



ESRI Special Article

*Irish Fiscal Policy in Good Times and in Bad:
Its Impact During Different Stages of the
Economic Cycle*

David Cronin and Kieran McQuinn

Irish Fiscal Policy in Good Times and in Bad: Its Impact During Different Stages of the Economic Cycle¹

David Cronin and Kieran McQuinn²

Abstract

Recent international econometric analyses indicate that the impact of fiscal policy on output can vary during the economic cycle. In this paper, it is shown that a positive shock to government consumption will raise economic activity when the output gap is negative while the opposite holds when a positive output gap arises. Accordingly, the impact of fiscal policy at different stages of the economic cycle, should be borne in mind when formulating budgetary policy.

Introduction

Since the onset of the international financial turmoil in 2008, few economies have experienced the degree of contractionary pressures on domestic demand that Ireland has. Not only was the Irish economy impacted by international events but it had also to deal with concurrent adverse developments in the domestic economy. These stemmed, mainly, from the disproportionately large role the construction sector played in the Irish economy in the early-to-mid 2000s and its collapse thereafter. Following the collapse, property values declined, the burden of private debt on the economy became evident, and the banking system became impaired as credit availability dried up and demand for it, in any case, declined substantially. The labour market experienced a loss of employment and a fall in earnings. Private domestic demand (consumption and investment) fell against this economic and financial background.

The public finances, which ordinarily might have been expected to exercise an automatic stabilising influence on domestic demand, also came under strain. This arose from two main sources. First, tax revenue collapsed owing to a loss of tax receipts from property activity (see Addison-Smyth and McQuinn, 2010) and the more general effects of the economic downturn. Secondly, state support to

¹ Thanks to Frances Ruane and John FitzGerald (ESRI) and an anonymous referee for comments on an earlier draft. Any errors are the responsibility of the authors.

² David Cronin is a senior economist in the Financial Stability division of the Central Bank of Ireland, Kieran McQuinn is an associate research professor at the ESRI. The views in this paper are not necessarily the views of the Central Bank of Ireland or the European System of Central Banks (ESCB).

the banking system added substantially to government debt. The General Government Debt ratio increased quickly, from a value of 25 per cent of GDP in 2007 to 91 per cent in 2010. In these circumstances, reductions in government expenditure and rises in taxation were enacted in the late 2000s to maintain confidence in the public finances and to keep them on a sustainable path. Annual fiscal consolidation targets were laid out with the aim of reducing the General Government Deficit to less than 3 per cent of GDP by 2015.

While this fiscal policy was necessary to maintain confidence in the sovereign in the longer term, its impact could have been expected to add to deflationary pressures within the economy. In this paper, we show that the long-run government consumption multiplier is larger than average in Ireland on the downside of the economic cycle. The implication is that the programme of fiscal consolidation, which was weighted more heavily on expenditure reductions rather than tax increases, may have had a larger-than-average contractionary impact on economic activity.

The impact of a particular fiscal policy on output then can vary depending on the stage of the economic cycle. Recent data point to improvements in the Irish economy and the expectation is for positive output growth in 2014 and stronger growth in 2015 (ESRI, 2014; Central Bank of Ireland, 2014). The programme of fiscal adjustment is also nearly complete and most commentators expect the government deficit to meet the 2015 target of being less than 3 per cent of GDP. Against this background and within the overall constraints imposed on it, fiscal policy's impact on economic activity at different stages of the economic cycle should be borne in mind when formulating budgetary policy.

The rest of the paper is structured as follows: we initially describe recent discussions on fiscal multiplier values and the vector autoregression methodologies used here in quantifying the impact of government expenditure on economic activity in Ireland. The econometric estimates are then discussed before the resultant fiscal multiplier values are considered. The main finding is that a positive shock to government consumption has a larger-than-average stimulatory effect on economic activity when the output gap is negative, but does not have the same effect when the output gap is of the opposite sign. The concluding section then discusses the import of this finding for policy.

Fiscal Multipliers in an Irish Context

International and Irish Evidence

Against a backdrop of many governments, particularly those in the Euro Area, pursuing medium-term plans of fiscal consolidation in a period of recession, the International Monetary Fund (2012) provides evidence to the effect that short-term fiscal multipliers could be higher at a time of low or negative growth. Possible implications of this finding are that fiscal austerity could be self-defeating if it caused economic growth to contract further or, alternatively, that a fiscal stimulus would help boost growth.

Both the methodology and implications of the IMF's findings have been queried, most notably by the European Commission (2012) and the European Central Bank (2012). The former suggests that caution be exercised when using data from the years 2010-11 (on which the IMF findings are based), while the latter is of the view that the policy debate should not become focused on the size of short-term fiscal multipliers but should consider the longer-term benefits of fiscal consolidation.

The international debate concerning the size of fiscal multipliers invariably casts a light on their value in Ireland. As the Irish Fiscal Advisory Council (2013, p. 81) notes, "...the literature focused on Ireland-specific multipliers remains quite limited." Multiplier estimates across a range of tax and expenditure headings and the cumulative impact of recent Budgets in Ireland have been derived from the ESRI's *HERMES* macroeconomic model (see, for example, Bergin *et al.* (2009), Kearney (2012), FitzGerald and Kearney (2013), FitzGerald (2013)). Bénétrix and Lane (2009) use a structural vector autoregression (SVAR) approach to estimate short-term fiscal multipliers. Amongst their findings are that a positive shock to government fixed investment has a positive impact on GDP whereas a shock to government consumption does not have a significant effect. They also find subcomponents of government consumption having different effects on output. For instance, wage government consumption has a negative fiscal multiplier. Pereira and De Fátima Pinho (2011) employ a VAR specification as well in investigating the effect of government investment on output. In the case of Ireland, they find an accumulated change in public investment having positive long-term effects on employment, private investment and output.

Methodology

In this paper, we also employ VAR methodologies to provide fiscal multiplier measures for Ireland, as well as to consider the effects of government consumption on unemployment. Besides providing full sample estimates using a standard structural VAR (SVAR) approach, we also use a variant of that VAR

methodology – threshold VAR (TVAR) – to provide estimates of fiscal multipliers between different states of the economic cycle. This approach has been used in a number of papers in this area in recent years, notably, Baum and Koester (2011), Baum, Poplawski-Ribeiro and Weber (2012) and Caprioli and Momigliano (2013). It can provide insights into whether the impact of fiscal policy differs between alternative states of the economy, an important issue to consider at a time when Ireland has been in a prolonged down-side phase of the economic cycle.³

The structural vector autoregression (SVAR) approach is the most popular time-series-based method for estimating fiscal multipliers in the academic literature over the last twelve years or so. Blanchard and Perrotti (2002) provide the benchmark approach in applying this methodology to fiscal multiplier estimation. SVAR relies on structural identification to allow discretionary fiscal policy shocks to be identified. It is broadly followed here. Three variables are included in each VAR in the following order: government consumption, an economic activity variable (GDP or private consumption), unemployment. With this ordering, the choice of orthogonalised impulse responses ensures that the government expenditure variable does not respond to either a shock to the economic activity variable or unemployment in the initial period (a year, since annual data are being used). This reflects the view taken in the literature that discretionary fiscal policy will not respond to economic developments contemporaneously but rather with a lag. Thus, in this application, government expenditure is exogenous in year 0. This is a sensible assumption in the Irish case where the annual fiscal budget, governing discretionary outlays, is made close to the end of the calendar year and with a view to implementation in the following year. The use of annual data also helps reduce anticipated effects compared to quarterly data (Hebous, 2011).

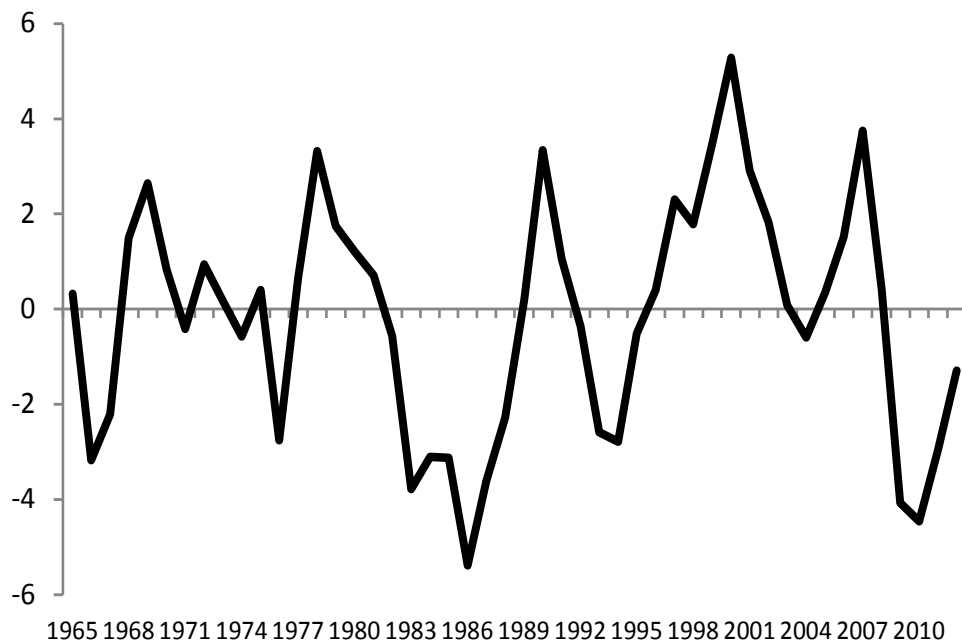
We use annual fiscal and macroeconomic data covering the period 1965 to 2012, sourced from the European Commission’s AMECO database. Due to a lack of data over a sufficiently long period for econometric estimation, we exclude government revenue from the empirical analysis. For the same reason, we are restricted to using government consumption alone as a government expenditure variable.

Four data series are used in the series of VAR estimations, where three variables are included in each VAR system. The first is a measure of fiscal expenditure (final consumption expenditure of general government). There are two measures of economic activity, gross domestic product (GDP) and private consumption. Fiscal and economic activity variables are measured in real terms. Total unemployment is used as a measure of labour market performance.

³ EU Commission estimates indicate there to have been a negative output gap for Ireland since 2009.

The TVAR approach requires the choice of a transition variable to differentiate between states of the economy. In this study, we choose the output gap as that variable and differentiate annual observations into two groups depending on whether the output gap is positive or negative in value. The output gap estimate used is that provided by the EU Commission, using its production function-based approach to measuring potential output. The output gap measure is plotted in Figure 1. It should be noted that this estimate of potential output, particularly in the case of a small open economy such as Ireland's, has been the subject of some criticism. Bergin and FitzGerald (2014) summarise much of this debate noting the pro-cyclical nature of the European Commission's estimate as arguably being the greatest issue.^{4,5}

FIGURE 1 Output Gap for Ireland, 1965-2012 (%)



Source: EU Commission AMECO database.

The stipulation of a threshold for the output gap implies that two regimes exist within the dataset: when the output gap is negative (a time when there is spare capacity in the economy) and when the gap is positive (a period of capacity constraints). Two piecewise linear models, with different autoregressive matrices in each regime, are then estimated. These models allow the impulse responses of

⁴ The Commission also provides a second measure of the output gap based on a measure of trend output estimated using a Hodrick-Prescott filter which is not subject to the criticisms applied to the production function approach. To ensure that our results are not dependent on any one measure of potential output, we re-estimated our impulse responses using this second output gap measure as the threshold variable. The results are not significantly affected by this change in specification.

⁵ Other criticisms are outlined in the Irish Department of Finance's *Ireland – Stability Programme December: 2003* and <http://www.bruegel.org/nc/blog/detail/article/1176-blogs-review-the-structural-balance-controversy/>

positive government consumption shocks to be analysed between both states of the economy.

Impulse Response Analysis

Full Sample Estimates

All four variables (government consumption, GDP, private consumption, total unemployment) are measured in the first-differences of the natural logarithm of the per capita amount, with the first three variables being measured in real, rather than nominal, euro amounts. The level and first-difference series are plotted in Figure 2. First-differences are chosen in the estimation process because the level series are mainly non-stationary variables and, perhaps as a result of that, the VAR output utilising first-differences are easier to interpret. The VAR estimations include a constant term and the Bayesian Information Criterion indicates that a lag length of one is appropriate. All VAR equations at this lag length have serially uncorrelated error terms according to a chi-square test.

With two measures of economic activity, two three-variable VAR systems were estimated using both the SVAR and TVAR methodologies. The particular variable combinations are in order: government consumption, GDP, total unemployment; government consumption, private consumption, total unemployment. The impulse responses from a one standard error shock to government consumption in the SVAR, which does not discriminate between different values of the output gap, are shown by solid lines in Figures 3 and 4, while the dotted lines represent standard error bands. In Figure 3, it can be seen that a government consumption shock has a significant effect on GDP upon impact and for up to five years afterwards. The impact effect (i.e., in year 0) is positive but the impulse response values turn negative subsequently. The impact of the shock on unemployment is negative, that is it serves to reduce unemployment. Significant effects on unemployment also last for years 1 to 5 but are positive in value.

FIGURE 2 Economic Activity and Government Expenditure Variables, 1964-2012 (first-difference of natural log of per capita amount)

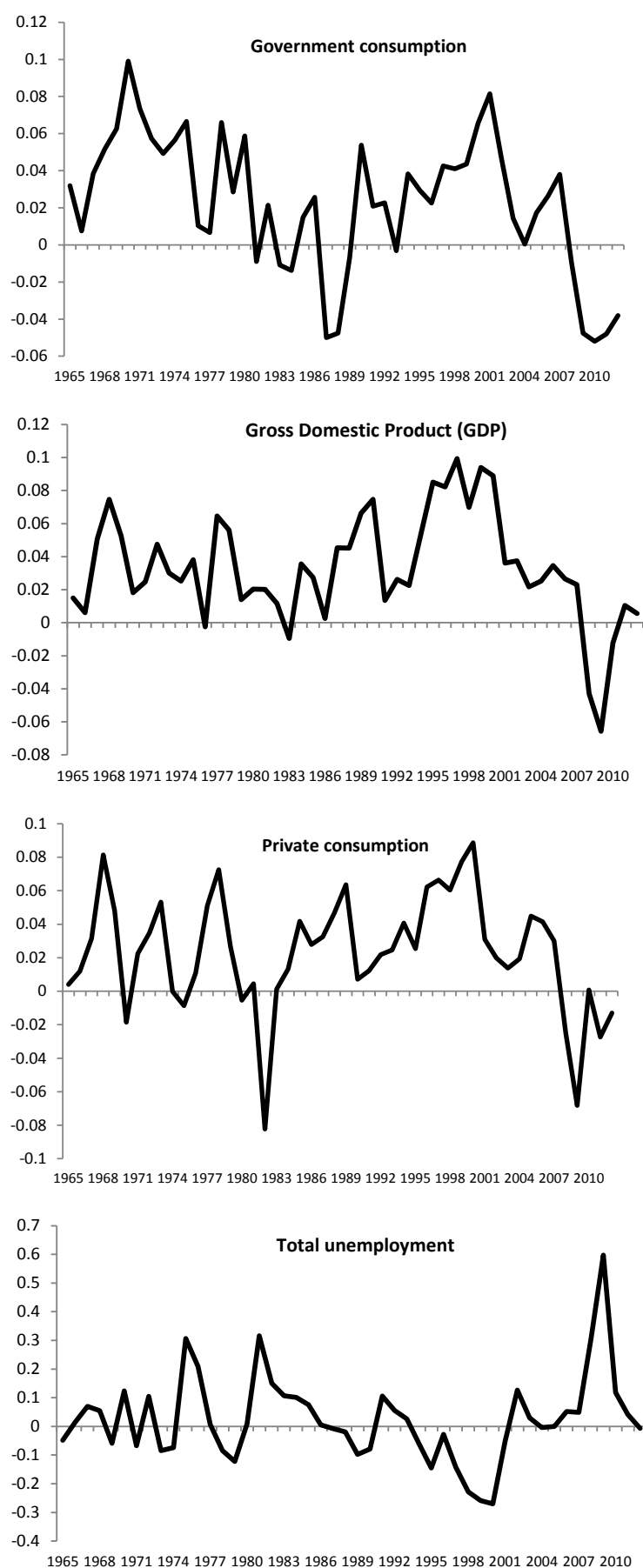
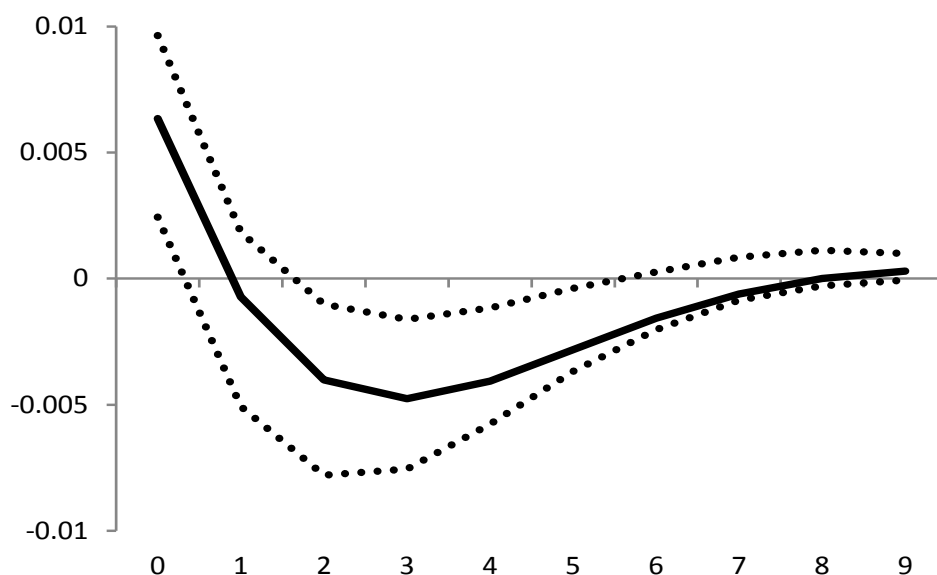
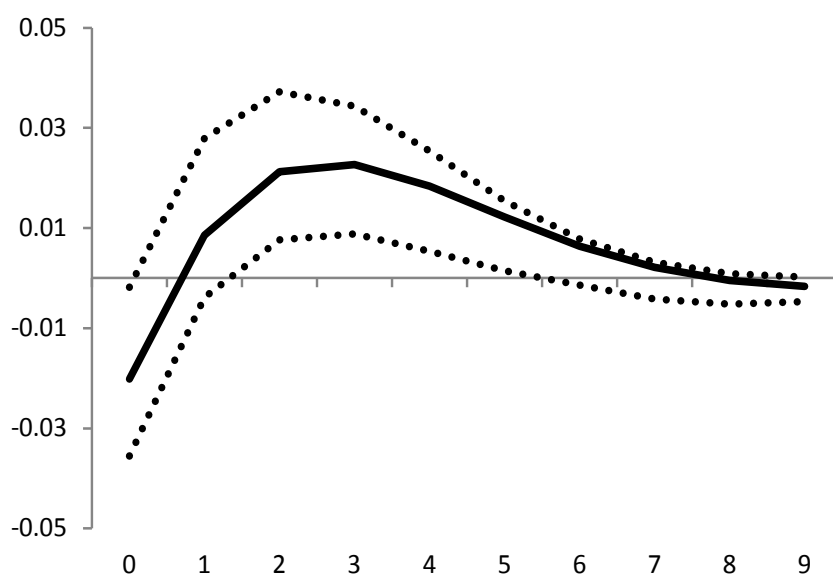


FIGURE 3 Impact of a Unit Shock in Government Consumption (economic activity variable: GDP)

(a) Response of GDP



(b) Response of unemployment



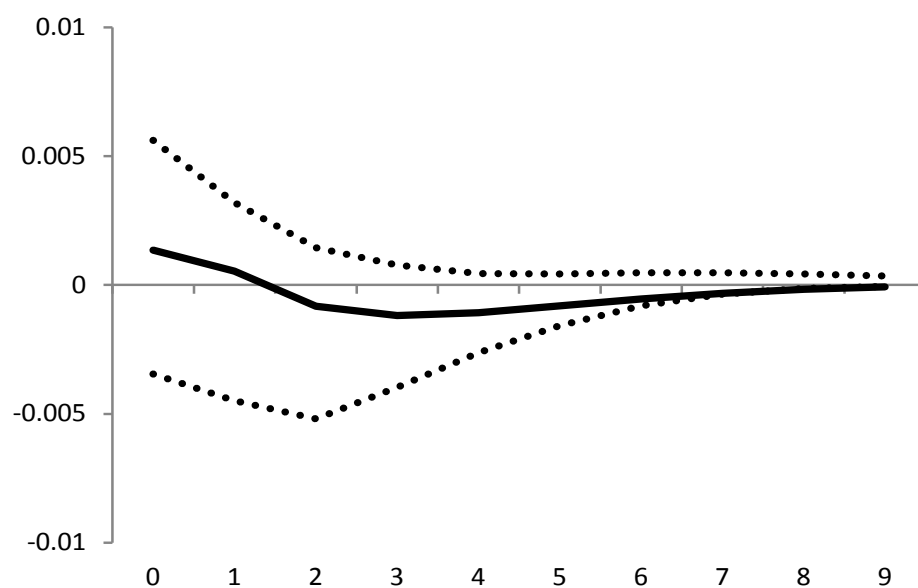
Note: Horizontal axis represents horizon (years). Dotted lines represent 16 per cent and 84 per cent confidence intervals.

In Figure 4, where personal consumption has been substituted for GDP, we can see in the lower panel that the quantitative effects are similar for unemployment between this Figure and Figure 3. In contrast to its effect on GDP, a government consumption shock does not have a statistically significant effect on private consumption in the impact period (year 0) or subsequently. This does not concur with a “crowding-out” effect of government consumption on its private sector counterpart (for which significant negative values would be expected) but rather

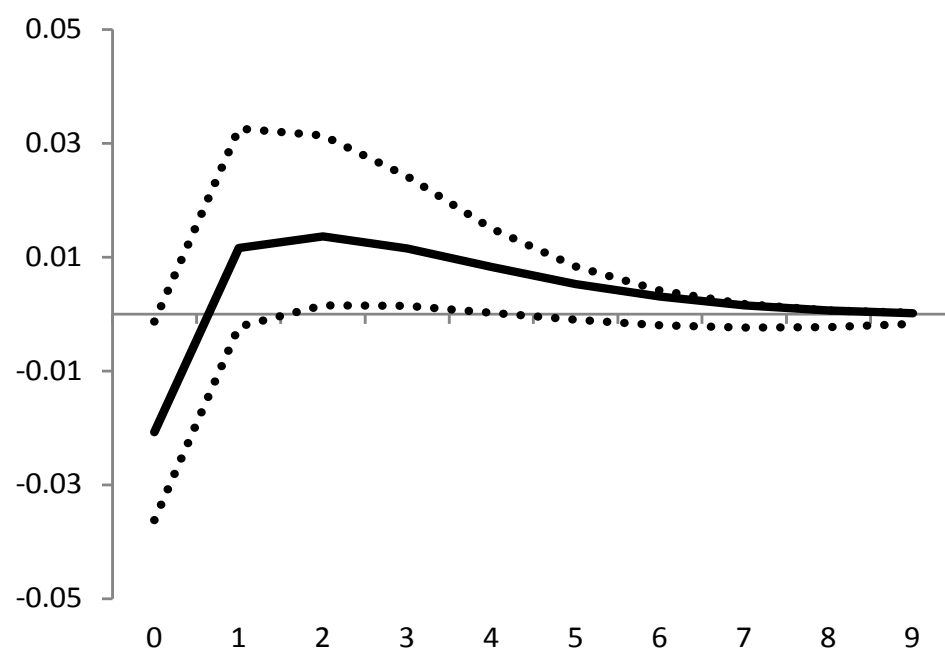
that it has no significant effect. A further discussion of the cumulative effects of the impulse responses for GDP and private consumption are considered in the form of fiscal multipliers in the next section.

FIGURE 4 Impact of a Unit Shock in Government Consumption (economic activity variable: private consumption)

(c) Response of private consumption



(d) Response of unemployment



Note: Horizontal axis represents horizon (years). Dotted lines represent 16 per cent and 84 per cent confidence intervals.

Threshold-Based Estimates

The threshold variable used in the TVAR estimations is the output gap, with the transition from one regime to another dependent on the sign of the output gap. In the 48 year sample period, 1965-2012, there are 27 years in which a positive output gap is recorded and 21 years when there are negative values.

Although it is not common to report standard diagnostic results for VARs, we do report some test results in the case of the threshold estimation. In Table 1, Durbin-Watson (DW) statistics and log-likelihood estimates for the covariance model are presented for both cases in which the economy is above and below trend.

TABLE 1 Threshold VAR select diagnostic test results

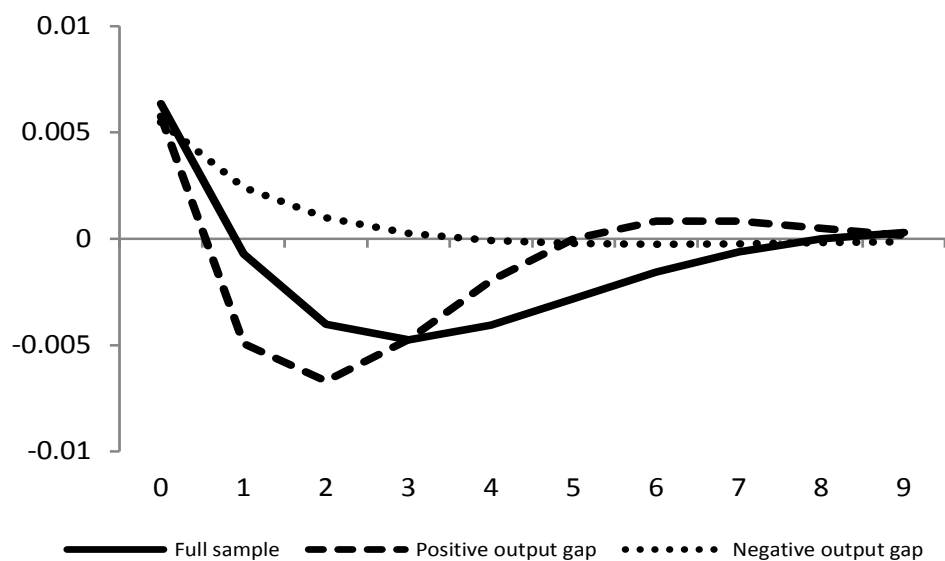
Above Trend Estimates			
Dependent variable	Government consumption	GDP	Unemployment
Durbin-Watson estimate	2.14	1.79	2.42
Covariance model log-likelihood function			
199.2			
Below Trend Estimates			
Dependent variable	Government consumption	GDP	Unemployment
Durbin-Watson estimate	2.3	2.3	2.34
Covariance model log-likelihood function			
162.5			

Source: Own estimates.

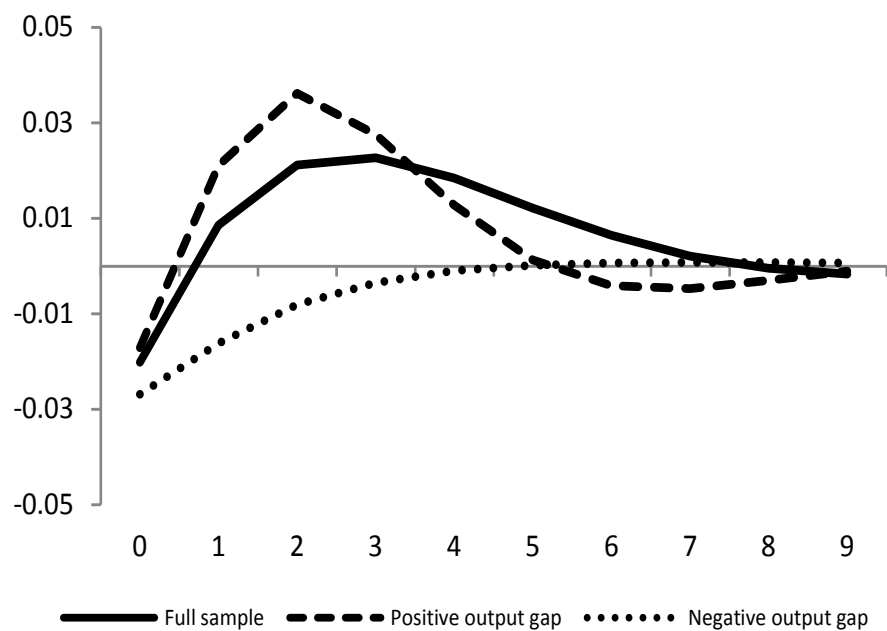
In Figures 5 and 6, the variables used in the TVAR estimations are as those in Figures 3 and 4, respectively, and the variables also have the same ordering in the estimations as in those earlier charts. These two figures show the positive-output-gap and negative-output-gap regime impulse responses. The full-sample impulse responses from Figures 3 and 4 are also included as solid lines. The impulse response values for GDP and private consumption, in panels (a) of Figures 5 and 6, feed through into fiscal multiplier values for those two variables and so most of the discussion on those is deferred to the next section.

FIGURE 5 Impact of a Unit Shock in Government Consumption – Different States of the Economy (economic activity variable: GDP)

(e) Response of GDP



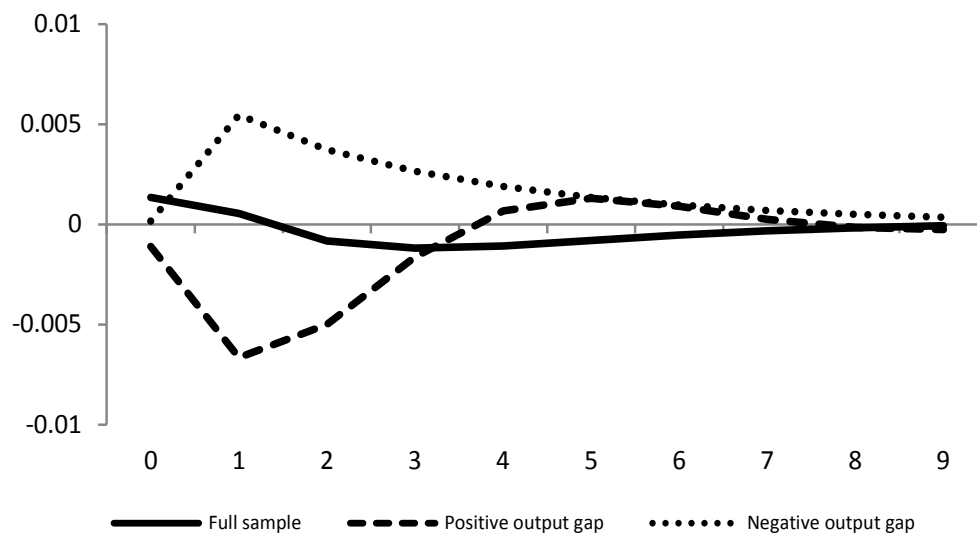
(f) Response of unemployment



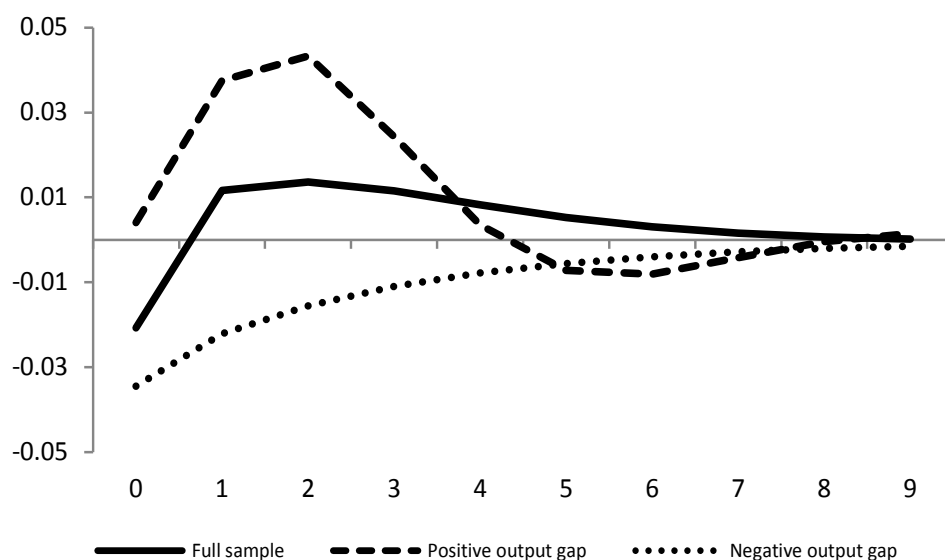
Note: Horizontal axis represents horizon (years).

FIGURE 6 Impact of a Unit Shock in Government Consumption – Different States of the Economy (economic activity variable: private consumption)

(g) Response of private consumption



(h) Response of unemployment



Note: Horizontal axis represents horizon (years).

While the impact of a unit shock in government consumption on GDP in year 0 (Figure 5(a)) is broadly the same for the alternative states of the economy (which is confirmed by the impact multiplier values in the next section), the impulse responses differ subsequently. Positive impulse responses are maintained after year 0 in the negative output gap regime, but negative values arise when the

positive output gap prevails. With regard to private consumption, the positive value of the impulse responses increases after year 0 in the negative output gap regime and then declines towards zero. The opposite effect arises in the positive output gap regime.

With regard to unemployment, there is a negative impulse response for a number of years in the negative output gap regime (panel (b) of both figures); in other words, unemployment falls after a positive shock to government consumption. In the positive output gap regime, the impact response is either negative (Figure 5) or positive (Figure 6) but positive values are recorded in the years that follow in both charts. One possible interpretation of these results is that government consumption expenditure will serve to reduce unemployment when the economic cycle is in a downside phase but that this effect does not hold in the upside stage.

Fiscal Multiplier Values

Fiscal multipliers, measured on a cumulative basis, can be calculated from the impulse response information by, first, summing up the cumulative impulse response over time of the change in GDP/private consumption over a given horizon and dividing it by the cumulative impulse response of the government expenditure category over that horizon. This, in turn, is divided by the ratio of the sample average value of the government consumption to the sample average value of GDP/private consumption to give fiscal multiplier values.

In Table 2, we show both multiplier values in the year in which the government consumption shock occurs (i.e., year 0), often referred to as the impact multiplier, and also at year 5. The latter is the final year in which the full sample fiscal impulses of government consumption to GDP are significant (Figure 3(a)). That then seems like a suitable juncture at which to take long-run fiscal multiplier values. Although the full-sample impulse response analysis does not indicate government consumption having a significant impact on private consumption, fiscal multiplier values are provided for also.

TABLE 2 Fiscal Multiplier Values

	Impact Multiplier	Long Run Multiplier
GDP		
Full sample	1.26	-0.13
Positive output gap	1.27	-1.07
Negative output gap	1.13	0.84
Private Consumption		
Full sample	0.14	0.01
Positive output gap	-0.15	-1.38
Negative output gap	0.02	0.51

Source: Own estimates.

Looking initially at the full sample multiplier values, both the impact and long run multipliers for private consumption are close to zero. This tends to confirm the finding in the impulse response analysis that a government consumption shock does not have a significant effect on that part of private sector activity. For GDP, the impact multiplier has a value of 1.26. The long run multiplier is close to zero, reflecting the impulse to GDP turning negative in years two to five (see Figure 3(a)). An explanation for these contrasting multiplier values is that the positive shock to government consumption, a component of GDP, serves to boost GDP in the year in which it occurs. Subsequently, however, the open nature of the Irish economy causes a net leakage of the additional income out of the economy and renders a long-run multiplier close to zero. Of course, VARs by their very definition cannot account for all the relevant inter-linkages in the economy, so there may be alternative explanations for the difference in size between the impact and long-run multipliers.

Turning to the multiplier values between the alternative states of the economy, impact multiplier values for GDP are of similar magnitude to one another and to the full sample estimate. The long-run multipliers are much different to one another, however. In the positive output gap state of the economy, the long run multiplier is negative, while it is positive and close to unity in the alternative state of the world. This can be interpreted as evidence that the influence of fiscal policy on economic activity is dependent on the stage of the economic cycle.

The reason for the long run GDP multiplier having a negative value in the positive output gap state of the economy may be again, at least in part, explained by leakage from the economy. The long-run fiscal multiplier for private consumption in that state (a value of -1.38) also suggests that when the economy is operating above capacity, fiscal policy, in the form of increased government expenditure, may “crowd-out” private sector activity and this then impacts the GDP multiplier value.

Finally, the long-run multiplier for private consumption has a value of 0.51 when the output gap value is negative. This indicates a positive government expenditure shock having a beneficial impact on private sector activity when the economy is at a cyclical low and may also help explain the 0.84 value for the long run GDP multiplier when the output gap is negative. It can be noted too that the long-run multiplier value for private consumption (of 0.51) is larger than the impact multiplier. This is not the case for any other impact long-run multiplier combination.

These findings are similar to those of other applications of TVAR methodology to fiscal multiplier estimation. Using data for Germany, Baum and Koester (2011) find fiscal spending multipliers to be much larger when the output gap is negative compared to when the output gap is positive. Their dataset also allows them estimate government revenue multipliers for Germany. They find them to be smaller than their expenditure counterparts. The revenue multiplier is larger when the output gap is positive compared to its value when the output gap is negative. In their study of the G7 economies (excluding Italy), Baum, Poplawski-Ribeiro, and Weber (2012) find both fiscal spending and revenue multipliers to be larger, on average, in economic downturns than expansions.

Conclusion

While there is some debate concerning the exact level of potential output and the output gap in the Irish economy at this time, there is evidence indicating that activity levels are still below their potential level.⁶ That the unemployment rate, rate of investment and level of total credit extension are below their long-run averages is supportive of this view. In these circumstances, the appropriate role for fiscal policy in economic activity deserves consideration. On the one hand, it needs to support fiscal sustainability and must operate within the constraints imposed by EU fiscal rules, including in respect of the size of the budget balance. On the other hand, budgetary policy will be able to prioritise particular expenditure and taxation measures over others and could be expected to influence the level of activity in the economy.

The main import from the empirical analysis reported here is that fiscal policy measures can have a different impact on economic activity in current circumstances, than at a point in the economic cycle where output is operating above potential. This point deserves consideration in policymaking. Particular features of the Irish economy at this time should also be brought into the analysis. It has been proposed, for instance, that fiscal policy can play a role in

⁶ For example, Irish GDP in 2015 is still forecast to be only 97 per cent of the maximum level observed pre-crisis in 2007 (Fitzgerald, Duffy, McQuinn, Byrne and Morley (2014)).

ameliorating the ongoing mortgage arrears crisis being experienced in Ireland. Kelly and McQuinn (2014) argue that in costing any potential fiscal stimulus which reduces unemployment (a key driver of mortgage arrears), allowance should be made for the subsequent reduction in bank capital losses which would ensue due to the lower rate of arrears.⁷

Looking beyond this paper, one way in which research in this area could be extended would be to examine the impact of fiscal policy during credit cycles and the latter's interaction with the overall economic cycle. Borio, Disyatat and Juselius (2013), for instance, have argued that information about the financial cycle should be incorporated into estimates of potential output and output gaps. Including such information would be highly desirable in an Irish context given the role played by the interaction of fiscal policy and developments in the credit market in the run-up to the financial crisis of 2007/08 (Honohan 2010) and the effects that the impaired credit market continues to exercise. This could improve the measurement of the economic cycle in Ireland and, by extension, inform the debate about the role of fiscal policy.

⁷ Examining the relationship between macroeconomic feedback effects and mortgage relief programmes is not specific to the Irish market. Recent research (Remy and Moore (2013) and CBO (2013)) highlight the relevance of the issue in the US mortgage market, where some mortgage resolution strategies are claimed to generate a small saving, in overall terms, to the government.

REFERENCES

- Addison-Smyth, D., and McQuinn, K. (2010). "Quantifying Revenue Windfalls from the Irish Housing Market". *The Economic and Social Review*, Vol. 41, No. 2, pp. 201-223.
- Baum, A., and Koester, G. (2011). "The Impact of Fiscal Policy on Economic Activity over the Business Cycle – Evidence from a Threshold VAR Analysis." Deutsche Bundesbank Discussion Paper 03/2011.
- Baum, A., Poplawski-Ribeiro, M., and Weber, A. (2012). "Fiscal Multipliers and the State of the Economy." IMF Working Paper WP/12/286.
- Benetrix, A., and Lane, P. (2009). "The Impact of Government Spending Shocks on the Irish Economy". *The Economic and Social Review*, Vol. 40, No. 4, pp. 407-434.
- Bergin, A., Conefrey, T., FitzGerald, J., and Kearney, I. (2009). "The Behaviour of the Irish Economy: Insights from the *HERMES* Macro-Economic Model." ESRI Working Paper No. 287.
- Bergin, A., and FitzGerald, J. (2014). "The Structural Balance for Ireland." Special Article, *Quarterly Economic Commentary*, Dublin: The Economic and Social Research Institute, Spring.
- Blanchard, O., and Perotti, R. (2002). "An Empirical Characterisation of the Dynamic Effects of the Changes in Government Spending and Taxes on Output". *Quarterly Journal of Economics*, Vol. 117, No. 4, pp. 1329-1368.
- Borio, C., Disyatat, P., and Juselius, M. (2013). "Rethinking Potential Output: Embedding Information about the Financial Cycle", Bank of International Settlements (BIS) Working Papers No. 404.
- Caprioli, F., and Momigliano, S. (2013). "The Macroeconomic Effects of Expenditure Shocks During Good and Bad Times". *Fiscal Policy and Growth*, Banca d'Italia, pp. 79-110.
- Central Bank of Ireland (2014). *Quarterly Bulletin*, Q3 2014, Dublin: Central Bank of Ireland.
- Congressional Budget Office (CBO) (2013). "Modifying Mortgages Involving Fannie Mae and Freddie Mac: Options for Principal Forgiveness." manuscript, May.
- ESRI (2014). *Quarterly Economic Commentary*, Summer, Dublin: The Economic and Social Research Institute.
- European Central Bank (2012). "The Role of Fiscal Multipliers in the Current Consolidation Debate." ECB Monthly Bulletin, December 2012, pp. 82-85.
- European Commission (2012). "Forecast Errors and Multiplier Uncertainty." Box 1.5 in *European Economic Forecast*, Autumn 2012, pp. 41-44.
- FitzGerald, J. (2013). "The Impact of Fiscal Policy on the Economy" *Quarterly Economic Commentary Research Notes*, 2013/3/1: Dublin: The Economic and Social Research Institute.
- FitzGerald, J., and Kearney, I. (2013). *Medium-Term Review: 2013-2020*, Dublin: The Economic and Social Research Institute.

- Fitzgerald, J., Duffy, D., McQuinn, K., Byrne, D. and Morley, C. (2014). *Quarterly Economic Commentary*, Summer, Dublin: The Economic and Social Research Institute.
- Hebous, S. (2011). "The Effect of Discretionary Fiscal Policy on Macroeconomic Aggregates: a Reappraisal." *Journal of Economic Surveys*, Vol. 25, No. 4, pp. 674-707.
- Honohan P. (2010). *The Irish Banking Crisis, Regulatory and Financial Stability Policy, Vol. 25, No. 4, 2003 -2008: A Report to the Minister for Finance by the Governor of the Central Bank*.
- International Monetary Fund (2012). "Are We Underestimating Short-Term Fiscal Multipliers?" Box 1.1 in *IMF World Economic Outlook*, October 2012, pp. 41-43.
- Irish Fiscal Advisory Council (2013). *Fiscal Assessment Report*, April 2013, Dublin IFAC.
- Kearney, I. (2012). "Measuring Fiscal Stance." Special Article, *Quarterly Economic Commentary*, Dublin: The Economic and Social Research Institute, Autumn, pp. 67-88.
- Kelly, R. and McQuinn, K. (2014). "On the Hook for Impaired Bank Lending: Do Sovereign-Bank Inter-linkages affect the Net Cost of a Fiscal Multiplier?" *International Journal of Central Banking*, forthcoming, September.
- Pereira, A.M., and De Fátima Pinho, M. (2011). "Public Investment, Economic Performance and Budgetary Consolidation: VAR Evidence for the First Twelve Euro Area Countries." *Journal of Economic Development*, 36, 1, pp. 1-20.
- Remy, M. and Moore, D. (2013). "Options for Principal Forgiveness in Mortgages involving Fannie Mae and Freddie Mac." Congressional Budget Office (CBO) Working Paper Series 2013-02, Washington DC.