ESRI Special Article

The Structural Balance for Ireland

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Introduction

The concept of the structural balance has considerable significance as a key target for fiscal policy. However, while the concept of the structural balance is enshrined in legislation, the precise definition of the structural balance is not clear, even if the broad meaning of the concept is well understood.[1] This note considers different approaches to estimating the structural balance and, using an appropriate methodology, it provides an estimate of the structural balance for 2014. In turn, this provides a preliminary guide to the appropriate stance for fiscal policy in 2015.

The structural balance is the government sector's surplus or deficit after factoring out the current cyclical position – in other words, when the economy is operating in equilibrium. In turn, the economy is in equilibrium when actual output is equal to the output that the economy can sustain, commonly referred to as potential output. The actual deficit then differs from this structural deficit due to "cyclical factors" reflecting the fact that the economy is not operating at its equilibrium or due to "one off measures". Given Ireland's debt level, which in 2012 was the fourth highest in the EU-27, the objective for government, formalised in legislation, is to restore the government sector's structural deficit to balance or a small surplus. Under the terms of the adjustment programme, agreed with the EU Commission, Ireland has been permitted to adopt a more gradual adjustment path to eliminating the structural deficit than would normally be required under the *Stability and Growth Pact*. Nonetheless, for 2015 the requirement, consistent with the legislation, is to have the actual government deficit below 3 per cent of GDP. Beyond that date the requirement is to eliminate the structural deficit entirely consistent with the requirements of the Medium-Term Objective (MTO) set out as part of the Stability and Growth Pact (SGP). The estimate of the structural deficit, therefore, is crucial to determining the degree of further fiscal adjustment that may be required.

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[1] In the Fiscal Responsibility Act 2012 it is defined as: "annual structural balance of the general government", in relation to a year, means the general government deficit or general government surplus for the year, cyclically adjusted and net of one-off and temporary measures, expressed as a percentage of gross domestic product at market prices.

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There are many different ways to define the structural balance and the related concept of potential output. In the approach that is used by the EU Commission, potential output is defined as the level of output consistent with price and labour market equilibrium – when there is no inflationary pressure on wages or prices. However, while this harmonised methodology is appropriate for some EU countries, the measure of labour market equilibrium used and how it is calculated is inappropriate for Ireland. In particular, it takes no account of whether the economy as a whole is in equilibrium – for example whether the current account balance is consistent with long-term equilibrium.

In this Note we first consider the appropriate definition of the structural balance for Ireland. We then consider how this approach is applied by the EU Commission, using the EU methodology, and the defects with this approach. We then present an alternative approach and apply it to the Irish economy today. In the final section of this Note we consider the implications of these results for the appropriate stance of fiscal policy in 2015.

Defining the Structural Balance

There are a number of different ways of measuring the potential output of the economy. All of these methods aim to estimate what level of output would be consistent with stable inflation, given the endowment of resources in the economy. Some of the methods take account of the specific structure and factor endowments of an economy while others are little more than a rule of thumb.

For potential output to be sustainable there should simultaneously be equilibrium in key markets – on the current account (the goods market), in the labour market (full employment consistent with stable inflation), households should have adjusted their consumption (and savings) so that their debt to income ratio is sustainable, the factor input mix (e.g., capital and labour) employed by companies should be chosen to minimise their costs of production and the housing market should also be in long-term equilibrium. The government accounts must also be on a sustainable path when the economy is in equilibrium – e.g., in balance or showing a small surplus.[2] In some approaches to modelling potential output these equilibrium conditions are not necessarily all guaranteed or imposed. For example, in the approach currently used by the EU to estimate potential output a particular definition of labour market equilibrium is used and it takes no account of other possible disequilibria in the economy. In the case of

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[2] The government accounts can in principle be in equilibrium with a small deficit if the debt stock is not starting from an excessive level.

Ireland, one of the most important disequilibria that is missing from this approach is the current account. Other research has shown that incorporating information about the financial cycle can also be important.[3]

Once potential output is defined, we can then estimate what the budget deficit or surplus would be if actual output were equal to its potential. The structural balance for the government is estimated using a model that relates the major public finance aggregates to the level of GDP and its components.[4] The difference between this "structural balance" and the actual balance is then attributable to both cyclical and temporary one-off factors which explain why the economy is not in equilibrium.

EU Approach and Alternative Approaches to Measuring Structural Balance

The European Commission uses a production function methodology for calculating potential growth rates and output gaps. The methodology is extensively described in D'Auria *et al.* (2010). The approach uses a simple Cobb Douglas specification where potential output depends on a combination of factor inputs (capital and labour) multiplied by total factor productivity. The trend components of the individual factors (apart from capital) are estimated and an estimate of potential output is obtained by substituting the estimates of potential employment, trend efficiency and actual capital into the production function. D'Auria *et al.* (2010) argue that the results provide an indication of likely developments if past trends were to persist into the future and cannot be interpreted in terms of medium-term sustainable growth rates.

The EU Commission applies exactly the same approach to calculating the structural balance to all member states. Of necessity, this one size fits all approach requires that similar parameters must be used for each country.[5] However, while this methodology provides a reasonable way of estimating the structural balance for some EU countries, this uniform approach is not well suited to the characteristics of the Irish economy.[6] The Department of Finance as long

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[3] C. Borio, P. Disyatat and M. Juselius, (2013). "Rethinking potential output: Embedding information about the financial cycle", Bank for International Settlements Working Papers No 404.

[4] The model may be a single equation or a more complex set of relationships between public finance aggregates and key economic aggregates.

[5] This approach is adopted because it is not realistic to expect the Council of Ministers to debate the precise parameters of the production function or other similar technical issues for each individual country.

[6] See http://www.bruegel.org/nc/blog/detail/article/1176-blogs-review-the-structural-balance-controversy/ for a discussion of the shortcomings of this approach.

ago as 2004 drew attention to its inadequacies in an Irish context and the EU Commission itself has recognised these problems.[7]

Figure 1 shows estimates of the potential growth rate for Ireland for the years 2004 to 2014 using this methodology. These estimates are available from the European Commission (EC) through the CIRCABC website.[8] Klär (2013) points to the volatility of the estimates and how they have been subject to substantial revisions since the onset of the financial crisis. The figure clearly shows that estimates of potential output for any year can change over time, in some cases quite considerably, as new data become available and the estimation methodology is changed. The downwards revisions to the potential growth rate for more recent years is striking. The line in the graph shows the percentage point difference in projections for potential output growth between the Winter 2014 and one year ahead estimates of potential growth.[9]

FIGURE 1   European Commission Estimates of the Potential Growth Rate

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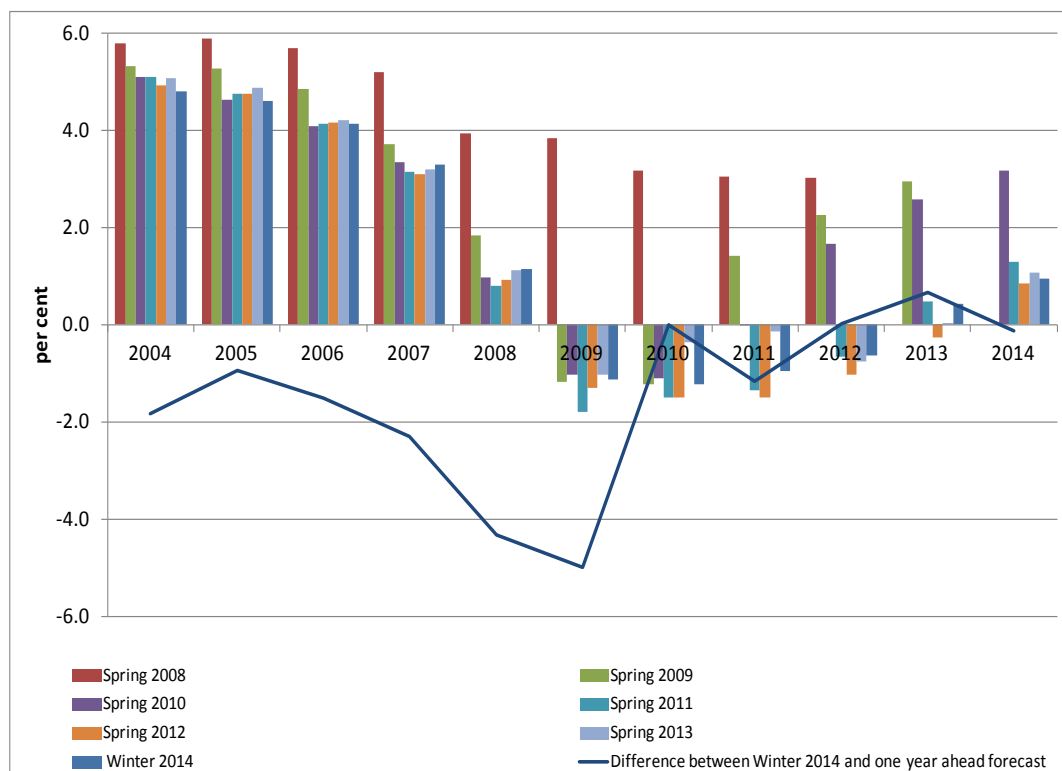
[7]   In their *Ireland –Stability Programme: December 2003 Update* the Department of Finance provided a detailed critique of the EU methodology http://budget.gov.ie/Budgets/2004/Stability.aspx . They ended by saying: "This volatility in the estimates of the NAIRU (over a period of less than one year) is unhelpful in applying the CABB methodology for Ireland."

[8]   See: https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp

[9]   One year ahead forecasts refer to the forecast for potential output in 2008 made in 2007, the forecast for 2007 made in 2006 etc. We use the one year ahead forecasts as this information is likely to be used in planning policy for the next year.

Interestingly, estimates of potential growth before the crisis have been revised downwards. One of the concerns in this note is that the estimate of potential growth for any given year, based on the current EU methodology, is a moving target and, as such, it is not an appropriate basis on which to base fiscal policy.

Figure 2   European Commission Estimates of the Contribution of Components to Potential Growth
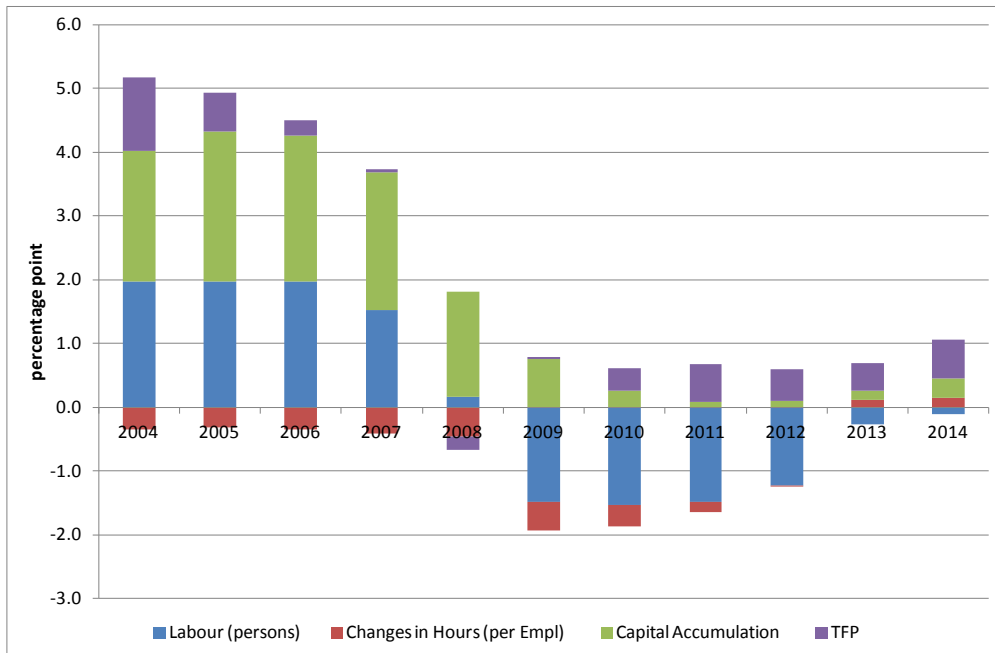

Figure 2 shows the contributions from labour, capital and total factor productivity to potential growth from the February 2014 European Commission estimates. The graph shows that the contribution from the labour input is negative over the period 2009 to 2013. Klär (2013) notes that the revisions to potential growth for Ireland are largely driven by a decrease in labour inputs so here we examine the treatment of the Irish labour market in the EU methodology for estimating potential output more closely.

The EU methodology for calculating the trend labour input involves several steps. Labour input is defined in terms of hours. The trend labour force is obtained by mechanically detrending the participation rate (using a HP filter) and applying it to the population of working age. Then trend unemployment, consistent with stable non-accelerating wage inflation (NAWRU), is estimated using a statistical technique. Potential labour supply (trend hours worked) is then obtained by multiplying trend employment with the trend of average hours worked.

There are two key problems with this approach.[10] First, as discussed above, because it only focuses on imbalances in the labour market it may well reach inappropriate conclusions – for example, ignoring imbalances on the current account. Second, the methodology used to measure the disequilibrium in the labour market (to calculate a NAWRU), produces particularly strange conclusions for Ireland because it does not take account of the extensive research on how the Irish labour market actually operates. This latter point is probably the most controversial aspect of the EU methodology.

The methodology underlying the estimation of the NAWRU is based on the Philips curve and it is not an appropriate model of wage formation for a country with a very open labour market, where migration responds to (relative) wages or relative unemployment. Figure 3 shows the EU estimates of the NAWRU, together with the actual unemployment rate from the CSO. The graph shows that in 2013 the NAWRU was very close to the actual unemployment rate, suggesting that actual employment was close to potential. It also shows that, prior to the crisis, the long-run equilibrium unemployment rate was below or only slightly above the actual unemployment rate. If, as seems likely, the actual unemployment rate falls below this estimate of the NAWRU in 2014, this would imply 'excess employment' in the economy (Darvas, 2013). Darvas (2013) comments "In other words, almost all presently unemployed people are regarded as useless from the perspective of the production potential of the economy. This is strange indeed, even though it may be difficult to employ all former construction workers in other sectors in the coming years." If employment is close to potential, output is, by definition, close to potential and this implies that the structural balance is also close to the actual government balance.

Using the EU methodology, the *Stability Programme 2013* estimated that the structural deficit for Ireland for 2014 will be 4.6 per cent of GDP with the economy producing close to potential output. With the economy assumed to be producing at capacity, this deficit would have to be eliminated by discretionary fiscal policy action in the future to restore the economy to long-term equilibrium consistent with the legislation.

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[10] An additional problem is that the EU approach uses the actual capital stock rather than the equilibrium capital stock. It can be argued that the capital stock in 2008 was excessive.

FIGURE 3   European Commission Estimates of the NAWRU
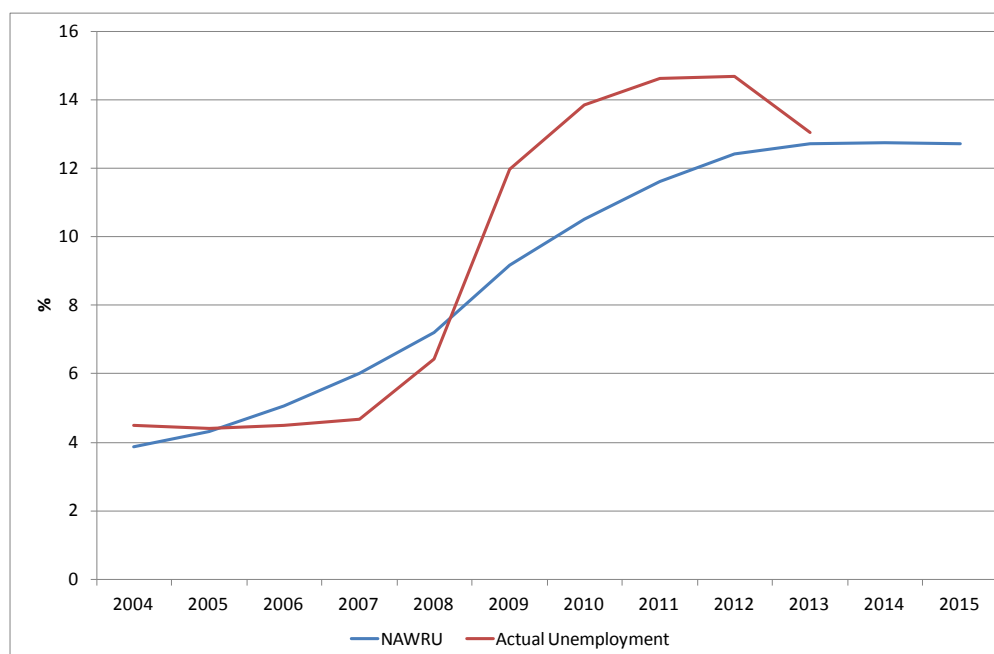
Bergin *et al.*, 2013, consider the impact of different fiscal policy instruments on key economic aggregates including GNP, the government balance and the current account balance. This paper shows that whichever fiscal instruments were chosen to eliminate such a structural deficit, there would be a matching impact on the current account balance. Thus, if cuts in public expenditure were used to reduce the structural deficit by 4.6 percentage points of GDP, the current account surplus would be increased by a similar magnitude.[11] With the current account surplus for 2014 forecast to be almost 8 per cent of GDP,[12] this would mean that the effect of eliminating the structural deficit of 4.6 per cent of GDP, as defined by the EU, would be to eventually raise the current account surplus to 12.6 per cent of GDP.

A surplus of this magnitude would be a very clear sign that the economy was far from equilibrium. Such a rate of accumulation of net foreign assets (or reduction in net foreign liabilities) would not be sustainable for long. At some stage households and companies would react to their very rapidly improving foreign asset/liability position by increasing investment and consumption. In turn this would translate into a significant improvement in the government balance. It would also, inevitably, see the Irish economy breaching the EU guidelines on the

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[11] This is derived using the *HERMES* model and assuming that roughly half of the adjustment was carried out by increasing taxation and half by cutting expenditure, Bergin *et al.* (2013).

[12] If allowance is made for the effects of the earnings of the redomiciled plcs on the surplus, the forecast is for a surplus of 3.5 per cent of GDP.

size of the current account surplus under the European Semester's Macroeconomic Imbalances Procedure (MIP).

This result illustrates clearly the difficulties associated with applying the current EU methodology to estimate the structural balance for Ireland. This approach gives rise to a series of inconsistencies which suggest the need for a more appropriate methodology for estimating the structural balance. In particular, it is important to consider approaches that take into account the specific characteristics of the Irish labour market and the other major imbalances in the economy.

Model Based Estimate of the Structural Balance

The *HERMES* macro model, which is specified in long-run equilibrium form, is a suitable tool to calculate an alternative measure of the structural balance of the economy in the medium term.[13] In the *Medium-Term-Review* the model was used to develop scenarios where the economy returns to long-run equilibrium, not only in the labour market, but also in a number of other important markets mentioned above. Equilibrium in the goods market – a current account in balance or limited surplus – is affected by the behaviour of households (adjusting their savings behaviour) and companies minimising their cost of production (choosing an appropriate capital stock and related path for investment), together with a government sector in balance. The key relationships in the *HERMES* model are specified in equilibrium form so that, when subject to shocks, the economy will generally return to a stable equilibrium over a number of years.[14]

To estimate long-run equilibrium output the *HERMES* model is benchmarked to current economic conditions and it is then simulated out into the future. This provides a scenario where the economy returns to equilibrium and the model estimates the resulting government balance consistent with that equilibrium. Such medium-term scenarios depend on the external environment for the Irish economy that is assumed. Thus potential output and the structural balance are not independent of conditions in the rest of the EU economy.

The future path of the public finances is modelled assuming a neutral fiscal policy from 2015 onwards – where the stance of fiscal policy is neither stimulating nor

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[13] The latest version of the *HERMES* model is described in Bergin *et al.* (2013).

[14] As discussed in FitzGerald and Kearney (2013), there may be multiple possible equilibria depending on the sustainability of the level of public debt.

deflating the economy. This is modelled using a set of indexation rules which, for example, assume average direct tax rates remain unchanging over time.[15] This scenario allows the economy to return to equilibrium, where actual output is equal to potential output. At the point where the economy is restored to equilibrium, the government balance, estimated by the model, represents the structural balance. If no fiscal adjustment is needed (a series of neutral budgets) to produce balance on the government accounts when the economy reaches its long-term stable equilibrium, then that defines the government balance in that year as being attributable to cyclical factors – the fact that the economy is currently out of equilibrium. To the extent that a further fiscal adjustment might be needed to restore the economy to equilibrium that required adjustment is a measure of the structural deficit.

The single most important difference in this approach to measuring potential output and the other commonly used methodologies is that, in *HERMES*, account is taken of the fact that the Irish labour market tends to clear in the long run at an unemployment rate of around 5 per cent. It also takes account of the endogeneity of labour supply through migration (and labour force participation decisions). The EU methodology that is currently used implies that the equilibrium rate of unemployment in Ireland is well over 10 per cent. This would suggest that the unemployment problem is entirely structural and that the recovery in activity, currently under way, will have no impact on the unemployment rate.

This EU estimate of the equilibrium rate of unemployment takes no account of a range of research on the Irish labour market,[16] which suggests a very different conclusion. First, while structural unemployment is a risk in the wake of the crisis, an examination of the composition of unemployment shows that quite a high proportion have third level qualifications. This significantly increases the likelihood that these workers will regain employment as recovery takes hold. The long-term unemployment rate, a proxy for structural unemployment, has declined to 7.2 per cent in the most recent data – a fall of over 2 percentage points in under two years. Furthermore, a range of published research on the Irish labour market over a long period provides empirical evidence of the flexibility of the Irish labour market and the elastic labour supply (Barrett, FitzGerald and Nolan, 2002). The weight of this evidence suggests that the

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[15]   The approach and indexation rules used are set out in Bergin *et al.* (2013). In the indexation rules used here it is assumed that government investment and consumption remain unchanged in volume terms. In a growing economy this assumption imparts a mild deflationary bias to our set of indexation rules.

[16]   The evidence is discussed in Bergin *et al.* (2013). See also Barrett, A., J. FitzGerald and B. Nolan (2002), "Earnings Inequality, Returns to Education and Immigration into Ireland", *Labour Economics*, Vol. 9, No. 5.

likelihood that the rate of unemployment in the Irish labour market would remain over 10 per cent indefinitely is very low. Developments in the Irish labour market during the crisis and in the past year are consistent with these findings.

The second important difference in approach lies in the fact that, using the *HERMES* model, long-term equilibrium is imposed, so that the current account surplus does not continue growing. The counterpart to this restoration of external balance is that the effects of the household and company sector deleveraging will be largely completed. This means that investment, including investment in housing, returns to a level that at least maintains the existing capital stock and is also consistent with optimising behaviour by the company sector.

Estimating the Structural Balance Using *HERMES*

In the *Medium-Term Review,* published in July 2013, a number of scenarios were set out for the future development of the Irish economy. Here we consider the structural deficit implied by the *Recovery* Scenario. Since the scenario was published the path of the economy has been consistent with that implied by this scenario. However in our conclusions we take account of the fact that there is no certainty that this recovery will be realised.

TABLE 1 Summary Results with Indexation from 2015 onwards

	2012	2013	2014	2015	2016	2017	2018	2019	2020
GDP, %	0.2	-0.4	2.6	3.5	4.6	3.8	3.8	3.5	3.4
GNP, %	1.8	3.3	3.5	3.7	4.7	2.9	2.8	2.6	2.5
Unemployment rate ILO, percentage points	14.7	13.1	11.4	10.1	8.1	7.4	6.7	6.0	5.2
Investment/ GNP ratio	13.1	13.4	14.5	15.7	19.2	19.8	20.6	20.9	21.1
Non-agri wage rates, %	0.9	0.0	0.0	1.0	2.6	4.7	4.2	4.0	3.9
Labour Share of Value Added except agric.	46.9	47.8	47.3	46.8	46.7	46.4	46.0	45.5	45.1
Personal savings ratio	7.3	8.3	7.6	8.1	8.3	9.2	9.8	9.4	9.4
Housing Completions, number	8,488	8,301	12,000	15,000	28,177	30,233	28,982	26,501	23,784
Net emigration	-34.4	-33.1	-18	0	0	0	0	0	0
% of GDP									
Balance of payments surplus, adjusted for redomiciled plcs	-0.1	2.1	3.5	4.3	3.7	3.7	3.5	3.6	4.0
General government deficit	8.2	7	4.5	2.8	-0.2	-1.0	-1.7	-2.2	-2.6

Note: In some cases the data definitions used in *HERMES* may differ from the published series.

The most negative scenario (Stagnation Scenario) in the *Review* was based on a failure of the EU economy to grow over the rest of the decade. Currently this seems less likely than it did last year. There remains a possibility that a failure to resolve the problems of the financial system could delay the recovery that is under way (the *Delayed Adjustment* scenario). However, this would postpone a return of actual output to its potential level rather than permanently damaging the growth rate of potential output.

For this note we have rerun the *Medium-Term Review Recovery* scenario calibrating to the latest estimate of the outturn for 2013 and the forecast for 2014 published in the current *Quarterly Economic Commentary*. We first set out some of the key aggregates from this scenario in Table 1, aggregates which show the economy returning to equilibrium by the later years of this decade as the cyclical effects of the crisis fall away.

Based on the latest forecasts for EU and world demand, this scenario sees the economy gradually returning to equilibrium over the rest of the decade.[17] The current account surplus stabilises at a sustainable level.[18] The savings ratio also stabilises and rising real income is reflected in growing consumption and a return to normality in the housing market, with output broadly equal to the number of dwellings required for a rising population (see Byrne *et al.,* in this *QEC*). The company sector returns to investing, reflecting a recovery in profitability after the crisis. As a result, investment stabilises at a little over 20 per cent of GNP, broadly consistent with the level of investment in other similar developed economies. In the later years of the decade wage rates rise roughly in line with the rate of inflation plus the rate of increase in productivity. Thus, while the labour share of added value decreased over the course of the crisis, having seen the economy return to competitiveness on foreign markets, it readjusts to a new equilibrium from 2015 onwards.

The labour market takes somewhat longer than the rest of the economy to return to equilibrium. It is likely to be 2018 or 2019 before the economy approaches a level of unemployment which would be consistent with long-term equilibrium – in the range 5 to 6.5 per cent of the labour force. This level of unemployment would be consistent with the rate of wage inflation discussed above and with labour's share of added value remaining stable at its current relatively low level.

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[17] A full description of the assumptions underpinning the *Recovery* scenario, as well as detailed results are available in FitzGerald and Kearney, 2013.

[18] Account is taken of the effect of redomiciled plcs on the balance of payments.

The specification of the model and the resulting simulations ensure that:

The labour market eventually clears.

The current account surplus is sustainable (not too large). This is helped by the model specification that, in the long run, there is a stable relationship between household wealth, consumption and income.

The rate of wage inflation is consistent with a constant labour share of added value.

The investment to GNP ratio is consistent with stable growth

House prices reach a new equilibrium and housing investment is consistent with long-run stability in the housing market.

With a broadly neutral fiscal policy stance from 2015 onwards, as defined here, the model shows the government sector moving into surplus in 2016 with a more significant surplus in 2017. This shows that, conditional on the assumptions about the world economy being realised, the current fiscal deficit is largely attributable to the fact that the economy is producing well below its long-run equilibrium level. In other words, the structural deficit for 2014 is close to zero. This is dramatically lower than the number derived using the EU methodology. However, in this case it is consistent with an economy moving into long-term equilibrium, whereas the EU approach would imply a huge current account surplus that would not be sustainable in the medium term.

Conclusions

This analysis highlights the inappropriate nature of the EU approach to estimating the structural balance for Ireland. Because of the importance of this concept for fiscal policy it is important to develop alternative measures to the EU methodology. This Research Note develops one such alternative measure that provides more realistic results.

Based on the *Medium-Term Review* Recovery scenario, and using the HERMES model of the economy, we estimate that the bulk of the government deficit in 2014 is cyclical in nature. Assuming a neutral fiscal policy from 2015 onwards, when the economy is restored to equilibrium later in the decade the current government deficit is likely to be eliminated, to be replaced by a small surplus. If this scenario were to prove correct, then no further fiscal adjustment would be needed in 2015 to ensure that the government finances would move into surplus by 2017/2018.

However, even though the recovery in the economy has, to date, proved more vigorous than anticipated, there remains considerable uncertainty about the strength of the recovery elsewhere in the EU and also about the ability of the financial system to fund the ongoing recovery in Ireland. Furthermore, in order to maintain the credibility of Irish fiscal policy (and to meet required targets, now enshrined in legislation) it will be very important to ensure that the actual deficit for 2015 is below 3 per cent of GDP. Thus it would be premature to lock into a particular budgetary policy for 2015 at this point in time. Instead, it would be prudent to prepare for possible further cuts next year to guard against the risk that the fragile recovery, currently underway, peters out. This echoes the recommendation we have made previously that fiscal policy should be formulated on a "no regrets" basis". A final decision can be made about fiscal policy for 2015 at the end of September when the progress of the Irish recovery is somewhat clearer.

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