risks are possible, mainly surrounding an increase in activity in the building and construction sector.

Table 2.6: Assessing SPU 2017 Risk Matrix

Risk	Likelihood	Impact	IFAC Comment
Exchange Rate Re-Alignment	H	H	The second half of last year saw a significant appreciation of the euro against sterling. While exchange rates could become more or less favourable in the coming years, increased volatility could be damaging to Irish firms.
“Hard Brexit”	H	H	A WTO style arrangement would appear to have the most significant economic implications for both the UK and its trading partners. This scenario appears to be increasingly likely, although great uncertainty remains, and could have significant implications for medium-term growth prospects in Ireland. The upcoming UK general election is likely to influence the eventual outcome of Brexit. While listed as a risk, many of the negative consequences of a hard-Brexit have been built into baseline projections of the Irish economy. As such, the main downside risk to the forecast from a hard-Brexit is that the impact of this shock has been underestimated.
External Demand Shock	M	H	Despite slower growth in 2016, Ireland has benefited from its main trading partners performing relatively well in recent years. The slow pace of growth in world trade is of concern, as are the potential second-round impacts from Brexit.
Geopolitical Risks	M	H	While the direct impacts from geopolitical tensions may be limited, second-round effects could be significant, particularly if trade linkages are disrupted, or if there is a negative financial market reaction.
Trade Protectionism	M	H	Given that trade plays such an important role in the Irish economy, any protectionist measures that limit trade would be damaging to Irish growth prospects. Last year saw very weak world trade growth.
Loss of Competitiveness	M	H	Given the extremely open nature of the Irish economy, any losses in competitiveness could have significant implications for growth. There are several possible sources that could lead to an erosion of competitiveness, such as wage pressures and residential/commercial property inflation.
Housing Supply Pressures	H	M	The lack of a supply response to the excess demand in the property market has seen an escalation in the prices of both residential and commercial property. This has negative implications for competitiveness, with the likelihood of compensating upward pressure on wages. While a stronger supply response is needed to keep prices and rents down, overheating in the economy would be more likely to occur if there were substantial increases in construction activity, as other sectors continue to grow strongly.
Concentrated Industrial Base	L	H	Ireland’s industrial base is quite concentrated in a small number of sectors. Because of this, some sector- or firm-specific shocks could have a considerable impact on the Irish economy.
Global financial market conditions	M	M	With continued low interest rates, a “search for yield” could raise financial stability concerns.

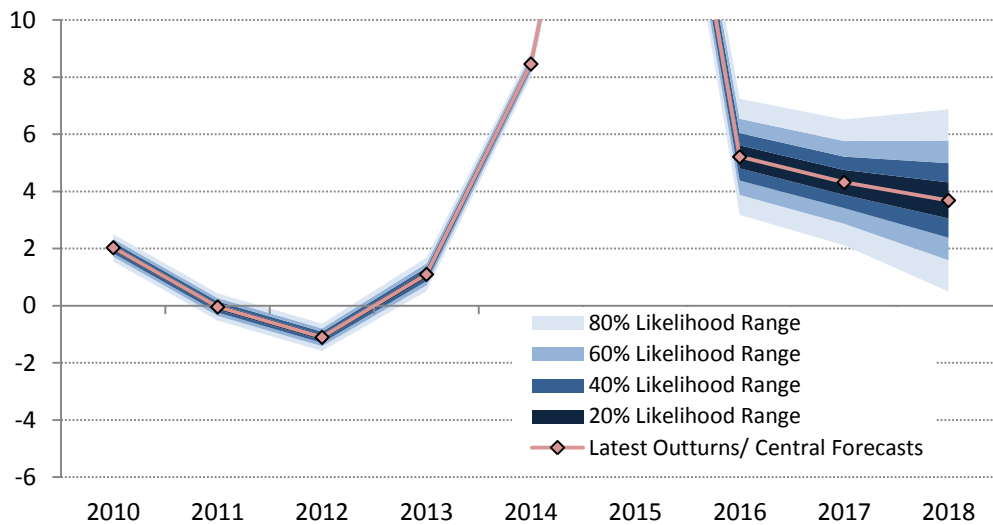
Policy Uncertainty in the US	M	M	Changes in policy in the US, particularly in relation to Corporation Tax, could negatively impact on FDI into Ireland. In addition, plans for a common, consolidated corporate tax base (CCCTB) in the EU could also impact on the Irish economy. More generally, an uncertain policy environment in the US could damage growth prospects and hence weaken demand for Irish exports.
Risk	Likelihood	Impact	IFAC Comment
Private Sector Deleveraging	L	M	Although falling, household debt levels remain high at 144.8 per cent of disposable income. If households were to prioritise income gains for paying down debt rather than consumption, this would imply a downside risk to the consumption forecasts. It is worth noting, however, that savings rates are already at historical highs.
Rapid Rebound in Oil Prices	L	L	As an importer, higher oil prices would reduce the purchasing power of Irish consumers and increase costs for businesses here, while weaker oil prices would be supportive of consumption.
Inappropriate Monetary Policy (IFAC Risk)	M	H	A risk which is not identified in <i>SPU 2017</i> is that monetary policy could be inappropriate for Ireland. With output growth and inflation in the Euro Area remaining subdued, accommodative monetary policy looks set to continue. ³¹ As growth in Ireland is forecast to continue to outperform the Euro Area, there is a risk that monetary policy could be looser than ideal for Ireland in the coming years. The last crisis showed the impact that inappropriate monetary policy can have in terms of amplifying the business cycle.
Inappropriate Domestic Policy (IFAC Risk)	M	M	With monetary policy set by the European Central Bank (ECB), there are two main domestic policy tools to be used. Given the current cyclical position of the economy and the growth rates forecast, fiscal and macroprudential policy may need to play an active role to prevent overheating in the economy.
Persistence of Low Inflation (IFAC Risk)	M	M	“Secular stagnation” and associated low inflation could have adverse impacts on demand for Irish exports. In addition, countries with high debt burdens (private and public) would welcome higher inflation to reduce the real value of those debt burdens.

Note: Likelihood and impacts from *SPU 2017*: H= High; M = Medium; L = Low.

As has been highlighted in previous *Fiscal Assessment Reports*, the Irish economy has historically been one of the most volatile in the OECD, along with a tendency towards large revisions to historic data. Figure 2.10 shows the historic data and *SPU* forecasts with fans based on historical revisions and forecast errors.

³¹ Forecasts for inflation have been revised up but remain below the 2 per cent target level. Output growth is forecast to be less than 2 per cent in both this year and next (World Economic Outlook, IMF, April 2017).

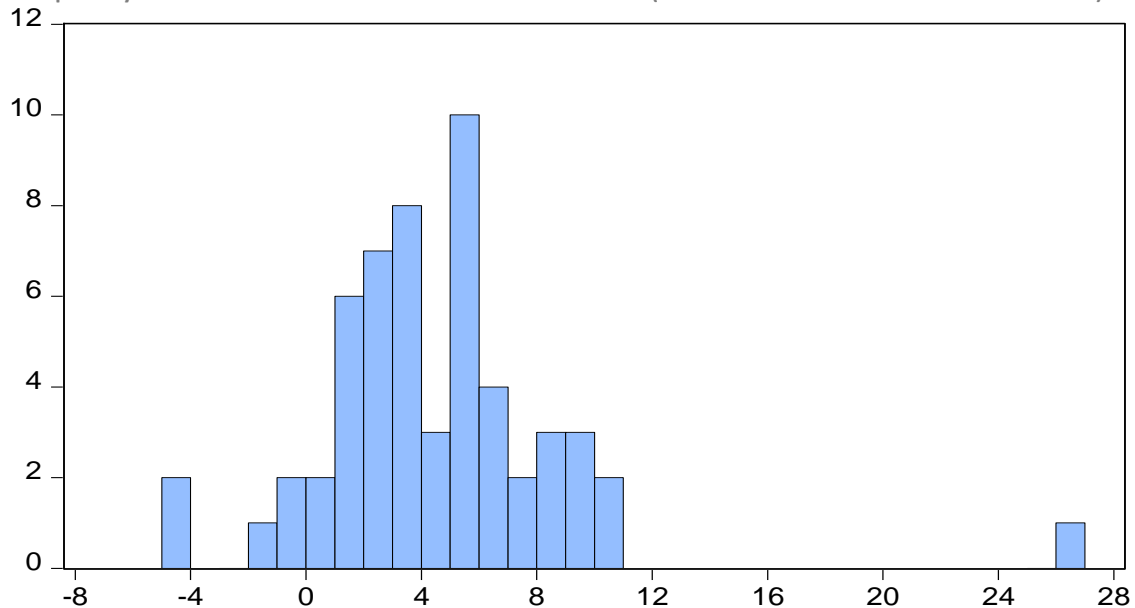
Figure 2.10: Real GDP Fan Chart Based on SPU 2017 Projections
 Percentage Change (Year-on-Year)



Note: Distributions or 'fans' around historical growth estimates are based on previous revisions to real GDP data. Forecast errors based on 1999-07; 2010-15 sample. The Y axis is adjusted to make the 2017 and 2018 forecasts legible.

The rapid recent growth in the economy reflects, in part, the volatility in the economy, which has been evident not just in recent times, but throughout history. While growth in the 2 to 5 per cent range may be considered normal for a mature economy, only 18 of the last 56 years have seen real GDP growth in that range (Figure 2.11 below).

Figure 2.11: Historical Irish Real GDP Growth Rates
 Frequency of Year-on-Year Growth Rates Observed (% Growth Rates on Horizontal Axis)



Sources: CSO; and internal IFAC calculations.

Note: Data cover annual data for sample period 1960 to 2016.