



A note on incorporating broader economic effects in budgetary costing analysis.

Key Messages

- The costings of fiscal policies can include: (i) a static budgetary impact excluding any behavioural change; (ii) a budgetary impact including behavioural changes; and (iii) the macroeconomic impact on the broader economy (second-round effects).
- The so-called second-round effects are typically estimated using fiscal multipliers. Although useful, the literature points toward a lack of consensus regarding the best method of estimating such multipliers, along with its size and persistence.
- Fiscal multipliers are context-dependent, and numerous country-specific characteristics along with economic conditions are likely to result in differences across countries.
- There has been some variation in the estimates of fiscal multipliers for Ireland, in line with what the general literature suggests. Tax multipliers also tend to be slightly smaller than expenditure multipliers.
- Other international Parliamentary Budget Offices (PBOs) and Independent Fiscal Institutions (IFIs) sometimes use fiscal multipliers and estimate broader economic impacts of fiscal policies. By and large, for costings of individual or smaller policy packages, quantitative analysis of second-round effects is not incorporated.
- The Office for Budget Responsibility (OBR) in the UK apply fiscal multipliers regularly into their aggregate demand forecasts. The Congressional Budget Office in the US provide second-round effects estimates (dynamic scoring) for major legislation that satisfies a specific criterion based on its overall share of gross domestic product (GDP). The Australian PBO has conducted a quantitative analysis of broader economic effects on seven occasions over the period 1994-2017 for specific larger budgetary packages.
- The presence of numerous limitations and complexities surrounding this type of analysis make this a highly challenging task; both in terms of estimating multipliers as well as integrating these into costings and forecasting processes.
- In Ireland, both government departments and the PBO currently conduct static costing analysis.

Glossary

Output – The quantity of goods and services produced in an economy, typically measured in the form of Gross Domestic Product (GDP).

Potential output – The maximum quantity of goods and service an economy can produce when operating at full capacity.

Output gap – The difference between actual output and potential output.

GDP – Gross Domestic Product.

GNI* - Modified Gross National Income. As noted by the Central Statistics Office, this measure is designed specifically to measure the size of the Irish economy, excluding globalisation.¹

PBO – Parliamentary Budget Office

IFIs – Independent Fiscal Institutions.

EU – European Union.

Monetary Union – This refers to the EU member states who have adapted a common currency (i.e. the Euro) and have common monetary policy run by the European Central Bank.

Dynamic scoring – Dynamic scoring incorporates the estimation of broader economic effects of Government policies (second-round effects).

Fiscal multipliers – Fiscal multipliers refer to the short-term impact of discretionary policy on output. They are generally defined as the ratio of change in output to a policy change in government spending or taxation.

SVAR – Structural Vector Autoregression (a statistical model).

TVAR - Threshold Vector Autoregression (a statistical model).

DSGE – Dynamic Stochastic General Equilibrium (a macroeconomic model).

¹ Central Statistics Office. *Modified GNI*. Available at:
<https://www.cso.ie/en/interactivezone/statisticsexplained/nationalaccountsexplained/modifiedgni/>

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1. Introduction

Fiscal policies are employed by governments to influence the economy and promote stable and sustainable growth through taxation and spending.² In the European Union (EU) it is particularly important for individual member states, who are a part of the monetary union, to make sound fiscal policy decisions. National monetary and exchange rate policies for these countries are not available to cushion country-specific shocks, making fiscal policies particularly important.³ In addition, EU member states are obliged to adhere to the EU fiscal rules, which forms parts of the Stability and Growth Pact, setting out specific rules for

² IMF. *Fiscal Policy: Taking and Giving Away*. Available at: <https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Fiscal-Policy>

³ European Central Bank. *Fiscal Policies*. Available at: <https://www.ecb.europa.eu/mopo/eaec/fiscal/html/index.en.html>

Government debts and deficits.⁴ Although currently suspended, a revised fiscal rules framework is due to be implemented in due course.⁵

Traditional costings of fiscal policies are typically static (direct revenue or spending impact of a policy change) or incorporates behavioural changes (**first-round effects**), but does often not account for the effect these behavioural changes have on the broader economy (**second-round effects or dynamic scoring**).⁶ This note presents and discusses the concept of dynamic scoring (i.e. incorporating second-round effects) to highlight its analytical benefits, but also the complexities and potential limitations of such analysis.

First, this note discusses the general concept and role of dynamic scoring in evaluating policy outcomes, and the use of fiscal multipliers to assess macroeconomic impacts of fiscal policy changes. Second, a set of fiscal multipliers for Ireland from the relevant literature are presented to assess the degree of consensus across methodology and estimates of the size and persistence of their effects. Third, the use of dynamic scoring in other jurisdictions is explored. Finally, the limitations and challenges in estimating fiscal multipliers and conducting dynamic scoring exercises are discussed.

2. Estimating broader economic impacts

Evaluating fiscal policy impacts

Policy costing evaluates the fiscal implications of policy proposals. Policy proposals need to be assessed to estimate their associated costs and overall budgetary and macroeconomic impacts. Costings can be categorised into three broad components in which the budgetary impacts of policy proposals can be divided into⁷:

- The direct **static** budgetary impact of the proposal;
- The direct **behavioural** budgetary impact of the proposal;
- Broader macroeconomic impacts (**second-round effects**).

⁴ Parliamentary Budget Office (2023). *PBO Note on Proposed new EU Fiscal Rules (EU Economic Governance Framework)*. Available at:

https://data.oireachtas.ie/ie/oireachtas/parliamentaryBudgetOffice/2023/2023-02-13_pbo-note-on-proposed-new-eu-fiscal-rules-eu-economic-governance-framework_en.pdf

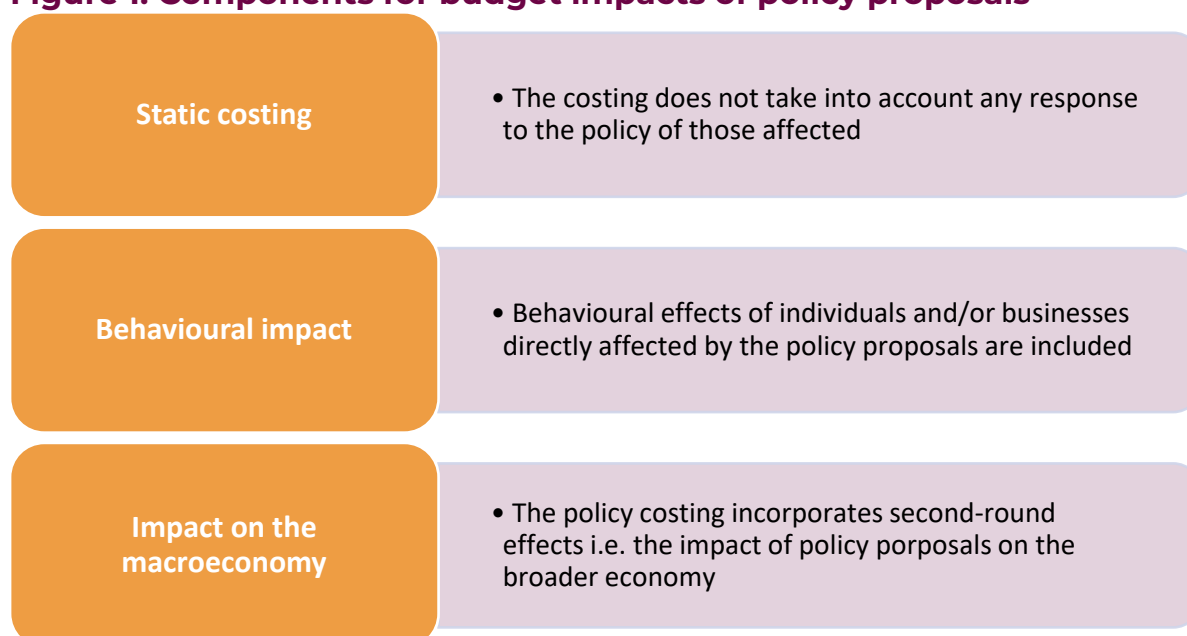
⁵ European Council (2023). *Economic governance review: Council agrees on reform of fiscal rules*. Available at: <https://www.consilium.europa.eu/en/press/press-releases/2023/12/21/economic-governance-review-council-agrees-on-reform-of-fiscal-rules/>

⁶ Adam & Bozio (2009). *Dynamic Scoring*. OECD. Available at: <https://www.oecd-ilibrary.org/docserver/budget-9-5ks70mg592wk.pdf?expires=1709723114&id=id&accname=oid006516&checksum=6E3FDEB995694DA7F9233A860D5A82B3>

⁷ Parliament of Australia: Parliamentary Budget Office (2017). *Including broader economic effects in policy costings*. Available at: <https://www.pbo.gov.au/sites/default/files/2023-01/Including%20broader%20economic%20effects%20in%20policy%20costings%20PDF.pdf>

Static policy costings incorporate no response to the policy of those affected, and hence no spillover effects to any other areas of the economy or relevant feedbacks are accounted for. The second component incorporates behavioural responses of individuals and businesses who are directly affected by the policy proposals. This is a common type of policy costing carried out by fiscal institutions internationally (examples are discussed in Chapter 4). Finally, policy costings can also account for **second-round effects**, i.e., the impacts of policy proposals on the broader economy and macroeconomic indicators such as prices, wages, employment, and overall economic growth. Such costing exercises are called dynamic scoring and provide a greater understanding of the impact of policy proposals as households and businesses can be sensitive to policy changes, and their actions can in turn have an impact on the broader economy.

Figure 1: Components for budget impacts of policy proposals



Source: Australian PBO

Dynamic scoring

The concept of dynamic scoring moves beyond traditional costings and incorporates, as mentioned above, second-round effects of fiscal policies. Fiscal policies have broader economic impacts through influencing the demand for goods and services by consumers, businesses, and governments, thereby having a short-term impact on the overall macroeconomy of a country. In the longer term fiscal policies can also influence national saving, investment, the labour market, people's savings decisions as well as investment decisions by businesses.⁸ These longer

⁸ Congressional Budget Office (2015). *Dynamic Scoring at CBO*. Available at: [Dynamic Scoring at CBO | Congressional Budget Office](#)

term impacts will lead to a change in potential output, i.e. what can be produced in the economy if it was operating at full capacity.

Dynamic scoring typically makes use of **fiscal multipliers** to estimate the macroeconomic impact of fiscal policies. Simply put, fiscal multipliers are the short-term impact of discretionary policy on output.⁹ By producing robust estimations of fiscal multipliers, it is then possible to ensure better macroeconomic forecast accuracy, all else equal. Such multipliers will provide a better understanding of what extent a fiscal policy is influencing output (e.g. GDP and GNI*).

Fiscal multipliers are generally defined as the ratio of change in output to a policy change in government spending or taxation¹⁰:

$$(1) \text{ Fiscal multiplier (expenditure)} = \Delta Y(t) / \Delta G(t)$$

$$(2) \text{ Fiscal multiplier (tax)} = \Delta Y(t) / \Delta T(t)$$

where $Y(t)$ represents output at time t , $G(t)$ represents government expenditure at time t and $T(t)$ represents tax revenue at time t . Δ refers to the rate of change in each of these indicators.

Although fiscal multipliers in theory will provide a valuable addition to costing estimates and macroeconomic projections, there is a well-documented lack of consensus linked to their estimation, size and persistence.¹¹ There is not one multiplier that accurately captures the broader economic impact of fiscal policies throughout the economic cycle. It is also important to emphasise that there is an array of country-specific factors (both structural and conjunctural/temporary) that influence the size of the multiplier, which have been highlighted by the IMF. These factors are listed in **Table 1**.

⁹ Output refers to the quantity of goods and services produced in an economy, typically measured in the form of gross domestic product (GDP).

¹⁰ In other words, fiscal multipliers measure the effect of a 1% change in expenditure or revenue on the level of output.

¹¹ Batini et al (2014). *Fiscal Multipliers: Size, Determinants, and Use in Macroeconomic Projections*. IMF. Available at: <https://www.imf.org/external/pubs/ft/tnm/2014/tnm1404.pdf>; Geli & Moura (2023). *Getting into the Nitty-Gritty of Fiscal Multipliers: Small Details, Big Impacts*. IMF. Available at: <https://www.imf.org/en/Publications/WP/Issues/2023/02/10/Getting-into-the-Nitty-Gritty-of-Fiscal-Multipliers-Small-Details-Big-Impacts-529460>

Table 1: Country-specific characteristics that influence the size of fiscal multipliers.

Characteristics	Description
Structural	
<i>Automatic stabilisers</i>	Automatic stabilisers are government policies that naturally counteract and/or smooth fluctuations in an economy separate from new policy changes. These are dependent on the structure of a country's tax and welfare system. Countries with large automatic stabilisers will have reduced fiscal multipliers as the fiscal policy impact is offset.
<i>Exchange rate regime</i>	Smaller multipliers are also associated with countries where the exchange rate regimes are flexible. Exchange rate movements can offset the impact of discretionary fiscal policies on the economy.
<i>Public debt level</i>	High debt countries tend to have lower multipliers.
<i>Public expenditure management and revenue administration</i>	Countries that face difficulties in collecting taxes and have expenditure inefficiencies are likely to have smaller multipliers. These challenges tend to limit the impact of fiscal policy on output.
<i>Trade openness</i>	Higher fiscal multipliers are associated with countries who have a lower propensity to import. The demand leakage through imports is less pronounced.
<i>Labour market rigidities</i>	Higher fiscal multipliers are associate with countries with more rigid labour markets.
Conjunctural (temporary)	
<i>The business cycle</i>	Fiscal multipliers tend to be higher in downturns than in economic expansion, as there is more capacity for fiscal policy to affect the economy.
<i>Monetary policy stance</i>	Lowering of interest rates can cushion the impact of fiscal contraction on demand.

Source: IMF

The factors outlined in **Table 1** make cross-country comparisons challenging, but also highlights the potential requirement for continuous assessment of the fiscal multipliers to account for any changes in the economic environment within a country. Additionally, the difference in models, methodologies and data series used to estimate multipliers also act as contributing factors to the variation in fiscal multipliers. Fiscal multipliers should therefore be interpreted with caution. This note will further discuss some of the key challenges and limitations of conducting dynamic scoring and evaluating second-round effects in Chapter 5.

3. Fiscal multipliers for Ireland

As discussed in the previous chapter, the estimation of fiscal multipliers is challenging, which in turn causes debate around their size and persistence. This section presents a subset of estimates of fiscal multipliers for Ireland from the relevant literature (see **Tables 2 and 3**).¹²

Table 2: Selected spending multipliers for Ireland

Institution	Method/ model*	Fiscal instrument	Output measure	Short- run/first-year impact	Medium/long -run impact**
Fiscal Council (2019) ¹³	SVAR	Public consumption	Domestic Gross Value Added (GVA)	0.5	-0.9
		Public Investment	Domestic GVA	1.4	2.0
ESRI (2014) ¹⁴	SVAR	Public consumption	GDP	1.26	-0.13
	TVAR (positive Output Gap***)	Public consumption	GDP	1.27	-1.07
	TVAR (negative Output Gap***)	Public consumption	GDP	1.13	0.84

¹² These tables are not a complete survey of all fiscal multipliers from the literature, but a selection of relevant estimates.

¹³ Ivory et al (2019). *Ireland's Spending Multipliers*. Fiscal Council. Available at: <https://www.fiscalcouncil.ie/irelands-spending-multipliers/>

¹⁴ Cronin & McQuinn (2014). *Irish Fiscal Policy in Good Times and Bad: Its Impact During Different Stages of the Economic Cycle*. ESRI. Available at: <https://www.esri.ie/publications/irish-fiscal-policy-in-good-times-and-in-bad-its-impact-during-different-stages-of-the>

ESRI (2019)¹⁵	FIR-GEM model	Public consumption	GDP	0.59	0.34
		Public Investment	GDP	0.62	0.25
Central Bank of Ireland (2014)¹⁶	Global DSGE model	Public consumption	GDP	1.41	0.14
		Public Investment	GDP	0.46	0.31

Table 3: Selected tax multipliers for Ireland

Institution	Method/ model*	Fiscal instrument	Output measure	Short-run/first-year impact	Medium/long-run impact**
ESRI (2019)	FIR-GEM model	Consumption tax	GDP	0.51	0.08
		Capital tax	GDP	0.44	-0.05
		Labour tax	GDP	0.09	0.29
Central Bank of Ireland (2014)	Global DSGE model	Consumption tax	GDP	0.16	0.06
		Social Security Contributions paid by firms	GDP	0.50	0.19
		Labour tax	GDP	0.07	0.16

Note: *The methods and models used in the literature vary in the relative weight of data vs. theory.

** The medium/long-run impact time horizon varies across studies and relates here to year 3 and upwards. *** The output gap is the difference between actual output and potential output.

Tables 2 and 3 illustrates that there is significant variation in fiscal multipliers estimates for Ireland, and there are also notable differences in multipliers for spending instruments relative to revenue/tax policies. More recent research from the Fiscal Council (2023) suggests that there is limited statistical relationship between expenditure and economic output

¹⁵ Varthalitis (2019). *Fiscal multipliers in Ireland using FIR-GEM model*. ESRI. Available at: <https://www.esri.ie/publications/fiscal-multipliers-in-ireland-using-fir-gem-model>

¹⁶ Clancy et al (2014). *The Effects of Government Spending in a Small Open Economy within and Monetary Union*. Central Bank of Ireland. Available at: <https://www.centralbank.ie/docs/default-source/publications/research-technical-papers/research-technical-paper-12rt14.pdf>

in Ireland.¹⁷ This further reinforces that the estimated size and persistence of such multipliers are context-specific and are also likely influenced by the choice of models and data series used.¹⁸

4. Dynamic scoring in other jurisdictions

PBOs and Independent Fiscal Institutions (IFIs) who provide costing services in other jurisdictions also occasionally engage in dynamic scoring exercise for certain policies, legislation or budgetary packages. This section gives a brief outline of three organisations and to what extent they estimate second-round effects to better understand the broader impact of fiscal policies and new legislation.

Office for Budget Responsibility (UK)¹⁹

The Office for Budget Responsibility (OBR) is an executive non-departmental public body in the UK who are responsible for providing independent and authoritative analysis of the UK's public finances.²⁰ They have a number of key roles, which includes scrutinising tax and welfare policy costings.

For costing individual policy measures the OBR incorporates any behavioural effects they consider to be large enough to impact the direct cost or yield of the policy. In their forecast of aggregate demand, the economic impact of the whole package of policies in each Budget or fiscal statement is estimated using their fiscal multipliers. The OBR fiscal multipliers are informed by the literature, cover four classes of fiscal instruments and are assumed to taper to zero over the 5-year horizon (see **Table 4**). The OBR also incorporates a feedback from the impacts on economic growth into their fiscal forecasts.

¹⁷ Jordan-Doak (2023). *Estimating spending multipliers in Ireland using the narrative approach*. Fiscal Council. Available at: <https://www.fiscalcouncil.ie/estimating-spending-multipliers-in-ireland-using-the-narrative-approach/>

¹⁸ Irish macroeconomic data can be highly volatile due to the large presence of multinational firms and the associated globalisation impacts this has. The Fiscal Council (2019) have for instance used a different measure of economic activity in their research to remove distortions caused by foreign-owned multinational enterprises.

¹⁹ Office for Budget Responsibility (2023). *Dynamic scoring of policy measures in OBR forecasts*. Available at: <https://articles.obr.uk/dynamic-scoring-of-policy-measures-in-obr-forecasts/index.html>

²⁰ Office for Budget Responsibility. *What we do*. Available at: <https://obr.uk/about-the-obr/what-we-do/>

Table 4: OBR fiscal multipliers (impact of a 1 per cent GDP increase in category on real GDP)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Public investment	1.00	0.83	0.43	0.23	0.07	0.00
Public services	0.45	0.42	0.29	0.13	0.04	0.00
Welfare	0.60	0.57	0.43	0.23	0.07	0.00
Tax	0.33	0.30	0.23	0.14	0.05	0.00

Source: OBR

For policies where there is evidence of a significant and durable effect on the economy, the OBR incorporates these effects into their ‘supply side’ forecasts using growth accounting models.²¹

Congressional Budget Office (United States of America)²²

The Congressional Budget Office (CBO) conducts dynamic analysis for a limited number of cases as not all major legislation is likely to have significant macroeconomic impacts. The criteria for when the CBO conducts dynamic analysis, as directed by the Congress, is for legislation that would cause an annual gross budgetary effect of at least 0.25 per cent of projected GDP. Such analysis may also be conducted if the CBO is specifically asked to do so by the House of Representatives or the Senate Budget Committee.

For most cases the CBO conducts costings using their ‘conventional scoring’, which is a static scoring with the implementation of behavioural effects into their assessment. These costs are estimated over a 10-year period. For legislation where dynamic analysis is employed, the CBO assesses either or both of the short- and long term impacts.²³ In the short-run, the so-called ‘demand-side’ effects are estimated, which are explained as: “*changes to aggregate demand for goods and services to increase output in an underemployed economy*”. For the long-run analysis, the CBO assesses the ‘supply-side’ effects, i.e. changes to aggregate supply of

²¹ Supply side forecasts aim to project potential output and estimate the output gap. For more information see: OBR (2022). *Forecasting potential output – the supply side of the economy*. Available at: https://obr.uk/docs/dlm_uploads/BriefingPaperNo8.pdf

²² Congressional Budget Office (2023). *CBO Describes Its Cost-Estimating Process*. Available at: https://www.cbo.gov/system/files/2023-04/59003-cost_estimate_primer.pdf

²³ Congressional Budget Office (2023). *Dynamic Scoring in the Congressional Budget Process*. Available at: <https://sgp.fas.org/crs/misc/R46233.pdf>

goods and services to increase potential output. In their costing process the CBO also, when practicable and informative, reports the estimated range of budgetary outcomes owing to the uncertainty of macroeconomic effects.

Australian Parliamentary Budget Office²⁴

The Australian PBO generally conducts costings analysis using a static approach with an analysis of behavioural impacts of policy proposals, but has in the past included a quantitative estimation of the broader economic effects for specific budgetary packages.

In terms of the time period for their general costings, they evaluate these over 10 years. Although there are benefits of dynamic scoring and the estimation of the broader economic impacts, the Australian PBO presents four specific issues with this type of analysis including the timeframe, uncertainty, financing and the risk of double counting (see Chapter 5 for more detail). They are therefore somewhat hesitant to conduct such analysis given its limitations. However, they aim to supplement their costings documentation with qualitative discussions on the potential broader economic impact of policy proposals. Nevertheless, the Australian PBO has conducted estimates of the broader economic impacts on seven occasions over the period 1994-2017. These have been related to larger budget aggregates including, but not limited to, the *1999 Review of Business Taxation*, the *2005 Welfare to Work* package and the *2013 Repeal of the Carbon Tax*.

5. Limitations and challenges

Fiscal multipliers

As discussed earlier in this note, fiscal multipliers can provide a valuable addition to forecasting and costing processes. Nevertheless, it is widely documented that despite its benefits there are limitations linked to their estimation and significant uncertainties with regards to their size, persistence and best method for estimation.

First, **the true size of fiscal multipliers is widely debated**, and as the literature points out, the magnitude varies considerably depending on numerous factors including, for example, the business cycle. The IMF highlights that multipliers depend on specific economic and institutional characteristics and state contingencies (as presented in **Table 1**). Such country-specific differences affect the size and persistence of fiscal multipliers, making comparisons across countries, and sometimes over time within a country, challenging.

²⁴Parliament of Australia: Parliamentary Budget Office (2017).

The choice of models to estimate fiscal multipliers also differ across studies with varying results. Batini et al (2014) highlight in their paper that the multipliers for tax instruments are generally lower than spending multipliers when employing traditional Structural Vector Autoregression (SVAR) models and DSGE (Dynamic Stochastic General Equilibrium) simulations.²⁵ This can be explained with Keynesian economic theory, lending to the fact that households tend to save a significant proportion of their after-tax income, reducing its direct impact on the economy. They do, however, further mention that more recent evidence using a so-called 'narrative approach' find larger tax multipliers than the conventional VAR models.²⁶ In addition, the estimation of fiscal multipliers is made increasingly complicated due to the presence of automatic stabilisers, i.e. ongoing policies that automatically adjust spending and taxes depending on fluctuations in the business cycle. This two-way relationship between fiscal policy and output makes it difficult to isolate the impact of discretionary policy.

Second, **the persistence of the multiplier** and to what extent they either have a cumulative effect in the long-term or even a persistent effect is debated. In the UK's case, the OBR assumes that fiscal multipliers taper to zero after 5 years, based on the assumption that the initial effect is offset by monetary policy, the exchange rate and real wage adjustments. The IMF produced estimates which supports the notion that output is slow to react to fiscal policy, and therefore questions the effectiveness of fiscal policies for short-run stabilisation purposes.²⁷ They further debate the medium- to long-term impacts of discretionary policies, arguing that this is highly dependent on country-specific characteristics (as previously outlined in this note). For relatively closed economies or economies operating under fixed exchange rates, discretionary expenditure policies are said to have substantial long-run effects on output. Their estimates also show that for highly indebted countries, with a debt-to-GDP ratio above 60 per cent, fiscal stimulus may be counterproductive. This is because there is likely to be a higher anticipation of fiscal tightening in the near future if government consumption increases. For Ireland, research by the Fiscal Council finds that spending multiplier effects either disappear or become statistically insignificant over time.²⁸

²⁵ Batini et al (2014).

²⁶ The 'narrative approach' uses a different method to identify exogenous fiscal shocks directly.

²⁷ Ilzetzki et al (2011). *How Big (Small?) are Fiscal Multipliers?* IMF. Available at: <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/How-Big-Small-are-Fiscal-Multipliers-24699>

²⁸ Ivory et al. (2019).

The number of uncertainties regarding many aspects of the fiscal multiplier makes this a highly challenging task to estimate and implement.

Dynamic scoring and broader economic effects of policy proposals

As discussed, dynamic scoring gives an indication of what broader economic impacts fiscal policies have. It can be useful to understand the overall impact of budgetary decisions. Nevertheless, there are limitations to this type of analysis especially as a consensus around the best method of estimating fiscal multipliers is lacking in the literature. It is worth reiterating that although the estimation of second-round effects has its limitations, this type of analysis is deployed and utilised to some extent in other jurisdictions such as by the OBR in their aggregate demand forecasts. Conversely, the Australian PBO does not deploy such analysis on an annual basis and has only conducted dynamic scoring on very specific occasions. The reasoning for this relates to four areas of uncertainty which were discussed in detail in their 2017 publication.

First, the issue of timing was raised as a limitation as broader economic effects often take considerable time to materialise and can have limited material impact over standard budgetary horizons. **Second**, the Australian PBO highlights the uncertainties and general lack of consensus around the direction, size and timing of broader economic impacts, in line with the broader literature. **Third**, how policy proposals are financed is often not accounted for, and it is argued that this limits the accuracy of the analysis. Policies can either be financed via a specific set of savings and revenue, or via a higher budget deficit or lower surplus impacting the government debt level. For example, if the policy is funded by increasing debt levels, as this will have to be repaid, future taxes are likely to be higher than they otherwise would have been. By excluding such impacts, the complete picture of the aggregated fiscal impact may therefore be misleading. **Finally**, the risk of double counting may be present when analysing second-round effects. This risk relates to the potential scenario in which the macroeconomic forecasts that form the basis for the costings exercise already contains some implicit assumptions about ongoing policy reform.

Research by Adam and Bozio (2009) also highlights that different macroeconomic models and assumptions can produce varying impacts of fiscal policies on output.²⁹ The CBO, for example, performed an estimation of the impact of a stimulus package on GDP twice, one with plausible-but-positive assumptions and one with plausible-but-conservative assumptions with varying results.³⁰ To overcome this issue, the OECD

²⁹ Adam & Bozio (2009).

³⁰ Congressional Budget office (2009). *Estimated Macroeconomic Impacts of the American Recovery and Reinvestment Act of 2009*. Available at: <https://www.cbo.gov/publication/41163>

suggests, although highly demanding, running several models and taking a weighted average of their results.³¹

6. Policy costing in an Irish context

This paper has introduced and explored the concept of dynamic scoring. In other jurisdictions, estimates of budgetary policies' impact on the macroeconomy are occasionally provided, typically for significant policy packages and legislation. However, accurate analysis in this area remains challenging, as highlighted in the literature. The situation in Ireland differs slightly from larger jurisdictions discussed in this paper. Both government departments and the PBO conduct static costing analysis. The PBO is currently in the process of building its core modelling capacity across all sectors on a static basis. In the future, as the PBO continues to enhance its modelling capacity and experience, the provision of costing analysis incorporating behavioural change and broader economic effects of fiscal policy may be further assessed.

7. Conclusion

Policy costings and analysis can take one of three forms: (i) static, (ii) incorporation of behavioural effects and (iii) incorporation of second-round effects (i.e. broader macroeconomic impacts). In an ideal world, costings analysis should incorporate all possible effects of discretionary fiscal policies to provide a full picture. That being said, it is important to investigate and highlight possible limitations to such analysis and have a firm grasp of the numerous complexities. Generally speaking, the estimation of second-round effects will provide a better understanding of the overall impact of policy proposals and budgetary packages.

Nevertheless, it is evident that there are clear limitations and uncertainties related to such analysis as highlighted in the literature and by other PBOs and IFIs. In addition, modelling more parameters, such as using fiscal multipliers, requires more data to make the estimate more precise. However, because of what the statistics literature calls the bias-variance trade-off; more parameters does not necessarily guarantee precision. It is therefore important that, before fiscal multipliers are deployed and integrated into current processes, these limitations are assessed to make sure that the technicalities and difficulties are addressed, ensuring appropriate and robust results.

³¹ The PBO has previously noted the analytical benefit of averaging in terms of macroeconomic forecasting: Suzuki (2024). *Medium-Term Macroeconomic Forecasting in Ireland: A VAR Setup with Bayesian and Tree Ensemble Models and Forecast Averaging*. PBO Working Paper Series No. 2 of 2024. Available at: https://data.oireachtas.ie/ie/oireachtas/parliamentaryBudgetOffice/2024/2024-02-27_medium-term-macroeconomic-forecasting-in-ireland-a-var-setup-with-bayesian-and-tree-ensemble-models-and-forecast-averaging_en.pdf

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