Irish Fiscal Advisory Council

Fiscal Assessment Report

April 2013

Report 13/01

Assessment of Compliance with Fiscal Rules

Contents

3. ASSESSMENT OF COMPLIANCE WITH FISCAL RULES

SUMMARY

- The *Fiscal Responsibility Act* came into force on 31 December 2012, strengthening Ireland's fiscal institutions by establishing new fiscal rules and placing the Irish Fiscal Advisory Council on a statutory basis as an independent fiscal council.
- *Budget 2013* projections imply compliance with the Budgetary Rule in 2013, 2014 and 2015 as the Adjustment Path Condition for the structural balance would be significantly exceeded.
- The structural budget balance plays a key part in the domestic and EU fiscal rules. However, this poses serious measurement challenges. These need to be addressed both at EU level and by the development of a more comprehensive domestic analysis.

3.1 INTRODUCTION

The Fiscal Responsibility Act (*FRA*) came into force on 31 December 2012. This strengthens Ireland's fiscal institutions by putting in place new fiscal rules, the Budgetary Rule and the Debt Rule, and by establishing the Irish Fiscal Advisory Council on a statutory basis.

This chapter assesses compliance with the fiscal rules. Section 3.2 sets out key features of the *FRA* and the Council's future approach to monitoring fiscal rules. It assesses the consistency of the current fiscal position in *Budget 2013* with the new budgetary framework. Section 3.3 discusses the measurement and use of the structural budget balance in the fiscal rules.

3.2 COMPLIANCE WITH THE FISCAL RULES

Compliance with the fiscal rules set out in the *FRA* is in part supported by monitoring by the Irish Fiscal Advisory Council. The Council also undertakes assessments of official macroeconomic and budgetary projections and an evaluation of the Government's fiscal stance (Box E).

[64] The different roles included in the Council's mandate act together to provide independent oversight of whether budgetary management is prudent. The Council's political independence and arms length relationship to Government is underscored by measures to help to protect it from political pressure. This underpins the credibility of the Council's assessments.

[64] "Official" estimates are those published by the Department of Finance.

Box E: The Irish Fiscal Advisory Council

The Fiscal Responsibility Act (FRA) establishes the Irish Fiscal Advisory Council on a statutory basis, a year and half after the Council started operation.

The Act requires the Council to:

- Assess and monitor the forecasts produced by the Department of Finance.
- Monitor and, at least once a year, provide an assessment of compliance with the Budgetary Rule. The Council would be required to provide an assessment under the Correction Mechanism if this rule was not met.
- Assess whether the fiscal stance of the Government is conducive to prudent economic and budgetary management, including by reference to the *Stability and Growth Pact (SGP)*.

The Act defines the Council as an independent body. To support its independence:

- Council members are appointed on the basis of their expertise for fixed terms of office of four years (after a transitional period). A member may not serve for more than two consecutive terms.
- Council members can only be removed from office on limited grounds related to incapacity or misbehaviour and a resolution of Dáil Éireann is needed (unless a Council member is disqualified from serving).
- Council members cannot hold or stand for political office.

The Council is funded from the Central Fund, meaning that its budget is outside voted expenditure.

Council members are appointed by the Minister for Finance. The Council determines its budget within a ceiling of €800,000 (inflation-indexed) established in the *FRA*. The Council is accountable to Dáil Éireann for the use of its resources and to the Comptroller and Auditor General for audit. The Council will publish an Annual Report. Additional details about the Council and its operation can be found on www.fiscalcouncil.ie

The Government has an obligation to comply with the fiscal rules set out in the *FRA*. In addition, it is required to meet EU fiscal rules. These two sets of fiscal rules are complex, both individually and taken together.[65] However, there are essentially three types of requirement:

- The *FRA* Budgetary Rule sets a norm of a balance or surplus for the General Government budget balance, while the EU *SGP* requires a deficit of less than 3 percent of GDP.
- The *FRA* Budgetary Rule and the EU *SGP* refer to the structural budget balance meeting an EU-agreed country-specific Medium-Term Budgetary Objective (MTO), which is currently a structural balance of -0.5 percent of potential GDP for Ireland. If this condition is not met, a 0.5 percentage point annual improvement in the structural balance is required under the Budgetary Rule to meet the Adjustment Path Condition. This requirement also applies under the EU rules.[66]
- The *FRA* Debt Rule and EU *SGP* require that a General Government debt to GDP ratio in excess of 60 percent of GDP should be reduced according to a formula that requires approximately a 1/20th reduction of the excess over 60 percent per year. For more details see Appendix C. The Debt Rule is expected to apply three years after Ireland has exited the Excessive Deficit Procedure.

The Council is required under the *FRA* to monitor and, at least once a year, to provide an assessment of national compliance with the Budgetary Rule. Furthermore, in the event of non-compliance, the *FRA* provides for a Correction Mechanism.[67] The Council is required to assess whether progress towards compliance with the Budgetary Rule is being made in accordance with the Government's correction plan.

[65] The September 2012 *Fiscal Assessment Report* provides a fuller discussion of the *Fiscal Responsibility Bill*, which is in line with the *FRA*. However, it should be noted that page 63 of that report incorrectly summarised the proposed Budgetary Rule as applying only in structural terms.

[66] It is important to note that the *FRA* Budgetary Rule and MTO are not identical to the extent that the *FRA* Budgetary Rule could be met by achieving a General Government budget balance, even if there were a structural deficit larger than the MTO.

[67] For more details see IFAC (2012b, p.65).

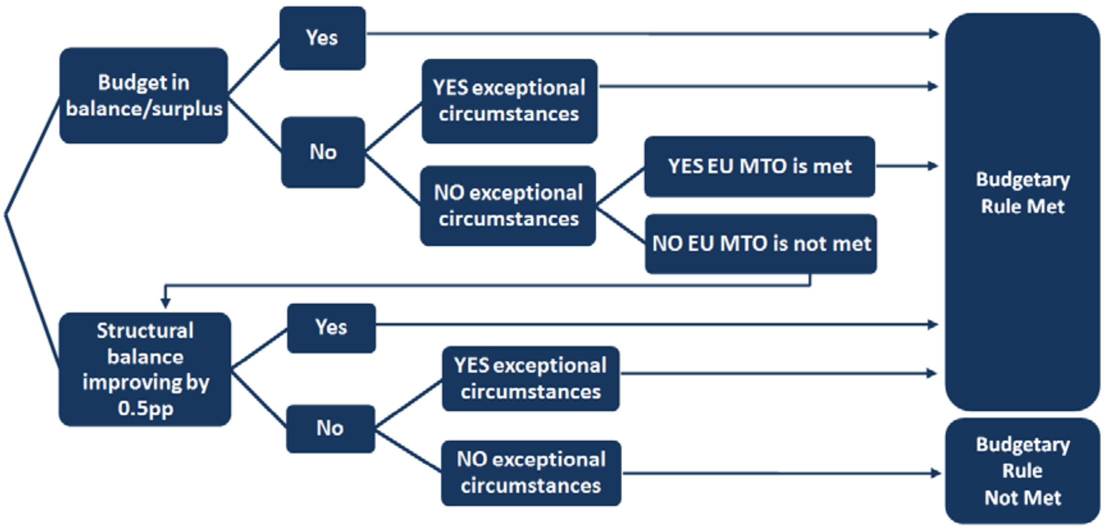
The Council has no formal mandate to monitor the domestic Debt Rule and the EU fiscal rules.[68] However, it is required in its assessment of the fiscal stance to include "...reference to the provisions of the Stability and Growth Pact" (Irish Statute Book, 2012).

3.2.1 Monitoring Compliance with the Budgetary Rule

The Budgetary Rule is satisfied if any of three conditions is met:

- There is a General Government budget balance or surplus.
- The structural balance is at the MTO. This is currently set at a deficit of 0.5 percent of potential GDP.[69]
- The structural balance is converging towards the MTO in line with the Adjustment Path Condition and the EU timeframe, both of which require annual consolidation of 0.5 percentage points of GDP in structural terms.

The exact conditions are more complex and can be represented using a flow diagram:[70]



[68] Independent monitoring of compliance with the Budgetary Rule is required to comply with the EU *Fiscal Compact* but this obligation does not cover the domestic Debt Rule.

[69] There is a lower bound for this in the EU rules of a structural balance of -1 percent of potential GDP.

[70] There is more than one way of presenting the rules in terms of a flow diagram. This broadly follows the order in which the conditions are specified in the text of the *FRA*.

The Budgetary Rule must be met each year. Compliance is assessed based on data published in the following year (released alongside Department of Finance forecasts). Given this sequence, the mandate means that the Council assesses compliance with rules after the event (*ex post* compliance).[71,72]

Given the lags involved, the Council will monitor the likelihood of compliance with the Budgetary Rule on a forward-looking basis based on available information. This should be useful in setting policy to ensure that the rules are met.

Budget 2013 projections are consistent with compliance with the Budgetary Rule in 2013 and subsequent years as the Adjustment Path Condition of improving the structural balance by at least 0.5 percentage points of GDP per annum would be significantly exceeded (Table 3.1).

TABLE 3.1: DEPARTMENT OF FINANCE DEFICIT AND DEBT PROJECTIONS

% of GDP	2012	2013	2014	2015
General Government Deficit	8.2	7.5	5.1	2.9
Primary Deficit	4.3	2.0	-0.4	-2.6
Structural Deficit	8.2	7.7	5.9	3.9
General Government Debt	118	121	120	117

3.2.2 COMPLIANCE WITH OTHER IRISH AND EU FISCAL RULES

In terms of compliance with other Irish and EU rules:

Ireland remains subject to an EU Excessive Deficit Procedure (EDP) as the General Government balance exceeds the 3 percent of GDP deficit criterion of the *SGP*. However, Ireland is complying with its obligations to bring down the deficit under the EDP and the programme supported by the EU/IMF. *Budget 2013* projections show that the General Government deficit is expected to fall below 3 percent of GDP by 2015 and the updated outlook in Chapter 2 (see Table 2.2) suggests this would be achieved with some margin.

[71] The first opportunity for the Council to assess compliance with the Budgetary Rule in a given year is the following year based on the publication of the Maastricht Returns data and the *SPU* (which provides estimates of the structural position) in April. The Council's first formal assessment of compliance will be made in 2014 based on outturns for 2013.

[72] Given data revisions for the public finances and GDP, the Council will also monitor whether the rules would have been met in earlier years.

The requirement of progress towards the MTO matches the Adjustment Path Condition of the Budgetary Rule and is therefore met.

Debt remains higher than the *SGP* requirement of 60 percent of GDP. The domestic Debt Rule requires compliance with the *SGP* debt criterion in terms of progress being made towards reaching the 60 percent standard. The EC is required to publish a report on compliance if the debt to GDP ratio is above 60 percent and if the debt is not falling in line with a backward-looking measure of debt reduction or a forward-looking measure of the fall in debt (assuming unchanged policies) based on the EC forecasts (see Appendix C).

The EU benchmark for convergence towards the debt criterion involves a transition period of three years following the ending of the EDP, currently anticipated for 2015. During this transition period, the EC identifies a minimum adjustment that would ensure compliance with the Debt Rule at the end of the transition period.[73] This should take into account the influence of the cycle and the forward-looking nature of the debt benchmark.

The EU has an expenditure benchmark that non-interest spending should not rise faster than potential GDP, except if fully offset by revenue increases mandated by law.[74] This benchmark is to be taken into account by the EU in assessing compliance with the other rules. This benchmark would also be met under current official projections given falling non-interest spending.

3.3 THE STRUCTURAL BALANCE

The structural budget balance plays a key role in domestic and EU fiscal rules. This is defined as the cyclically-adjusted budget balance net of one-offs and temporary measures. This measure is used in the Budgetary Rule and the EU rules for the MTO. More generally, assessing and projecting GDP, potential output and the structural balance are important to setting the fiscal stance and projecting the public finances over the medium term.

[73] The annual structural adjustment should not deviate by more than ¼ percent of GDP from the minimum linear structural adjustment. In addition, "....at any time during the transition period, the remaining annual structural adjustment should not exceed ¾ percent of GDP" (EC, 2012b, p.9).

[74] Expenditure on EU programmes fully matched by EU funds and non-discretionary changes in unemployment benefit expenditure are excluded. The expenditure aggregate should be adjusted by averaging the investment expenditure over four years.

3.3.1 Measuring Cyclically-Adjusted Budget Balances

The official assessment of the cyclically-adjusted budget balance (CABB), including projections of it and its main elements for future years, are made in the official forecasts. The CABB estimates and projections have been published in the *SPU* each spring.

Although in theory the cyclically-adjusted measure of the budget balance is the most appropriate concept for fiscal rules, its use involves significant measurement problems (IFAC, 2012c, p.20). As an example, the 2007 *SPU* for Ireland estimated the 2007 structural budget balance to be a surplus of 0.5 percent of potential GDP and with output slightly below potential. However, it is now clear that the General Government balance during this period was boosted by above trend demand and exceptional revenues linked to the unsustainable boom in the property sector.

Calculation of the CABB rests on two unobservable and difficult to assess parameters:

- An estimate of the cyclical position of the economy, based on the difference between actual and potential output (the "output gap").[75]
- The cyclical sensitivity of the budget balance to the output gap.

As the CABB is derived by subtracting the estimated cyclical component from the General Government balance, any error in the estimate of the cyclical component is included in the estimate of the "structural" balance and can give rise to a misleading picture of the underlying budgetary position.

To facilitate the interpretation of the CABB, it would be helpful if the Department of Finance published revised estimates for previous years alongside the projections included in the official forecasts (including both the CABB and the estimated output gap).

[75] Potential output corresponds to some "normal", rather than cyclical, level of output defined in terms of a normal level of efficiency of factor inputs or as the level of output consistent with stable inflation. This is likely to follow a moving long-run average of actual output.

3.3.2 Estimates of Potential Output and the Output Gap

Estimating potential or trend output is an inherently difficult and uncertain process. The key challenge is that, since only actual output is observed, there is no way of directly measuring potential output. A variety of techniques can be used, including statistical filtering to derive trends and more structural assumptions about future growth. All techniques involve some element of judgement and the resulting estimates are uncertain and likely to be prone to revision.

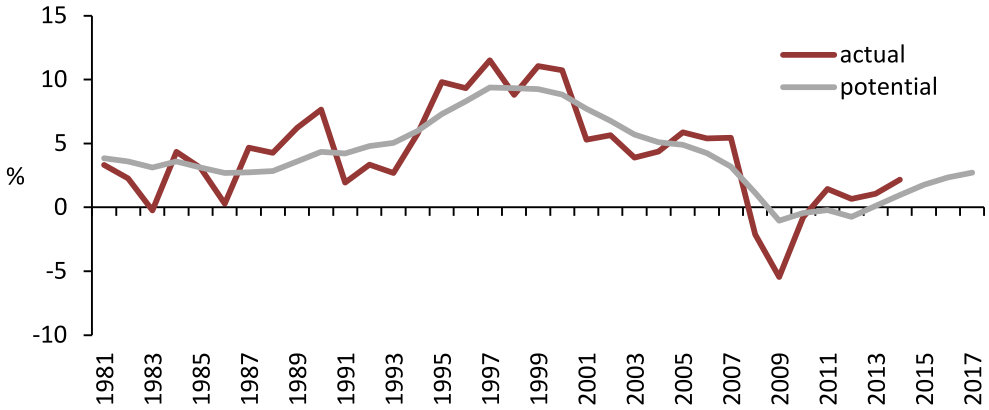
For techniques based on filtering, there can be an "end point" problem, whereby the most recent observations used to calculate the trend have a disproportionate impact on the estimated trend. This can lead to large revisions as new observations are added. It creates additional difficulties in situations, such as the present, where the economy has been subject to large shocks.

The official estimate of the output gap (i.e., the Department of Finance estimate) is derived by subtracting an estimate of potential GDP, based on a methodology determined by the EC, from actual GDP data. To make projections for potential output, Department of Finance forecasts for actual output are incorporated into the process. These may differ from the EC's projections for actual output, resulting in small differences between the EC and the Department of Finance potential output projections. The EC methodology is described in Appendix D.

The EC methodology suggests that there was a small negative output gap in 2012, which is closing so that GDP is projected to be significantly above potential GDP in 2015 (Figure 3.1).[76] This profile appears at odds from an economic perspective with the strong downward forces currently acting on demand. These forces would suggest that GDP is currently well below potential and is unlikely to reach overheating levels anytime soon.

[76] The EC estimates for the output gap, potential output and the structural balance are available from its CIRCABC website. The EC estimate for the output gap in 2012 is -1.4 percent. The Department of Finance estimate is -1.1 percent.

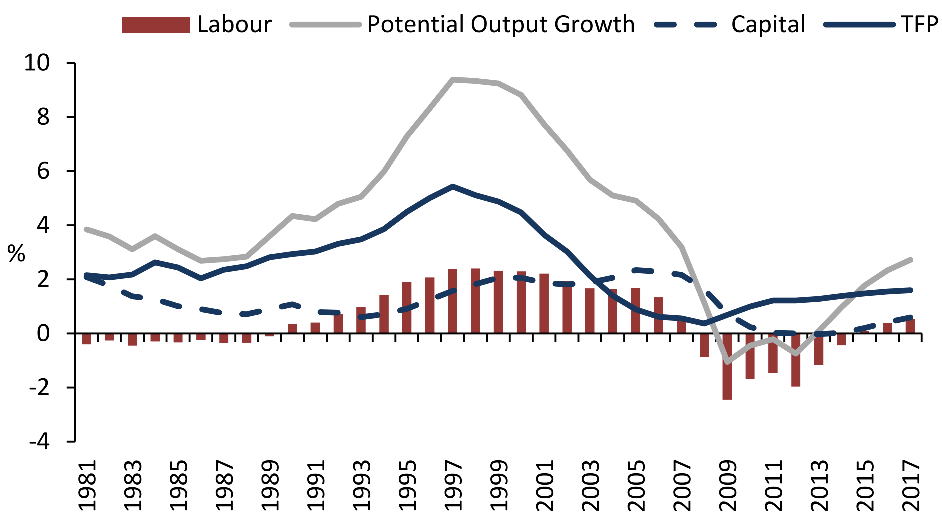
FIGURE 3.1: EUROPEAN COMMISSION ESTIMATES AND PROJECTIONS OF ACTUAL AND POTENTIAL GDP GROWTH



Source: European Commission, CIRCABC Website.

Furthermore, the weak level of potential output in the EC's estimates is predicated on very low contributions to growth in the coming years from labour utilisation, as well as historically weak growth in capital services and productivity (Figure 3.2). Strikingly, it is assumed that the structural unemployment rate continues to rise above the current high level of actual unemployment (see Appendix Figure D). While structural unemployment is likely now to be higher than pre-crisis levels, the extent of such unemployment assumed in the EC's estimates appears high given the characteristics of the Irish labour market. For comparison, the IMF's projection for the actual unemployment rate in 2017 is 11.5 percent with an output gap close to zero (IMF, 2013).

FIGURE 3.2: CONTRIBUTIONS TO GROWTH OF POTENTIAL GDP



Source: European Commission, CIRCABC Website.

The official estimate of the current output gap is much less negative than estimates based on alternative methodologies from the IMF and the OECD, both of which imply that there will be spare capacity in the economy until at least 2015.[77] These differences largely reflect alternative views of the level and future path of potential output. Even if the output gap is larger than the current official estimate, it may be that the weaker view of potential output in the coming years underpinning the official forecasts will be correct and that the level of actual GDP could be closer to this view than current forecasts suggest.

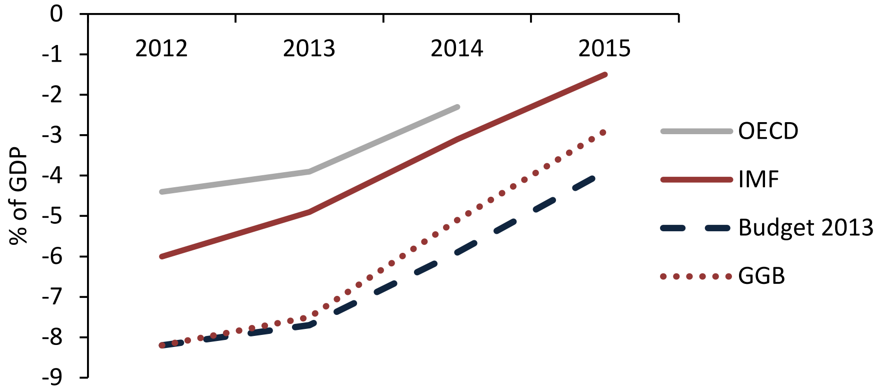
Table 3.2: Actual and Potential GDP and the Output Gap

Department of Finance	2012	2013	2014	2015
Real GDP	0.9	1.5	2.5	2.9
Potential Real GDP	-0.8	0.1	0.9	2.5
Output Gap	-1.1	0.4	2.0	2.4
Alternative Estimates of the Output Gap				
IMF (Apr 2013)	-1.9	-1.8	-1.1	-0.3
OECD (Nov 2012)	-8.2	-7.7	-6.6	N.A

These different estimates for the output gap imply a wide range of estimates for the CABB. Figure 3.3 shows that *Budget 2013* projected a General Government deficit of close to 3 percent of GDP in 2015. While the *Budget 2013* projection interprets this as consistent with a very large structural deficit, the OECD forecast interprets it as essentially cyclical in nature and the IMF sees the majority of the deficit as being cyclical. These different estimates of the structural balance would imply very different pictures of how much consolidation is required to meet the Budgetary Rule.

[77] The revised OECD modelling approach is set out in Johansson *et al*. (2012). This is based on a conditional convergence growth framework and uses assumptions about how the economy evolves in the long run, combined with filtering approaches for the near term. The IMF employs an approach based on statistical filtering of GDP using an HP filter.

FIGURE 3.3: ALTERNATIVE ESTIMATES AND PROJECTIONS OF THE STRUCTURAL BALANCE



Note: The OECD does not provide a forecast beyond 2014.

3.3.3 ESTIMATES OF THE EFFECT OF THE CYCLE ON THE BUDGET BALANCE

The official methodology for correcting the General Government balance for the impact of the cycle is based on OECD estimates (Girouard and André, 2005), which also underpin the EC methodology and the Council's Fiscal Feedbacks Model. This takes into account both cyclical changes in the size of tax bases and the link between the tax bases and revenues, as well as unemployment related spending. In the case of Ireland, it is assumed that the General Government balance increases by around 0.4 for each 1 percentage point positive change in the output gap.

The estimated tax elasticities can misstate the impact of the cycle, as was the case during the housing boom which generated "windfall" tax revenues (especially very strong stamp duty and VAT receipts from property transactions). In addition, the method ignores potentially cyclical behaviour in non-tax revenues and government investment (Bénétrix and Lane, 2012).

3.3.4 IMPROVING THE ASSESSMENT OF THE STRUCTURAL BALANCE

Estimating the output gap, projecting the future path of potential GDP and adjusting the budget balances for the cycle are inherently difficult, especially in small and highly open economies that tend to be volatile. It is particularly complex in the Irish case given that the economy has altered so much over the past decades, including during the credit boom. The EC has recently amended its methodology and data for calculating the CABB. These amendments were endorsed by the Economic Policy Committee in June 2012, and have been incorporated in the Commission's Winter 2013 forecasts (which were published in February 2013). It is expected that the revised methodology and data will be used in Ireland's upcoming *SPU*. Details of the updated approach can be found in Mourre *et al*. (2013).

Efforts should continue to improve the EC methodology so that it provides a more accurate picture of current and prospective developments, both for Ireland and other countries. However, this is likely to take a considerable length of time to bring to fruition. It is also unlikely that a simple method that aims to treat all countries identically will always provide the most appropriate assessment for each individual country.

There is currently no independent official methodology for assessing potential output, other than the EC based estimates. In terms of other forecasting and modelling tools used in Ireland, the ESRI uses the *HERMES* model for medium-term forecasting. The CBI does not publish forecasts beyond a two-year horizon. Overall, the tools available to policymakers to assess potential output in Ireland are currently limited.

Given the complexities involved with assessing and projecting potential output, a more comprehensive set of methodologies should be put in place by the Department of Finance, informed by a variety of techniques and assumptions, to improve the understanding of the cyclical position of the economy, potential output and the structural position of the public finances. This would complement the use of the EC methodology. This approach should rely on a range of measures and expert judgement. Estimates should be presented together with measures of the range of probabilities around the central estimate. An on-going initiative by the CBI and the ESRI to develop a medium-term model could make a substantial contribution to this process.

In a highly open and financially developed economy going through significant structural change, the output gap as a measure of the difference between actual and potential output may only provide a partial benchmark of whether the economy is on a sustainable path. From the perspective of the sustainability of the public finances, the assessment needs to take into account the sustainability of the external balance and domestic credit developments. Further work is needed to better understand these relationships. However, recent analysis by the IMF begins to consider some of these issues in an Irish context, correcting the balance for equity price, house price and unemployment gaps, as well as the output gap, based on a disaggregated analysis of revenues (IMF, 2012a).

3.3.5 Measuring the Structural Balance in the Budgetary Rule and the Medium-Term Objective

Significantly, the *FRA* legislation does not refer to a specific methodology for the estimation of the structural balance in terms of "cyclical-adjustment" or "one-off and temporary measures". It is thus possible for compliance with the Budgetary Rule to be judged against a domestic measure of the structural balance rather than the EC methodology based measure.[78]

The Council is required to assess compliance against the data published alongside official forecasts, irrespective of what measure is presented. However, assessment in a European context of the EU rules will be applied on the basis of the EC methodology.

In principle, there is a strong presumption to use the EC methodology as the benchmark for compliance with the domestic Budgetary Rule. It is simpler and more coherent to use the same measure for both. At the European level, it is important to have consistency across countries as part of the effort to improve budgetary discipline in the Euro Area.

There could be a case for using a domestic methodology with good methodological underpinnings if the EC methodology were assessed to be clearly providing significantly misleading signals. The Council could then take the domestic methodology into account in assessing compliance with the Budgetary Rule.

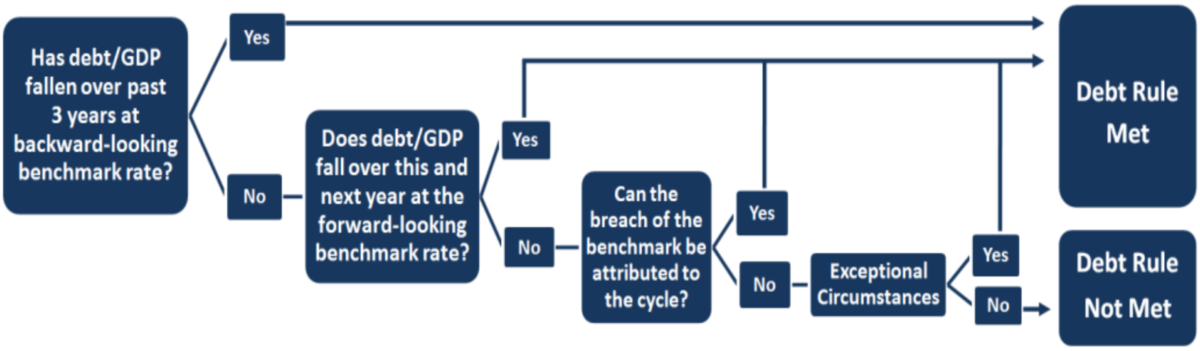
It is possible that a situation could arise where a domestic measure of the structural balance suggested compliance with the Budgetary Rule requirement but the EU measure suggested non-compliance. In such a situation, an independent and convincing domestic analysis of the structural position could help in making the case that judgement should be used by the EC and the ECOFIN Council in enforcement of the EU rules.

Alternatively, the EU rules could suggest compliance with the MTO but a domestic assessment might still signal a larger structural deficit. This would correspond to Ireland's pre-crisis situation, when EU requirements were met but fiscal policy was on an unsustainable path. Such a possibility would be taken into account by the Council in its assessment of the fiscal stance.

[78] For a given MTO benchmark objective.

Appendix C: The Fiscal Responsibility Act and the EU Debt Rule

The *FRA* and the EU *Stability and Growth Pact* both apply a complicated debt rule, which can be represented using a flowchart:[79]



- The backward-looking benchmark is defined as:

  $$\text{Benchmark}_t = 60\% + 0.95/3\,(b_{t-1} - 60\%) + 0.95^2/3\,(b_{t-2} - 60\%) + 0.95^3/3\,(b_{t-3} - 60\%)$$

  where benchmark$_t$ is the benchmark for the debt ratio in year t and b_t is the debt to GDP ratio in year t.

- The forward-looking benchmark is defined on the basis of EC forecasts and with unchanged policies the following standard is met:

  $$\text{Benchmark}_{t+2} = 60\% + 0.95/3\,(b_{t+1} - 60\%) + 0.95^2/3\,(b_t - 60\%) + 0.95^3/3\,(b_{t-1} - 60\%)$$

- There is no methodology which has been published for taking into account the effect of the cycle.

- Exceptional circumstances refer to an unusual event outside the control of the country concerned and with a major impact on the financial position of the General Government or the result of a severe economic downturn.

[79] For more details see European Commission (2012b). The EU benchmark for convergence towards the debt criterion involves a transition period of three years following the ending of the EDP, currently anticipated for Ireland for 2015.

APPENDIX D: EUROPEAN COMMISSION METHODOLOGY FOR ESTIMATING POTENTIAL OUTPUT

The EC methodology assesses potential output using a “production function” approach. Potential output is defined as the level of output that can be produced with a normal level of efficiency of factor inputs. The production function approach is based on a model of the supply side of the economy. This contrasts with purely statistical methodologies that extract the trend directly from GDP, although in practice the production function methodology relies heavily on statistical filtering at a lower level of aggregation and yields similar results.

While the production function potential output estimates provide a picture of the present output capacity of economies, the EC stresses that they should not be seen as forecasts of medium-term sustainable rates of growth. They are merely an indication of likely developments if past trends were to persist in the future (D’Auria *et al*., 2010).

In the medium-term, potential output (YPOT) is estimated as:

$$YPOT = LP^{\alpha} K^{1-\alpha} SRK, \qquad (1)$$

where LP is potential employment, K is the capital stock and SRK is the Kalman-filtered Solow Residual. This can be used to derive a medium-term measure of the output gap.

In order to facilitate international comparisons, all countries are dealt with identically.

The assumed production function follows a standard Cobb Douglas specification, where GDP (Y) is the combination of labour measured in terms of hours worked (L), the capital stock (K) and the level of efficiency or productivity (E_L, E_K), corrected for the degree of excess capacity (U_L, U_K):

$$Y = (U_L\, L\, E_L)^{\alpha} (U_K\, K\, E_K)^{1-\alpha} = (L^{\alpha} K^{1-\alpha})(TFP), \qquad (2)$$

α and 1- α are the output elasticities of labour and capital respectively.[80] Total Factor Productivity (TFP) summarises both the degree of utilisation of factor inputs as well as the level of technology:

$$TFP = (E_L^{\alpha} E_K^{1-\alpha})(U_L^{\alpha} U_K^{1-\alpha}), \qquad (3)$$

[80] The output elasticities are estimated under the assumption of constant returns to scale and perfect competition from the wage share. α =0.65. A factor price elasticity of one is assumed.

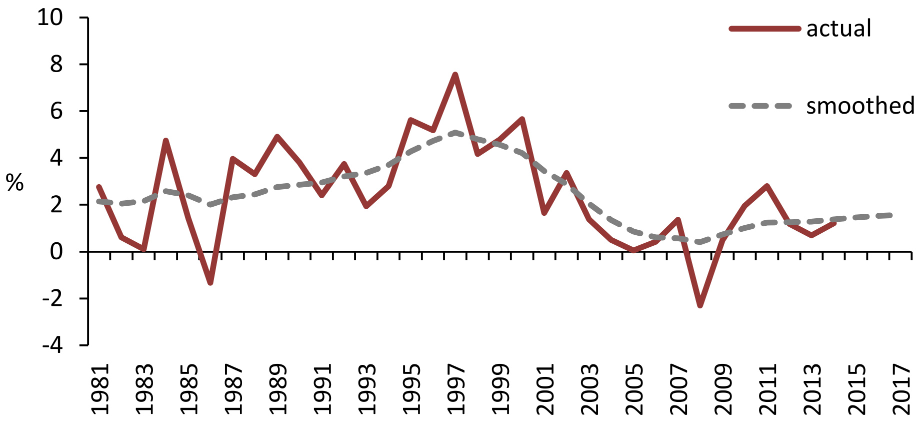
Trends in hours worked and productivity are estimated using statistical techniques.[81] The capital stock is not detrended. In the case of trend hours worked, the trend labour force is estimated using the actual population of working age and the participation rate. The trend un/employment rate is based on estimates of the stable, non-accelerating, wage inflation rate. Finally, the trend of average hours per worker is estimated. The exact details of the methodology change over time: for example, the definition of the working age population has recently between extended from 15-64 years to 15-74 years.

There are some differences between the EC and Department of Finance estimates for potential output historically, because of different data vintages and, for projections, different forecasts for the drivers of potential output.

Appendix Figure D shows the EC's estimates of key components of potential output, based on its own projections for total factor productivity growth, employment and the unemployment rate. While underlying productivity growth is due to recover, it would remain well below its average since 1980. Potential employment is projected to remain almost flat over the coming years, in part because the structural unemployment rate is expected to rise above the current unemployment rate.

Appendix Figure D: European Commission Estimates of Selected Components of Potential Output

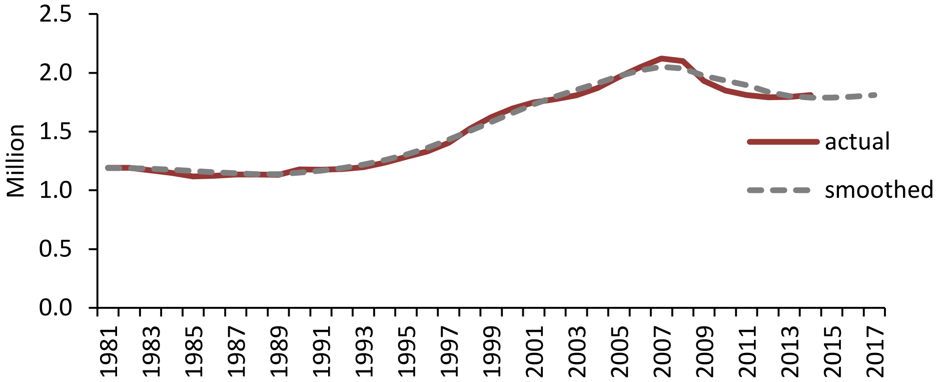
TFP Growth



[81] The trend efficiency level is measured using a bivariate Kalman filter model which exploits the link between the TFP cycle and the degree of capacity utilisation in the economy. For Ireland, capacity utilisation data has not been available since 2008.

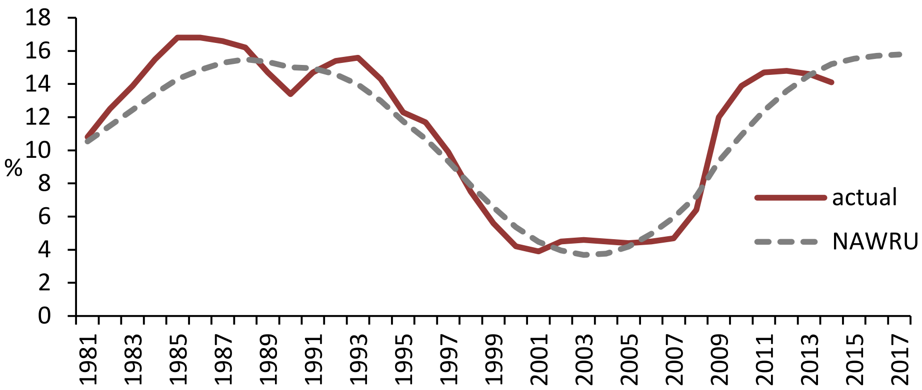
Source: European Commission, CIRCABC Website.

EMPLOYMENT



Source: European Commission, CIRCABC Website.

UNEMPLOYMENT RATE



Source: European Commission, CIRCABC Website.