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Fiscal Windfalls: A Model-Based Analysis

Thomas Conefrey, Gerard O'Reilly and Graeme Walsh
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Fiscal Windfalls: A Model-Based Analysis

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Since 2015, the public finances have been boosted by exceptionally strong growth in corporation tax and sizeable unexpected savings on national debt interest payments. At the same time, the economy has experienced a phase of strong economic growth. In this *Economic Letter*, we examine some of the macroeconomic and fiscal implications of alternative uses of fiscal windfalls, conditional on the state of the economy. Saving revenue windfalls when the economy is operating at full capacity would strengthen the public finances while reducing the risk of fiscal policy amplifying overheating pressures. In the event of a future downturn, larger fiscal buffers could be used to avoid the need for austerity. Our results suggest that this could substantially reduce the loss of employment and output compared to the case where fiscal policy is tightened in the downturn.

Introduction

In recent years, the public finances have benefited from exceptional growth in corporation tax revenue and savings on national debt interest payments. Since 2015, revenue from corporation tax has consistently outperformed the Department of Finance's forecasts by an average of €1.4 billion per annum. In 2018, the total yield from corporation tax amounted to €10.4 billion, €5.8 billion (or 125 per cent) higher than the amount collected just 4 years previously in 2014. In addition, debt interest expenditure has been lower than expected, as the State has benefited from the low interest rate environment internationally and the ECB's accommodative monetary policy stance (Larkin *et al.*, 2019). Taken together, the unexpected revenue from corporation tax as well as the savings on debt interest spending amount to around 1 per cent of GNI* per annum since 2015.

In relation to corporation tax, there is uncertainty over the extent to which recent increases in receipts reflect windfall gains. Due to the volatility of corporation tax receipts and the

¹ Irish Economic Analysis Division, Central Bank of Ireland. The views expressed in this paper are those of the authors only and do not necessarily reflect the views of the Central Bank of Ireland. We would like to thank Ronan Hickey, Linda Kane and Niall McInerney (Central Bank) for comments on an earlier draft.

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<https://www.centralbank.ie/news/article/tail-risks-and-the-irish-economy-governor-philip-r-lane>

concentration of payments among a small number of large firms, there is a risk of a reversal of corporation tax receipts in future years. While there is currently no evidence of such a reversal, until there is more certainty over the sustainability of the recent increase in revenue, a number of analysts have argued that revenue windfalls from this source should be saved rather than used to fund permanent increases in expenditure.²

The analysis of the management of fiscal windfalls has given rise to an extensive research literature. A basic lesson is that temporary windfall income should be treated differently to permanent income, due to the welfare gains from smoothing consumption and the possible long-term impact of temporary spending surges that may permanently damage the productivity of the tradable sector (Benigno and Fornaro, 2014). It follows that temporary windfall income should be largely saved. These principles can be difficult to implement, in view of the obvious political economy pressures to increase consumption and domestic transfers in response to extra income (Von Hagen and Harden, 1995, Lane, 1999, Lane 2010, Bergin *et al.*, 2011).

Table 1 | Unexpected Corporation Tax Revenue and Interest Expenditure Savings, € million

	2015	2016	2017	2018	Average (2015-2018)	Total (2015-2018)
Corporation tax (A)	2,297	737	486	1,880	1,350	5,400
Interest expenditure (B)	718	249	206	312	371	1,485
Total (C=A+B)	3,015	986	692	2,192	1,721	6,885
Nominal GNI* (D)	161,382	175,827	181,182	192,771	177,791	
Total unexpected revenue and savings, % of GNI* (E=C/D)	1.9	0.6	0.4	1.1	1.0	3.9

Notes: Unexpected corporation tax (CT) revenue is calculated as the difference between the outturn for actual CT revenue in each year and the forecast for CT revenue from the Budget in October of the previous year. The figure for interest savings is calculated in the same way. Source: Department of Finance, Budget books and end-December Analytical Exchequer Statements, various years.

The current position of the public finances is relevant when considering alternative uses of fiscal windfalls. In particular, while the public finances have improved since 2013, Ireland's

² See IFAC Fiscal Assessment Report, November 2018. Available here: <https://www.fiscalcouncil.ie/wp-content/uploads/2018/11/Fiscal-Assessment-Report-November-2018-Final.pdf> and European Commission, Autumn 2018 Surveillance Report https://ec.europa.eu/info/publications/post-programme-surveillance-report-ireland-autumn-2018_en

general government gross debt remains extremely high by both historic and international standards. In 2018, the gross debt stood at €206 billion or 106 per cent of GNI*, up from 28 per cent in 2007 and amongst the highest debt ratios in the euro area. This means the overall fiscal position is still fragile and an adverse shock could cause the debt and the deficit to start rising again.

In this *Economic Letter*, we examine some of the macroeconomic and fiscal implications of alternative uses of fiscal windfalls conditional on the state of the domestic and world economies. The analysis is carried out using the Central Bank's structural econometric model, COSMO.³ We first assess the macroeconomic impact of saving versus spending a windfall. Second, we explore the implications of using windfall revenues to fund higher government spending when the economy is facing capacity constraints. If fiscal windfalls are saved and used to build larger budget surpluses, this would help to lower Ireland's high level of debt and would strengthen the public finances. The resulting fiscal buffer could help avoid the need for fiscal tightening in the event of an economic downturn and could permit room for additional government spending or tax cuts. We explore this mechanism in a third set of simulations by showing the impact on the economy of a severe negative shock using alternative assumptions about fiscal policy. In one scenario, the Government has built fiscal buffers by saving windfall revenues and can use the resulting buffer to help offset the impact of the negative shock. We contrast this with the outcome when fiscal policy is procyclical: that is, the government tightens fiscal policy at the same time as economic activity is slowing.

It is important to note that the simulations we conduct are illustrative scenarios showing the potential effects of different policy options. The scenarios are partial and do not take into account the full range of factors that could influence the path of the economy and the public finances in the coming years. In this context, the scenarios should not be interpreted as forecasts of future outcomes. Instead, the analysis is useful for illustrating the propagation mechanisms and potential effects of alternative fiscal policy options, holding constant many of the other factors that could affect the future evolution of the Irish economy.

Saving versus Spending a Windfall

We begin by examining a scenario where the government receives a fiscal windfall of €1.7 billion per annum over a three-year period. This

If fiscal windfalls are saved and used to build larger budget surpluses, the resulting fiscal buffer could help avoid the need for fiscal tightening in the event of an economic downturn.

³ COSMO was developed by the Central Bank of Ireland and the ESRI as part of a joint modelling project that ran from 2013-15. The Central Bank's version of the COSMO model – used for this analysis – may contain some differences compared to the ESRI version. A short overview of the model is available in Conefrey, O'Reilly and Walsh, 2018.

corresponds to the average unexpected revenue and interest expenditure savings observed since 2015. The windfall is equivalent to a net international transfer to Ireland and is not offset by any reduction in income to some domestic counterpart. We examine the macroeconomic impact of alternative uses of the windfall: (i) the windfall is saved; and (ii) it is used to fund a temporary increase in government spending. We assume that there is an absence of overheating pressures in the economy.

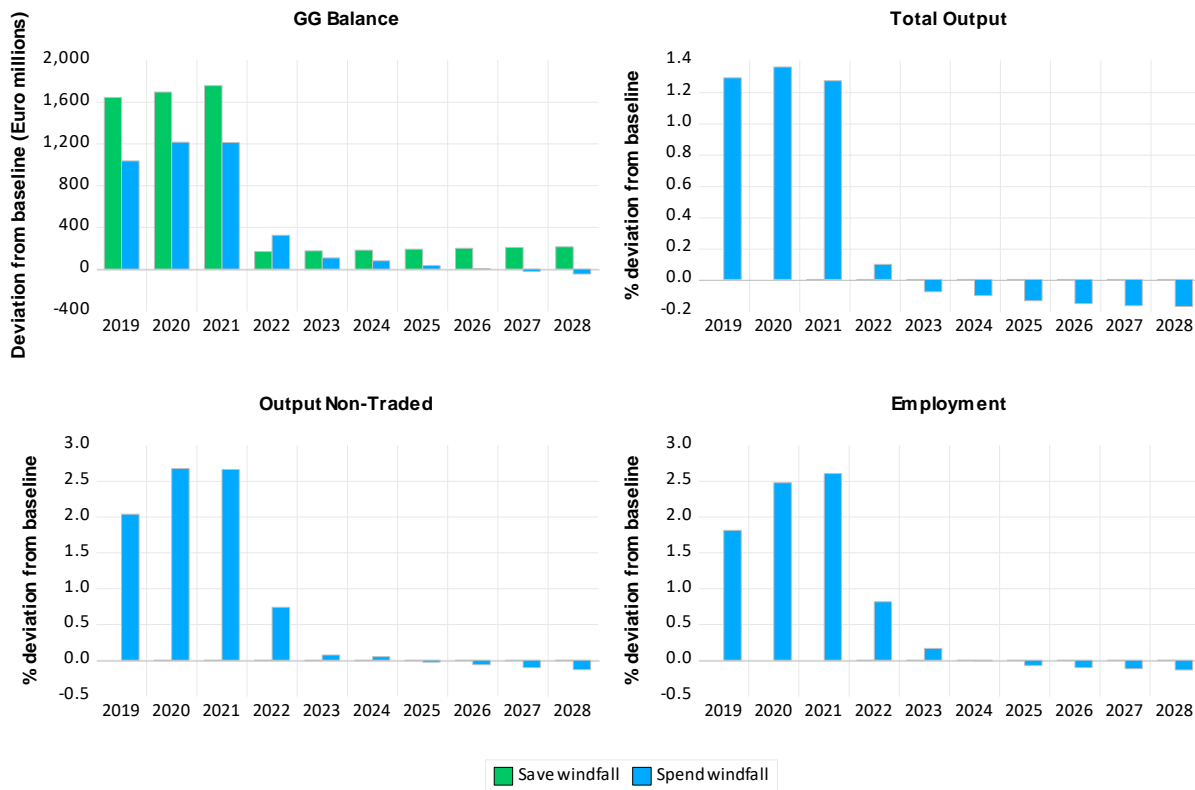
In the case where the windfall revenue is saved, its main impact is to improve the state of the public finances. As shown in Figure 1a (green columns), saving the windfall improves the general government balance by the full amount of the additional revenue received. The windfall in itself does not have any wider macroeconomic consequences for output or employment.

The blue columns in Figure 1a compare the impact of the windfall if the additional revenue is alternatively used to finance an increase in government spending. We assume that the €1.7 billion increase in spending is split between current and capital expenditure in line with the proportions allocated to both areas in the Department of Finance's projections in Budget 2019.⁴ With the economy operating below capacity (Figure 1a, blue columns), the stimulus from higher government spending temporarily boosts demand mainly via an increase in activity in the non-traded sector. By the third year, the level of output in the non-traded sector would be around 2.5 per cent higher compared to the baseline. During the three-year period of higher government spending, consumption and investment would increase and the unemployment rate would fall. This would put some upward pressure on wages and result in a small decline in output in the traded sector. After three years, when the positive spending shock has ended, overall output would return to close to its baseline level.

In terms of the public finances, with the rise in government spending funded by the windfall, the increase in output and employment from the spending stimulus leads to an improvement in the general government balance. As shown in Figure 1a, the improvement is less than in the case where the full amount of the windfall revenue is saved.

⁴ Around 9 per cent of the additional spending is allocated to capital with the remainder to government consumption.

Figure 1a: Impact of Spending versus Saving a Windfall on key Macroeconomic Aggregates, deviation from Baseline



Spending a Windfall

We next repeat the previous exercise where the windfall revenue funds higher government spending and examine the impact of this fiscal expansion on output under two scenarios (i) the economy is operating below capacity (blue columns) and (ii) the economy is at full capacity (red columns). We model the full employment scenario by increasing the responsiveness of real wages to the unemployment rate. To calibrate the non-linear effect of unemployment on wages we estimate the wage equation in COSMO over the period 2000-2007 when the Irish economy was at full employment and the unemployment rate was below 5 per cent. The estimation results are in line with the evidence in Linehan et al. (2017) and indicate a higher sensitivity of wages to changes in the unemployment rate during this period of full employment.⁵

The impact of the government spending shock differs significantly when the economy is at full employment (Figure 1b, red columns). In this case, the

⁵ Linehan et al. (2017) present evidence of a non-linear relationship between wage growth and unemployment in Ireland, whereby the degree of sensitivity of wages is greater during periods of low or high unemployment. In COSMO, wages are modelled as a function of consumer price inflation, productivity and the unemployment rate.

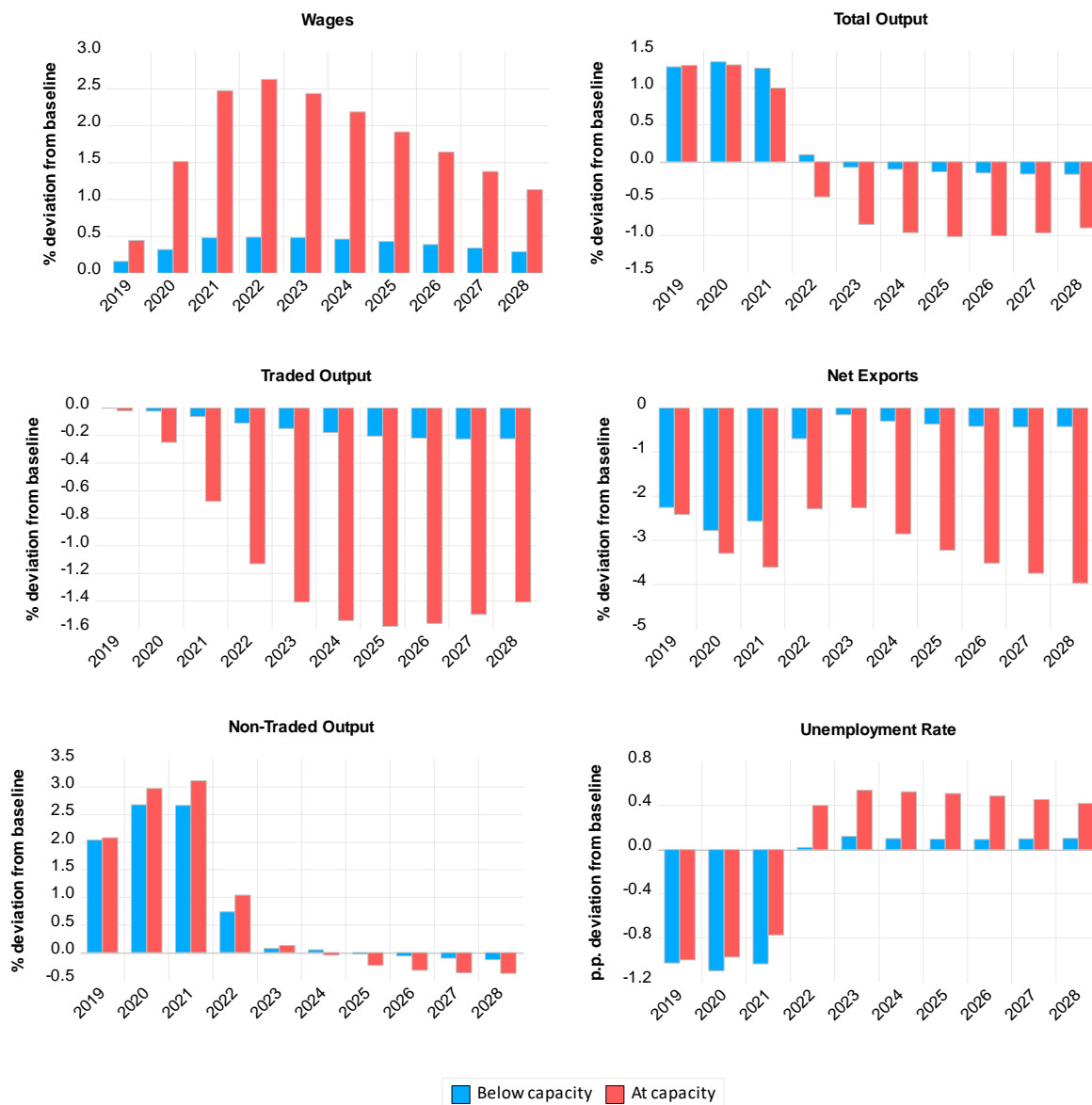
more expansionary fiscal policy leads to larger increases in price and wage inflation, compared to the scenario where the economy is operating normally. While higher incomes initially lead to a larger rise in non-traded activity compared to the scenario where the economy is not at full employment, this comes at the expense of lower output in the traded sector in the longer term. The latter is due to a loss in competitiveness in the traded sector as a result of a rise in prices and wages. In COSMO, output in this sector is modelled as a function of the level of external demand from Ireland's trading partners and Ireland's relative competitiveness – the deterioration in the latter when the economy is at full capacity means that the government expenditure stimulus leads to a fall in net exports and traded sector output.⁶ This crowding out of the traded sector may have longer-term growth implications given the highly open nature of the Irish economy and its dependence on multinational investment. This sector is a key driver of growth and has positive spillover effects on the rest of the economy.

Overall, the simulation results indicate that higher government spending can temporarily boost demand in the economy in the short run. If the economy is operating below capacity, the results suggest that the economy could accommodate the increase in non-traded activity from higher government spending without significant long-run implications for the traded sector. However, with capacity constraints – particularly in the labour market – the results indicate that a temporary stimulus could have important negative spillover effects on the traded sector which could result in a loss of output in the long run.⁷

⁶ At a qualitative level, this outcome holds for different types of government spending (transfers, government consumption, public investment), even if the precise composition of fiscal policy needs to be taken into account in assessing the labour market and macroeconomic impact of fiscal expansion. For example, temporary increases in public investment may be easier to reverse than expanding the level of social transfers or government consumption, while also adding to the long-run public capital stock. Hickey *et al.* (2018) show a positive effect of public capital investment on output in the long run.

⁷ This effect could be considered as akin to the problem known as “Dutch Disease”. This refers to changes in the structure of the economy – such as a shift towards the non-traded sector – following a favourable shock such as an increase in wealth due to the discovery of natural resources.

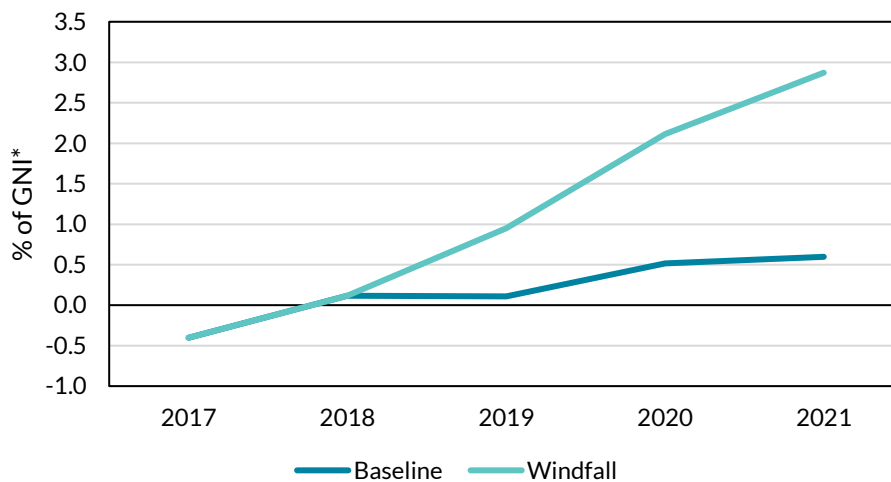
Figure 1b: Impact of Government Spending Shock on key Macroeconomic Aggregates, deviation from Baseline



Exploring the Benefits of a Fiscal Buffer: A Negative External Shock With and Without Fiscal Consolidation

An alternative to spending unexpected revenues during periods of strong growth is to save them in order to build up fiscal buffers. Saving unexpected revenues to run larger budget surpluses during good times could allow the government greater scope to operate counter-cyclical fiscal policy during a future downturn. This would help to minimise the loss of output from a negative shock. For example, assuming the government receives a fiscal windfall of €1.7 billion per annum from 2019-21 (equivalent to the average windfall received from 2015-18), and that these unexpected gains are saved, a cumulative general government surplus of 2.9 per cent of GNI* would be attainable by 2021 (Figure 2). This compares to a projected surplus of around 0.6 per cent in the Central Bank’s baseline fiscal forecasts. In the event of a negative shock, starting from a more favourable budgetary position could help ensure that fiscal policy does not aggravate the impact of the downturn.

Figure 2: General Government Balance, % of GNI*



To illustrate this mechanism, we assume that the economy experiences a severe negative external shock and then examine the impact on key macro aggregates assuming two contrasting fiscal policy responses: (1) the government has accumulated fiscal buffers and responds to the downturn by allowing the automatic stabilisers to operate (the general government balance is allowed to deteriorate following the shock) and (2) the

government has insufficient fiscal headroom when the negative shock hits and takes corrective action to prevent the deficit from rising.⁸

We assume there is a deterioration in the international economy resulting in a 5 per cent reduction in the overall level of external demand for Irish output for three years. The shock can be interpreted as a general sharp decline in activity in Ireland's key trading partners. Figure 3 shows the impact of the shock on key variables. The orange columns show the effect of the shock when there is no discretionary fiscal action by the government and the general government balance is allowed to vary. The black columns show the impact of the shock assuming the government takes corrective action to prevent the deficit from rising when the economy experiences the negative external shock. In particular, we assume that the government raises additional tax revenue by increasing income taxes so that the general government balance remains unchanged at its baseline level.

This scenario considers a case where no deterioration in the general government balance is permitted when the negative shock materialises as the fiscal rules are assumed to bind immediately. Depending on the position of the public finances prior to the shock as well, as prevailing financial market conditions, there could be some scope to allow the budget deficit to increase somewhat without breaching the 3 per cent of GDP limit under national and EU budget rules.

As shown in Figure 3, the negative external demand shock would reduce exports and output in the traded sector. With lower demand, investment would decline leading to a fall in non-traded sector output. Reduced activity in both the traded and non-traded sectors would lead to a fall in employment and lower incomes, which in turn would lower consumption.

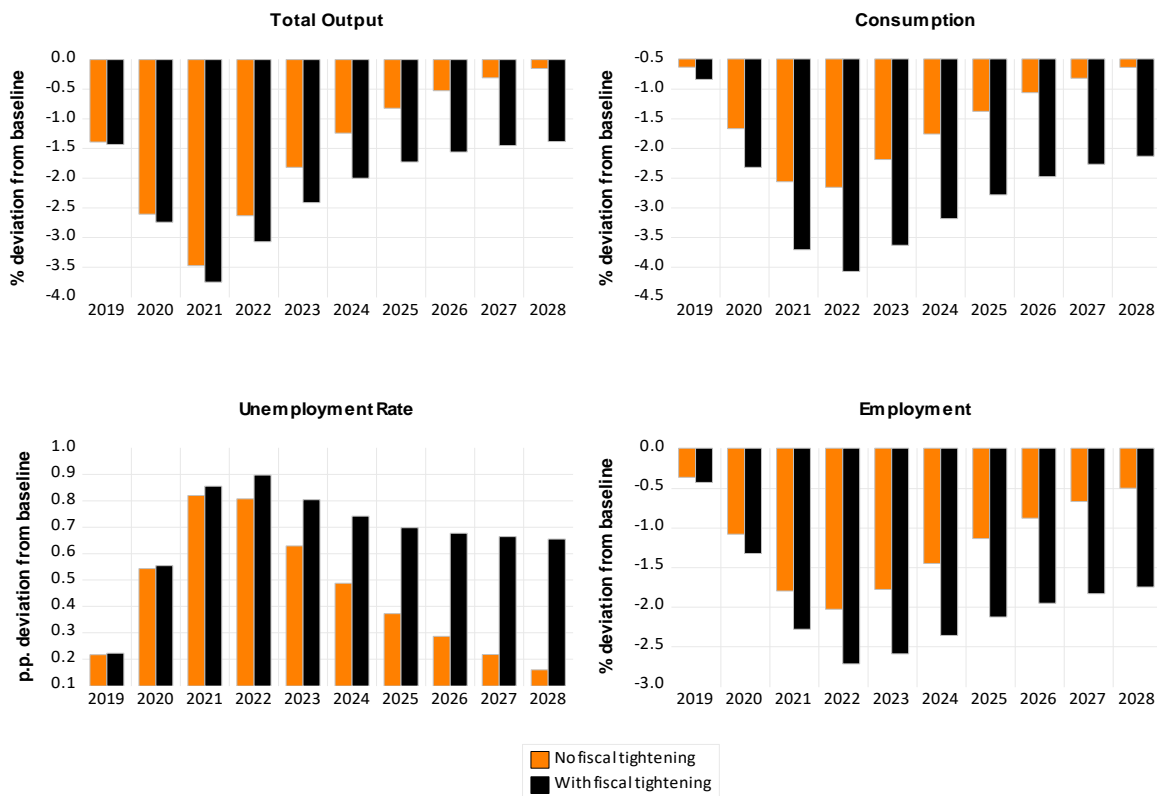
Our results indicate that a negative external shock accompanied by pro-cyclical fiscal tightening leads to a larger decline in output and employment compared to a scenario where the government has fiscal headroom and can avoid implementing fiscal consolidation. An increase in income tax puts upward pressure on wages which negatively affects the competitiveness of the traded sector, as workers are assumed to bargain in terms of real after tax pay. This results in a larger decline in output in the sector compared to the case where there is no rise in taxes. Following the temporary external demand shock, the long-run fall in output in the scenario with fiscal tightening is close to 1.5 per cent, compared to a fall of just 0.2 per cent without fiscal tightening. Similarly, the decline in employment and rise in

⁸ The automatic stabilisers refer to features of the tax and spending system which react automatically to the economic cycle and reduce its fluctuations. As a result, the budget balance in per cent of GDP tends to improve in years of high growth, and deteriorate during economic slowdowns.

the unemployment rate are close to three times larger when the negative external shock is accompanied by a rise in taxes. In terms of the short-run response of the economy to the negative shock, the results show that avoiding fiscal retrenchment during the downturn can significantly mitigate the decline in consumption and domestic demand after the shock.

This exercise has illustrated the benefits of a fiscal buffer which avoids the need for fiscal tightening following a negative growth shock. However, if the buffer is large enough, it could additionally provide scope for discretionary increases in government spending in excess of the normal operation of the automatic stabilisers. In this case, the loss of output in a future downturn could be reduced further if expansionary fiscal policy is used to stabilise the economy.

Figure 3: Impact of a Negative External Shock with and without Fiscal Tightening



Conclusion

In this Letter, we examine the implications of alternative uses of a temporary fiscal windfall through the lens of the Bank’s macroeconomic model. An increase in government spending funded by a fiscal windfall when the economy operating at full capacity could have negative implications in the long run. This is because the fiscal stimulus would put upward pressure on wages and lead to a loss of competitiveness, lower

traded sector output and a re-orientation of the economy towards the non-traded sector.

An alternative to spending fiscal windfalls is to save them in order to build up fiscal buffers. Our analysis points to several potential advantages of such an approach. Larger fiscal buffers would help to reduce Ireland's high public debt and would lessen the exposure of the public finances to negative shocks. Moreover, in the event of a negative shock, the presence of a buffer could help to avoid the need for procyclical fiscal tightening. Our results indicate that this would mitigate the loss of output and employment during a future downturn.

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