

Fiscal multipliers

How does the OBR estimate the demand impact of government policies?



Introduction

Government policies can have an impact on the level of economic output by affecting either demand^{*1} or supply, or both. For example, a cut in National Insurance contributions may encourage workers to spend more, as they keep more of their pay; it may also encourage them to work more, since for every extra hour they work, they receive higher net pay; but it may also encourage them to work less, since they now need to work fewer hours to achieve the same net income.

So it is important for the government to get as clear an idea as possible as to which of these might apply, and to what extent. As the UK's official forecaster, it is the job of the Office for Budget Responsibility (OBR) to give the government that idea – which it does by producing estimates, published at fiscal events. This short paper looks at how it judges the demand effects of different types of discretionary tax and spending policies.**

What demand effects does the OBR assume policies have?

To estimate the potential impact of discretionary fiscal policy on economic growth through demand channels, the OBR applies a set of 'fiscal multipliers' to tax and spending numbers, which then affect the economy forecast. If, for example, spending affects the level of GDP, then that in turn has knock-on effects on other variables such as tax receipts, welfare spending (via unemployment) and so on. These are known as second-round or indirect effects.

Fiscal multipliers are a concept used in economics to measure the impact of a change in government spending or taxation on the overall economy. They are a key tool to inform fiscal policy making and are used to estimate the effect of a policy change on economic output. For the purposes of applying fiscal multipliers, the OBR assumes that policy changes are funded by changes in government borrowing: tax cuts or spending increases raise demand; tax rises and spending cuts decrease it.

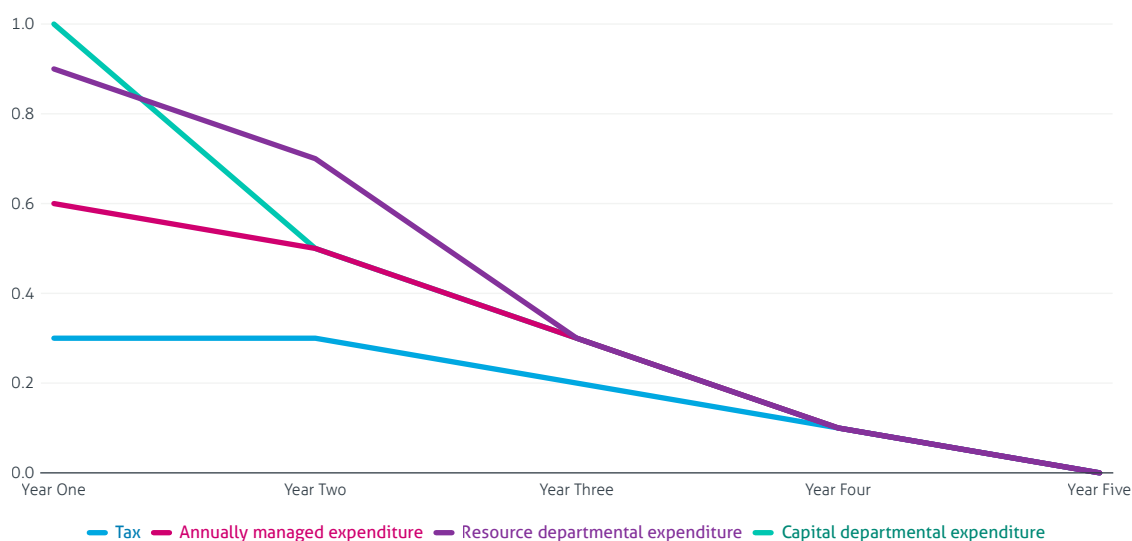
The fiscal multiplier is calculated as the change in national income divided by the change in government spending that caused it. For example, if a £1 increase in government spending leads to a £1.50 increase in GDP, the fiscal multiplier would be 1.5.

These multipliers can help policy makers decide between different policy options and understand the potential trade-offs involved. For example, if the government is considering a stimulus package to boost the economy, it can use fiscal multipliers to estimate the potential impact of different components of the package, such as increased spending or tax cuts.

* Many technical papers, including from the OBR, refer to this as 'excess demand', highlighting the fact that the focus here is on how demand moves relative to the potential size of the economy. For ease of interpretation by general readers, in this paper we simply refer to demand, rather than 'excess demand'.

** Policies can also affect the economy's supply potential. Where the OBR judges that evidence suggests measures will have a material, additional and durable impact on potential output, it also takes their supply-side impacts into account.

Figure 1 **Fiscal multipliers used by the OBR**



Source: Chart 2.B, Office for Budget Responsibility, Forecast Evaluation Report: December 2019.

The fiscal multipliers the OBR currently uses are shown in Figure 1. The multipliers show how much a permanent addition to spending or a permanent tax cut affects *real* GDP.^{*} The OBR uses different multipliers for three different types of spending:

1. **Annually managed expenditure (AME)** – demand-led spending, on things like pensions and benefits, where budgets are not fixed in advance.
2. **Capital departmental expenditure limits (CDEL)**^{**} – spending on things that are expected to produce an enduring asset for the public sector, like infrastructure, IT and buildings.
3. **Resource departmental expenditure limits (RDEL)** – day-to-day spending on things like salaries, medicines and other recurring purchases.

In addition to these it has one multiplier for **tax**.²

The size of these fiscal multipliers is informed by the empirical literature and the OBR periodically reviews the estimates it uses and judges their appropriateness at every fiscal event.^{***}

^{*} Government spending or tax cuts will also be assumed to have an impact on inflation, which is not directly captured by this set of multipliers. Instead, the impact on excess demand will feed through to higher inflation.

^{**} CDEL and RDEL together make up departmental expenditure limits (DEL). This is the budget available to Whitehall departments to cover the costs of predictable areas of spending (such as delivery of public services, salaries, and maintaining and improving buildings and infrastructure). These budgets are set at spending reviews with a specific amount available each year.

^{***} The OBR most recently did a full systematic review of these fiscal multipliers in the December 2019 *Forecast Evaluation Report* and in the November 2020 *Economic and Fiscal Outlook*.

Figures 2 and 3 show how the OBR would apply its capital spending (CDEL) multiplier to three different hypothetical scenarios for public spending:

1. An announcement at a March budget to increase CDEL by 1% of GDP in the forthcoming financial year (Year 1) but no additional spending beyond that.
2. The same announcement but applying in the next but one financial year (Year 2) but no additional spending before or after that.
3. CDEL increased by 1% of GDP for all years (1–5).

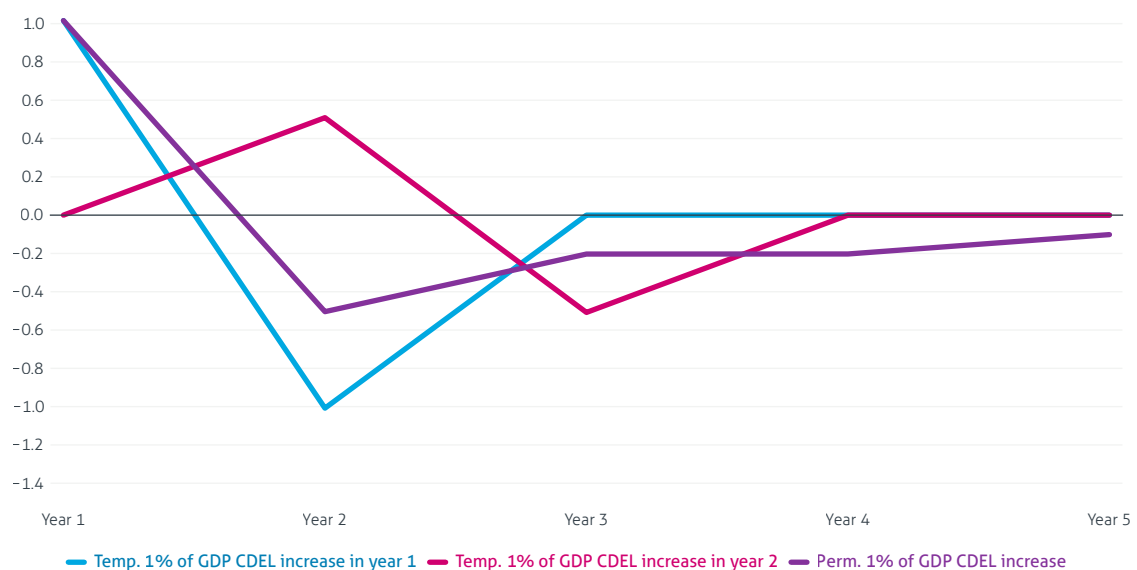
The charts show the impact of each spending scenario on the *level* (Figure 2) and the *growth rate* (Figure 3) of real GDP relative to a no-policy change baseline.

Figure 2 **Percentage change in demand resulting from three scenarios for increasing CDEL**



Source: Institute for Government calculations based on OBR fiscal multipliers. Note: These figures include only the effect on demand, not on potential output.

Figure 3 **Percentage point change in GDP growth resulting from the demand effects of three scenarios for increasing CDEL**



Source: Institute for Government calculations based on OBR fiscal multipliers. Note: These figures include only the effect on demand, not on potential output.

Why does the demand effect taper to zero by the fifth year?

One key property of the OBR's demand multipliers, evident in Figures 2 and 3, is that **the economic impact (on the level of real GDP) tapers to zero** by the end of the forecast period, even if the government is spending additional money in the fifth year.

This is because this analysis of the demand-side effects of policies assumes that 'potential GDP' (how much an economy could produce if all of its resources – workers and capital – were fully and efficiently used) is unchanged.³ The OBR further assumes that *actual* real GDP cannot exceed potential output for long periods of time. This is because several other economic factors are expected to adjust to offset the impact.

For instance, were actual GDP to exceed real GDP for a prolonged period a likely outcome would be inflation, which would prompt the Bank of England to raise interest rates to help meet its 2% inflation target. This would dampen demand. Excess demand will also tend to push up real wages (as businesses compete for scarce labour) and cause the exchange rate to appreciate (as UK consumers demand more imports) – both of which would ultimately help to depress economic activity until it moves back in line with potential output. These effects explain why the demand-side effects of policy on GDP are assumed to taper to zero by the end of the forecast period.

What affects the size of the demand-side impact of policies?

What influences the size of fiscal multipliers?

Structural factors

The literature shows that fiscal multipliers depend on various factors related to the structure of the economy, including: trade openness, the exchange rate regime, levels of sovereign debt, strength of labour unions and regulation, and the size of automatic stabilisers.* These factors lead to differences in the size of fiscal multipliers *across countries*, but not to rapid changes *over time* (because these factors tend not to change rapidly over time).

Time-varying factors

There are several other factors that influence the size of fiscal multipliers that could lead to significant changes in the size of fiscal multipliers over relatively short periods of time within countries. These include:

- **The size of the output gap.**** There tends to be a negative output gap when the economy is in a demand-driven recession (such as during the financial crisis of 2008). There tends to be a positive output gap either when there is an economic boom (as in the late 1980s and the few years leading up to 2008), or when there is a reduction in the economy's potential output (such as during an energy price shock, where it becomes more expensive to produce a lot of things, or during the pandemic when large parts of the productive capacity of the economy were unable to function).

When the output gap is negative, fiscal multipliers are larger. This is because, when the output gap is negative, extra government spending (or lower taxes) can boost demand without risking stoking inflation. Conversely, when the output gap is zero or positive, higher government spending (or tax cuts) is more likely to lead to higher inflation rather than output, meaning a smaller fiscal multiplier.

- **Monetary policy.** The size of multipliers is also significantly influenced by the response of a country's central bank. As mentioned above, the size of the fiscal multipliers depends on the extent to which the central bank adjusts monetary policy to offset the stimulus or dampening effects of fiscal policy (this is sometimes known as 'financial crowding out'). If monetary policy is constrained – for example, if interest rates are close to the zero lower bound – the central bank may have less scope to offset fiscal policy and so fiscal multipliers may be larger.

* 'Automatic stabilisers' describe the way the structure of the tax and welfare system automatically cushions economic fluctuations. For example, a progressive tax system (that is, one in which the tax rate paid rises with the level of taxable activity) will naturally cushion economic fluctuations because, as economic activity falls, people will pay a lower share of their income in tax. Similarly, a welfare system that offers unemployment benefits will tend to cushion economic downturns by replacing some of people's lost income if they lose their jobs.

** The output gap is a term used in economics to describe the difference between a country's actual economic output and its potential economic output (how much it could produce if all its resources – workers and capital – were fully and efficiently used).

The type of spending or tax change

There are several factors that could lead to significant differences in the size of fiscal multipliers between different types of policies.⁴ These include:

- **Individuals' marginal propensity to spend additional income:** spending increases or tax cuts will only translate into additional economic activity if and when the beneficiaries spend that income. If people save a large part of any extra money, whether received from the state or retained through lower taxes, the fiscal multiplier will be low. Empirical evidence suggests that higher-income people tend to have a lower propensity to spend additional income than lower-income people.
- **Crowding out of private sector activity:** Extra government spending will have a greater impact on overall economic activity if it adds to, rather than substitutes for, things that the private sector would otherwise do.
- **Trade leakages:** For government spending to boost UK GDP, it must be used to buy goods and services produced in the UK. If a lot of the spending stimulus is instead used to buy imported goods or services, the fiscal stimulus will 'leak' out to other countries.

The OBR assumes that tax policies have a smaller multiplier effect than spending policies. And some different types of spending policies have different multiplier effects from one another: capital spending is assumed to have the highest multiplier and welfare spending the lowest, for example. These differences reflect some of the underlying characteristics of policies, set out above, that have been found to affect the size and timing of fiscal multipliers.

Does the OBR ever change its multipliers?

The OBR has periodically reassessed its fiscal multipliers and how they are applied. For example, prior to 2015, it assumed that fiscal policies affected demand from the point they were *implemented*; from 2015, it assumed that the demand effects manifest from the date of announcement.⁵

The OBR has published several reviews of its fiscal multipliers, most recently in December 2019.⁶ However, it has always concluded that its multipliers remain appropriate in general. In particular, the OBR has not used larger fiscal multipliers during economic downturns, though various international studies have found this to be the case.^{7,8,9,10} Some have criticised the OBR for this.¹¹

But the OBR does consider, on a case-by-case basis, the appropriateness of its standard multipliers for the specific policies and economic circumstances at the time it makes its forecasts. One of the most comprehensive reassessments of fiscal multipliers that the OBR has done was during the pandemic when, in November 2020, it examined whether economic conditions were sufficiently different from normal that it should use different fiscal multipliers.¹² It identified several reasons why the fiscal multipliers might be larger than usual; for example, because interest rates were close to their lower bound and

because there was less chance of crowding out private sector investment (which had already fallen sharply).

But it also identified several reasons why the fiscal multipliers might have been smaller than normal: for example, because public health restrictions prevented people from spending money on hospitality, travel and tourism and so there was a higher chance of people saving, rather than spending extra income; and because some of the government's extra spending during the pandemic (such as on PPE and Covid tests) was on imports rather than domestically produced goods and services.

The OBR ultimately decided in that instance to deviate temporarily from its standard multipliers in three ways:

- It reduced the multiplier on departmental spending by a quarter to reflect the greater import-intensity of that spending relative to existing departmental spending.
- It assumed that spending on the extended job retention scheme and self-employment support schemes had one quarter of the impact on demand of typical non-departmental spending, to reflect the greater likelihood of forced or precautionary saving by recipients and that some could have borrowed in the absence of these schemes to smooth consumption.
- It assumed that extending the loan guarantee schemes for businesses would have a modest short-term effect on demand – this in effect applied a fiscal multiplier to a type of policy that is not captured by the OBR's standard multipliers.

Conclusion

Fiscal multipliers are an important tool for factoring in how tax and public spending changes affect demand in the economy in the near term. Such effects are sometimes an explicit aim of government policy – such as when governments use fiscal stimulus to help counteract economic shocks. The OBR usually uses a standard set of fiscal multipliers to incorporate the demand impact of policies in its economic forecasts. It periodically reviews empirical evidence to ensure that these multipliers remain appropriate. It also always retains flexibility to use different multipliers if circumstances are such that policies are likely to have a different effect from what has been witnessed in the past, as was the case during Covid.

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October 2024

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The Institute for Government is a registered charity in England and Wales (No.1123926) with cross-party governance. Our main funder is the Gatsby Charitable Foundation, one of the Sainsbury Family Charitable Trusts.