

ASSESSMENT AND ENDORSEMENT OF MACROECONOMIC FORECASTS

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2. ASSESSMENT AND ENDORSEMENT OF MACROECONOMIC FORECASTS

KEY MESSAGES

- The Council endorsed the *SPU 2014* macroeconomic forecasts to 2018. Given the uncertainties and judgemental elements involved, it was satisfied that these forecasts were within an endorsable range.
- Aggregate GDP forecasts appear plausible for the short term (2014-2015). However, the composition of growth forecasts in *SPU 2014* implies somewhat stronger domestic demand relative to Benchmark projections prepared by the Council's Secretariat.
- The *SPU 2014*'s rise in medium-term (2016-2018) real GDP growth to 3½ per cent appears at the relatively optimistic end of the range. While attainable, this would require, among other things, continued strong trends in labour inputs. The assumed shift to net-exports-driven growth by 2017 may be difficult to achieve given the subdued productivity growth forecast. The latter is particularly difficult to predict given likely compositional shifts in sectoral employment.
- Macroeconomic risks remain large and tilted to the downside. The overall balance of risks is not addressed in the *SPU 2014* and should be incorporated in future publications. Significant risks include the on-going impact of weakened private sector balance sheets and fragile external growth prospects. Medium-term uncertainties concern the ability to realise further competitiveness gains and the possibility of extended long-term unemployment becoming ingrained.
- The Council verified the correct application of the common European Commission (EC) methodology to estimate trend supply-side variables. However, the Department of Finance should develop a set of approaches that provide a fuller picture of the economy's cyclical position and of potential output in the medium term, although the fiscal rules will continue to be evaluated based on the EC methodology.

2.1 INTRODUCTION

The Council has a mandate to assess and, since July 2013, to endorse the official macroeconomic forecasts produced by the Department of Finance published in the *Stability Programme Update* and in the *Budget*.

Section 2.2 discusses the *SPU 2014* forecasts and puts these in context relative to forecasts of other agencies, while Section 2.3 provides an assessment of the uncertainty and risks surrounding the economic outlook. Section 2.4 outlines the Council's approach to endorsement. Section 2.5 concludes by outlining the endorsement process as it applied to the *Draft SPU 2014* projections.⁹ Finally, two Analytical Notes provide further background to this Chapter covering the topics of: (1) House Price Risks; and (2) A Sensitivity Analysis of the Department of Finance Approach to Potential Output Estimation under the EC methodology.

2.2 AN ASSESSMENT OF THE FORECASTS IN *SPU 2014*

2.2.1 MACROECONOMIC FORECASTS IN *SPU 2014*

SHORT-TERM FORECASTS, 2014-2015

The *SPU 2014* forecasts an acceleration in economic activity over this year and next, with real GDP growth averaging 2.4 per cent *per annum*. The pick-up in activity is driven by a solid recovery in domestic demand, while the contribution from net exports only gradually recovers as a result of a drag on goods exports from patent expiries and relatively faster growth in imports volumes.¹⁰

The *SPU 2014* forecasts for 2014 and 2015 are broadly in line with those in *Budget 2014* and similar to those a year ago. This suggests that the earlier pattern of systematic downward revisions to growth forecasts across official forecasting agencies may have moderated. It may also support greater confidence that current forecasts are not overestimating growth (see Figure 2.1). A similar pattern can be observed outside of Ireland and notably in the Euro Area as discussed below.

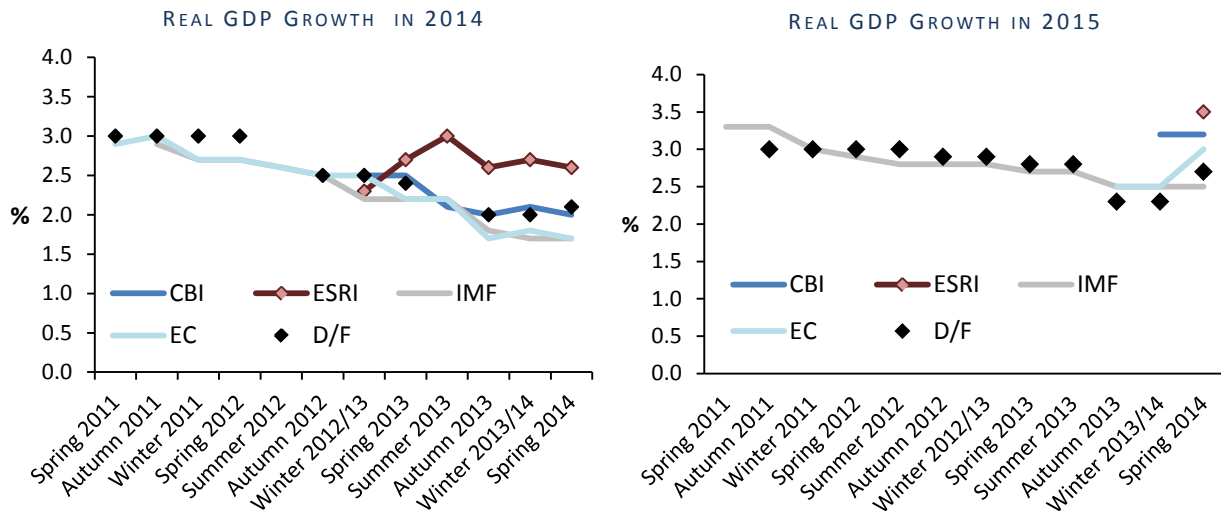
Personal consumption expenditure growth is set to rebound in 2014 (see Table 2.1 for a summary of forecasts) having contracted in 2013. It is then due to grow at a more moderate pace, driven by rising employment. The savings rate is expected to fall gradually, but nevertheless remain elevated given high levels of household debt. Despite growth in employment, only a slow recovery in both

⁹ Note: the forecasts in the final *SPU 2014* document were unchanged from those in the draft publication endorsed by the Council.

¹⁰ See Enright and Dalton (2013), "*The Impact of the Patent Cliff on Pharma-Chem Output in Ireland*," available from: <http://www.finance.gov.ie/viewdoc.asp?DocID=7850&CatID=45&StartDate=1+January+2013>

earnings and disposable incomes is expected. There is unusual uncertainty about the current momentum in consumer spending because of the divergence between relatively strong retail sales figures and weaker national accounts data for the end of 2013.¹¹

FIGURE 2.1: COMPARATIVE REAL GDP FORECAST VINTAGES (% CHANGE YEAR-ON-YEAR)



Sources: Department of Finance (D/F); European Commission; International Monetary Fund (IMF); Central Bank of Ireland and the Economic and Social Research Institute (ESRI).

The *SPU 2014* forecasts for consumption are strong relative to the Benchmark projections (Appendix Table A.1) and other agency projections.¹² There is also little evidence of income data that could support the outlook. Notwithstanding this, retail sales volume growth for 2014 has been positive thus far. Calendar year growth rates seem sufficient to meet the *SPU 2014* forecast of 2 per cent consumption growth with little additional increase in seasonally-adjusted volumes. Spending on durable items is an encouraging sign of improved confidence.¹³ While car sales in 2013 were distorted by one-off factors, strong sales in early 2014 provide further support for improved consumption relative to 2013.

Investment spending is expected to continue strengthening in the near term. A resumption in aircraft purchases should boost investment very significantly, but these are directly offset by goods

¹¹ Over one-half of overall consumer spending is covered by retail sales data. Other spending, such as on utilities, could account for the divergence. Another possible explanation for this is that consumer spending relates to spending by Irish residents. As such, expenditure in the State by tourists and other visitors is deducted in aggregate to obtain total expenditure by Irish residents. This may also have induced a divergence with the retail sales data, either actual or due to measurement error.

¹² Benchmark projections form a key part of the endorsement process and are explained in detail in Section 2.4.

¹³ This is supported by ESRI/KBC consumer sentiment indicators which had returned to levels close to their long-term average and the highest in nearly seven years at the time of writing.

imports, with no net impact on GDP growth. Excluding aircraft, underlying investment is still expected to build on the recovery that began in 2013, driven by increased spending on machinery and equipment and rising levels of housing-related investment. Overall investment (including aircraft) is expected to reach levels equivalent to 14.1 per cent of GDP by 2015. However, investment remains far below its long-run share of GDP of above 20 per cent and has considerable scope to increase further. As investment projects are likely to have been deferred in recent years due to high levels of uncertainty, signs of stabilisation should support increased investment growth in the short term.

TABLE 2.1: *SPU 2014* MACROECONOMIC FORECASTS (TO 2015)

% change unless otherwise stated	2012	2013	2014	2015
Real GDP	0.2	-0.3	2.1	2.7
Real GNP	1.8	3.4	2.7	2.3
Consumption	-0.3	-1.1	2.0	1.6
Investment	-1.0	4.2	15.4	12.4
Government	-3.7	-0.5	-0.9	-1.6
Exports	1.6	0.2	2.1	3.2
Imports	0.0	1.0	3.2	3.4
Current Account (% of GDP)	4.4	6.6	5.8	5.2
Employment	-0.6	2.4	2.2	2.0
Unemployment Rate	14.7	13.1	11.5	10.5
Inflation (HICP)	2.0	0.5	0.5	0.9
Nominal GDP (€ billions)	163.9	164.0	168.4	174.5

Sources: CSO and Department of Finance (*SPU 2014*).

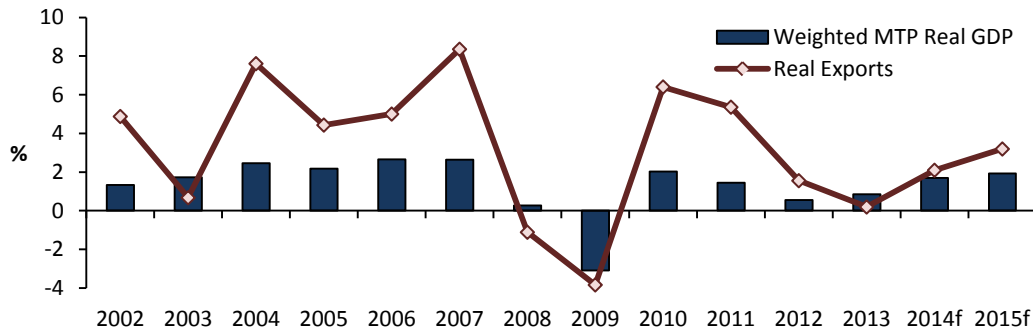
The *SPU 2014* forecasts for investment growth are strong, but remain plausible in the context of past experience and trends. The Benchmark projections also assumed solid growth in underlying investment. However, such improvements in investment performance will require a reasonably functioning credit system. The overhang of property-related debt is also likely to continue to weigh on credit availability and investment spending.

The *SPU 2014* projects **exports** to increase in the coming years, rising by 2.1 per cent and 3.2 per cent in 2014 and 2015 respectively. This reflects the anticipated recovery in export markets: weighted average real GDP growth rates in Ireland's major trading partners are expected to double this year, rising at 1.7 per cent in the EC forecasts (see Figure 2.2).¹⁴ However, the *SPU 2014*

¹⁴ Weights are taken from latest available full-year CSO trade data for both goods and services exports and cover just over 80 per cent of total export markets. Real GDP growth rates are from EC Spring 2014 forecasts.

projects continued weaknesses arising from the pharma-chem sector which will offset the positive influence of recovering external demand. Services exports, which now account for more than one-half of all export volumes, are expected to mirror the more benign external environment.

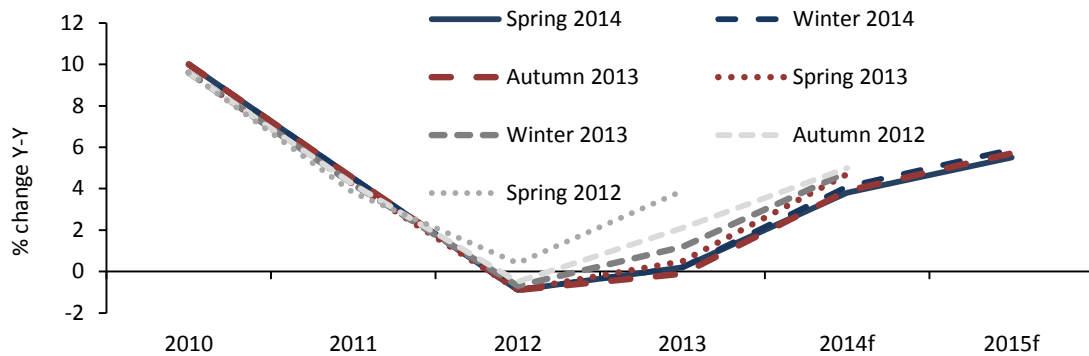
FIGURE 2.2: IRISH REAL EXPORTS AND WEIGHTED REAL GDP OF MAJOR TRADING PARTNERS (MTPs) (% CHANGE YEAR-ON-YEAR)



Sources: CSO; EC; Eurostat; SPU 2014 and internal calculations.

Euro Area forecasts have been subject to a pattern of downward revisions in recent years. As the Euro Area represents around one-third of the overall market for goods and services exports from Ireland, this has had significant implications for Irish export forecasts. However, this pattern seems to have run its course for now (Figure 2.3).

FIGURE 2.3: EURO AREA: IMPORTS, EC FORECAST VINTAGES (% CHANGE YEAR-ON-YEAR)

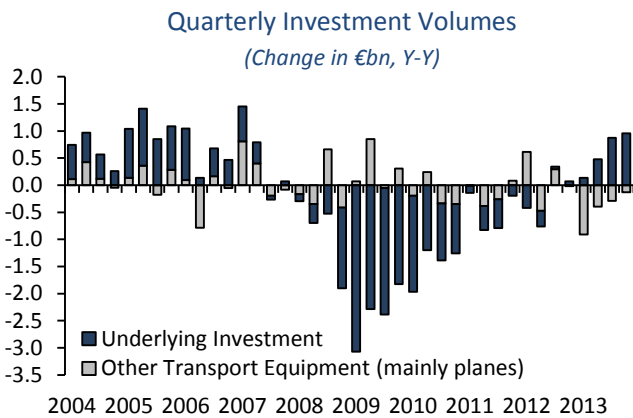


Source: EC Forecasts, different vintages.

The Benchmark projections and other forecasters anticipate much stronger growth in both exports of goods and services than the SPU 2014 forecasts. However, these differences largely relate to diverging views on developments in the pharma-chem sector that are subject to considerable levels of uncertainty given that they are driven largely by firm- and product-specific factors. Given this, an unusually wide range of forecasts on the trade side can be regarded as plausible.

FIGURE 2.4: KEY DEVELOPMENTS RELATING TO SHORT-TERM FORECASTS

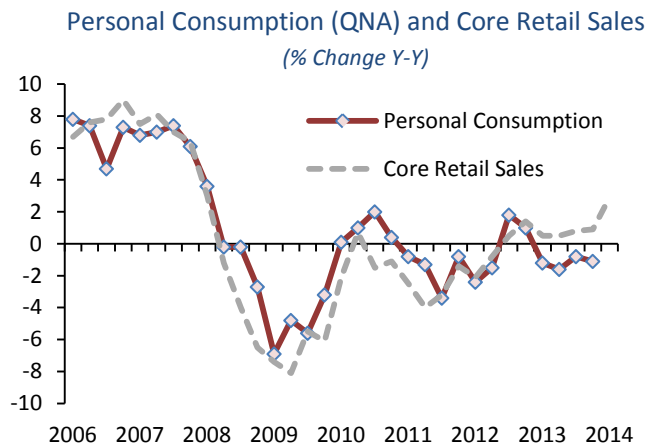
Domestic demand should be supported by underlying investment in the near-term...



Source: CSO.

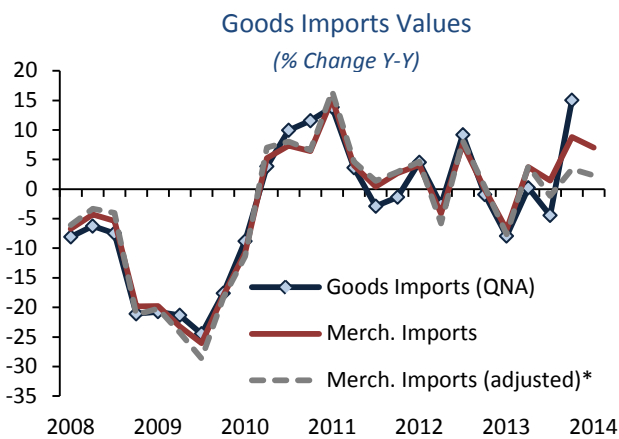
Note: Underlying investment is total investment excluding 'other transport equipment'.

...and core retail sales have recently indicated stronger consumer spending than actual outturns



Source: CSO.

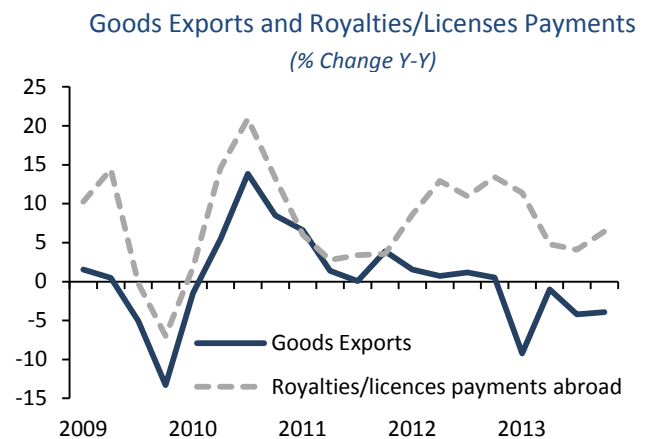
Strong goods imports weighed on Q4 GDP, but related to very specific industrial activities



Source: CSO.

* Excludes machinery specialised for particular industries; general industrial machinery & parts, n.e.s.; misc. manufactured articles; professional, scientific & controlling apparatus.

Royalties/licenses imports have remained strong even as goods exports wane



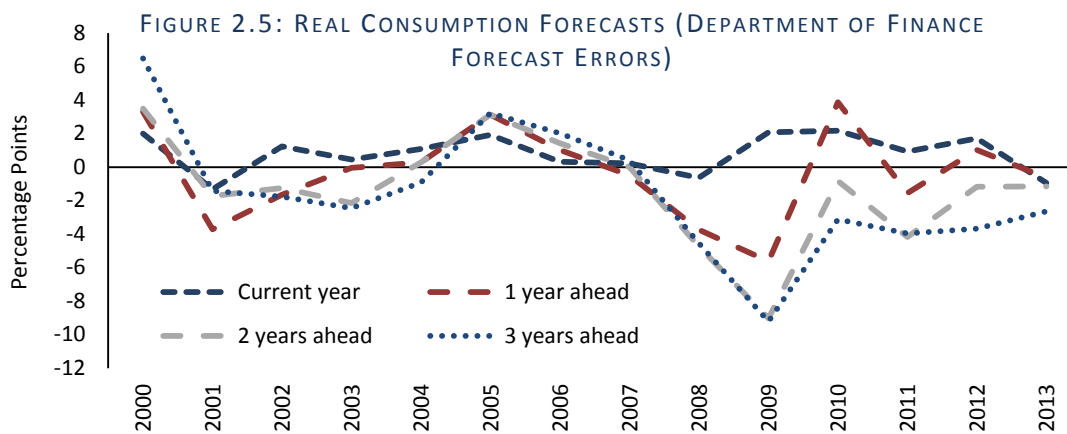
Source: CSO.

Turning to **imports**, services imports are likely to be boosted by the strong growth in imports of royalties/licenses payments (Figure 2.4). First, the recent declines in pharma-chem exports have not corresponded with a fall in imports of royalties.¹⁵ Second, a recent trend increase in royalties

¹⁵ Instead, associated revenue losses appear to have materialised in the form of reduced profit outflows, with GNP showing a corresponding boost. See 'Box A: What is driving GNP?' in the Central Bank of Ireland Quarterly Bulletin 1, January 2014 for a more nuanced discussion of developments in GNP and net factor incomes of late. The relationship between royalty/licenses payments and the pharma-chem sector is explored further in FitzGerald (2013c).

and licenses payments – primarily accounted for by multinationals in the Information, Communication and Technology (ICT) sector – is expected to continue.¹⁶

Moreover, goods imports were exceptionally strong in the final quarter of 2013. Monthly merchandise trade data suggests that a large portion of this related to imports of specialised machinery and equipment in very specific activities. Excluding these components, goods imports rose by approximately 3½ per cent year-on-year in value terms in the final quarter compared to a headline rise of 15 per cent. While the specific import components mentioned here may be one-off in terms of the level of imports and the data may be revised, it is critical that the Department’s forecasts for 2014 and 2015 imply reasonable quarterly profiles of imports that take account of these effects.



Sources: Department of Finance; CSO and internal calculations.

Note: Negative errors indicate forecasts were unduly optimistic in this case.

A key question in terms of the recovery is the balance between domestic and external demand. The Benchmark projections suggest similar GDP growth rates to the *SPU 2014* forecasts, but with greater contributions from net exports in 2014-15.¹⁷ This could be significant from a fiscal perspective, given the tax-rich nature of domestic demand. Moreover, there has been a consistent pattern of domestic demand being overestimated in Department of Finance projections since the

¹⁶ By paying royalties to affiliated companies abroad, multinationals may reduce their profits and tax liabilities in Ireland (see Duffy *et al.* (2014) for further details).

¹⁷ The Benchmark projections forecast an average annual contribution to growth from net exports of 0.9 percentage points in 2014 and 2015 with a domestic demand contribution of about 1.4 per cent. The comparable Department of Finance figures were 0.0 per cent and 2.4 per cent, respectively.

financial crisis began. Forecasts, at various horizons, tended to overestimate consumption growth for 2013 (Figure 2.5).¹⁸

Real GNP growth rates are being boosted significantly by lower net factor outflows. Falling profits due to weaker export activity amid patent expiries and reduced interest payments abroad by the financial sector are helping to drive down outflows. The divergent growth rates of GNP and GDP are expected to narrow over the near term, however, as the impact of recent patent expiries abates. Moreover, the recent pattern of ‘redomiciled PLCs’ locating in Ireland and artificially inflating the current account balance appears to have run its course for now.¹⁹ The recent trend improvement in the current account surplus is largely unaffected by these factors though the scale of the corresponding ‘redomiciled PLCs’ impact remains close to 5 per cent of GNP (Duffy *et al.*, 2014).

The *SPU 2014* forecasts a continuation of the very positive **employment** dynamics witnessed in 2013. Employment is expected to grow by close to 2 per cent in 2014 and 2015, with the unemployment rate falling to 10.5 per cent in 2015 (from a peak of 15.1 per cent in early 2012). Seasonally adjusted employment growth slowed between the last quarter of 2013 and the first quarter of 2014, although it is not clear whether this deceleration will be sustained. Survey indicators continue to point to expansions in employment, while Live Register figures also suggest that 2 per cent employment growth should be achievable this year. Even if employment stayed at current levels, a strong base means that annual growth of some 1.2 per cent would still be likely for 2014. Continued robust employment growth may, however, require a considerable broadening across sectors. The bulk of non-Agriculture jobs created in 2013 came from the sectors of Accommodation and Food Services together with Professional, Scientific and Technical Services.²⁰ However, an uptick in building and construction investment is expected, alongside a tailing off of job losses in Financial Services and the broader Public sector.

¹⁸ This is consistent with the uncertain nature of household deleveraging and its impact on consumption, a feature typifying post-crisis balance sheet recessions (see Koo (2009) and Box D of the previous Assessment Report (IFAC, 2013b) for a discussion of these dynamics).

¹⁹ Redomiciled PLCs are firms with major investments internationally that have established legal presences in Ireland. While large profits are paid to them in Ireland, they pay out only some of these as dividends to shareholders abroad. As FitzGerald (2013a) notes, this results in recorded inflows into the economy generated by these firms being much larger than the recorded outflows. This has the effect of raising the current account surplus and the level of nominal GNP.

²⁰ The CSO has recently emphasised the employment sensitivity of the Agriculture, Forestry and Fishing sector, in particular, to sample changes over time. The 2011 *Census of Population* led to updated household samples for official labour market data to ensure that these remain representative. The new sample was introduced incrementally from Q4 2012 to Q4 2013. This change led to some variability in estimates, particularly at more detailed levels, though aggregate employment estimates are judged to be more robust as these are determined prior to sectoral allocations.

The combination of real GDP and employment growth means that economy-wide productivity advances in the short run may be subdued. Weaknesses in the pharma-chem sector are likely to imply that employment gains will outpace aggregate output growth in 2014. This effect is expected to reverse as prospects for the pharma-chem sector in Ireland ameliorate.

The *SPU 2014* forecasts nominal GDP rising to roughly €174.5 billion by 2015. From June 2014, however, the national accounts will be presented on a new statistical basis – ESA 2010. This will result in a series of changes to the treatment and classification of certain aggregates. This does not signify any modifications in the underlying dynamics of the economy as it is essentially a measurement issue, yet level changes may be significant. At the time of writing, early indications are that the impact will be to revise upwards the level of nominal GDP by as much as €4 billion or €5 billion (approximately 2½ - 3 per cent of GDP). This mainly reflects a change in the treatment of R&D spending.²¹

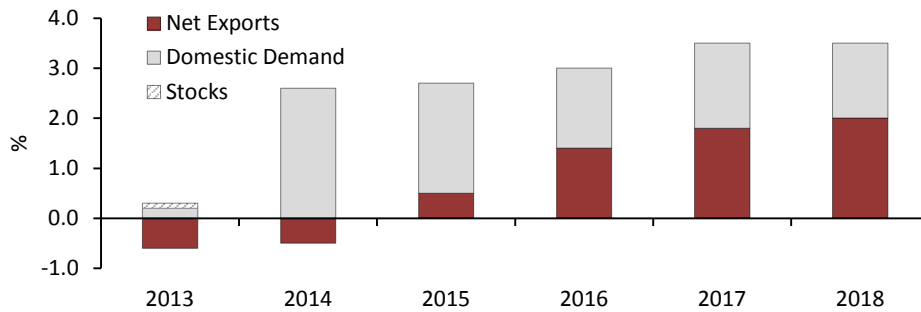
MEDIUM-TERM FORECASTS, 2016-2018

The *SPU 2014* medium-term projections show actual GDP growth rates rising to 3½ per cent in 2017 and 2018. In contrast to the short term, demand-side forecasts for later years imply net exports-driven growth, with domestic demand becoming less important (Figure 2.6).

The *SPU 2014* forecasts for potential growth also show annual rates increasing up to 3½ per cent by 2018, alongside an output gap that closes in 2017 (see Figure 2.7). The medium-term projections for potential output are prepared using the common methodology agreed between the EC and Member States. The projected contributions to potential output growth resulting from the EC method are shown in Figure 2.8. Roughly half of the growth in potential output – 1.7 percentage points per year – is anticipated to come from growth in labour inputs, with relatively low contributions by historical standards from capital accumulation and Total Factor Productivity (TFP). If continued, the labour market trends projected in *SPU 2014* would imply structural unemployment rates soon reaching very low levels. Analytical Note 2 provides an overview of the common methodology and a sensitivity analysis of the assumptions used in the application of the methodology in the *SPU 2014*.

²¹ The current statistical basis is ESA 1995. for more details on ESA 1995 and ESA 2010 see: http://epp.eurostat.ec.europa.eu/portal/page/portal/esa_2010/documents/2_1_Major_methodological_differences_ESA95_ESA2010.pdf. Additional details are available from [Eurostat](http://eurostat.ec.europa.eu). It is worth noting that regular data revisions unrelated to the change to the ESA 2010 basis could, of course, increase or reduce these impacts.

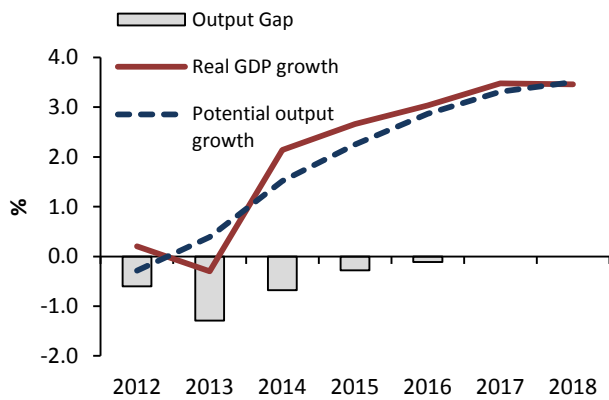
FIGURE 2.6 DOMESTIC DEMAND AND NET EXPORTS FORECASTS TO 2018



Source: SPU 2014.

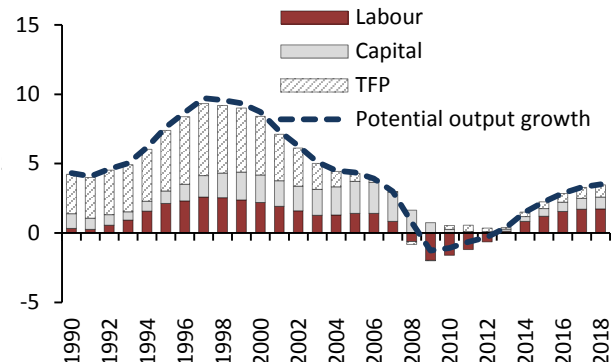
In a post-crisis environment, there is unavoidably high uncertainty about the medium-term prospects for the economy and the ultimate drivers of growth. The Government’s medium-term economic strategy document set ambitious goals for economic growth for the period until 2020 (Department of Finance, 2013d). However, neither the strategy document nor the *SPU 2014* provide sufficient diagnostic analysis of the main obstacles to, and opportunities for growth.²² Such diagnostic analysis is an essential complement to the common EC methodology in both projecting medium-term prospects and identifying policy priorities to ensure an effective supply response.

FIGURE 2.7: SPU 2014
GROWTH DECOMPOSITION



Source: SPU 2014.

FIGURE 2.8: SPU 2014
DECOMPOSITION OF POTENTIAL OUTPUT



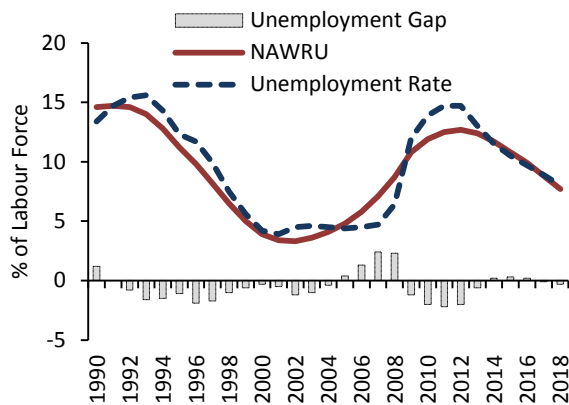
Source: SPU 2014 and internal calculations.

²² More detailed analysis is provided in the Action Plan for Jobs 2014 (Department of Jobs, Enterprise and Innovation, 2014), Construction 2020 (Department of the Taoiseach, 2014), and Pathways to Work 2013 (Update March 2014) (Department of Social Protection, 2014).

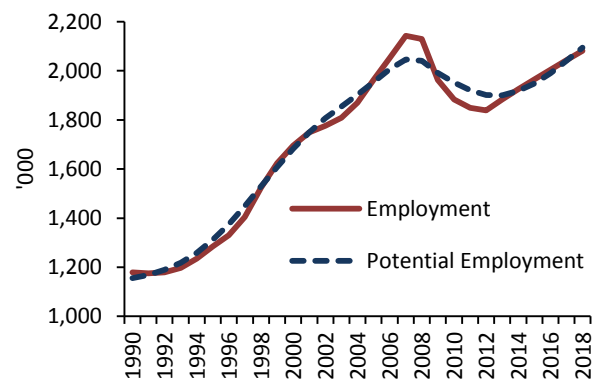
The following is a selective review of a number of the uncertainties surrounding the supply potential of the economy as they relate to labour input growth, capital accumulation and productivity performance. Each of these areas requires detailed analysis that goes beyond what is possible with the common methodology:

Labour input growth: the unemployment rate rose from a pre-crisis level of 4.7 per cent in 2007 to an annual peak of 14.7 per cent in 2012, before falling back to 13.1 per cent in 2013.²³ Using the EC methodology, the *SPU 2014* estimates that the structural unemployment rate (or NAWRU²⁴) was close to the actual rate in 2013 at 12.4 per cent. The *SPU 2014* projects very similar paths for the actual and structural rate out to 2018 (Figure 2.9). Moreover, it notes the Government’s goal of achieving “full employment” by 2020, which is taken to be an unemployment rate of between 5 and 6 per cent. However, significant uncertainties surround the likely evolution of the structural unemployment rate over the next number of years.²⁵

FIGURE 2.9: COMPONENTS OF POTENTIAL LABOUR SUPPLY



Source: *SPU 2014*; internal calculations based on EC methodology.



Source: Internal calculations based on Department of Finance data and EC methodology.

A second source of source of labour-input uncertainty relates to migration, including the return patterns of those who emigrated during the crisis.²⁶ The openness of the Irish labour market can lead it to behave more like a regional economy than a typical national economy. Regional

²³ Seasonally adjusted annual average. Note that at end-2013, the unemployment rate for those without a job for a period exceeding two years was approximately 5½ per cent.

²⁴ Non-Accelerating Wage Rate of Unemployment.

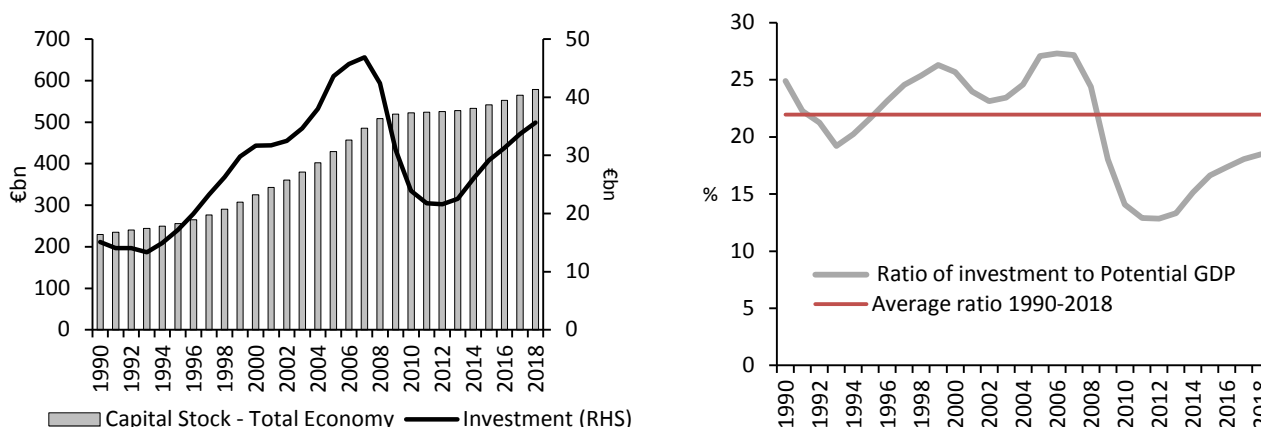
²⁵ Uncertainties surround the “scarring” effects of periods of long-term unemployment; the effects of the changed composition of labour demand; and the effectiveness of labour activation measures.

²⁶ One possible obstacle to a strong migration response is affordable housing availability. Demand-driven increases in non-traded goods prices – notably housing – can choke off positive dynamics. Although the recently released construction sector strategy (Department of the Taoiseach, 2014) sets out plans to improve the supply response, for now the extent to which the housing market will constrain the labour supply response is poorly understood.

economies can display periods of self-reinforcing growth, as inward migration supports scale economies and incomes, thus attracting further inward flows.

Capital accumulation: the Department’s forecasts show an increase in the capital stock over the forecast period, although the ratio of investment to potential output remains below its historical average (Figure 2.10 and Analytical Note 2). The *SPU 2014* indicates potential upside opportunities, though sustainable increases over the medium term would need to be underpinned by favourable developments relating to the cost of capital, credit availability and asset prices.²⁷ It is debatable whether these factors will be supportive of future investment in some sectors, particularly in light of present fragilities in the domestic financial sector and weaknesses in company balance sheets. While some recovery is likely, investment rates may be lower than the historical average given changes in the composition of output towards services and lower than usual construction activity.

FIGURE 2.10: COMPONENTS OF CAPITAL ACCUMULATION²⁸



Source: Department of Finance and internal calculations based on EC methodology.

Source: Department of Finance and internal calculations.

Total factor productivity and labour productivity: the *SPU 2014* projects a shift over time to net exports as the driver of medium-term growth. This will require the strong performance of Ireland’s internationally traded sectors – not least those dominated by multinational firms. The good record of foreign-direct investment through the crisis is an encouraging sign that this growth will materialise.²⁹ However, this requires that Ireland remains competitive in the market for new direct

²⁷ Lydon and Scally (2014) caution that these factors are key to an investment recovery.

²⁸ Analytical Note 2 discusses the main approach to potential output estimation under the EC methodology.

²⁹ Ireland’s inward foreign direct investment flows were more than six times the Euro Area annual average from 2009 to 2012 and the second highest among member states, when weighted as a share of GDP.

investment – a difficult requirement if growth proves to be relatively employment-rich and productivity gains subdued as the *SPU 2014* suggests.³⁰

Supporting Ireland’s attractiveness as a destination for investment, cost-competitiveness indicators have strengthened in recent years, underpinned by improvements in aggregate labour productivity.³¹ However, as reviewed in Box A, roughly half of the aggregate productivity improvement between 2007 and 2012 has resulted from crisis-related shifts in employment away from relatively low productivity sectors.

Over the medium term, overall economy-wide productivity growth will be affected by how the sectoral composition of employment evolves. As seen in 2013, a domestic-demand driven recovery in total employment could be associated with employment shifts toward sectors with relatively low productivity. Consequently, this could mean a relatively weak aggregate productivity performance. Further detailed analysis of within- and between-sector productivity trends would provide a useful complement to projections based on the common methodology.

BOX A: SECTORAL PRODUCTIVITY AND CHANGES IN THE COMPOSITION OF EMPLOYMENT

Growth in labour productivity is the main driver of improvements in living standards over the long term. Economy-wide labour productivity growth can be usefully decomposed into two broad components. The first is sector-level productivity growth weighted by the sector shares in total output. At the sectoral level, productivity growth is driven by improved efficiency and capital deepening (i.e., increases in capital per worker). The second is shifts in the sectoral composition of employment. Shifts in the composition of employment towards relatively high productivity sectors will tend to increase aggregate labour productivity.

We can approximate these two effects using the following equation³²:

$$\frac{d\rho}{\rho} = \sum_{i=1}^m \frac{Y_i}{Y} \frac{d\rho_i}{\rho_i} + \sum_{i=1}^m \frac{\rho_i}{\rho} ds_i$$

where ρ is productivity measured by output per employee, Y is output, and s is a sector’s share of employment. An individual sector is indexed by i and the total number of sectors is

³⁰ Compensation per employee is expected to be growing at a rate of 2.2 per cent annually by 2018. The transition from a domestic recovery to an export-led one from 2017 is expected to imply lower average GNP growth rates (of around 2.7 per cent) as foreign-owned multinationals increase their factor outflows from unusually low levels.

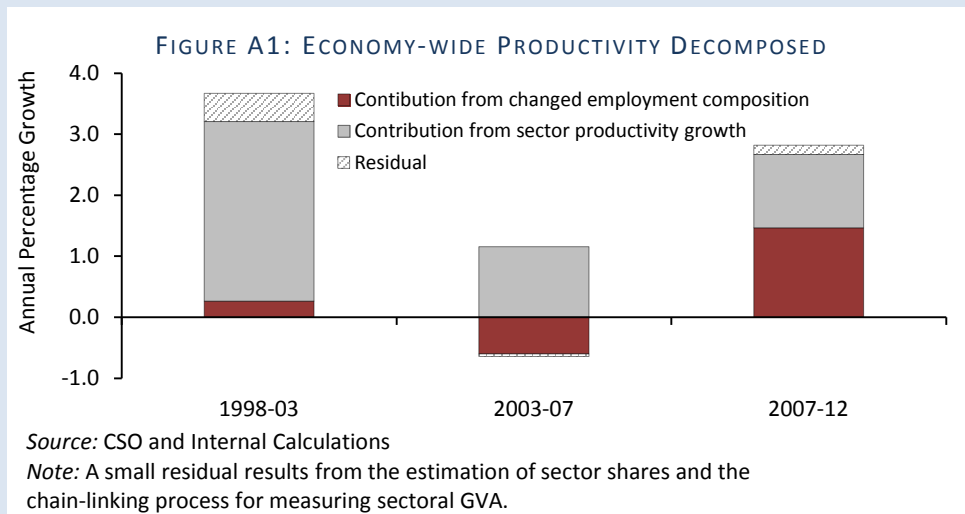
³¹ Real effective exchange rates (EC) suggest that the Ireland’s relative competitiveness is back at 2002-03 levels. More recently, the IMD World Competitiveness Survey (2014) ranked Ireland 15th out of 60 international economies on the basis of a comprehensive range of competitiveness measures.

³² The derivation of this formula and the decomposition can be found at www.fiscalcouncil.ie.

m. Essentially, the growth in productivity is broken down into two components:

- (i) the contribution to productivity growth purely from sector-level productivity growth; this is the sum of each sector's productivity growth weighted by its share of output;
- (ii) the contribution from shifts between relatively productive and relatively unproductive sectors; this is the sum of the change in share of employment weighted by relative productivity.³³

Figure A1 shows the economy-wide split over three periods; the late 1990s/early 2000s; the mid-2000s (which roughly translates to the housing bubble period); and the post-bubble period.³⁴



We can see that at the tail-end of the Celtic Tiger (1998 to 2003), there is limited productivity growth from shifts in the sectoral composition of employment while productivity growth within sectors accounts for the vast majority of the economy-wide productivity growth over the period, which averaged three-and-a-half per cent *per annum*.

During the housing bubble period, aggregate productivity fell considerably, averaging just 0.5 per cent growth *per annum*. The contribution from shifting employment composition was negative, indicating that relatively unproductive sectors expanded their employment share. This is consistent with an environment in which employment in traditionally low productivity sectors is expanding rapidly. For instance, in the years 2003 to 2007, employment growth in Construction averaged 9.1 per cent *per annum*; similarly, Accommodation and Food Service activities grew at 4.2 per cent *per annum*. In contrast, higher productivity sectors such as ICT and pharma experienced employment growth of 1.1 per cent and 3.2 per cent *per annum*, respectively.

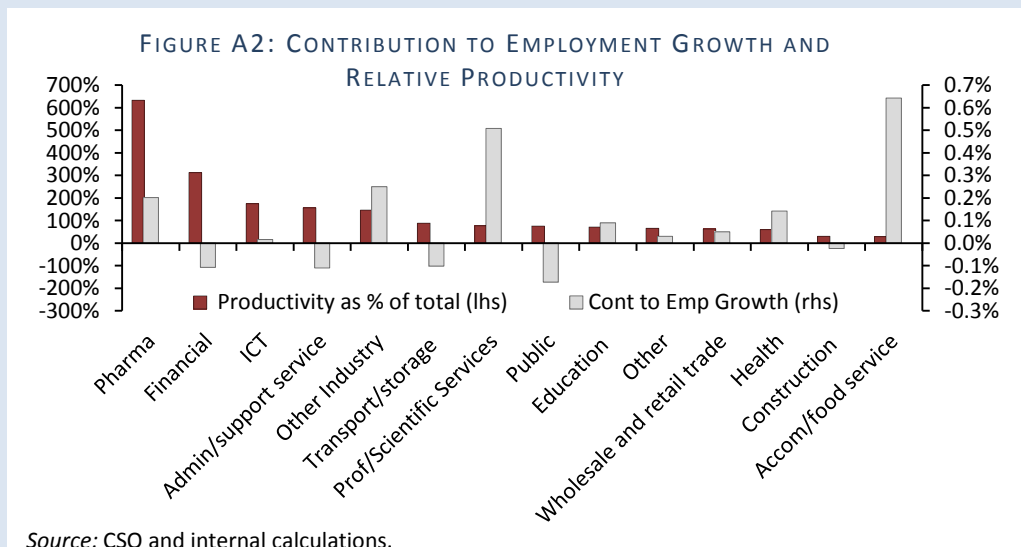
Productivity growth within sectors also fell considerably over the same period, from a 2.9 per cent annual contribution to just 1.2 per cent, possibly reflecting the maturing of the catch-up phase of Irish economic growth. One of the largest contributors to this source of productivity growth was the financial services sector (reflecting, in part, the unsustainable expansion of credit during the period).

³³ The formula assumes that average and marginal productivity are equal.

³⁴ A similar split results from removing sectors dominated by the public sector where output is difficult to estimate.

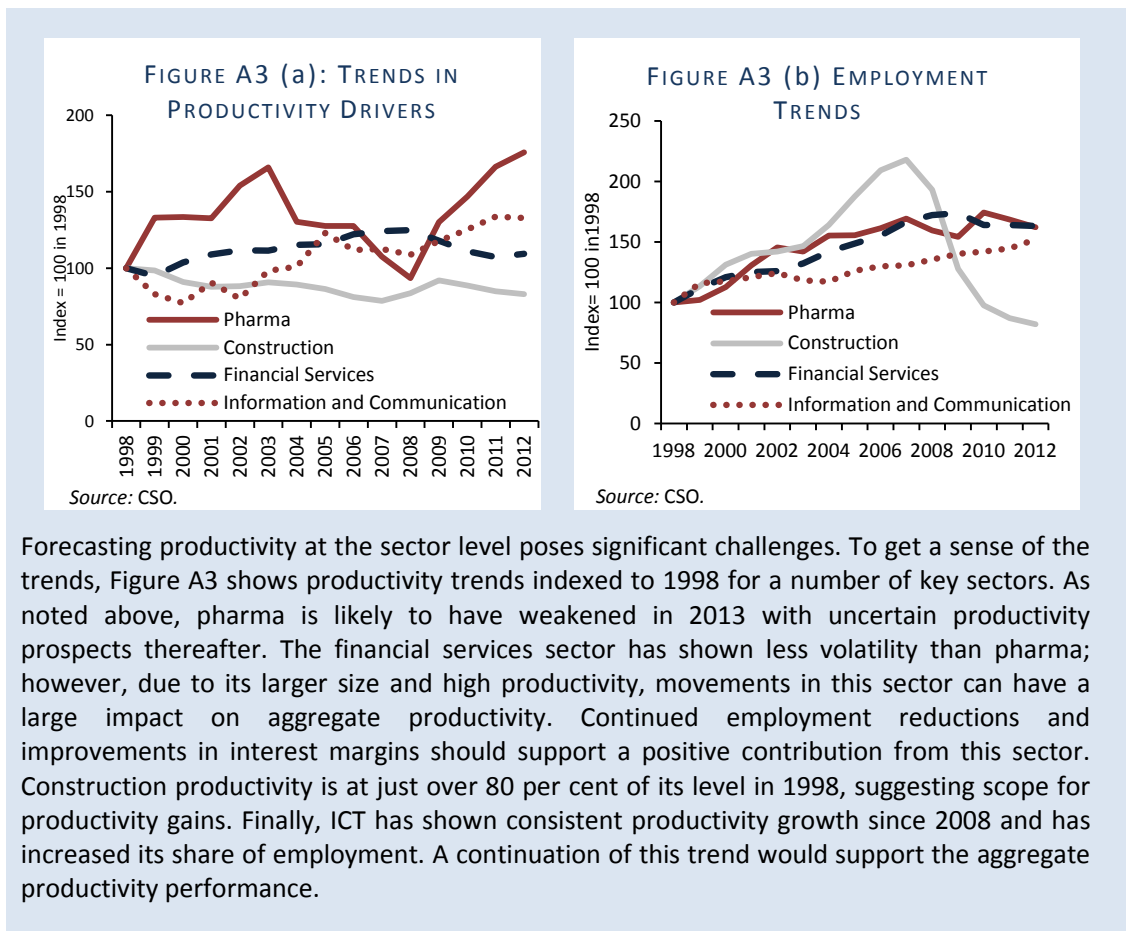
Since the recession (2007-12), aggregate productivity growth has jumped back to 2.7 per cent *per annum*, close to rates seen prior to the housing boom. However, more than half of this has been due to shifts in the composition of employment as the bulk of job losses were concentrated in low-productivity sectors while the annual contribution from sectoral productivity growth did not fare much better than it had during the housing boom at c.1.2 per cent. If employment shares are held constant, then a repeat of the post-2003 productivity performance going forward would see productivity growth of slightly over 1 per cent *per annum*.

In the medium term, the outlook for Irish productivity depends, in part, on the nature of the recovery. A domestic demand-led recovery accompanied by strong growth in construction activity would imply relatively weak productivity growth.



Measured productivity was actually negative in 2013. Part of this is explained by the pharmaceutical sector's 'patent cliff', but it may not be the whole story. It is difficult to draw firm conclusions regarding shifts in the composition of employment for 2013 due to CSO sampling issues regarding agriculture. Figure A2 shows the contribution of several non-agri sectors to employment growth in 2013 and their relative productivity in 2012. The largest contributor to non-agri employment was the least productive sector in the economy, accommodation and food services. While the second largest contributor, professional, scientific and technical services, is considerably more productive, it is still less productive than the aggregate. Some of the more productive sectors saw their share of employment decline, and while the pharma sector did post jobs growth, its relative productivity fell substantially in 2013. There is considerable uncertainty regarding the future of pharmaceutical productivity in Ireland, but Van Egeraat (2014) projects that output losses resulting from patent expirations relevant to Ireland should be concentrated in the period 2012 to 2014.³⁵

³⁵ See comment on forthcoming work, "CSO pharmaceutical industrial production figures – patent cliff or hill" by C. Van Egeraat (2014) available at: <http://irelandafternama.wordpress.com/2012/11/07/cso-pharmaceutical-industrial-production-figures-patent-cliff-or-hill/>



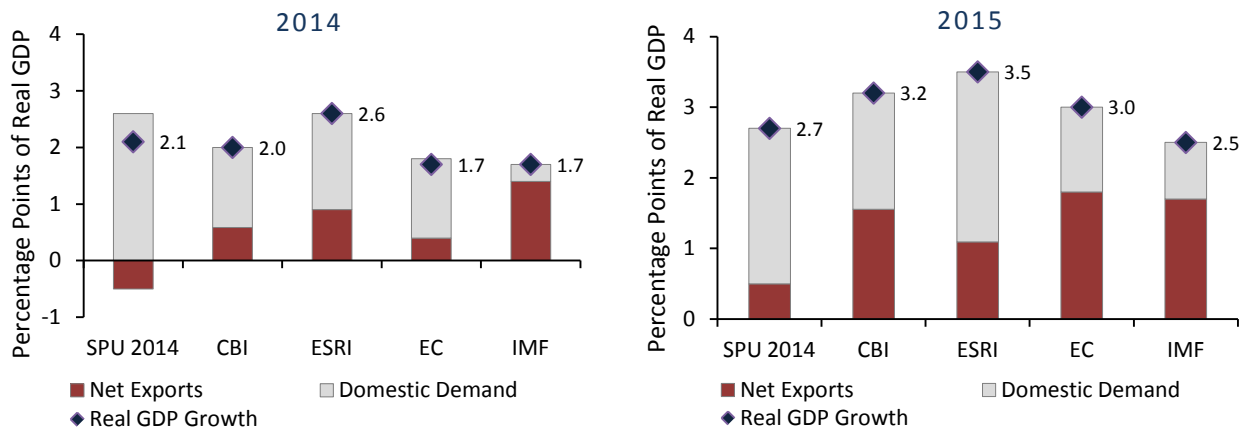
Forecasting productivity at the sector level poses significant challenges. To get a sense of the trends, Figure A3 shows productivity trends indexed to 1998 for a number of key sectors. As noted above, pharma is likely to have weakened in 2013 with uncertain productivity prospects thereafter. The financial services sector has shown less volatility than pharma; however, due to its larger size and high productivity, movements in this sector can have a large impact on aggregate productivity. Continued employment reductions and improvements in interest margins should support a positive contribution from this sector. Construction productivity is at just over 80 per cent of its level in 1998, suggesting scope for productivity gains. Finally, ICT has shown consistent productivity growth since 2008 and has increased its share of employment. A continuation of this trend would support the aggregate productivity performance.

2.2.2 FORECASTS OF OTHER AGENCIES

The *SPU 2014* growth forecasts for 2014 to 2015 are broadly aligned with consensus forecasts. These project that the economy will grow at a reasonable pace this year, with real GDP running at close to 2 per cent, before accelerating to roughly 2½-3½ per cent in 2015 (Annex A.1-A.2). At the higher end, the ESRI foresee real GDP growth of 2.6 per cent in 2014 and 3.5 per cent the following year, while the EC and IMF forecasts are at the lower end of the range.

As with the Benchmark projections prepared by the Council’s Secretariat, differences with the *SPU 2014* and other forecasts largely relate to the composition of growth. As Figure 2.11 shows, contributions from domestic demand components are more pronounced in the *SPU 2014* forecasts than in those of other agencies. For 2014 and 2015, the *SPU 2014* expects domestic demand to contribute 2.6 percentage points and 2.2 percentage points to real GDP growth, respectively, while the consensus among agencies is roughly 1 and 1½ percentage points over the same period.

FIGURE 2.11: COMPARATIVE REAL GDP GROWTH CONTRIBUTIONS
(PERCENTAGE POINTS)



Sources: SPU 2014; EC; ESRI; IMF; Central Bank of Ireland.

TABLE 2.2: MEDIUM TERM MACROECONOMIC FORECASTS TO 2018

% change unless otherwise stated	2014	2015	2016	2017	2018
SPU 2014					
GDP	2.1	2.7	3.0	3.5	3.5
Employment	2.2	2.0	2.0	1.9	1.9
Productivity	-0.1	0.7	1.0	1.5	1.5
ESRI (MTR: Recovery Scenario)					
GDP	3.0	4.0	4.1	4.2	3.7
Employment	0.9	2.3	2.9	1.9	2.2
Productivity (implied)*	2.1	1.7	1.2	2.3	1.5
IMF (12th Review)					
GDP	1.7	2.5	2.5	2.5	2.5
Employment	1.5	1.2	1.2	1.7	1.7
Productivity (implied)*	0.2	1.3	1.3	0.8	0.8
OECD (May 2014)					
GDP	1.9	2.2	3.3	3.3	3.0

Sources: SPU 2014; ESRI (Medium-Term Review 2013); IMF (12th Review); OECD (Economic Outlook, May 2014).

* Implied productivity is simply GDP growth less employment growth.

Few other agencies provide medium-term forecasts (2016 to 2018 in this case) and these tend to be updated infrequently (Annex A.3). The latest *Medium-Term Review* from the ESRI (FitzGerald *et al.*, 2013b) based on its *HERMES* macro-economic model outlines three scenarios as an update to its 2008 publication.³⁶ The IMF provides more regular updates to baseline forecasts for the medium term as does the OECD with its annual long-term baseline projections.

³⁶ The latest ESRI *Medium-Term Review* was published in July 2013 as an update to the May 2008 publication. Three scenarios were shown, with aggregate productivity growth ranging from approximately 1.2 per cent *per annum* over

The *SPU 2014* medium-term real GDP growth forecasts fall between the two more favourable ESRI scenarios, though they are above the IMF and OECD baseline projections (see Table 2.2). They are roughly one percentage point higher than the IMF forecasts which assume real GDP growth averaging 2.5 per cent for the same period. This is primarily driven by greater productivity advances in the *SPU 2014* projections, which are expected to grow at nearly twice the rates assumed by the IMF. Productivity gains are, however, short of the two more favourable ESRI scenarios.³⁷

TABLE 2.3: OUTPUT GAP FORECASTS TO 2018

%	2014	2015	2016	2017	2018
SPU 2014	-0.7	-0.3	-0.1	0.0	0.0
OECD (May 2014)	-7.8	-6.7	-4.5	-2.7	-1.5
IMF (12th Review)	-1.3	-0.4	0.1	0.3	0.4
EC (Spring 2014)	-1.0	0.0	n.a.	n.a.	n.a.

Sources: *SPU 2014*; ESRI (*Medium-Term Review 2013*); IMF (*12th Review*); OECD (*Economic Outlook, May 2014*)

* Potential GDP growth rates unavailable for IMF

A wide range of estimates of the output gap and potential output growth rates exist across forecasters and methodologies (Table 2.3 and Annex Table A.4). This is to be expected given the difficulties in separating cyclical and trend components of output. Though actual and trend growth are anticipated to converge within a horizon of a few years, there is a great deal of uncertainty as to the trend path to which real GDP may converge and whether some of the growth from 2016 to 2018 that results may in fact be more cyclical than assumed.^{38, 39}

2.3 RISKS

Downside risks are likely to dominate over the forecast horizon. Overall, the discussion on risks in *SPU 2014* is limited and a statement of the balance of risks, akin to that contained in *Budget 2014*, is not provided. Stating the balance of risks improves the transparency of forecasts and should be incorporated in future official forecasts.

the period 2014-2018 to 1.8 per cent *per annum*. The IMF and *SPU 2014* base productivity forecasts are closer to 1 per cent *per annum*, but the *SPU 2014* projects a rise to ½ per cent *per annum* by 2017/2018 (IMF are 0.8 per cent).

³⁷ The ESRI forecasts for productivity gains appear to reflect an assumed continuation of high productivity growth in the manufacturing sector as in the past, with the market services sector lagging somewhat. More generally, rising working population educational attainment is linked to higher average attainment amongst the current cohort of the population in their late twenties.

³⁸ The EC methodology implies a very low output gap of just -1 per cent in 2014 – smaller than IMF and OECD estimates. While the IMF and the EC tend to assume that the output gap will be closed before 2017, much like the *SPU 2014* projections (Table 2.3), OECD estimates do not foresee this happening even by 2018.

³⁹ The EC forecasts in Spring 2014 revised potential output growth in 2018 down from 2.3 per cent (EC, Winter 2014) to 1.3 per cent. The large swing is symptomatic of sensitivity to labour inputs (Analytical Note 2). Key assumptions concerning recent working age population growth may change again as more recent data are incorporated.

The *SPU 2014* briefly documents some risks – the fragility of the external recovery; low inflation; geopolitical risks; short-term persistence of pharma-chem weaknesses; the concentrated nature of the strong IT services sector and the uncertain path for consumption given high levels of household indebtedness. Two upside risks are also listed: a more rapid recovery in investment from record low levels and stronger-than-expected employment growth. Uncertainties regarding medium-term supply-side developments are acknowledged, but specific risks are not outlined. The Council’s own risk assessment reflects the possibilities of high forecast errors in either direction and covers:

Domestic risks primarily relate to uncertainty about the dynamics of the post-bubble recession and recovery (Box D, IFAC, 2013b). Household indebtedness as a share of disposable income remains well above international and historical norms (Figure 2.12) largely as a result of mortgage debt (Cussen *et al.*, 2013). However, repayments finally appear to be reducing this ratio as disposable incomes have stabilised.⁴⁰ Non-financial corporate balance sheets also remain strained and international experience cautions about the persistence of weak domestic demand and the risks of setbacks under such conditions.⁴¹

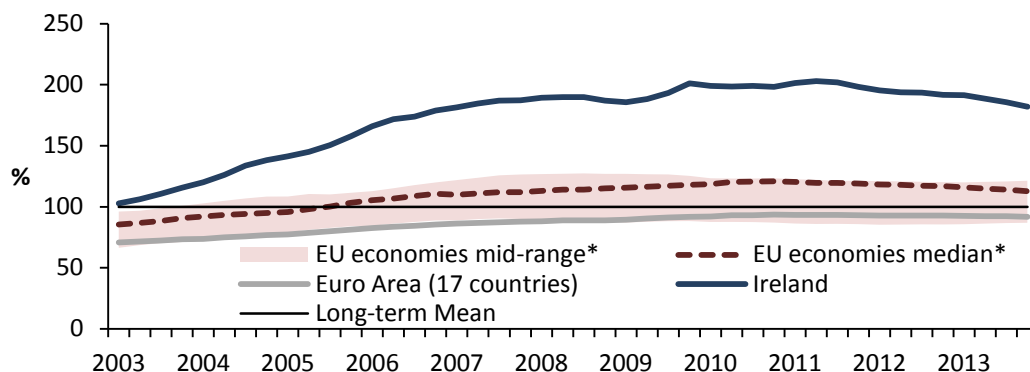
Developments in relation to external demand as well as Ireland’s competitiveness and productivity will be key to sustaining net export performance and strong FDI inflows. Consensus forecasts for major trading partners have been more stable of late, yet fragilities vis-à-vis Euro Area policy shocks and geopolitical tensions in Eastern Europe still represent low-probability, but high-impact risks. More persistent risks also surround the longer-term prospects for the global economy. Ongoing demand shortfalls could arise from more sluggish technology advancements and weaker demand.^{42,43, 44} Cost pressures could also undermine recent competitiveness gains and trade potential.⁴⁵

⁴⁰ Focusing on consumption, Lydon (2013) suggests that Irish households with debt problems reduce spending by 18 per cent when controlling for other characteristics. Findings may be influenced by unobserved characteristics and sample selection issues, however (e.g., under-sampling of borrowers in arrears longer than one year).

⁴¹ McCann (2014) profiles Irish SME indebtedness, showing that, while just under one-third of domestic bank loans to Irish SMEs and corporates was impaired at end-2013, roughly one-third of Irish SMEs actually carried no debt. Close to 84 per cent have Debt-to-Turnover (DT) ratios – positively associated with default rates – less than one-third. Only 7 per cent have ratios greater than one. Incidences of extreme indebtedness (DT>1) are therefore less common than may be expected. O’ Toole, Gerlach-Kristen and O’ Connell (2013) note that, although hotels and property-related sectors continue to face the highest debt burdens, debt overhang is very much a firm-by-firm issue rather than a sectoral issue.

⁴² See Summers (2013) for an accessible account. See Eggertsson and Mehrotra (2014) for a recent theoretical model of the secular-stagnation phenomenon. Secular stagnation is usefully viewed as a situation where global saving (at potential output) would be brought into balance with global investment at a negative real interest rate. With a zero lower bound on nominal interest rates and low expected inflation, it can be impossible to achieve the market-equilibrating negative real interest rate. (See IMF, 2014, for a review of recent world real interest rate

FIGURE 2.12: HOUSEHOLD DEBT AS A PERCENTAGE OF DISPOSABLE INCOME



Source: Eurostat and internal calculations.

Note: Disposable income = 4Q moving sum of actual gross disposable income; Debt = Long-term loans; long-term mean=100 (since 2000, not available for all economies over full period observed); * mid-range (middle 50 per cent of distribution); long-term mean and median cover 10 EU economies for which data are available.

Low inflation/deflation in the Euro Area could raise real interest rates and real debt burdens, while also potentially deferring consumption and investment decisions. Competitiveness gains could also, in turn, be undermined given downward nominal rigidities in wages and prices.

Credit institutions’ ability to support the recovery remains uncertain. Legacy asset problems still represent a drag on profitability, though domestic lenders have substantially downsized their balance sheets. Mortgage arrears finally appear to be easing and distressed loans are being worked through. Maintaining the pace of the work-through and credibly removing uncertainty regarding asset values would help to sustain any improvement in market funding costs, future profitability, and ultimately lending to the economy.⁴⁶

developments.) Global income must then adjust downwards to bring saving into balance with investment at the actual real interest rate. This can result in a persistent shortfall of output below potential.

⁴³ The supply- and demand-side factors can be linked if weak technological progress is a factor behind weak investment demand. Persistent shortfalls in aggregate demand can also weaken supply potential through “hysteresis” effects. Examples of such effects are the loss of skills and labour market contacts that result during extended periods of unemployment or the failure of potentially viable businesses in a recession, especially where credit is difficult to obtain.

⁴⁴ On the optimistic side, see Brynjolfsson and McAfee (2014) and Mokyr (2013); a much more pessimistic assessment is provided by Gordon (2012 and 2014).

⁴⁵ These and other competitiveness aggregates are explored in detail in the National Competitiveness Council’s “Costs of Doing Business in Ireland, 2014” report.

⁴⁶ IMF (2014) estimates of credit supply shocks’ impact on GDP suggest that these are pronounced in the Irish case, with a 10 percentage point tightening of lending standards – similar to that observed globally after the Lehman Brothers bankruptcy – estimated to be associated with a cumulative 4 per cent contraction in Irish real GDP over 4 years.

Rapid house price increases in parts of Dublin have not as yet been accompanied by the strong credit growth or unsustainable construction-supply response that characterised the past cycle. However, the experience of the last bubble is a warning that price increases – even if initially driven by fundamentals – can lead to expectations that can too easily become entrenched and divorced from those fundamentals, with credit potentially serving as an unsustainable catalyst.⁴⁷ The negative implications for economic growth are all too familiar, with unsustainable misallocations of labour and capital towards ultimately unproductive areas of the economy an obvious legacy of the bubble (see Analytical Note 1).

The labour market is a key driver of potential growth. Failure to implement policies underpinning a continued restoration in competitiveness and an improvement in re-employment opportunities for the longer-term unemployed (Conefrey *et al.*, 2013) could undermine the envisaged recovery. In a review of the *Action Plan for Jobs*, the OECD (2014) highlights challenges faced in activating the unemployed, including the need to strengthen training provisions. It also questions the cost-effectiveness of existing activation programmes and highlights the need to modernise apprenticeship systems.⁴⁸

On the upside, investment developments could surprise if a stabilisation in overall economic activity reduces uncertainties relating to returns. This could be further supported if operational positions in domestic lenders improve and international financial markets prove accommodating. Also, if labour market developments were to surpass expectations and savings rates fell from high levels, consumer spending could turn out better than forecast.

2.4 THE COUNCIL'S APPROACH TO ENDORSEMENT

The Council's endorsement function (outlined in detail in IFAC, 2013b) requires it to "...endorse, as it considers appropriate, the macroeconomic forecasts prepared by the Department of Finance...".⁴⁹ In the event that the Council is not in a position to endorse the macroeconomic forecasts, the Council is required to set out the reasons for non-endorsement. This section

⁴⁷ Globalised credit expansions, if co-incident, may be primed to accelerate or "turbocharge" initial boom periods, thereby aggravating the severity of the boom-bust cycle as highlighted by Honohan (2011).

⁴⁸ See Department of Jobs, Enterprise and Innovation (2014) for original document.

⁴⁹ The endorsement is provided by way of a formal letter to the Department of Finance ahead of the publication of the Budget or draft Stability Programme. This letter is made public no later than Budget day or the day of publication of the draft Stability Programme.

summarises the framework and underlying methodologies used by the Council to inform its endorsement.

2.4.1 ENDORSEMENT OF SHORT-TERM FORECASTS, 2014 TO 2015

The Council's approach to endorsement focuses on whether the macroeconomic forecasts are within an "endorsable range" of appropriate forecasts. This range is informed by Benchmark projections prepared by the Secretariat, macroeconomic uncertainty (including the size of past forecast errors) and a recognition of potential data revisions.⁵⁰ The size of the endorsable range may vary across time and for different variables depending on judgement. Other elements accounted for include the methodology used, the soundness of judgements involved and the appropriateness of forecasts as "most likely" projections.^{51, 52}

SHORT-TERM FORECASTING TOOLS

A set of macroeconomic models is being developed by the Secretariat. In some areas, a "suite of models" approach is being developed, using a range of models to forecast the same variable, and then drawing on the range of outputs.⁵³ The models used by the Council have a number of origins. Some are the same as those employed by the Department of Finance, while others are adaptations or refinements of these models. Additional models have been developed independently by the Council's Secretariat or in consultation with forecasting teams in other agencies. Since November, new models of imports, tourism exports and unemployment have been added.⁵⁴ Judgement plays

⁵⁰ To ensure that the Council is able to provide an independent analysis of, and to effectively challenge the Department of Finance forecasts, the benchmark projections are completed before the Council engages in in-depth endorsement meetings with the Department of Finance.

⁵¹ Soundly-based forecasts need to be internally consistent in terms of the projections for different items, given the accounting relationships and economic links between different variables. As explained in the previous *Fiscal Assessment Report* (IFAC, 2013b, Box B), the appropriateness of forecasts as "most likely" projections clarifies assumptions about risk embodied in the forecast and can determine whether specific forecasts lie within an endorsable range.

⁵² In addition to discussions with Council members, an important input into the preparation of the Benchmark projections involves a round of discussions with other forecasters, coming from a wide variety of different perspectives. For this round of forecasts, the Secretariat held discussions with forecasters at the EC, the IMF, the ESRI, Ulster Bank and KBC Bank Ireland. The Secretariat also held discussions with various members of the CSO to gain further insights into topical issues and to gain more information on the statistical treatment of a number of key variables.

⁵³ This approach is prudent given the uncertainty around the forecasts from any single model and it helps to provide a more robust picture. The methodology for short-run forecasts is detailed in the previous *Fiscal Assessment Report* (IFAC, 2013b). It is based heavily on a system of equations mirroring the income and expenditure side of the National Accounts, with GDP and GNP derived using a "bottom up" approach from their components.

⁵⁴ Other approaches and information sources are employed to help arrive at reasonable forecasts where models prove insufficient guides. For example, data on aircraft purchases are taken from equity analyst projections and annual reports, labour market forecasts are augmented by looking at disaggregated trends in the *Quarterly National*

an important role in the Benchmark projections, with many factors affecting the economy in the short term not lending themselves to sufficient description by macroeconomic models.

2.4.2 ENDORSEMENT OF MEDIUM-TERM FORECASTS, 2016 TO 2018

The Council's mandate to endorse the forecasts in the *SPU 2014* includes medium-term forecasts (2016-2018) that cover a longer time horizon than in the *Budget*. These involve a different approach to the endorsement method underpinning the Council's first exercise in autumn 2013 which covered a typical two-year *Budget* horizon.⁵⁵

Medium-term growth forecasts rely less on individually-modelled demand components and high frequency indicators and more on assumptions relating to potential output and the output gap. Uncertainty around forecasts tends to increase at longer horizons, as reflected in the Council's fan chart analysis.⁵⁶ The endorsable range is therefore wider than for short-term forecasts.

The Council's endorsement of the medium-term forecasts focuses on the key variables defined in the Memorandum of Understanding (MoU).⁵⁷ The stability programme is required by EU regulations to include estimates of certain supply-side trend variables made under the methodology commonly agreed between EU Member States and the EC.

MEDIUM-TERM FORECASTING TOOLS

For this first endorsement of medium-term forecasts, the Council applied the concept of an endorsable range without relying on a unique set of Benchmark projections. Given the particular challenges of medium-term forecasting, the Council will continue to develop its tools to support a set of Benchmark projections at longer horizons for future endorsement rounds.

Household Survey and detailed consumption sub-component forecasts are checked against trends in sub-components of retail sales data.

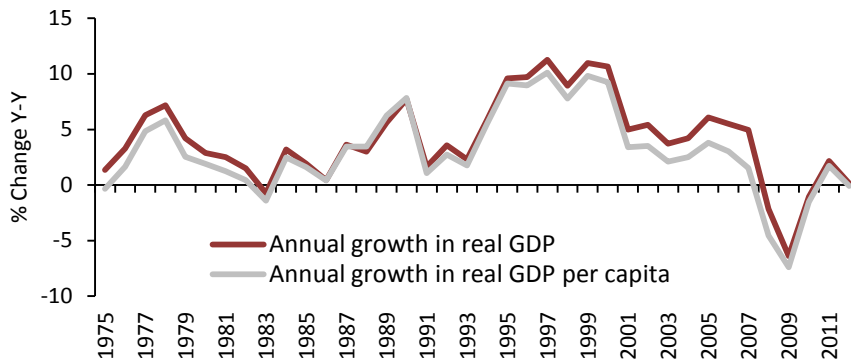
⁵⁵ See IFAC 2013b for an outline of the methods related to short-term forecasts.

⁵⁶ In a simple model where real output follows a stochastic trend or more narrowly has a unit root, the level of GDP would typically show greater uncertainty at longer horizons. In practice, there is likely to be some reversion to a trend but this may be weak over the standard Stability Programme horizon. While high frequency short-term volatility can also be significant, this tends to be less persistent than errors to medium-term forecasts.

⁵⁷ The MoU outlines the modalities of the arrangements necessary for the Council to carry out the endorsement function. It was revised following *Budget 2014*. The main changes concerned the need for an expanded data set given the (medium-term) requirements underlying the stability programme. It is available at: <http://www.fiscalcouncil.ie>

In the medium term, economic activity can be expected to be determined more by structural factors. This differs from projections for horizons of up to two years which depend more on the balance between cyclical demand and supply, as well as short-run dynamics and one-offs.

FIGURE 2.13: REAL GDP GROWTH RATES



Source: CSO, SPU 2014.

There are three standard approaches to projecting the medium-term path of the economy. The first uses statistical filtering to extract a trend from the data that can then be used to project the economic variables forward. The second approach models the supply-side of the economy as a production function with potential output a function of labour supply, the capital stock and total factor productivity (this broadly matches the Department’s approach and is detailed in Analytical Note 2). The third involves a full-scale model of the economy with both supply and demand determining the medium-term path.⁵⁸ In practice, these approaches are often used in combination.⁵⁹

The Council’s initial approach to assessing medium-term projections has primarily relied on the production function method. This approach has its origins in the Solow growth model (Solow, 1956). Labour inputs are determined by the working-age population, labour force participation, average hours worked and the unemployment rate. The capital stock depends on accumulated investment and depreciation. Total factor productivity depends on what is conceived as a global technological frontier, often understood as being embodied by those economies at the forefront of

⁵⁸ This approach is taken for the ESRI HERMES model.

⁵⁹ For example, filtering may be used to derive the path of the inputs to the production function.

technological advancement.⁶⁰ For this endorsement, the Council considered a range of projection and filtering methods for each component using a similar approach to that of the EC methodology.

At present, there are a number of specific challenges in using this framework to assess medium-term economic developments in Ireland:

High openness to migration and foreign investment mean that the availability of labour and capital in Ireland can adjust very rapidly, while these factors are closer to being fixed in larger economies. Foreign direct investment and activities of foreign-owned firms also play a key role in determining productivity.

The Irish economy has experienced a wide range of growth rates over recent decades, making it difficult to reliably identify stable trends (Figure 2.13). The housing boom and subsequent crisis make it difficult to assess the level of potential output, while there is also a possibility that domestic demand will remain relatively weak for a prolonged period due to high debt levels.

Output is highly concentrated in a small number of sectors and is therefore likely to depend on sector- and even firm-specific developments rather than on the general economic environment.

By focusing on the framework of the EC common methodology for this initial medium-term endorsement round, the Council assessed the consistency of Department of Finance supply-side estimates with the EC common methodology. This helped to explain exactly how the methodology was being used to reach the published *SPU 2014* estimates.⁶¹ It also provided a means of assessing the sensitivity of the medium-term forecasts to changes in the underlying assumptions.

⁶⁰ It is argued that economies not at the technology frontier may converge with it by adopting already-established technologies, while innovation will matter more to economies that are nearer the frontier as growth opportunities from adopting existing technologies dwindle. An economy's steady-state level of technology should be determined by the rate of convergence towards the frontier as well as differences in structural factors. Actual total factor productivity is determined as a residual.

⁶¹ There are limited degrees of freedom under the EC common methodology so that differences with the *SPU 2014* estimates can be more easily clarified when adopting the same approach. Varying assumptions, different filtering methods and alternative variables were analysed within the methodology in order to show the impact that these had on the estimates considered.

2.5 ENDORSEMENT OF THE *SPU 2014* PROJECTIONS

This section details the second endorsement exercise by the Council covering the *SPU 2014* (Annex B details the timeline). The Department of Finance provided high levels of cooperation in all of their interactions with the Council.

The Council endorsed the *SPU 2014* macroeconomic forecasts to 2018. It was satisfied that these were within its endorsable range, taking into account the methodology and the plausibility of the judgements made. Estimates of key trend supply-side variables in *SPU 2014* follow a common EC methodology. For these variables, the Council verified the correct application of this method.

Key issues identified by the Council at the time of the endorsement were largely the same as those outlined in the current assessment (see Section 2.2). They concerned: the composition of real GDP growth forecasts for 2014 and 2015; the strength of medium-term growth projections; the dependence on continued strength in labour developments; and the degree to which net-exports driven forecasts for 2017-2018 might be at variance with declining unemployment rates.

Separate issues arose in relation to the actual and trend real GDP growth rates for the medium term (2016 to 2018). The Council considered these to be near the upper-bound of any endorsable range and is concerned that potential output growth rates may not be met in light of a number of constraining factors as discussed earlier. For later years, it is far more difficult to state with confidence whether the *SPU 2014* forecast growth rates correspond to trend growth rates for the economy as implied by the output gap estimates. Another plausible scenario would see a larger initial output gap that closes later with trend output somewhat lower than projected by 2018. In the context of greater uncertainties at longer time horizons, the *SPU 2014* forecasts remain within the endorsable range, however. Another issue – and one that also emerged in the previous endorsement – was the consistency of Department of Finance annual growth forecasts with CSO published quarterly data. Some of these appeared relatively unlikely – an issue that remains an avoidable source of potential error.⁶²

The Council identified some areas in which forecasting methodologies could be strengthened. First, annual forecasts made by the Department should be based on plausible quarterly profiles for growth. Where revisions are believed likely (including on the basis of other high frequency data),

⁶² This issue did not give rise to a significant reservation as with the *Budget 2014* consumption projections. See also Box C of the previous *Fiscal Assessment Report* (IFAC, 2013b) on “Annual GDP and Carryover Effects”.

these should be acknowledged explicitly as was the case for the consumption forecasts in *Budget 2014*. Second, greater importance should be assigned to building a comprehensive set of methodologies to further improve the Department's understanding of medium-term supply-side issues and to provide a fuller picture of the cyclical position of the economy and potential output.⁶³ Ideally, estimates of the output gap and medium-term trends would not just rely on statistical methods, but should be anchored to wider analysis of the macroeconomy. Third, the development of models should incorporate the financial/credit cycle as a part of the overall framework. Fourth, statements on the balance of risks should be incorporated in future forecast publications.⁶⁴

⁶³ To reinforce the Department's medium-term forecasts, alternative projections that complement the EC common methodology could be provided in future publications. Such forecasts, if subject to deviations, would not be subject to endorsement by the Council, but would support the forecasts for the key variables over the short and medium term. In particular, the pace of actual growth in the medium term should depend on a combination of plausible output gap and trend growth estimates. The key variables include real potential output, total factor productivity, the capital stock, the working age population, the trend labour force participation rate, structural unemployment, and the trend level of hours worked. Projections on the EC basis must be included in the Stability Programme and form a necessary part of the assessment of compliance with EU budget rules, but this does not preclude the construction of alternative estimates. These are possible in the context of the MoU with the Council regarding endorsement. It provides for the Department of Finance to "...detail any numerical deviation in its estimates over both the short and medium term from the path implied by the commonly-agreed methodology" and to provide explanations for such deviations.

⁶⁴ For example, see Borio *et al.* (2013).

APPENDIX A: FISCAL COUNCIL BENCHMARK PROJECTIONS 26 MARCH

As part of the endorsement process, the Council’s Secretariat produced a set of Benchmark projections in advance of its meetings with the Department of Finance. The Benchmark projections were finalised on 26 March 2014 and are summarised in Annex Table A.1.

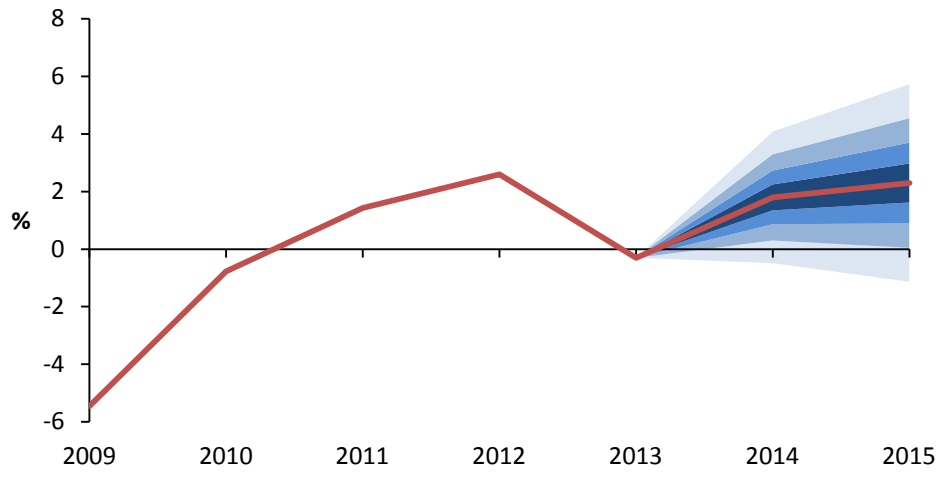
ANNEX TABLE A.1: BENCHMARK PROJECTIONS FOR 2014 AND 2015

% change unless otherwise stated	2014	2015
Real GDP	1.8	2.3
Consumption	0.8	1.0
Investment	12.9	7.6
Government	-1.9	-1.5
Stock change (% of GDP)	0.0	0.0
Exports	3.5	4.9
Imports	3.7	4.9
Net Exports (p.p. contribution)	0.6	1.1
Domestic Demand (p.p. contribution)	1.5	1.2
Stock Changes (p.p. contribution)	-0.3	0.0
Current Account (% GDP)	8.2	7.6
Employment	2.2	1.3
Unemployment Rate (%)	11.5	10.7
HICP	0.4	1.0
GDP Deflator	0.5	0.5
Nominal GDP (€ billions)	167.8	172.6
Nominal GDP	2.3	2.8

The Council’s “endorsable range” is informed by, but not mechanically linked to, the uncertainty captured in fan chart analysis. For context, Annex Figure A.1 shows the benchmark projections with the standard fan chart constructed around it.

It is important to note that the fan chart is symmetric by construction even though the Council may interpret the balance of risks to be weighted in a certain direction at a given point in time.

FIGURE A.1: REAL GDP FAN CHART BASED ON BENCHMARK PROJECTIONS (TO 2015)



ANNEX A: DETAILED MACROECONOMIC FORECASTS

ANNEX TABLE A.1: DETAILED MACROECONOMIC FORECASTS FOR 2014

% change unless otherwise stated	<i>SPU</i> 2014	ESRI	CBI	EC	IMF	OECD
	Apr 2014	Apr 2014	Apr 2014	May 2014	Dec 2013	May 2014
Real GDP	2.1	2.6	2.0	1.7	1.7	1.9
Real GNP	2.7	3.5	2.7	NA	1.3	NA
Consumption	2.0	1.5	1.1	0.4	0.5	0.9
Investment	15.4	9.6	11.1	12.0	4.4	14.1
Government	-0.9	-0.5	-2.1	-0.7	-2.8	-1.8
Exports	2.1	3.7	3.0	2.8	2.5	2.8
Imports	3.2	3.6	3.1	3.1	1.4	4.0
Current Account (% GDP)	5.8	7.8	6.9	7.4	4.6	6.6
Employment	2.2	2.8	2.6	2.4	1.5	2.2
Unemployment Rate (%)	11.5	11.4	11.3	11.4	12.3	11.4
HICP	0.5	0.4	0.5	0.6	0.9	0.3
GDP Deflator	0.5	1.0	0.7	1.1	0.7	0.4
Nominal GDP (€ billions)	168.4	170.0	168.5	168.7	169.5	167.7
Nominal GDP	2.6	3.7	2.7	2.8	2.5	2.3

ANNEX TABLE A.2: DETAILED MACROECONOMIC FORECASTS FOR 2015

% change unless otherwise stated	<i>SPU</i> 2014	ESRI	CBI	EC	IMF	OECD
	Apr 2014	Apr 2014	Apr 2014	May 2014	Dec 2013	May 2014
Real GDP	2.7	3.5	3.2	3.0	2.5	2.2
Real GNP	2.3	3.7	2.6	NA	2.1	NA
Consumption	1.6	2.0	1.3	0.8	1.0	1.0
Investment	12.4	10.4	10.2	6.5	5.4	8.0
Government	-1.6	0.0	-1.5	-0.1	-2.5	-1.5
Exports	3.2	4.0	5.0	3.7	3.7	3.1
Imports	3.4	3.9	4.5	2.6	2.7	2.9
Current Account (% GDP)	5.2	8.4	7.0	8.9	4.7	7.6
Employment	2.0	2.7	2.2	2.3	1.2	1.7
Unemployment Rate (%)	10.5	10.1	10.4	10.2	11.7	10.4
HICP	0.9	1.2	1.0	1.1	1.1	0.7
GDP Deflator	0.9	1.0	1.2	0.9	1.0	0.9
Nominal GDP (€ billions)	174.5	178.0	176.0	175.3	175.4	172.9
Nominal GDP	3.6	3.7	4.4	3.9	3.5	3.1

ANNEX TABLE A.3: MEDIUM-TERM MACROECONOMIC FORECASTS ACROSS FORECASTING AGENCIES, 2013-18

% change unless otherwise stated	2013	2014	2015	2016	2017	2018
SPU 2014: Apr 2014						
GDP	-0.3	2.1	2.7	3.0	3.5	3.5
GNP	3.4	2.7	2.3	2.5	2.7	2.7
Employment	2.4	2.2	2.0	2.0	1.9	1.9
Unemployment Rate	13.0	11.5	10.5	9.7	8.9	8.0
ESRI (MTR: Jul 2013)						
<i>(a) Recovery Scenario</i>						
GDP	1.7	3.0	4.0	4.1	4.2	3.7
GNP	1.2	0.5	4.3	3.6	4.0	3.4
Employment	0.5	0.9	2.3	2.9	1.9	2.2
Unemployment Rate	14.0	13.4	11.8	10.6	9.5	8.2
<i>(b) Delayed Adjustment Scenario</i>						
GDP	1.8	1.9	2.7	1.9	2.7	3.0
GNP	1.3	-0.9	3.0	1.1	2.8	3.1
Employment	0.6	0.3	1.2	0.4	0.4	1.3
Unemployment Rate	13.9	13.8	12.9	13.5	13.1	11.9
<i>(c) Stagnation Scenario</i>						
GDP	1.7	3.5	1.3	1.1	2.0	0.8
GNP	1.2	0.0	1.9	0.6	2.1	0.4
Employment	0.4	1.2	0.8	-0.3	0.9	0.2
Unemployment Rate	14.1	13.1	12.5	13.4	12.8	12.5
OECD (May 2014)						
GDP	-0.3	1.9	2.2	3.3	3.3	3.0
GNP	-	-	-	-	-	-
Employment	-	-	-	-	-	-
Unemployment Rate	13.0	11.4	10.4	-	-	-
IMF (12th Review: Dec 2013)						
GDP	0.3	1.7	2.5	2.5	2.5	2.5
GNP	0.2	1.3	2.1	2.1	2.1	2.2
Employment	1.6	1.5	1.2	1.2	1.7	1.7
Unemployment Rate	13.3	12.3	11.7	11.3	10.9	10.4

ANNEX TABLE A.4: POTENTIAL OUTPUT GROWTH FORECASTS TO 2018

%	2014	2015	2016	2017	2018
<i>SPU 2014</i>	1.5	2.2	2.9	3.3	3.5
<i>OECD (May 2014)</i>	0.8	1.0	0.9	1.4	1.8
<i>EC (Spring 2014)</i>	1.3	2.0	1.4	1.3	1.3

Sources: *SPU 2014*; ESRI (*Medium-Term Review 2013*); OECD (*Economic Outlook, May 2014*).

Note: The IMF do not publish forecasts of potential output growth.

Potential Output growth forecasts are shown above for three institutions. The main difference between the EC and the *SPU 2014* forecasts is on the labour side. The latter show a labour contribution of 1.7pp in 2018, while the EC show 0.1pp. This arises mainly from a higher NAWRU (10.5 per cent versus 7.7 per cent), but also from the EC showing a small contraction in the working age population (*SPU 2014* shows positive growth). Capital and TFP contributions are also weaker in the EC forecasts, primarily as a result of the extension methods used (see Annex C).

ANNEX B: TIMELINE FOR THE ENDORSEMENT OF *SPU 2014* PROJECTIONS

Date	
11 March	The Secretariat met with Department of Finance officials to discuss technical assumptions underpinning the forecasts for <i>SPU 2014</i> . ¹⁸²
13 March	The CSO released preliminary national accounts estimates for 2013.
21 March	The Department of Finance informed IFAC of changes to the EC methodology for estimating potential output. This mainly related to changes in the estimation of the NAWRU.
25 March	The Council received preliminary forecasts from the Department in line with MoU requirements. These were not considered until benchmark projections were finalised.
26 March	Benchmark projections were discussed by the Council and finalised by the Secretariat.
27 March	The first endorsement meeting took place with the Department of Finance presenting their forecasts to the Secretariat. A number of clarifications of a factual nature were requested.
31 March	The Secretariat submitted a number of queries to the Department in relation to the forecast set. ¹⁸³
31 March/1 April	The Department provided more details to IFAC in response to the queries received.
2 April	The Council received a second set of preliminary forecasts from the Department. Changes to several components were included and the forecast level of nominal GDP was lower over the period to 2018 in the newer forecast set.
3 April	The Council met to discuss the Department of Finance forecasts. Following this, Department of Finance staff met with the full Council and Secretariat to present their latest forecasts and to answer substantive questions. The Council sought additional information regarding a number of forecast components. ¹⁸⁴
	Following the meeting, the Council met to discuss the forecasts. A number of additional clarifications were subsequently requested. ¹⁸⁵
4 April	The Department submitted a preliminary set of final forecasts to the Council. These differed slightly from the previous set, with changes primarily relating to the level of nominal GDP – these were lower over the forecast horizon compared to the initial forecast round. In response to the Council's request for clarification, the Department also provided further information on their forecasts for stock building and trade flows. Following the receipt of the final forecasts and the accompanying information, the Council decided to endorse the forecasts.

¹⁸² These included assumptions related to oil prices, interest rates, exchange rates and sources of forecasts for major trading partners. Prior to this meeting, the Secretariat met with Department of Finance officials in February to discuss possible timings in relation to the endorsement of *SPU 2014*.

¹⁸³ Mainly covering deflators, investment, imports/exports, labour income, stock building and total factor productivity.

¹⁸⁴ Primarily concerning the balance of growth contributions, deflator assumptions, the potential growth rate and the output gap.

¹⁸⁵ Principally relating to deflators (specifically exports prices), stocks, and the quarterly profiles assumed for trade aggregates.

7 April	The Chair of the Council wrote a letter to the Secretary General of the Department of Finance endorsing the set of macroeconomic forecasts underlying <i>SPU 2014</i> .
15 April	The endorsement letter and draft <i>SPU 2014</i> were published.
16 April	A letter from the Secretary General of the Department of Finance was sent to the Chair of the Council noting the endorsement.
30 April	The final <i>SPU</i> was formally submitted to the European Commission.