Government Debt and the Macroeconomy

Topic V: Political economy of government debt

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1 Why political economy?

In this part we will be dealing with the political economy of budget deficits and government debt. So far in this course we haven't taken "politics" into account but instead assumed that a benevolent government or monetary authority would choose policies to maximize welfare. One outcome of this optimisation process is that if raising taxes is increasingly costly, tax smoothing is the optimal way to raise revenues required to finance government spending. In peace times, we would thus expect to see a balanced budget over the business cycle: the government would accept larger deficits in recession due to increased expenditures on unemployment insurance and stimulus spending. In expansionary periods, the government would run surpluses to repay the previously accumulated government debt. Tax smoothing dictates that tax rates stay more or less constant. In such a setting, there is no reason why we would observe an upward-sloping trend in public debt over very long time periods.

However, starting in the 1970s we have seen a continuing increase in government debt in many developed countries, even in the absence of war, and even in periods of economic expansions. Based on evidence similar to Figure 1, Alberto Alesina and Perotti (1995) point out that within the OECD we observe a set of countries that have experienced an almost monotonic increase in debt levels after 1970 (these include Ireland, Italy, Belgium, Greece and Spain), while other OECD countries seemed to have stabilized their debt at moderate levels. We will see below that this classification by Alberto Alesina and Perotti is no longer as clear-cut when we expand the analysis to other time periods.

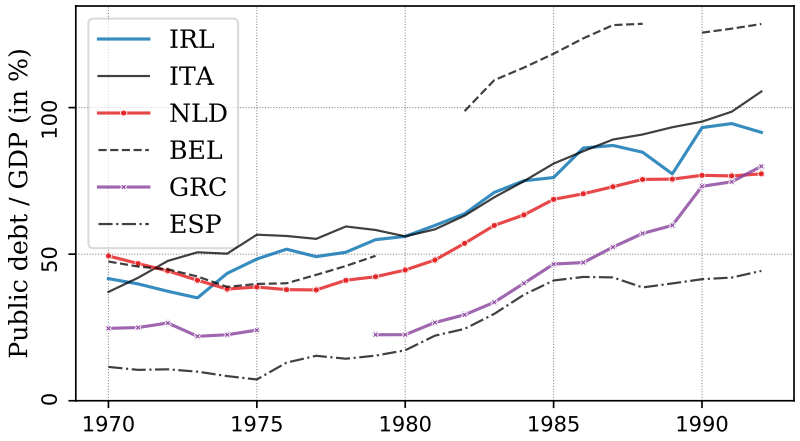


Figure 1: Increases in public debt levels, 1970–1990. Data source: Abbas et al. (2010).

Figure 2 draws an even bleaker picture of the fiscal discipline in many OECD countries and of governments' inability or unwillingness to balance the budget and thus stabilize debt. In the period from 1960–2011, budget deficits were the norm in many

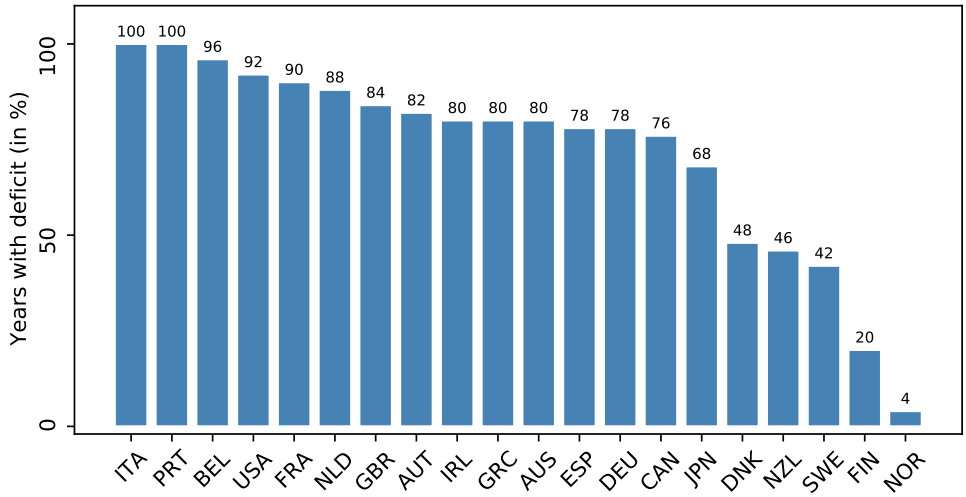


Figure 2: Share of years with government budget deficits, 1960–2011. Source: Wyplosz (2012), mainly based on data from OECD Economic Outlook.

OECD countries, and some have not had a balanced budget even once over the entire period.

The question thus arises why certain countries are more prone to accumulate unsustainable debt levels (in excess of 100% of GDP in Belgium and Italy, for example), while others that are very similar in many economic aspects are better able to balance their budget. A second question is why we observe prolonged periods of stable government finances which are then followed by decades of excessive deficits within the *same* country. Alberto Alesina and Perotti (1995) therefore argue that any political economy theory of government debt should be able to account for this variation across and within countries to be convincing. We will discuss the most commonly proposed candidate explanations below.

First, however, we examine government debt levels from a long-run perspective. Figure 3 plots public debt expressed as a fraction of GDP for the UK and the US, the two countries with the longest time series in the IMF Historical Debt Database.

We see that debt levels have seen large swings over the last 200 years, in particular for the UK, where the largest spikes were due to the first and second world wars. However, some periods of increasing government debt did not coincide with any significant change in levels of military activity, such as the 1980s in the case of the US. To justify such continuing increases in debt levels from a tax-smoothing perspective, one would have to argue that policy makers in the 1980s expected government expenditures to drop permanently in the future, therefore optimally accumulating government debt now which would be repaid later. From a scientific perspective this explanation is not very satisfactory, since policy makers' true expectations are for the most part unobserved. We

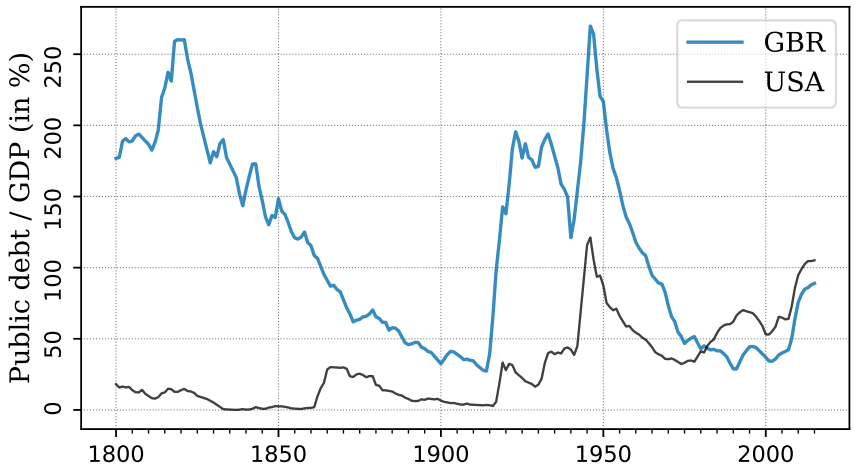


Figure 3: Public debt as a share of GDP for the United Kingdom (GBR) and the United States. Data source: Abbas et al. (2010)

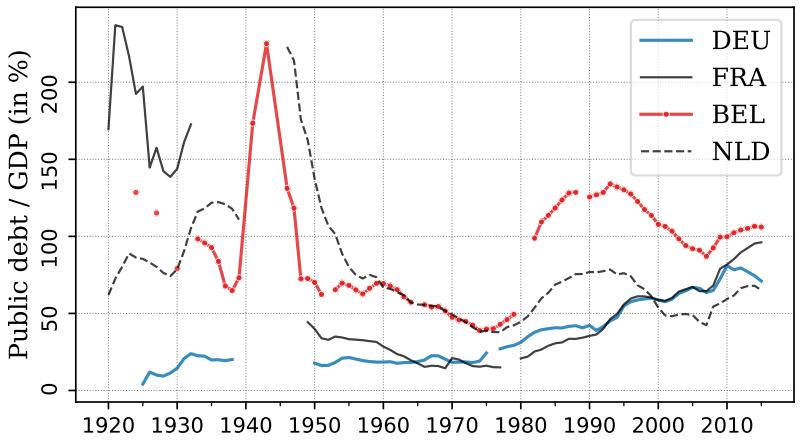
could therefore always make some assumption about expectations that would rationalise changes in debt levels in a way consistent with tax smoothing, but this is not the approach taken by the theories we discuss below.

Figure 4 shows the debt levels for other selected OECD countries, albeit for shorter time periods since the time series for these countries do not reach as far back as for the UK or US.[1] Again, the same picture arises in that there is large variation in debt levels for individual countries over time, and also substantial differences between countries that don't seem too different in economic terms such as Belgium and the Netherlands. For the Southern European countries we see that Spain and Portugal had much lower debt levels prior to the financial crises of 2008 compared to Italy and Greece, even though in the collective mindset all Southern European countries are frequently indiscriminately lumped together as profligate spenders.

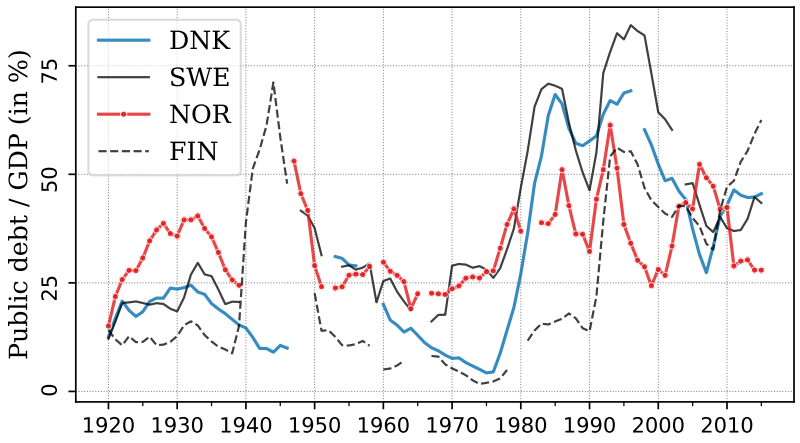
To summarise, we see from the above graphs that in the period after the second world war up until the Great Recession of 2008, OECD countries experienced very different debt trajectories. The aim of this chapter is to explore what political or institutional factors could be the drivers behind these differences.

Besides the widespread departures from tax smoothing observed in the data, another reason why the politics of fiscal policy needs to be considered is because fiscal policies are inherently connected to redistribution across regions, generations and socioeconomic groups, which will often be associated with political conflict. As A. Alesina and Passalacqua (2016) argue, the role for redistribution has been growing steadily since the Great Depression in the 1930s. Social welfare programs such as old-age pension benefits, health expenditures and unemployment insurance continued to increase even in the

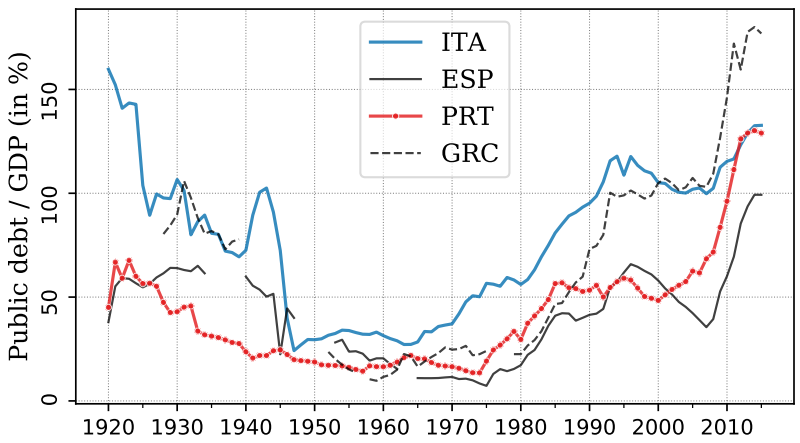
[1] The gaps in these figures are due to missing data points in the IMF Historical Debt Database.



(a) Western European countries



(b) Nordic countries



(c) Southern European countries

Figure 4: Public debt as a share of GDP for the selected OECD countries. Data source: Abbas et al. (2010)

last decades, as illustrated in Figure 5, which plots the expenditures on social welfare programs as a share of GDP in 1985 and 2015. Dots above the 45-degree-line indicate an increase in spending, which is the case for basically all the OECD countries pictured with the exception of Ireland and the Netherlands.[2] Across the OECD as a whole, the share increased from 16.1% in 1985 to 20.1% in 2015.

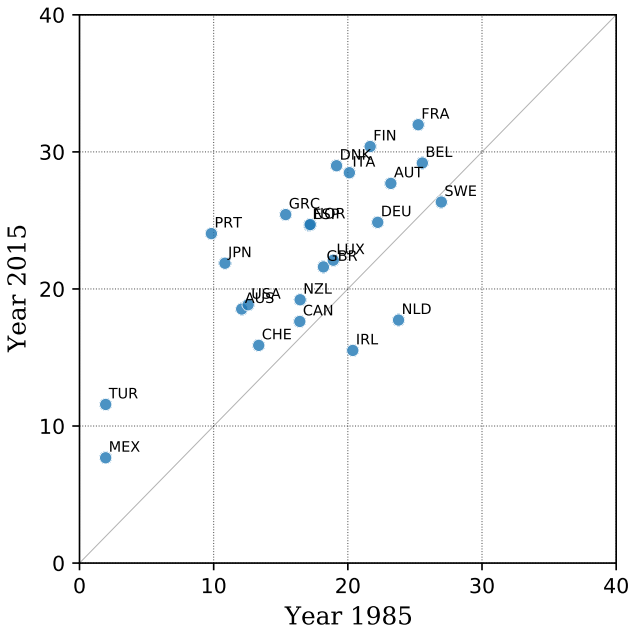


Figure 5: Social expenditures as share of GDP (in percent) in 1985 vs. 2015. Data source: OECD Social Expenditure Database (SOCX), http://www.oecd.org/social/expenditure.htm

Voters attitudes towards the magnitude of redistribution will influence their support for more or less government debt to fund such redistributive measures. For example, if the elderly population does not fully take into account the costs for future generations, they will be more willing to support increases in government debt to fund pension benefits, a form of intergeneration redistribution we discuss below.

2 Preference aggregation and social choice

Before delving into the the political economy of government debt, we need to undertake a short digression on the theory of social choice. When we want to analyse how politics can influence government debt, we need to spell out how political decisions are taken. Such an investigation only makes sense in a setting where the groups involved in

[2]Note that countries which joined the OECD after 1985, such as the former Eastern European communist countries, are not shown due to missing data.

decision making differ in some aspect (for example in their preferences or endowments) as otherwise any decision would be unanimous.

So far in this course (and most likely in all of your courses on macroeconomics), this issue did not arise because we assumed the existence of a *representative* agent, a frequently made assumption in macroeconomic models. The underlying idea is that the economy is populated by an arbitrary number of identical households. Because these households are identical (again, in their preferences, endowments, etc.) they can just as well be thought of as a single representative household. Choices by this single household then directly represent the aggregate outcomes in the economy.

2.1 Arrow's impossibility theorem [optional]

As soon as we allow for households to differ along some dimension, aggregation becomes non-trivial or outright impossible in many cases. We would ideally want to find a so-called *social welfare function* which summarizes the economy-wide preferences in a satisfactory way. One of the most famous results in the literature on social choice is Arrow's impossibility theorem (due to the American Nobel laureate Kenneth Arrow) which states that in a group of at least two people who have three or more choices we cannot in be sure to find a social preference order that satisfies certain criteria. We will not spell out the technical details of the theorem, but instead illustrate with a minimal example.

Example 1. Consider an economy populated by three voters, labelled *1*, *2* and *3*, who can express preferences over goods A, B and C. Let's assume that each voter's *individual* preferences are as follows:

1. $A \succ B$ and $B \succ C$
2. $B \succ C$ and $C \succ A$
3. $C \succ A$ and $A \succ B$

Here the symbol $\succ$ means "strictly preferred" so $A \succ B$ should be read as option A being strictly preferred to option B. We impose that these preferences satisfy transitivity, a property that we basically always assume to hold in economics: if $A \succ B$ and $B \succ C$, then we must have that $A \succ C$. Note that we frequently use the more succinct notation $A \succ B \succ C$ to express transitive preferences over several options.

What happens if these voters are asked to rank A, B and C in a sequence of pairwise comparisons and the option preferred by the majority wins? Let $\succ_m$ denote the preference order that has majority support. We then have the three following rounds of voting:

- A vs. B: A wins as it's preferred by *1* and *3*, so $A \succ_m B$
- B vs. C: B wins as it's preferred by *1* and *2*, so $B \succ_m C$

- A vs. C: C wins as it's preferred by *2* and *3*, so $C \succ_m A$

Combining these outcomes, we see that our aggregated preferences imply $A \succ_m B \succ_m C \succ_m A$ and therefore they *are not transitive*! There is therefore no preferred option that would win a majority in all pair-wise elections.

2.2 The median-voter theorem

Arrow's impossibility theorem suggests that we need to impose additional restrictions on individual preferences to be able to study aggregated preferences in a meaningful way.

The assumptions underlying the so-called *median-voter theorem* illustrate one such possibility. Again, the technical details of the theorem are beyond the scope of this course, so we will discuss an example. Assume that there are again three voters who have preferences over a single continuous policy variable, say government expenditures on preserving the environment, which can take on a value on the interval $[0, \overline{G}]$.

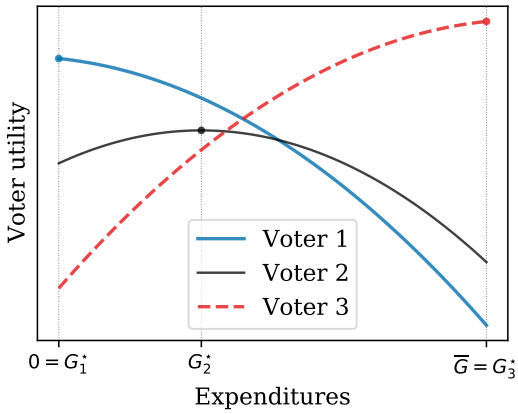


Figure 6: Single-peaked preferences over expenditures

Figure 6 illustrates the utility that each voter derives from some spending level: voter *1* thinks that any resources spent on preserving the environment are a waste of money, while voter *3*'s utility is strictly increasing in the amount spent. Voter *2*'s preferences have a *bliss point* somewhere in the middle of possible policy options. All these utility functions have in common that they are *single peaked*:

1. There is a unique maximum $G_i^\star$ for each voter i, either in the interior (voter *2*) or at the boundaries.
2. For any spending level *larger* than $G_i^\star$, voter i prefers a policy G that is as close as possible to $G_i^\star$. The same holds for any spending level *lower* than $G_i^\star$.

The median-voter theorem says that in such a setting, the policy preferred by the median voter will win every pair-wise contest against any other alternative.

Applied to our example, the median voter clearly is voter *2* since the preferred policy options are $G_1^\star < G_2^\star < G_3^\star$. Because of single peakedness, we have that

- voters *1* and *2* prefer $G_2^\star$ to any other value $G > G_2^\star$, thus $G_2^\star$ has majority support against any such alternative.
- voters *2* and *3* prefer $G_2^\star$ to any other $G < G_2^\star$, so $G_2^\star$ will again win any such pair-wise contest.

As a consequence of the median-voter theorem, any political party that only cares about being in office will adopt the policy preferred by the median voter. We will be using this result in section 4 when we analyse how policy makers can use debt in a strategic way.

3 Political economy models of fiscal policy

We are now ready to discuss the most common theories that explain deviations from optimal fiscal policy put forward in the political economy literature. The material presented here is a concise summary of Alberto Alesina and Perotti (1995) and A. Alesina and Passalacqua (2016), which is a chapter in the *Handbook of Macroeconomics*. We will be exploring the following possible explanations:

1. Fiscal illusion and political budget cycles
2. Intergenerational distribution
3. Geographically dispersed interests
4. Budgetary institutions
5. Strategic debt accumulation
6. Social conflict and delayed stabilisation

We will work through detailed models illustrating the last two points in separate sections below. You should view the models presented here as being at the intersection of economics and political science. We will analyse fiscal policies that result from majority voting or bargaining between political parties, but we will be doing it using the toolbox of economics. Moreover, our analysis will be positive, i.e. the theories here will attempt to explain the patterns of government spending and debt that we observe, as opposed to normative, deriving what these policies should optimally be (which you have already done in the first part of the course!)

3.1 Fiscal illusion and political budget cycles

Proposed in the 1970s, the theory of fiscal illusion is based on the notion that voters are either not rational or have very limited knowledge about the future costs of high debt levels because they do not understand the intertemporal government budget constraint (unlike students taking this course). They therefore do not punish politicians who increase government spending or reduce taxes to unsustainable levels.

In light of the frequent discussions about government debt in the media, it is hard to imagine that the majority of voters would suffer from fiscal illusion, in particular since at least some parties include the reduction of debt as part of their election manifestos. There is no doubt that voters are imperfectly informed, but there is little evidence that this lack of information would systematically bias their beliefs in the direction of excessive deficits. Moreover, most voters will be perfectly aware that the most extreme consequences of excessive government debt, such as episodes of hyperinflation, are clearly sub-optimal.

The theory also fails to explain why we would see the large differences in debt levels across OECD countries as well as across time. Were voters less irrational in the immediate aftermath of the second world war before debt took off in the 1970s? Are Belgian voters more likely to suffer from illusions than their Dutch neighbours?

The theory of political budget cycles argues in a very similar way that deficits can arise when voters have imperfect information and policy makers thus have an incentive to increase spending prior to elections.

A. Alesina and Passalacqua (2016) summarize the empirical evidence for these theories as rather weak and very limited to specific settings (such as "new democracies" with less experienced voters). Overall, this channel can at best explain small short-run departures from optimal policy, but cannot be the main driver of increasing public debt over the last decades.

3.2 Intergenerational distribution

Recall that in a setting where Ricardian equivalence holds there is no scope for intergenerational distribution via the government budget constraint. For example, in the case of an infinitely-lived representative household, the household fully internalizes the effect of higher government debt today. We can obtain a similar result in a model of overlapping generations if there is perfect altruism (i.e. parents fully care about the utility over their offspring). Consequently, any "benefits" that household might derive from changes in taxation or spending will be exactly offset by changes in household savings to pay for these benefits at a later point. But what if the households receiving these benefits are not the same households who have to pay for them at a later point?

In reality, there are several complications that weaken Ricardian equivalence and allow for the possibility to use government debt as an instrument for redistribution:

1. Not all households have children or care about their descendants' welfare as much as their own;
2. Parents can leave *positive* bequests (i.e. wealth passed on to their children) but not negative ones. This creates households that are "bequest constrained" and will have different preferences for government debt.

For these reasons we might very well see government debt used to bring about *intergenerational* redistribution: older generations might favour increasing debt levels today to finance government spending, e.g. on pensions and health care. Since the old will not be around when the debt needs to be repaid, they might not fully take into account the costs for future generations. This effectively constitutes a redistribution from the young (or even unborn) generations to the elderly.

Would we expect to see a majority of voters in favour of such policies? In the model of Cukierman and Meltzer (1986), this depends on the share of voters who want to leave bequests: those who are able to leave positive wealth to their children can compensate for any redistribution due to government debt and thus will not necessarily support increases in debt. On the other hand, poor households who are "bequest constrained" would ideally want to leave negative wealth to their children. They view an expansion of government debt favourably as it allows them to effectively leave behind negative bequests, and they are likely to support it in elections. Thus, if the median voter is "bequest constrained," we would expect to see increases in government debt.

An interesting extension to this framework is proposed by Tabellini (1991), who points out that intergeneration redistribution is tightly connected to *intragenerational* redistribution since the holdings of government are unevenly distributed in the population. Poor, young voters would support defaulting on debt that they inherited from previous generations since they are unlikely to hold government bonds themselves. Conversely, older, richer households who own government bonds would vote to repay debt, as would their children who can expect to receive some of their parents' wealth as bequests.

While these models are intuitively appealing, it is unclear to what extent they can explain the increases in debt we have discussed in the introduction. After all, parents do care about the welfare of their offspring. What's more, we have also witnessed massive reductions in debt levels over the lifetime of a generation (for example in the UK, see Figure 3 or in the Netherlands, see Figure 4), contrary to what this theory predicts. On the other hand, the ongoing demographic transition due to ageing populations could make this mechanism more relevant in the future.

3.3 Geographically dispersed interests

Another strand of the political economy literature analyses how the composition of legislatures and the different levels of government in federal states affect public spending.

The basic theory says that legislatures composed of members representing specific districts are prone to passing larger government budgets. The reason is that each representative wants to secure so-called "pork barrel" spending for his or her own constituency, i.e. funds that are directed exclusively towards that particular district, but does not fully internalize the cost of such projects since they are funded from the overall budget. In the simplest model, if there are N districts represented in the legislature, a district enjoys all of the benefits from its pork barrel spending, but bears only $1/N$ of the costs. This asymmetry of cost and benefits leads to too many district-specific project proposals compared to what a social planner (or a single legislator) would do. Because all projects are funded from the same government budget, this situation is also referred to as the "common pool problem."

More advanced papers in this literature assume that legislators bargain over the distribution of both pork barrel spending and the tax burden required to finance these projects. They show how legislators can build minimum winning coalitions in order to ensure funds for their constituencies.

A related literature examines the effects of federalism on the size of government budgets. Whenever there is a mismatch of spending powers and the authority to raise taxes between different levels of government, this creates incentives similar to those we just discussed. For example, imagine a setting in which local governments decide over spending levels, but taxes are raised at the federal level and then distributed to local governments. Then the latter have an incentive to overspend since they need not raise the required tax revenue themselves.

From an empirical point of view, this theory does not contribute much to explaining the increases in government debt. The reason is that it primarily is a theory about the size of the government budget, but not about its balance, and thus does not say much about the implications for the level of debt. Second, pork barrel spending usually is only a small fraction of the overall government budget and is dwarfed by other expenditures such as those on social welfare programs, which tend not to be district specific.

3.4 Budgetary institutions

Budgetary institution are another factor that can influence fiscal policy and explain cross-country differences in debt levels. As pointed out by Alberto Alesina and Perotti (1995), these institutions need to be harder to alter than the budget laws themselves to

have any effect on policy, as otherwise they could be changed whenever they interfere with a policy maker's plans.

Roughly speaking, A. Alesina and Passalacqua (2016) identify two types of institutions which they label as "hierarchical" and "collegial".

1. Hierarchical institutions grant more power to the head of government or the Treasury at the expense of spending ministers. Furthermore, the legislature has only limited possibilities to alter a government's budget proposal.
2. If institutions are more collegial, ministers responsible for specific agendas (defence, education, health) have more power to decide on spending levels in their departments. This can have implications similar to the ones we discussed in the case of the common pool problem.

The literature has additionally identified legislative voting procedures as a potentially important factor that determines the size of government budgets. For example, it makes a difference who sets the agenda, who can make amendments to budget proposal, and whether the legislature votes on the entire budget or separately on individual projects.

Lastly, the transparency of the budget process may effect government spending: less transparent procedures allow policy makers to obfuscate the real costs of their spending plans, for example by relying on unrealistically high GDP growth projections, or by overestimating the fiscal benefits of reforms.

A. Alesina and Passalacqua (2016) and Alberto Alesina and Perotti (1995) cite several papers that find some evidence for greater financial discipline in countries with more hierarchical institutions. Therefore, differences in budgetary institutions could contribute to explaining different debt levels across countries.

3.5 Strategic debt accumulation

One explanation for why governments run excessive deficits at all times is that it allows them to "tie the hands" of successor governments once they are voted out of office. In this section, we discuss how deficits can arise from disagreement over either the *level* of government spending or which *kind of government programs* should be financed.

3.5.1 Disagreement about level of government spending

For example, we could imagine two parties which disagree over the level of government spending, as in the model of Persson and Svensson (1989). Assume that the current government has a strong preference for low public expenditures for reasons that are left unexplained. For example, say that the government is conservative and thus traditionally

more inclined towards smaller budgets. In the next election, there is a chance that a more left-wing party will take over, which is assumed to prefer higher spending, e.g. on unemployment benefits or pensions. To limit spending after a regime change, the current conservative government thus has an incentive to accumulate more debt, e.g. by lowering taxes, than they would if they were guaranteed to stay in power indefinitely. Then any incoming government will have to devote more resources to repay debt, and therefore cannot increase spending as much as it would like.

The model thus predicts that fiscally conservative governments are prone to running budget deficits, while the opposite is true for left-wing governments, which would want to create more flexibility for higher spending once they are re-elected. This has been proposed as one possible explanation for the increase in government debt under the (conservative) Reagan administration in the U.S. in the 1980s.

3.5.2 Disagreement about composition of government spending

Alternatively, we could think of parties or voters as having preferences for *different types* of public spending, e.g. a conservative party preferring large defence budgets while a left-wing party advocates higher social spending. This idea was proposed in two papers by Alberto Alesina and Tabellini:

- In Alberto Alesina and Tabellini (1990), two parties have preferences for different public goods (military or non-military spending) for ideological reasons.

  Let's assume that the conservative party is in power today, and there is a non-negligible chance that it will be voted out of office in the next election. The current government correctly realizes that it will not be able to control spending in that case, but it can issue more debt to spend on the military today. Any liberal government next period will then be constrained in its spending possibilities by the high level of debt it inherited.

  The model predicts that deficits will be particularly large if politics is very polarized, i.e. the parties' spending priorities differ substantially, or if the probability of re-election is low, as then the incumbent party does not take into account the burden of high debt next period.

- Tabellini and Alberto Alesina (1990) propose a variant of this model in which there is uncertainty about the median voter in the next election, as opposed to the uncertainty of being re-elected. The current median voter, whose preferences coincide with the incumbent government (recall the median-voter theorem!), thus favours increasing debt to spend on his/her preferred public good today.

  We will work through a simplified version of this model in section 4.

Note, however, that both of these models ignore that successor governments can default on the inherited debt level, which weakens the effect of debt as a constraint.

Alberto Alesina and Perotti (1995) mention some papers that provide empirical support of the models presented here. They point out that OECD countries experienced more frequent government changes from the 1970s onward compared to the previous decades, and that the electorate has become more polarized. These models would then predict an increases in debt levels. Again, the accumulation of debt by the Reagan administration during the 1980s is sometimes attributed to a desire to constrain successive Democratic governments, who would be more likely to increase spending on entitlements.

In Figure 7 and Figure 8, we revisit the debt/GDP ratio for the US and the UK and connect it to the parties who were in power in a given period. The shaded areas indicate when a Democratic president was in power in the US (and thus white areas show Republican presidents), whereas in the UK graph shaded areas designate Labour governments (and white areas Conservative-led ones).

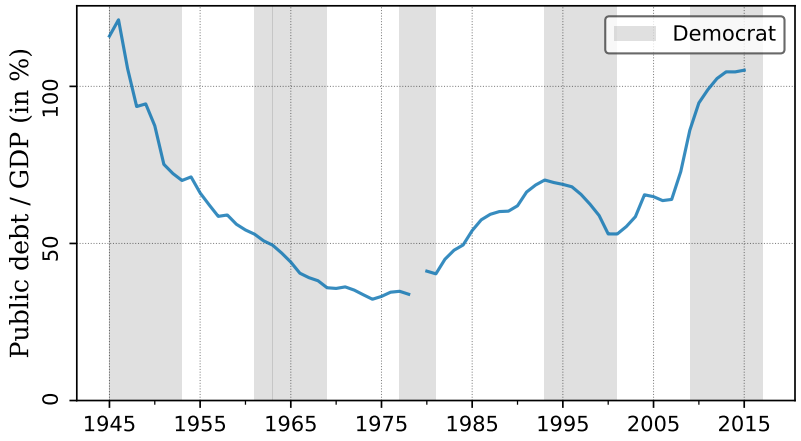


Figure 7: Government debt in the US as fraction of GDP, 1945–2015. Shaded areas show periods with Democratic presidents. Data source: Abbas et al. (2010)

We see that in the decades after 1945 debt levels declined in both countries, irrespective of which party was in power, contrary to what the theory of debt as a strategic variable would predict. Debt levels were increasing under the Reagan administration in the 1980s, whereas they dropped in the Clinton years and resumed their upward trajectory under Bush Jr. So while some episodes in U.S. history could be interpreted as being in line with governments trying to impose high debt levels on their successors, the overall picture is somewhat unclear – but of course this evidence is only anecdotal!

In the UK, debt levels as a fraction of GDP were decreasing until the 1990s and remained more or less flat thereafter, until the Great Recession hit in 2007. Consequently, there seems to be little evidence for the strategic use of debt in the UK.

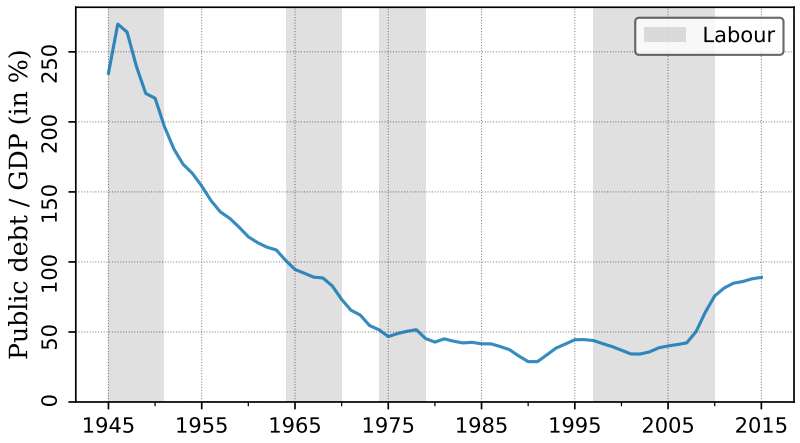


Figure 8: Government debt in the UK as fraction of GDP, 1945–2015. Shaded areas show periods with Labour governments. Data source: Abbas et al. (2010)

3.6 Social conflict and delayed stabilization

Models of social conflict attempt to explain why we observe periods of fiscal distress in which painful but necessary stabilization policies are frequently delayed, even if the costs of such delays are obvious to all parties involved. These delays result from protracted conflicts over who should bear the costs of stabilization. However, these models do not explain the deficit bias we have documented above, i.e. they do not provide a reason why countries end up in situations that would require abrupt adjustments to government spending in the first place.

Early explanations relied on the assumption that some of the stakeholders were not rational. However, this approach is not plausible if, for example, the failure to stabilize government debt results in hyperinflation, which all parties will consider to be harmful. More modern lines of argument therefore rely on other explanations that involve limited information and strategic bargaining.

One could imagine several reason for delayed stabilization:

1. There is disagreement over how the burden of stabilization should be spread across all the stakeholders; for example, the rich could be opposed to higher taxation of wealth or capital returns, while the middle class would suffer more if taxes on labour income were increased.

2. In a setting of incomplete information, there is uncertainty over the capacity of each group to bear the costs of stabilization, and each group has an incentive to downplay its capacity to contribute to stabilization efforts to achieve a more favourable outcome.

3. Lastly, a group might be able to extract a more favourable deal in the future by delaying stabilization today.

To illustrate, consider the related scenario of strikes which (in earlier times) were common when settling disputes between firms and their workers. Clearly, once a strike ended and agreement was reached, it would have been better for *both* parties if this final outcome had been adopted at the very beginning, thus eliminating the need for a strike in the first place – strikes are costly for both firms (due to lost output and therefore foregone revenue) and workers (due to lost wages). However, if workers are not perfectly informed about the firms profitability, the firm would have an incentive to claim that it cannot afford to give in to worker demands, regardless of whether that is the case or not. Enduring a damaging strike thus signals to workers that concessions are really costly to the firm.

The seminal paper in this literature, Alberto Alesina and Drazen (1991), assumes that there are two groups in the economy who need to agree on fiscal policy. Prior to an agreement, the authorities have to rely on sub-optimal distortionary policies to keep the government running which are costly for all parties. Both groups have the same level of income but may differ in their capacity to bear these costs. A crucial assumption is that the group-specific costs are private information and therefore not known to the other group. Because of the uncertainty about the other's cost, there is an individually rational incentive to hold out and hope that the other group will be the first to concede and bear a disproportionately large share of the burden of stabilisation (e.g. in form of taxes that mostly affect members of the loser group). Alberto Alesina and Drazen call this process the "war of attrition." Note that the uncertainty about the competing group's resources is crucial for delayed reforms: if everyone was perfectly informed about the other group's capacity to bear costs, the loser in the "war of attrition" would be known from the start and this group would immediately concede.

Some of the empirical implications of this model are that

1. longer delays will occur in more polarized societies where the costs of stabilization are very unevenly distributed and thus some groups have a particularly large incentive to hold out;
2. a worsening economic situation should accelerate reforms as further delays become more costly for all parties;
3. conversely, foreign aid could lead to further delays to the extent that it reduces the cost of ongoing conflict;
4. weaker or more fragmented governments are more likely to postpone reforms.

There is some evidence that weaker governments (with smaller majorities) or more fragmented coalition governments run larger deficits. Furthermore, "stronger" governments adjust fiscal policy more during crises, and exit crises periods sooner.

In section 5, we will work through a related model in more detail in which groups bargain over the costs of stabilisation.

3.7 Summary

In this section, we have discussed six theories that try to explain the widespread deviations of fiscal policy from the optimal benchmark of tax smoothing. The main point is that with the exception of the first group of theories on fiscal illusions, these deviations result from conflicting interests among *rational* voters and the political parties they elect into office. Each of these actors tries to extract advantages for themselves, often not fully taking into account the adverse consequences for the overall government budget and debt.

In the remaining two sections, we will examine two detailed examples that show how individually rational policies can give rise to increased public debt and delayed reforms.

4 Strategic debt accumulation – detailed example

We now discuss a variant of the model proposed in Tabellini and Alberto Alesina (1990), which illustrates how uncertainty about voter preferences in the next election can lead to higher deficits. The simplified version of the model presented here is based on Romer (2019), chapter 13.

To simplify the exposition, we make the following assumptions:

1. The economy lasts for two periods;
2. There are two types of government spending: on the military, M_t, and on non-military goods, N_t;
3. We ignore private consumption, so households derive utility only from M_t and N_t.
4. The economy has an aggregate endowment W in each period, and the government can additionally issue *non-defaultable* debt D. Debt is purchased by foreign investors which we do not model explicitly.
5. Elections are held at the beginning of period 2 which might lead to a change in government.
6. The discount factor is one ($\beta = 1$) and the real interest rate is set to zero, $r = 0$;

The government budget constraints in periods 1 and 2 are given by

$$M_1 + N_1 = W + D \tag{1}$$
$$M_2 + N_2 = W - D \tag{2}$$

where the government can use debt D to transfer resources between periods. Spending cannot be negative, so $M_t \geq 0$, $N_t \geq 0$ and thus debt needs to satisfy $-W \leq D \leq W$.

We assume that household i has preferences over M_t and N_t given by

$$v^i = \mathbf{E}\left[\sum_{t=1}^{2} \alpha^i u(M_t) + (1-\alpha^i)u(N_t)\right]$$
$$u'(\bullet) > 0,\ u''(\bullet) < 0$$

where α^i is the weight that household i puts on utility from military spending, with $0 \leq \alpha^i \leq 1$. These weights are allowed to differ across households. As usual, the utility function $u(\bullet)$ is increasing and strictly concave. Note that the expectation in the above expression is taken over the possible range of policies adopted in the second period, which depend on the election outcome.

4.1 Social planner solution

We first discuss the social planner solution in this economy. For simplicity, assume that there is only one (representative) household with weight $\alpha^i = \alpha$.[3] The social planner then solves

$$\max_{M_1,N_1,M_2,N_2} \sum_{t=1}^{2} \alpha u(M_t) + (1-\alpha)u(N_t)$$

subject to the resource constraints (1) and (2), which we can combine into a single constraint

$$M_1 + M_2 + N_1 + N_2 = 2W \tag{3}$$

to eliminate the debt level D.[4] The Lagrangian for this problem is given by

$$\mathcal{L} = \sum_{t=1}^{2}\Big[\alpha u(M_t) + (1-\alpha)u(N_t)\Big] + \lambda\Big[2W - M_1 - M_2 - N_1 - N_2\Big]$$

[3] Alternatively, you can interpret this as an economy in which a fraction α of households only value M_t and the other fraction $(1-\alpha)$ only value N_t.

[4] Note that the implied debt level D required to transfer resources between periods still has to satisfy $-W \leq D \leq W$.

where λ is the Lagrange multiplier on constraint (3). The first-order conditions with respect to M_1 and M_2 can then be written as

$$\alpha u'(M_1) = \lambda$$
$$\alpha u'(M_2) = \lambda$$

while for N_1 and N_2 they are given by

$$(1-\alpha)u'(N_1) = \lambda$$
$$(1-\alpha)u'(N_2) = \lambda$$

These conditions imply that a social planner would set $M_1 = M_2$ and $N_1 = N_2$, i.e. the same level of the government spending M and N should be undertaken in both periods. This should not come as a surprise, since we assumed a concave utility function u which makes households want to smooth consumption. Furthermore, combining the above first-order conditions, the magnitudes of M and N are pinned down by

$$\frac{u'(M)}{u'(N)} = \frac{1-\alpha}{\alpha}$$

We see that for a larger weight α, the right-hand side $(1-\alpha)/\alpha$ will decrease, and therefore $u'(M)$ needs to be larger than $u'(N)$. Because of decreasing marginal utility, this implies that the social planner chooses to spend more on M than N if α is high.

What is the implied optimal level of government debt in this setting? Since $M_1 = M_2 = M$ and $N_1 = N_2 = N$, from the period 1 and 2 resource constraints (1) and (2) we see that

$$M + N = W + D$$
$$M + N = W - D$$

The only level of debt that satisfied both constraints is thus $D = 0$, and any non-zero government debt is *inefficient*!

4.2 Equilibrium with electoral competition

We now turn to equilibrium in a setting in which the party in government can differ in periods 1 and 2, potentially giving rise to non-constant M_t and N_t as well as non-zero debt D. However, instead of modelling parties which differ in their preferences for spending on M or N, we instead take a short-cut and assume that voter preferences α^i between periods 1 and 2 can change. Such preference changes could for example be due to randomness in voter participation, which we do not model explicitly. Since we will

be invoking the median voter theorem, any party running for office will then adopt the median voter's preferred policy (M_2, N_2).[5]

As usual, we will be solving for the equilibrium using backward induction. Once we have derived the policy adopted in period 2, we will solve the problem in period 1, taking into account the optimal period-2 policy. Note that the level of debt D is fixed at the beginning of period 2 and thus needs to be taken as given when proposing a policy (M_2, N_2). It follows that there is only one choice variable in period 2, say M_2, and the other is pinned down by the budget constraint (2) as $N_2 = W - D - M_2$. We can thus write the period-2 utility v_2^i for any household i as a function of M_2 only:

$$v_2^i(M_2) = \alpha^i u(M_2) + (1 - \alpha^i) u(W - D - M_2) \tag{4}$$

This function is plotted in Figure 9 for various values of α^i.

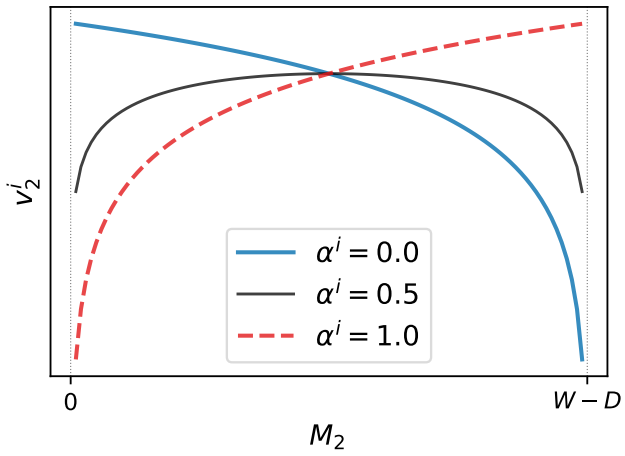


Figure 9: Period-2 utility v_2^i for different values of α^i.

It is straightforward to show that for any fixed α^i, $v_2^i(M_2)$ is *single-peaked*, i.e. each household i has a unique preferred level of M_2 which we denote as $M_2^\star$.[6] As shown in the figure, $M_2^\star$ can either be interior, as for $\alpha^i = 0.5$, or at the boundaries of the feasible interval $[0, W - D]$, as for $\alpha^i = 0$ or $\alpha^i = 1$. Moreover, because $u(\bullet)$ is strictly concave, an individual prefers any M_2 closer to $M_2^\star$ to any another $M_2^\dagger$ further away,

[5] We will be using the terms "policy maker" and "median voter" interchangeably since both have identical preferences.

[6] To see this, compute the second derivative with respect to M_2, given by

$$\partial^2 v_2^i / \partial M_2^2 = \alpha^i u''(M_2) + (1 - \alpha^i) u''(W - D - M_2) < 0$$

which is negative as we assumed $u''(\bullet) < 0$. Thus any maximum of v_2^i has to be unique.

i.e.

$$\text{if } M_2^\dagger < M_2 < M_2^\star \qquad \text{then} \qquad v_2^i(M_2^\dagger) < v_2^i(M_2) \tag{5}$$

$$\text{if } M_2^\dagger > M_2 > M_2^\star \qquad \text{then} \qquad v_2^i(M_2^\dagger) < v_2^i(M_2) \tag{6}$$

To illustrate, consider the utility function for an individual with $\alpha^i = 0$ shown in Figure 10. The preferred spending level on M_2 is given by $M_2^\star = 0$. Take spending level $M_2^\dagger$ shown in the graph: we see that the household will prefer any other spending level $M_2 < M_2^\dagger$ which is closer to the preferred $M_2^\star$.

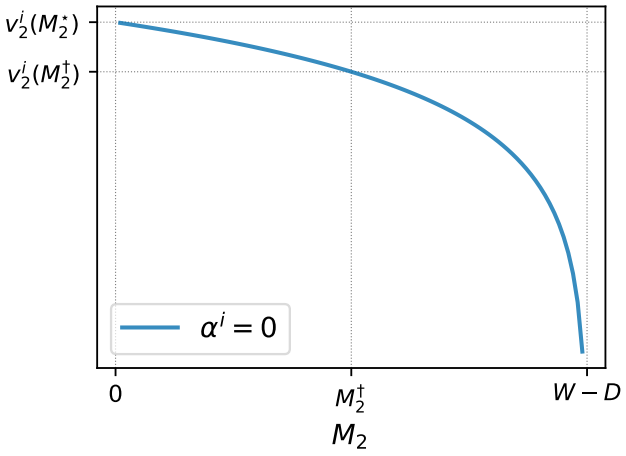


Figure 10: Period-2 utility v_2^i illustrating single-peakedness

These assumptions allow us to apply the *median-voter theorem*. Recall from section 2.2 that the dominant strategy for any party competing in elections is to propose a policy that is preferred by the median voter. Here the median voter is defined in terms of α^i, and we denote this median value by α^m. Recall that by definition half of the households have $\alpha^i \geq \alpha^m$. Every political party will then propose the policy M_2^m which maximizes the median voter's utility,

$$M_2^m = \arg\max_{M_2} \left\{ \alpha_2^m u\left(M_2\right) + (1 - \alpha_2^m) u\left(W - D - M_2\right) \right\}$$

where α_2^m is the median α in period 2. Why is M_2^m the vote-maximizing policy proposal? Since half of the population has $\alpha^i \geq \alpha_2^m$, they prefer $M_2 \geq M_2^m$. Conversely, the other half of the population with $\alpha^i \leq \alpha_2^m$ prefers $M_2 \leq M_2^m$. A majority will therefore support M_2^m over any other M_2, and any policy maker who only cares about being elected will thus promise to implement M_2^m in period 2.

Turning to period 1, the government in power (or equivalently, the period-1 median voter) is fully aware of the randomness of α^i among period-2 voters, and will thus form expectations about the policy M_2^m next period. In then chooses M_1 and D tak-

ing this information into account (N_1 again follows from the budget constraint). We can think of this as uncertainty about who will be in power next period and which policies they will implement. Compared to period two, there are therefore two complications:

1. the policy space is now two-dimensional, (M_1, D); and
2. there is uncertainty about the policy adopted in period 2.

Tabellini and Alberto Alesina demonstrate that the median-voter theorem can be extended to this setting, and the (M_1, D) combination preferred by the median voter will be adopted by the policymaker.

To find the median voter's preferred debt level in period 1, we need to make an assumption about the distribution of α^i in periods 1 and 2. We discuss two different scenarios below.

4.2.1 Extreme preferences

Assume that there are only two types of voters who either only value military spending M, i.e. $\alpha^i = 1$, or non-military spending N if their $\alpha^i = 0$. The policy implemented in period 2 is therefore:

$$M_2^m = \begin{cases} W - D & \text{if } \alpha_2^m = 1 \\ 0 & \text{if } \alpha_2^m = 0 \end{cases}$$
$$N_2^m = \begin{cases} 0 & \text{if } \alpha_2^m = 1 \\ W - D & \text{if } \alpha_2^m = 0 \end{cases}$$

so that all available resources after repaying period-1 debt are spent on the good favoured by the median voter.

In the first period, the prevailing median voter (which again has either $\alpha_1^m = 1$ or $\alpha_1^m = 0$) is fixed, but forms expectations about the uncertain median voter in period 2. The probability that the median voter in period 2 has $\alpha_2^m = 1$ is given by $\pi \in [0, 1]$.

First, consider the case when the period-1 median voter has $\alpha_1^m = 1$. The policy maker will then set $M_1 = W + D$ and $N_1 = 0$, so the only policy variable to be determined is debt D. To do this, consider the median voter's expected utility as a function of D:

$$\begin{aligned} v_1^m(D) &= \alpha_1^m u(W + D) + (1 - \alpha_1^m)u(0) + \mathbf{E}\left[\, u(M_2^m) \,\right] \\ &= \underbrace{u(W + D)}_{\text{utility in period 1}} + \underbrace{\pi u(W - D) + (1 - \pi)u(0)}_{\text{expected utility in period 2}} \end{aligned}$$

The expected utility reflects the fact that an individual with $\alpha_1^m = 1$ in the first period will receive non-zero utility in period 2 only with probability π.

Taking the derivative with respect to D, the first-order condition states that the policy maker will choose debt such that

$$u'(W + D) - \pi u'(W - D) = 0$$

which can be rearranged to read

$$\frac{u'(W + D)}{u'(W - D)} = \pi$$

Assume that $0 < \pi < 1$, so that there is a positive probability that the next-period median voter will not value M_2 at all. Then the above optimality condition implies that

$$u'(W + D) < u'(W - D)$$

Since marginal utility u' is a decreasing function, this only holds if

$$W + D > W - D$$

Hence the chosen debt level will be positive, $D > 0$. We can repeat the analysis if the period-1 policy maker only values N, i.e. $\alpha_1^m = 0$. The corresponding condition pinning down the debt level is then given by

$$\frac{u'(W + D)}{u'(W - D)} = 1 - \pi$$

Figure 11 plots the relationship between π and the chosen debt level. In this extreme case we can think of π as the probability of being re-elected. If the policy maker is re-elected next period with certainty, the chosen debt level is $D = 0$, which is the same as in the optimal social planner solution. There is no need to constrain the government in the next period since it has the same preferences.

On the other hand, if there is uncertainty about the government in power in period 2, the period-1 policy maker has an incentive to transfer resources to period 1 and spend them on their preferred good. From the period-1 policy maker's perspective these would otherwise be wasted on a good in period 2 which the policy maker does not value. The period-1 policy maker can thus "tie the hands" of the period-2 policy maker, who needs to devote resources to repaying debt issued in period 1. The cost of issuing debt is thus not fully internalized by the period-1 policy maker.

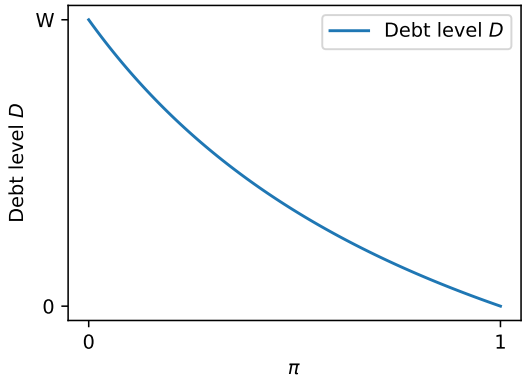


Figure 11: Debt level chosen in period 1 if policy maker only values M, i.e. $\alpha_1^m = 1$, plotted against the probability π that period-2 policy maker will have the same preferences.

4.2.2 Logarithmic utility

Following Romer (2019), we discuss a second simplified special case which arises if utility is logarithmic, i.e. $u(x) = \ln(x)$, but we no longer constrain α^i to be in $\{0, 1\}$.

Starting again with the optimal choice of M_2^m in period 2, the policy maker maximizes

$$\max_{M_2} \left\{ \alpha_2^m \ln M_2 + (1 - \alpha_2^m) \ln(W - D - M_2) \right\}$$

The first-order condition for M_2 is then given by

$$\alpha_2^m \frac{1}{M_2} - (1 - \alpha_2^m) \frac{1}{W - D - M_2} = 0$$

and consequently the policies maximizing the period-2 median voter's utility are,

$$\begin{aligned} M_2^m &= \alpha_2^m (W - D) \\ N_2^m &= (1 - \alpha_2^m)(W - D) \end{aligned} \tag{7}$$

so that the expenditure shares on M_2 and N_2 correspond to their weights in the median voter's utility function.[7]

Consider now the second-period utility from the perspective of the period-1 policy maker

[7] If you are familiar with Cobb-Douglas utility, which in this case is given by $U = M_2^{\alpha_2^m} N_2^{1-\alpha_2^m}$, you would obtain exactly the same solution as in (7). The reason is that the logarithmic utility is simply a monotonic transformation of the Cobb-Douglas utility function, and hence the optimal choices must be identical.

(with preference weight α_1^m) who takes as given M_2^m and N_2^m:

$$\begin{aligned} v_2^1\left(D, \alpha_2^m\right) &= \alpha_1^m \ln M_2^m + (1-\alpha_1^m)\ln N_2^m \\ &= \alpha_1^m \ln\Big(\alpha_2^m (W-D)\Big) + (1-\alpha_1^m)\ln\Big((1-\alpha_2^m)(W-D)\Big) \\ &= \alpha_1^m \ln \alpha_2^m + \alpha_1^m \ln(W-D) \\ &\quad + (1-\alpha_1^m)\ln(1-\alpha_2^m) + (1-\alpha_1^m)\ln(W-D) \\ &= \alpha_1^m \ln \alpha_2^m + (1-\alpha_1^m)\ln(1-\alpha_2^m) + \ln(W-D) \end{aligned}$$

We see that the realized value of α_2^m only affects the *level* of the period-1 policy maker's expected utility in period 2, but does not interact with the choice of D. Therefore, the optimally chosen D in period one must be independent of any expectations about α_2^m the period-1 policy maker might have. We can use this insight to obtain the optimal policy in period 1:

1. The short-cut: Since the choice of D does not depend on expectations about α_2^m, we can just as well assume that $\alpha_2^m = \alpha_1^m$ with certainty. But then the policy makers in period 1 and 2 have the same preferences, and we know that the optimally chosen debt level in this case is $D = 0$, which we derived above for the case of the social planner.

2. Alternatively, we can follow the standard, more tedious approach and write down the period-1 policy maker's maximization problem:

$$\max_{M_1, D} \ \left\{ \alpha_1^m \ln M_1 + (1-\alpha_1^m)\ln(W + D - M_1) + \mathbf{E}\left[v_2^1(D, \alpha_2^m) \right] \right\}$$

   where we have already plugged in the budget constraint (1) to eliminate N_1.

   The first-order condition for M_1 is then

$$\frac{\partial v_2^1}{\partial M_1} = \alpha_1^m \frac{1}{M_1} - (1-\alpha_1^m)\frac{1}{W + D - M_1} = 0$$

   while for D it is given by

$$\frac{\partial v_2^1}{\partial D} = (1-\alpha_1^m)\frac{1}{W + D - M_1} - \frac{1}{W - D} = 0 \tag{8}$$

   We can reformulate these conditions to read

$$\begin{aligned} (1-\alpha_1^m)\frac{1}{W + D - M_1} &= \alpha_1^m \frac{1}{M_1} \\ (1-\alpha_1^m)\frac{1}{W + D - M_1} &= \frac{1}{W - D} \end{aligned}$$

from which it follows that

$$\alpha_1^m \frac{1}{M_1} = \frac{1}{W-D} \implies M_1 = \alpha_1^m (W-D)$$

We can insert this expression back into (8). After some straightforward algebraic manipulations we find that the equation reduces to $-D = D$, which implies that $D = 0$ is the optimal level of government debt.

Therefore, both solution methods yield the same result that it is optimal to issue no government debt.

To gain some intuition, assume that the period-1 policy maker puts a higher value on M, while the opposite is true for the period-2 policy maker. Unlike in the previous example with extreme preferences, government debt affects a period-1 policy maker's utility in two opposite ways:

1. A higher level of debt prevents the period-2 policy maker from wasting resources on N_2. This is the same mechanism as in the example of extreme preferences.
2. On the other hand, unlike in the previous example, the period-2 policy maker would want to spend on both goods, even though less so on military spending M_2. If debt is high, spending on M will be further reduced from an already low level. Due to the concave utility function, this additional reduction substantially hurts the period-1 policy maker.

With logarithmic preferences, these two effects exactly cancel out, so the optimal debt level is zero. This special case therefore does not lead to deficit bias.

4.3 Summary

You should take away the following main conclusions from the section on debt as a strategic variable:

1. Strategic debt accumulation can potentially explain why governments deviate from tax smoothing and why we see excessive deficits outside of recessions and wars.
2. It can arise if policy makers' or voters' preferences change over time. The current government can use debt to limit a successor's policy options, for example when there is disagreement over the type of government spending (e.g. military vs. non-military).
3. One reason why preferences could change is due to fluctuations in voter participation: in this section we examined the case when there is uncertainty about the next election's median voter, and we assumed that political parties adopt the median voter's preferences to win elections.

5 Social conflict and delayed stabilization – detailed example

Alberto Alesina and Drazen (1991) were the first to propose a model of delayed stabilization of government debt. However, we will base our discussion on Hsieh (2000), which is a variant of the same idea, but less technically involved. We follow Romer (2019) who simplifies the model from Hsieh (2000) even further, reducing it to only one period.

5.1 A simple one-period bargaining model

Consider a scenario of excessive government debt (which we do not model explicitly) which has to be financed by raising tax revenues T. There are two groups, workers and capitalists, who bargain over how the burden of raising T should be distributed. We assume that there is only one round of bargaining in which workers propose the amount of taxes to be paid by capitalists, x, which has to satisfy $0 \leq x \leq T$ (workers then pay the remaining $T - x$). There are two possible outcomes:

1. The capitalists reject the offer, and each party gets a payoff of zero.
2. The capitalists accept the offer. In that case the workers receive wages W and pay taxes $T - x$, which leaves them with a payoff of $W - (T - x)$, while the capitalists receive profits R, pay taxes x and thus get a payoff of $R - x$.

We further assume that profits R are not deterministic, but are drawn from a uniform distribution on the interval $[a, b]$.[8] While workers are aware of the uncertainty underlying R, only the capitalists actually observe the realized value of R when they make the decision to accept or reject the workers' offer.

It is straightforward to see that any proposal $0 \leq x \leq a$ makes both capitalists and workers (weakly) better off since each party gets a non-negative amount if the offer is accepted, as opposed to a zero payoff if no agreement is reached. Nevertheless, we will now discuss why workers might be tempted to propose a different x which is not guaranteed to be accepted by the capitalists.

Assume that workers propose some x. We can distinguish three cases:

[8] If a random variable R is uniformly distributed on an interval $[a, b]$ this means that any value R that satisfies $a \leq R \leq b$ is equally likely. The cumulative distribution function of such a random variable, given by the probability $\Pr(R \leq x)$ for some value x, is defined as

$$\Pr(R \leq x) = \begin{cases} 0 & \text{if } x \leq a \\ \frac{x-a}{b-a} & \text{if } a < x < b \\ 1 & \text{else} \end{cases}$$

1. $x \leq a$: The workers make a generous offer that imposes a small tax burden on the capitalists. The capitalists accept for sure since they have a non-negative payoff for any realization of R.

2. $a < x < b$: Capitalists get $R - x$ if they accept the offer and nothing otherwise, so they will accept whenever $R - x \geq 0$, or equivalently whenever $R \geq x$.[9] Since R is uniformly distributed, the probability of this event is

$$\Pr(\text{ accept }) = \Pr(R \geq x)$$

Conversely, the probability that the capitalists reject the offer is given by

$$\Pr(\text{ reject }) = \Pr(R < x) = 1 - \Pr(\text{ accept })$$

We can therefore express the acceptance probability as

$$\Pr(\text{ accept }) = 1 - \Pr(\text{ reject })$$

and use the formula from footnote 8 to obtain

$$\Pr(\text{ accept }) = 1 - \Pr(R \leq x) = 1 - \frac{x-a}{b-a} = \frac{b-x}{b-a} \tag{9}$$

3. $x \geq b$: The workers effectively propose to confiscate all of the capitalists' profits (and more!) so this offer will be rejected with certainty.

We can then combine these three cases to find

$$\Pr(\text{ accept }) = \begin{cases} 1 & \text{if } x \leq a \\ \frac{b-x}{b-a} & \text{if } a < x < b \\ 0 & \text{if } x \geq b \end{cases} \tag{10}$$

If the tax burden is sufficiently low, the capitalists will accept for sure, while they will reject any offer $x > b$ that would leave them with a negative payoff with certainty. In between these two extremes, the probability of accepting is a linear, decreasing function of x, as shown on the left-hand side of Figure 12.

The workers' expected utility of proposing policy x, which we denote by $v(x)$, is therefore the payoff in when the capitalists accept, $W - (T - x)$ times the probability of acceptance $\Pr(R \geq x)$ plus the payoff of zero in the case that capitalists do not accept. For any x

[9] We assume that the capitalists accept the offer whenever $R = x$, as in this case they are indifferent between accepting and not accepting.

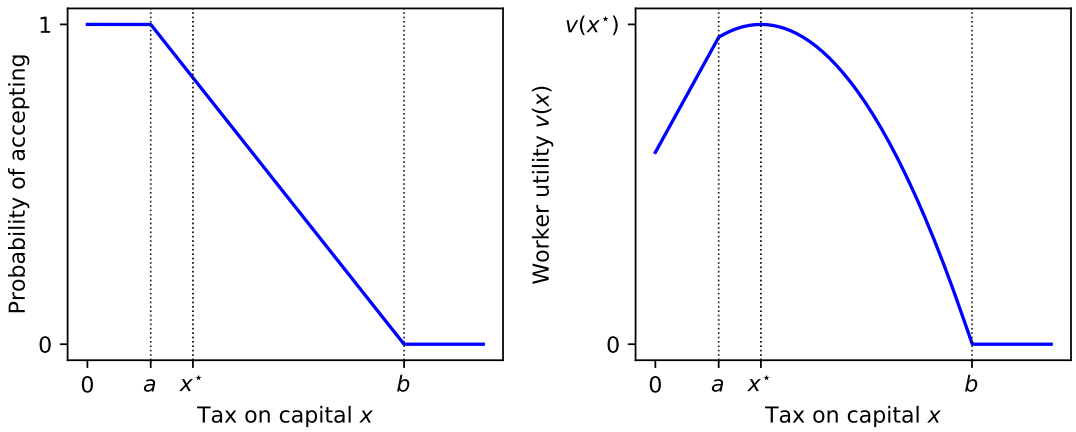


Figure 12: Scenario with interior solution $x^\star > a$.

with $a < x < b$ it is given by

$$\begin{aligned} v(x) &= \underbrace{\big[W-(T-x)\big]}_{\text{accept}} \times \Pr\big(R \geq x\big) + \underbrace{0 \times \Pr\big(R \leq x\big)}_{\text{reject}} \\ &= \big[W-(T-x)\big]\frac{b-x}{b-a} \end{aligned} \tag{11}$$

or more generally for an arbitrary x,

$$v(x) = \begin{cases} W-(T-x) & \text{if } x \leq a \\ \big[W-(T-x)\big]\frac{b-x}{b-a} & \text{if } a < x < b \\ 0 & \text{if } x \geq b \end{cases}$$

This expected utility is plotted on the right-hand side of Figure 12 as a function of the proposal x. You see that for any $x < a$, $v(x)$ is linearly increasing because capitalists will accept any such offer for sure, and the worker payoff conditional on acceptance, $W-(T-x)$, is linear. On the other hand, as soon as workers propose $x > a$, capitalists will no longer accept with certainty, and thus $v(x)$ increases more slowly or can even be decreasing, as illustrated on the right-hand side of Figure 13.[10]

The intuition here is straightforward: workers can be more greedy (high x), but then they run the risk that their offer will not be accepted. This trade-off is captured by the shape of the expected utility function.

You can see from these figures that the workers will not make a proposal $x \geq b$ that will be rejected for sure, as there are many other options that yield a positive expected utility.

[10]The different shapes in Figure 12 and Figure 13, are due to different parameter values for a and b.

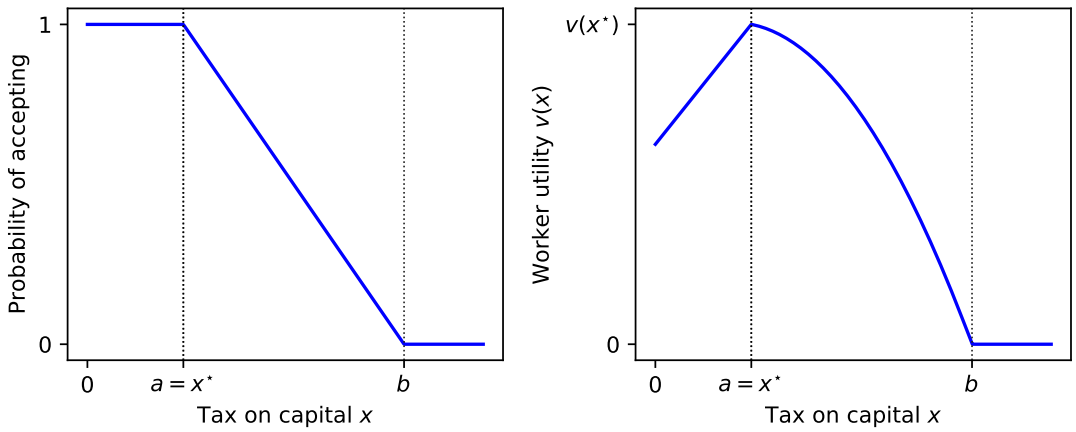


Figure 13: Scenario with boundary solution $x^\star = a$.

Given our assumptions, workers are even better off if they bear the entire burden of stabilization when $x = 0$.

To find the optimal proposal $x^\star$, we explore two different scenarios:

1. Workers offer the largest x which the capitalists accept with certainty; or
2. Workers make a less generous proposal which will be accepted with probability strictly smaller than one.

Consider first the proposal $x = a$ which will be accepted by the capitalists with certainty and leaves workers with a payoff of $W - (T - x)$. Whether workers can get a better deal depends on the derivative of $v(x)$ as x approaches a from above. This derivative is obtained by differentiating (11) with respect to x, and is given by

$$\begin{aligned} v'(x) &= \frac{b-x}{b-a} - \frac{1}{b-a}\big[w - (T-x)\big] \\ &= \frac{b - W + T - 2x}{b-a} \end{aligned} \tag{12}$$

Depending on parameters, the expression can be either positive (as in Figure 12) or negative (as in Figure 13).

Interior solution. The condition for $v'(x) > 0$ at $x = a$, i.e.

$$v'(a) = \frac{b - W + T - 2a}{b-a} > 0$$

is satisfied whenever we have that

$$b > W - T + 2a \tag{13}$$

The intuition is that if b is large, there is a high probability that the capitalists accept the proposal even if it is less generous, as their expected after-tax payoff will still be large. This is the case illustrated in the right-hand side of Figure 12. From the workers' point of view, the optimal proposal $x^\star$ is thus pinned down by the first-order condition $v'(x^\star) = 0$. Solving (12) for x, we find that $x^\star$ is given by

$$x^\star = \frac{b - W + T}{2} \tag{14}$$

Intuitively, the above expression says that workers will want to extract a higher contribution from the capitalists if

- b is large, i.e. the capitalists are able to bear the cost of higher taxes; or
- W is small, i.e. workers are not able to bear higher costs; or
- T is large, i.e. a larger amount of taxes needs to be raised.

To determine the probability that the capitalists accept offer $x^\star$, we can insert (14) into (9) to see that

$$\Pr(\text{ accept }) = \frac{1}{b-a}\left[b - \left(\frac{b - W + T}{2}\right)\right] = \frac{b + W - T}{2(b-a)}$$

How do we see that this probability is indeed smaller than one? From (13) we know that $W - T < b - 2a$, hence

$$\Pr(\text{ accept }) = \frac{b + W - T}{2(b-a)} < \frac{b + b - 2a}{2(b-a)} = 1$$

where we have replaced $W - T$ with something strictly larger.

Boundary solution. On the other hand, if condition (13) does not hold, we are in the case illustrated in Figure 13. The workers can do no better than proposing $x^\star = a$, as any less generous proposal substantially reduces the probability of acceptance.[11] The capitalists accept the offer $x^\star = a$ with certainty.

[11] It is straightforward to see that the second derivative $v''(x) = -2/(b-a)$ is negative everywhere, so if $v(x)$ is decreasing at $x = a$, it will be decreasing at any other $x > a$ as well, and the solution $x^\star = a$ is indeed the only maximum.

Combining the above findings, the workers optimally propose

$$x^\star = \begin{cases} a & \text{if } b \leq W - T + 2a \\ \frac{b-W+T}{2} & \text{else} \end{cases} \tag{15}$$

and the capitalists accept their proposal with probability

$$\Pr(\text{ accept }) = \Pr(R \geq x^\star) = \begin{cases} 1 & \text{if } b \leq W - T + 2a \\ \frac{b+W-T}{2(b-a)} & \text{else} \end{cases}$$

The key insight from this result is that the probability of reaching an agreement can be smaller than one if workers are tempted to make a less generous proposal, which may not be accepted by capitalists. The workers' motivation is perfectly rational, as a less generous proposal maximizes their *expected* utility ex ante.

5.2 No uncertainty

A crucial ingredient for this result is that the capitalists' profits are unknown to the workers. If we instead assume that profits are not random but fixed, say $R = \overline{R}$, and known to both workers and capitalists, then the workers will propose $x = \overline{R}$ and capitalists will agree for sure since their payoff is zero in either case. Stabilization will therefore *not* be delayed. In this outcome, workers are able to shift the entire burden onto the capitalists. This is a consequence of the highly simplified bargaining protocol employed here, as the workers are the only ones who can make a one-time take-it-or-leave-it offer.

5.3 Extensions

It is possible to extend this framework in several dimensions. Hsieh (2000) studies a multi-period setup, where delaying stabilization today might result in a more favourable proposal in the next period, which is of course absent from our simple model. Furthermore, one could study the effects of foreign aid, which could be modelled as an increase in payoffs even when no settlement is reached. Then foreign aid would *reduce* the likelihood of stabilization (if workers propose $x > a$) as it reduces the costs associated with a failure to agree, and thus capitalists are less likely to accept a proposal.

5.4 Summary

The main take-aways from this section are:

1. Reforms required to stabilize excessive government debt might be delayed if
    a) There is disagreement over which (socioeconomic) group should bear the cost of stabilization; or
    b) there is uncertainty about a group's capacity to bear such costs; or
    c) there is a chance that delays will result in proposals that are more favourable in the future.
2. The models discussed here do not explain why excessive deficits arise in the first place, but do explain why they persist for a prolonged period of time.

6 Things you should know

After finishing this topic, you should be able to discuss the following issues:

1. Debt levels have frequently deviated from what would be implied by the optimal benchmark of tax smoothing. There is substantial variation in debt levels across countries and time.
2. The political economy of fiscal policy attempts to explain such deviations as a result of political processes which are absent from purely economic models and social planner allocations.
3. One complication facing models with voting is that electorates can have widely different opinions on policy, and aggregation of such preferences is not straightforward. You should know the median-voter theorem as one way to solve this issue.
4. You should know the main theories that can explain why government budgets and debt grow beyond "optimal" levels. The underlying mechanisms in these models are different preferences for redistribution, disagreements over where government spending should be used or conflicts over who should bear the costs of fiscal reforms.
5. Be able to discuss how excessive public debt can constrain the policy options of successive governments.
6. You should understand why bargaining over who should bear the costs of fiscal stabilization can lead to delays of necessary reforms.

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Government Debt and the Macroeconomy

Topic VI: Policy implications

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23rd November 2020

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1 Introduction

In the previous topic on the political economy of government debt, we discussed the increases in government debt levels since the 1970s across many advanced economies. Figure 1 illustrates this phenomenon for developed countries which are members of the OECD. These increases in debt levels arise from the so-called "deficit bias," the fact that countries experience budget deficits at all times, even in the absence of recessions. Note that in principle the debt increases shown in Figure 1 could be compatible with optimal fiscal policy, but only if the economies were frequently hit by adverse economic shocks over the past decades, or if benevolent policy makers were very myopic, i.e. they did not care much about future generations. There is little empirical support for either of these assumptions, and consequently we will interpret the patterns we see in the data as deviations from optimality.

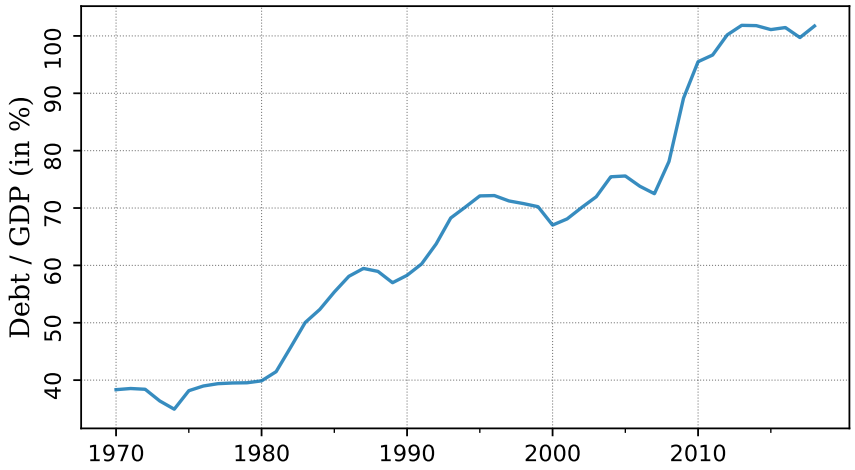


Figure 1: General government debt as share of GDP in OECD countries. Data sources: IMF Global Debt Database and OECD (`doi:10.1787/dc2f7aec-en`)
Debt-to-GDP ratio computed as weighted average of country-specific ratios reported by IMF. Weights are computed as share of country GDP in total OECD GDP at current exchange rates in each year.

In this topic, we are going to discuss how budgetary frameworks should be designed in the presence of a deficit bias. As Debrun, Moulin et al. (2008) point out, it is unrealistic to change a country's political institutions solely for the purpose of eliminating the deficit bias. The focus over the last few decades has therefore been to make adaptions to improve fiscal governance. Debrun, Moulin et al. (2008) mention four types of measures that can potentially improve budget discipline:

1. increasing fiscal transparency;
2. strengthening the budget process to ensure that consequences of fiscal policy are properly taken into account, for example by centralising the budget process in the

hands of the treasury;

3. imposing fiscal rules which set out numerical targets or ceilings for deficits, debt levels, etc.; or
4. delegating some aspects of fiscal policy to an independent authority such as a fiscal council.

We will look in more detail at the last two points, and in particular at some of the solutions implemented in the UK and EU countries. To set the stage, we first briefly review optimal policy so we can better understand the trade-offs that need to be taken into account when designing fiscal institutions. In section 2, we then discuss which kinds of fiscal rules have been implemented in advanced economies, and assess their effectiveness. We examine the fiscal rules imposed in the UK and in EU member countries as case studies. Finally, in section 3 we turn to independent fiscal councils and examine how these can be used as complements to fiscal rules. We look at the UK's fiscal council, the Office for Budget Responsibility, in more detail.

1.1 Optimal debt policy

We revisit the issue of optimal fiscal policy based the papers by Kirsanova, Leith and Wren-Lewis (2009) and Portes and Wren-Lewis (2015) who provide non-technical review of optimal fiscal policy and the rationale behind fiscal rules and fiscal councils.

Recall from the discussion in topic III that a country's debt trajectory depends on the government's discount factor β and its magnitude relative to the gross interest rate $(1+r)$, which we assume to be constant over time for simplicity:

- If $\beta(1+r) < 1$, the government is myopic and does not attach much weight to the welfare of later generations. In this case we could see exploding debt levels similar to Figure 1.

  There is no particularly good reason why a benevolent policy maker would have a lower discount factor than households or firms in the private sector. However, as we discussed in topic V, electoral competition and the chance of being voted out of office next period could lead to myopic policies of a *non-benevolent* policy maker.

- If $\beta(1+r) = 1$, the optimal response to shocks in many models turns out to be that shocks are fully accommodated and have a permanent effect on debt. This is called the "random-walk result" in the literature.

  The optimal fiscal response in this setting is to increase taxes permanently to finance the additional interest payments on a larger stock of government debt. What is the intuition behind this result? Assume the policy maker has two options, to either

1. increase distortionary taxes a lot to immediately balance the budget whenever an adverse shock hits and to keep the debt level constant; or
2. let the debt level increase as needed, but increase distortionary taxes just enough to finance increases in interest payments each period.

It turns out that large increases in taxes yield lower welfare than moderate but permanent tax increases, as in the latter case the "pain" of servicing higher debt levels is spread over many periods in the future (which are additionally discounted!).

This result rests on several assumptions, the most important being that the government can credibly commit to the policy described above. Additionally, it applies only at moderate debt levels and only to small shocks, since otherwise we would expect a higher probability of sovereign default and consequently an increase in the risk premium demanded by bond holders. This could lead to a debt-interest spiral and exploding debt levels.

There are other reasons why a government might not want allow for a permanently higher debt level:

- If shocks are asymmetric, i.e. negative shocks are more likely than positive ones (think of global pandemics or a collapse of the financial system), tax smoothing implies that debt should be on a downward trajectory in normal times to create a "safety buffer" when a crisis hits.
- Similarly, if large shocks are likely to move an economy to the zero lower bound (ZLB) and conventional monetary policy is no longer able to stabilise the economy, debt should be sufficiently low to allow fiscal policy to fill the gap. This again implies that debt levels should be decreasing in normal times.

- If $\beta(1+r) > 1$, the policy maker would want to completely eliminate debt in the long run and instead accumulate net wealth. Long-run taxes would then be zero as any government spending would be paid for by interest income on government wealth.

  Again, this is a scenario we don't see in the data.

Irrespective of the exact assumptions, one conclusion from the literature is that optimal adjustments to public debt levels should be gradual, in particular since we usually have the case that $\beta(1+r)$ is reasonably close to one. Debt should be used as a "shock absorber" or automatic stabiliser so that tax and spending policies need not be abruptly adjusted.

2 Fiscal rules

2.1 Overview of fiscal rules

In the 1980s, fiscal rules came to be seen as a way to constraint governments subject to excessive deficits. By fiscal rules we usually mean *numerical* fiscal rules that impose either a target (such as a balanced budget) or a ceiling (such as a maximal debt level relative to GDP). While these rules can vary in their legal basis (e.g. they can be part of a country's constitution, a regular law, or a coalition agreement) we think of them as being a permanent constraint on fiscal policy which is more difficult to adjust that fiscal policy itself. Otherwise, these rules could easily be adjusted whenever there was a risk that a government would break them, and they would be unsuited to address the deficit bias.

The IMF maintains a database of fiscal rules which currently (in its 2015 version) covers 96 different countries and a substantial number of rules. From Figure 2, we see that the majority of these rules come from European countries, but other parts of the world have started introducing them as well over the last two decades.

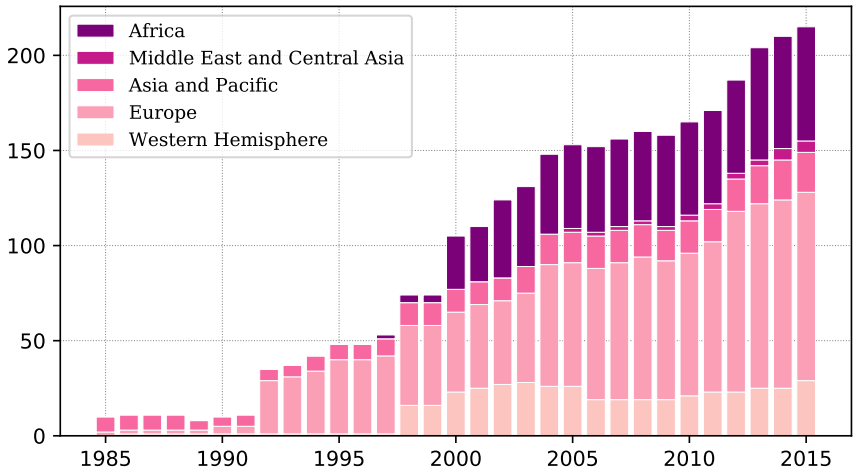


Figure 2: Number of fiscal rules by year and region. Data source: International Monetary Fund (2017)

Note that this data only includes rules at the national and supra-national level which can only be changed at low frequencies and cover large parts of public finances, at least at the central government level. A multitude of subnational rules, or rules that only cover a particular fiscal sub-aggregate (for example the social security system) are therefore not included.

The data set contains four types of rules, depending on which fiscal aggregate they are designed to constrain (see Schaechter et al. (2012)):

- *Debt rules* put an explicit target or limit on the level of debt as a fraction of GDP. These rules are often meant to guide countries towards convergence to a particular debt level, such as the 60% of GDP stipulated by the EU's Stability and Growth Pact.
- *Budget balance rules* impose restrictions the government deficit, and can be either formulated on a year-by-year basis or over the medium run to account for the business cycle. Alternatively, they can refer to the structural or cyclically-adjusted budget balance.
- *Expenditure rules* are used to impose a ceiling on government spending, and thus on the size of government.
- *Revenue rules* impose floors or ceilings that are intended to boost revenue collection or prevent excessive taxation.

Figure 3 breaks down the rules in the IMF data set by type. The large majority of rules fall into the first two groups (debt and budget balance rules), which might be due to the fact that these directly control the sustainability of government debt.

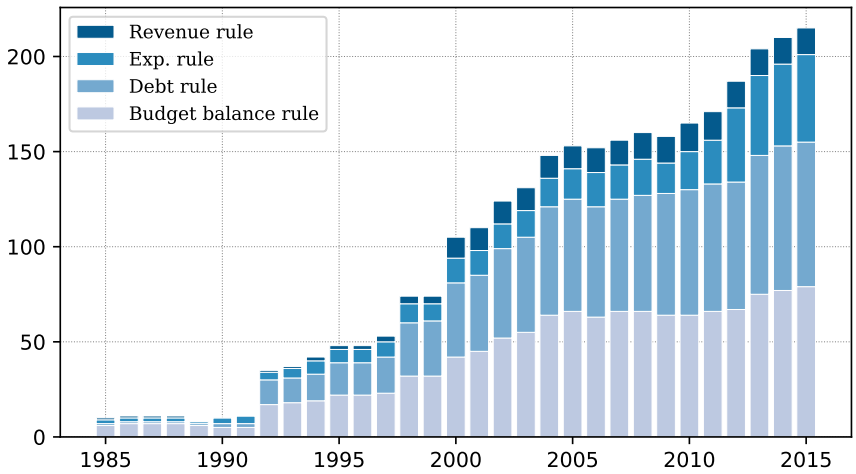


Figure 3: Type of fiscal rules by year. Data source: International Monetary Fund (2017)

2.2 The deficit bias/sub-optimality trade-off

We now revisit the discussion of optimal fiscal policy following (adverse) shocks from the introduction. Recall the implication that adjustments to debt should be gradual, and that debt should, if anything, be sloping downwards in the presence of asymmetric shocks. From this we can draw the following conclusions:

1. Simple fiscal rules such as a year-by-year balanced budget rule are sub-optimal from a tax-smoothing perspective since they don't allow debt to function as a shock absorber.

   Moreover, they are also sub-optimal because of their built-in procyclicality. In recessions, when governments face lower tax revenues (due to low demand) and higher expenditures (e.g. on unemployment benefits), they would have to increase taxes or cut spending to balance the budget, thus further deepening a recession.

2. Similarly, an unconditional debt ceiling (e.g. debt cannot exceed 60% of GDP) cannot be optimal in light of the above discussion, as an economy close to the target level will not be able to optimally respond to shocks.

These examples hint at the trade-off that needs to be considered when devising fiscal rules. We can either have fiscal rules that take contingencies into account, but this additional complexity can be exploited by policy makers and result in deficit bias. On the other hand, we can have simple, strict rules that leave less room for manipulation, but which are sub-optimal in many situations.

- Contingent rules are more flexible in that they allow for stabilisation policies during recessions. On the other hand, they tend to be more complex which complicates monitoring. Budget balance rules could, for example, target the cyclically-balanced primary balance each year or be formulated as averages over the business cycle.

  While such flexibility allows for discretionary responses or automatic stabilisers to work, it opens the door for manipulations:

  1. There is no "objective" way to apply cyclical adjustments to fiscal aggregates.
  2. If a target is specified in terms of averages over the cycle, a government can potentially manipulate the start and end dates of recessions.
  3. Lastly, if targets are specified over a medium-term horizon, governments can use overoptimistic projections for the coming years to claim that a target will be met.

- Non-contingent budget rules are simpler and therefore easy to monitor, but can overly tie the government's hands when discretionary policy is needed.

  As we have discussed above, in many scenarios a fixed debt target is viewed as sub-optimal, in particular when abrupt adjustments to tax and spending policies are required to satisfy it. Strict year-by-year balanced budget rules are pro-cyclical and therefore undesirable in recessions.

  This sub-optimality leads to the problem of time inconsistency, as governments have hardly any incentives to impose draconian measures if a rule is violated, in particular since such violations are rarely punished in elections.

In section 3, we will discuss how fiscal councils can be used as complements to fiscal rules in order to address some of these issues.

2.3 Do fiscal rules work?

There is some evidence that fiscal rules have the intended outcome on budget deficits. Debrun, Moulin et al. (2008) analyse the effects of numerical national fiscal rules in European countries in the period of 1990–2005 on the primary balance and on debt levels.[1] It is not straightforward to compare country-specific rules since they can differ in type (as discussed above), legal basis, enforceability, and other aspects. The authors attempt to tackle this issue by combining all national rules into a single time- and country-specific Fiscal Rule Index (FRI), which is created by assigning numerical scores based on the characteristics of each rule, and aggregating these values to compute the index at the country level for each year in the sample. The authors then run panel regressions to measure its fiscal impact on the cyclically-adjusted primary budget balance. As usual, one has to be careful when interpreting such results in a "causal" way, since cross-country regressions are rarely suited to identify causal effects. Additionally, such regressions can suffer from reverse causality, for example if countries which have a preference for stricter budget discipline are also more likely to implement fiscal rules, or if more disciplined governments adopt fiscal rules to signal determination. The study attempts to tackle these issues using more sophisticated econometric methods, but we will focus on their main results from a simple OLS panel regressions, shown in column (2) of Table 1.

As you can see from the row highlighted in bold, an increase in the FRI (interpreted as "stricter" fiscal rules) is associated with an increase in the primary budget balance of 0.4 percent of GDP in the short run. This relationship is highly statistically significant, and quite robust across the other econometric specifications the authors report in the remaining columns of Table 1. On the other hand, the study does *not* find any statistically significant effect of fiscal rules on changes in government debt, which could indicate that governments perform creative accounting to meet the targets set out by fiscal rules without any tangible impact on the stock of debt. The coefficients on some of the other control variables are also interesting in light of the political economy issues discussed in topic V:

- More stable governments (i.e. those that are more likely to remain in office) are correlated with higher primary balances.
- Conversely, we see lower primary balances when governments are more ideologically fragmented.
- Lastly, there is some evidence for electoral budget cycles as deficits increase in election years.

In a different paper, Reuter (2019) examines whether governments actually comply with fiscal rules using a set of 51 national fiscal rules from EU countries. He finds that on average policy makers comply with only about half of the rules in any given year, with

[1] Note that their analysis focuses exclusively on *national* rules and therefore does not include supra-national rules such as those imposed by the Stability and Growth Pact.

Dependent variable:	Cyclically adjusted primary balance				Overall balance	Change in debt
Estimator:	LSDV (1)	OLS (2)	LSDVC[a] (3)	IV[b] (4)	LSDVC[a] (5)	LSDV (6)
Lagged dependent variable	0.49***	0.61***	0.67***	0.61***	0.59***	–0.02
	(8.73)	(14.55)	(10.67)	(14.59)	(9.31)	(–0.20)
Lagged government debt	0.04***	0.02***	0.03	0.02***	0.00	–0.04
	(4.36)	(5.67)	(1.59)	(5.71)	(0.22)	(–1.22)
Lagged output gap	–0.03	–0.02	–0.01	–0.02	–0.06	–0.10
	(–0.49)	(–0.50)	(–0.18)	(–0.52)	(–0.85)	(–0.71)
Fiscal Rule Index	**0.40****	**0.43****	**0.40****	**0.42****	**0.52****	**–0.45**
	(2.88)	**(4.15)**	**(1.96)**	**(3.51)**	**(2.04)**	**(–0.92)**
Government stability	–	0.16***	0.15**	0.16***	0.39***	–0.65***
		(3.48)	(2.01)	(3.60)	(4.41)	(–3.15)
Government fragmentation	–	0.60	0.52	0.63	0.64	–2.10
		(1.35)	(0.51)	(1.40)	(0.52)	(–0.85)
District magnitude	–	–0.00	0.04	–0.00	0.16	0.03
		(–1.05)	(0.33)	(–1.06)	(1.15)	(0.19)
Ideology	–	0.05*	0.07	0.05*	0.03	0.19*
		(1.81)	(1.24)	(1.86)	(0.49)	(1.63)
Ideological range	–	–0.18**	–0.19	–0.18**	–0.05	–0.11
		(–2.43)	(–1.38)	(–2.51)	(–0.31)	(–0.44)
Parliamentary election (dummy)	–	–0.57***	–0.59**	–0.57***	–0.65**	0.74
		(–3.11)	(–2.52)	(–3.22)	(–2.23)	(1.34)
Fiscal governance: delegation (dummy)	–	–0.81***	–1.21**	–0.81***	–0.27	–0.12
		(–2.97)	(–2.24)	(–3.06)	(–0.40)	(–0.09)
Run-up to EMU (dummy)	–	0.46**	0.52	0.45**	–0.02	1.08
		(2.05)	(1.34)	(2.08)	(–0.05)	(0.97)
SGP (dummy)	–	–0.30	–0.18	–0.31	0.38	0.52
		(–1.18)	(–0.43)	(–1.22)	(0.72)	(0.58)
Enlargement (dummy)	–	0.38	0.58	0.38	1.71*	2.12*
		(1.05)	(0.80)	(1.09)	(1.90)	(1.65)
Country size (population)	–	–0.58**	–0.91	–0.57**	–9.91	–37.63
		(–2.51)	(–0.04)	(–2.51)	(–0.40)	(–0.85)
Number of observations	297	243	243	243	243	232
R^2 ('within' for fixed-effects estimators)	0.40	0.80	0.56	0.80	0.70	0.30
Fixed effects (F-test)	2.47***	0.86	–	–	1.87**	2.27**
Hansen J-test (p-value)	–	–	–	0.67	–	–
Exogeneity test (for rule index, p-value)	–	–	–	0.79	–	–
Random effects (Hausman test)		13.85				

Notes: Constants are not reported. Robust t or z-statistics are in parentheses. *, **, and *** denote, respectively, significance at the 10, 5 and 1% level. Hausman test: under the null hypothesis, both fixed effects and random effects estimators are consistent but random effects estimators are more efficient. Random effects estimates (not reported) are very close to OLS, suggesting that unobserved country effects are negligible. Exogeneity: Durbin-Wu-Hausman test.
All fiscal variables are ratios on potential output. Dummy run-up to EMU: 1 for EU-15 countries and years between years 1994 and 1998. Dummy SGP: 1 for euro-area countries and years after year 1998. Enlargement: 1 for EU-10 countries after year 2003. Election year: 1 if parliamentary elections took place. Contract/delegation dummies: 1 if contract/delegation country respectively. Government fragmentation: sum of squared seat shares of all parties in the government. Ideology: degree of political conservatism spanning between 0 (single-party, leftwing government) and 8 (single-party, rightwing government). Ideological range: difference between the two extreme ideological scores of parties in coalition governments (0 if single-party government). District magnitude: measures the average number of Parliament seats per electoral district. Government stability: time-varying index spanning between 0 and 12.
[a] LSDVC accounts for the small sample bias in dynamic panels with country fixed-effects. Results refer to Kiviet's corrected LSDV estimator. The R^2 refers to LSDV estimation.
[b] Omitted instruments are the lagged fiscal rule index and a dummy for the commitment form of fiscal governance. Standard specification tests indicate that instruments are valid and strong.

Table 1: Effects of numerical fiscal rules on primary budget balance and debt. Source: Debrun, Moulin et al. (2008), Table 5

debt rules more likely to be followed. Rules thus seem to be somewhat effective, but only if governments choose to actually follow them.

2.4 Case study: Fiscal rules under the Labour government of 1997–2010

The Labour government voted into power in 1997 implemented a new fiscal framework which we discuss based on Wren-Lewis (2013). It consisted of two main numerical rules:

1. The "golden rule" stated that over the business cycle the government was permitted to only borrow to invest, but not to fund consumption expenditure;
2. Public *net debt* should be held at a stable and prudent level over the business cycle. This limit was fixed at 40% of GDP.

The motivation for the golden rule was that investment (for example in infrastructure) would benefit future generations, so on equity grounds it was unreasonable to finance it fully via taxes today. Instead, the government could increase borrowing and use higher taxes in the future to repay the debt. In principle, this would not stop a government from unsustainable borrowing in order to finance investment. The second rule was intended to constraint such unsustainable fiscal policy.

The other innovation introduced by the Labour government was the publication of pre-budget reports which were accompanied by 50-year-ahead forecasts for the public finances. The idea was that a long-term forecast would help identify fiscal policy that was unsustainable in the long run. These forecasts were created by the Treasury as opposed to an independent institution which is the case today. There were limited attempts to safeguard against over-optimism: the National Audit Office played a role in assessing whether the assumptions underlying these forecasts were reasonable.

Wren-Lewis (2013) concludes that the fiscal rules introduced by Labour in 1997 were innovative and constituted a substantial improvement on previous practice. However, they had three weaknesses:

1. Because they were applied over the cycle (as opposed to a cyclically-adjusted budget balance), budget surpluses achieved early during Labour's reign (around 1997–2001, see Figure 4) were used as "buffers" to justify deficits later on.
2. Government forecasts in the years just prior to the Great Recession were too optimistic, in particular in terms of tax revenue. These optimistic forecasts encouraged budget deficits that would have been hard to justify otherwise.
3. A constant rather than declining target for the debt-GDP ratio prevented further consolidations of government finances (see our previous discussion on why constant targets might not be desirable).

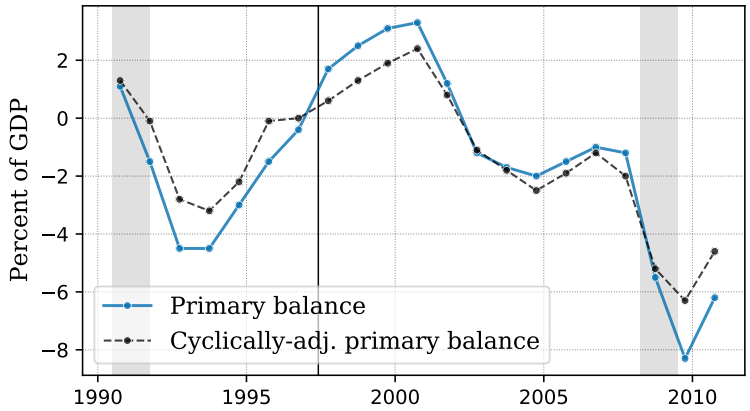


Figure 4: Primary balance and cyclically-adjusted primary balance for the UK, 1990–2010. Data source: OBR
Vertical line marks start of Labour government. Shaded areas mark UK recessions.

When the financial crisis hit in 2007, the rules were abandoned as they were perceived as being too restrictive to fight the recession, in particular since monetary policy was quickly approaching the zero lower bound.

Wren-Lewis (2013) cautions against overstating the importance of these mistakes. With the benefit of hindsight, we know that the government should have continued on the downward trajectory of government debt in the early 2000s (see Figure 5) to create a buffer for the Great Recession that started after 2007, but of course no government could have plausibly forecast such an event.

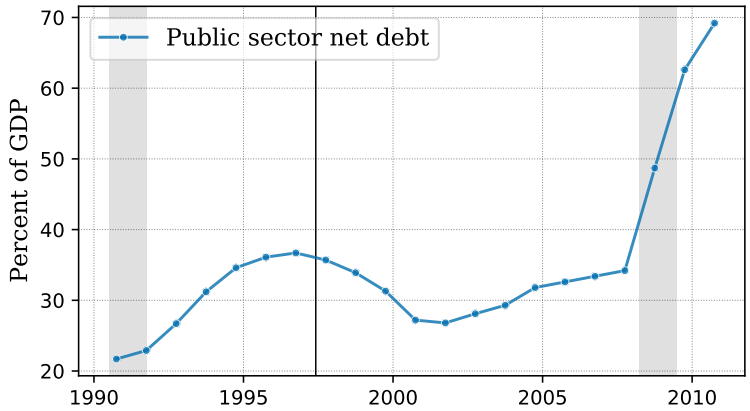


Figure 5: Public *net debt* for the UK, 1990–2010. Data source: OBR
Vertical line marks start of Labour government. Shaded areas mark UK recessions.

2.5 Case study: Stability and Growth Pact

The EU's Stability and Growth Pact (SGP) is one of the most widely known set of fiscal rules. We will base our discussion of the SGP mostly on Calmfors (2015) and Calmfors and Wren-Lewis (2011).

First laid down in 1992 as part of the Maastricht treaty, the two headline numerical targets are

- a government budget deficit limited to at most 3% of GDP; and
- a consolidated gross debt ceiling of 60% of GDP. Countries with higher debt levels (such as Belgium and Italy) were expected to approach the debt ceiling at a "satisfactory pace."

Additionally, as part of the foundations of the European Monetary Union (EMU), neither EU institutions nor national governments were permitted to bail out other governments in the EMU. These rules were meant to address the complications arising from a monetary union which did not have a common fiscal policy:[2]

1. Deficit-financed stimulus in some countries of the EMU could lead to high inflation which would prompt the ECB to raise interest rates for the entire EMU.
2. Unsustainable public debt and increased default risk in some member countries could increase risk premia on government bonds across the union.

Calmfors (2015) points out that the SGP allowed EU member countries to impose supra-national fiscal rules that would have been hard to pass on a national level. However, this supra-national character could have been a reason why the rules were ultimately not effective at imposing fiscal discipline.

As we know today, the SGP was mostly unsuccessful in achieving its goals. Even before the Great Recession of 2007, violations of the 3% deficit rule were ubiquitous, as illustrated in Table 2. While in theory harsh sanctions were stipulated for countries violating the rules, to this day not a single country has been fined for excessive deficits. Calmfors (2015) and Calmfors and Wren-Lewis (2011) summarise the main problems of the (original) SGP as follows:

1. The rules were not observed or the underlying fiscal data was outright manipulated, as in the case of Greece.
2. Fiscal outcomes were often targeted to just barely satisfy the limits, leaving no fiscal room for contingencies.
3. Compliance with sustainability rules was frequently based on over-optimistic forecasts.

[2] The common EU budget amounts to only about 1% of GDP and is too small to be used for stabilisation.

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	x		x			x				x	x	x
Belgium										x	x	x
Bulgaria											x	x
Cyprus						x					x	x
Czech Republic							x				x	x
Denmark												x
Estonia												
Finland												x
France				x	x	x	x		x	x	x	x
Germany	x			x	x	x	x			x	x	x
Greece		x	x	x	x	x	x	x	x	x	x	x
Hungary						x	x	x	x	x	x	x
Irland										x	x	x
Italy			x		x	x	x	x		x	x	x
Latvia										x	x	x
Lithuania										x	x	x
Luxemburg												
Malta						x				x	x	x
Netherlands					x						x	x
Poland						x	x	x		x	x	x
Portugal			x			x	x	x		x	x	x
Romania										x	x	x
Slovakia								x			x	x
Slovenia											x	x
Spain										x	x	x
Sweden												
UK					x	x	x			x	x	x

Note: The crosses show that a country has a government deficit exceeding 3% of GDP, or a gross government debt exceeding 60% of GDP that is not falling (or both). A grey field indicates that the country, at the time, was not an EU Member State.

Table 2: Breaches of the Stability and Growth Pact. Source: Calmfors and Wren-Lewis (2011)

4. The stipulated sanctions were severe and required that offending countries made a deposit of 0.5% of their GDP which could be turned into a fine if non-compliance continued over a prolonged period. If anything, such measures would further exacerbate excessive deficits.

5. It did not help that France and Germany were among the first countries to violate the deficit rules in 2002. There was little incentive to punish two of the most influential EU members, which set a precedent.

6. Imposing sanctions required a qualified majority in the Ecofin council, so with several countries violating the rules it was not difficult to find blocking coalitions.

7. Imposing sanctions was a repeated game, therefore governments had an incentive to be lenient with offending countries.

8. Lastly, the rules did not take into account macroeconomic imbalances that did not immediately manifest themselves as budget deficits, but led to explosive debt later.

   As Wyplosz (2012) points out, a solid budgetary framework is not sufficient to rule out disastrous outcomes later if it does not take into account that private debt might become public debt in a crisis. This happened during the Great Recession in

Ireland and Spain, which managed to reduce debt levels considerably before the crisis, but had to bail out their banks after their housing bubbles collapsed. In turn, both countries were forced to ask for bailouts themselves.

One could say that the SGP was not successful to address the deficit bias because it only moved the problem of time inconsistency to the constitutional, supra-national level. Once rules were broken, there was no incentive to sanction the offenders ex post.

These shortcomings led to multiple reforms of the SGP even before the financial crisis of 2007, which included more flexible medium-term targets and the eventual creation of an EU-level bailout fund, the European Stability Mechanism (ESM).

3 Fiscal councils

3.1 Motivation for fiscal councils

The problems and failures of numerical fiscal rules to constrain government deficits led the academic literature to call for the creation of fiscal councils (see, among others, Calmfors and Wren-Lewis (2011) and Kirsanova, Leith and Wren-Lewis (2009)).[3] The literature has since then converged on the consensus that fiscal councils should be viewed as complements to numerical fiscal rules for several reasons:

1. Fiscal councils can serve as an independent, non-partisan institution which monitors whether fiscal rules are being followed.

   This is particularly important for complex, potentially state-contingent rules.

2. Assessing compliance with numerical fiscal rules often requires judgment, for example in the case of cyclically-adjusted targets, or medium-term targets that need to be followed over the cycle. Independent fiscal councils are in a better position than governments to make such assessments in a credible way.

3. Fiscal councils can help address the problem of time-inconsistency since they can interpret fiscal rules that are not fully contingent.

   Furthermore, since fiscal councils take into account the current fiscal and economic situation, it is not necessary to specify every contingency in advance.

4. Independent fiscal councils are detached from the electoral cycle and are thus in a better position to internalize all consequences of budget deficits and high government debt.

We can think of two main types of fiscal councils, namely

[3] We will base our discussion in this section mostly on Calmfors (2015), Calmfors and Wren-Lewis (2011), Debrun and Kinda (2014), Kirsanova, Leith and Wren-Lewis (2009) and Wyplosz (2012).

1. fiscal councils that directly control some fiscal instruments and thus have direct influence over fiscal policy; or
2. fiscal councils with a purely advisory or monitoring role, but no immediate control over fiscal policy.

It is tempting to see independent fiscal councils analogously to independent central banks which have been established in most advanced economies over the past decades. However, this analogy is misleading for two reasons:

1. Most central banks use inflation targeting, and there is broad consensus on what the desirable rate of inflation should be.
2. At least prior to the Great Recession, central banks had a very limited number of policy instruments available to them. In many cases, central banks can only directly affect short-run interest rates.

   Short-run interest rates in advanced economies have small redistributional effects, and usually these do not extend beyond the length of a typical business cycle.

Given the broad consensus over goals and the limited distributional effects of monetary policy, delegation to an independent central bank is substantially less problematic than delegating authority over fiscal policy. As we discussed in topic V, fiscal policy can have substantial redistributive effects (think of intergenerational redistribution), so fiscal policy is always associated with value judgments. Furthermore, there is more disagreement about the goals that fiscal policy should achieve, and about which fiscal targets should be imposed. Delegating fiscal policy away from elected governments and legislatures is therefore problematic due to the lack of democratic legitimacy, and it is not surprising that we do not see any independent fiscal councils with direct control over fiscal policy. For the rest of this section, we will consequently focus on fiscal councils that only perform advisory and monitoring roles.

Whether fiscal councils can reduce the deficit bias depends on the exact source of the bias. For example, if excessive deficits are a deliberate choice of a perfectly informed policy maker who wants to bring about intergenerational redistribution, we would not except a fiscal council without any direct control over fiscal policy to have an impact. In other scenarios, the presence of a fiscal council can be beneficial:

- If deficits arise because of over-optimistic budget and growth forecasts, forecasting should be delegated to a technically competent independent fiscal council. Alternatively, a fiscal council could audit government projections.
- A lack of understanding of the intertemporal government constraint can be addressed by having the fiscal council create long-run sustainability projections.
- If deficits arise because voters do not understand their consequences, a fiscal council that actively engages in the public debate can help alleviate any informational asymmetries.

- If the deficit bias is due to time inconsistency, myopic governments or electoral budget cycles, a fiscal council can monitor compliance of government policy with numerical fiscal rules and impose reputational costs for violating these rules.
- Similarly, if deficits arise in electoral budget cycles, an independent fiscal council of unelected experts with long tenures can help address short-termism.
- If the deficit bias results from the common-pool problem, a fiscal council can help with the coordination between different policy makers in order to internalize the costs imposed on others. A fiscal council could for example be tasked with accurately costing any tax or spending proposals.

For a fiscal council to be able to perform these tasks, it has to be set up in a non-partisan way and be sufficiently independent from the current government (e.g. in terms of its budget). It needs to be staffed with experts who participate in the public debate and can thus increase the reputational costs for governments that violate fiscal rules.

3.2 Empirical evidence on fiscal councils

The IMF maintains a database on world-wide independent fiscal councils which currently covers 37 countries. Figure 6 shows the number of fiscal councils in operation over time, the majority of them being located in Europe.

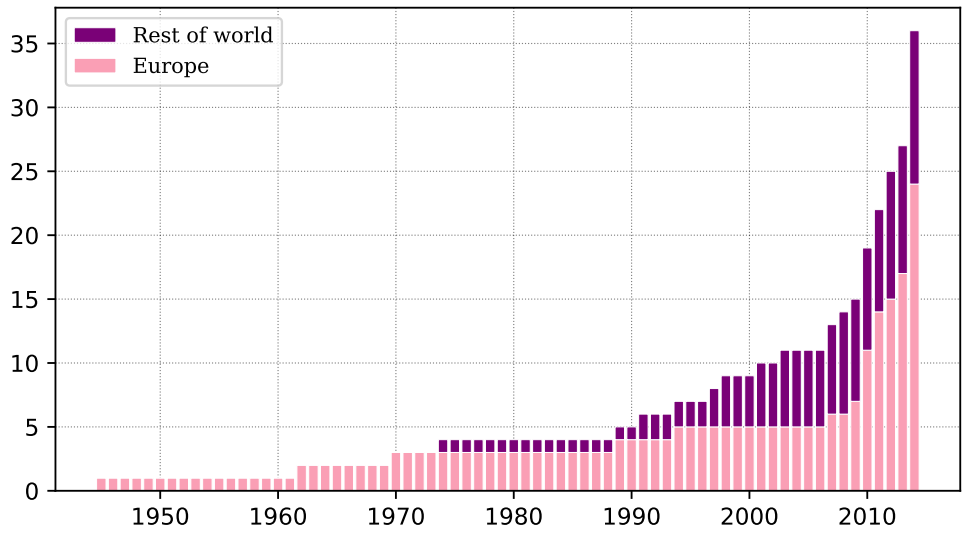


Figure 6: Number of fiscal councils in Europe and the rest of the world. Data source: Debrun, Kinda et al. (2013) and International Monetary Fund (2016)

During the first few decades after the second world-war there were only a handful of fiscal councils (the first one being in the Netherlands). These numbers started increasing in the 1990s, and exploded after the most recent financial crisis and the resulting massive rise in government debt.

Figure 7 illustrates the remit of (i.e. the tasks delegated to) fiscal councils, represented as the fraction of fiscal councils across the world that perform a particular task. A more detailed disaggregation for European and US councils is shown in Table 3, which illustrates that there is large heterogeneity with respect to some tasks. All councils perform positive analysis, i.e. examine and review existing government fiscal policies. Most councils in Europe are responsible for monitoring fiscal rules and for either creating budgetary forecasts or for auditing government forecasts. Additionally, many fiscal councils, particularly in Europe, are involved in preparing long-run projections of fiscal sustainability. Fewer councils are responsible for costing, an activity that can range from simple reviews of tax and spending proposals to the analysis of specific policies, or even the pre-election programs of political parties. Many fiscal councils are permitted to make recommendations or perform normative analysis, i.e. make suggestions for alternative policies than the ones proposed by the current government (the UK is one exception where this is not permitted). The UK's council, the Office for Budget Responsibility, is among the few whose macroeconomic and fiscal forecasts are used as an input in the government's budget process.

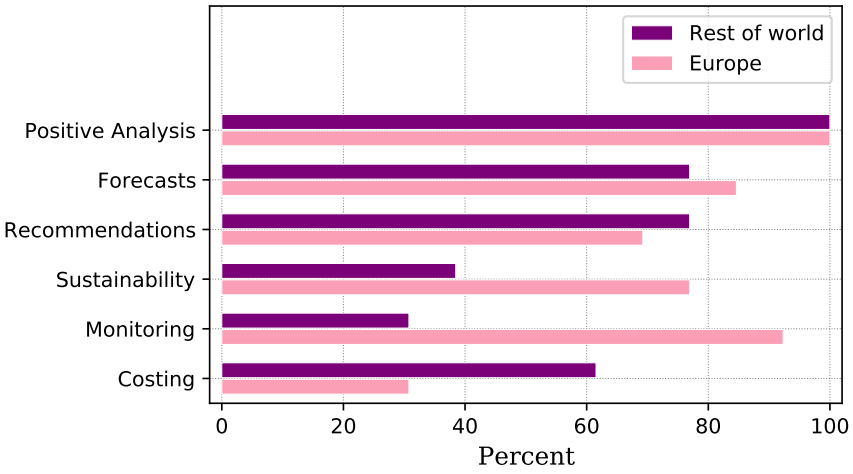


Figure 7: Remit of fiscal councils in Europe and the rest of the world. Data source: Debrun, Kinda et al. (2013) and International Monetary Fund (2016)

We next discuss whether fiscal councils have any impact on fiscal outcomes. The evidence here is even less conclusive than in the case of fiscal rules since fiscal councils are a recent phenomenon and a half of them were created only after the Great Recession of 2007. Debrun and Kinda (2014) use an earlier vintage of the IMF data set on fiscal councils (with data going to 2013) and examine how the presence of a fiscal council correlates

Country	Name	Year	Forecasts	Forecasts used in budget	Recommendations	Long-term sust.	Costing	Monitoring of FR
Austria	FISK	1970	x		x	x		x
Belgium	HRF/CSF	1989			x	x		x
Belgium	FPB	1994	x	x		x		
Cyprus		2014	x		x			x
Denmark		1962	x		x	x		x
Estonia		2014	x		x			x
Finland	NAO	2013	x		x	x		x
France	HPCF	2013	x					x
Germany		2010				x		x
Greece	HPBO	2010	x		x	x	x	x
Hungary	FC	2009	x		x			x
Ireland	IFAC	2011	x		x		x	x
Italy		2014	x			x	x	x
Latvia	FDC	2014	x		x	x		x
Lithuania	NAOL	2015	x		x	x		x
Luxembourg	CNFP	2014	x		x			x
Malta	MFAC	2015	x		x	x		x
Netherlands	CPB	1945	x	x		x	x	
Netherlands		2014			x	x		x
Portugal	CFP	2012	x			x		x
Romania		2010	x		x	x	x	x
Serbia		2011	x		x	x	x	x
Slovakia	CBR	2011				x	x	x
Spain	AIReF	2014	x		x	x		x
Sweden	FPC	2007	x		x	x		x
UK	OBR	2010	x	x		x	x	x
US	CBO	1974	x			x	x	

Year: Start of activity (possibility of precursor institution); *Forecasts*: includes forecast preparation and assessment of other government forecasts; *Recommendations*: includes normative analysis and recommendations; *Long-term sust.*: Long-term sustainability is defined as the long-term forecast of government balance and debt level; *Monitoring of FR*: monitoring of fiscal rules;

Table 3: Remit and characteristics of fiscal councils in Europe and the US. Data source: Debrun, Kinda et al. (2013) and International Monetary Fund (2016)

	Dependent Variable: Primary Balance in percent of GDP							
Primary Balance (t-1)	0.823 (27.07)***	0.824 (26.84)***	0.821 (26.53)***	0.821 (24.03)***	0.826 (26.96)***	0.826 (27.49)***	0.826 (28.07)***	0.824 (27.13)***
Debt (t-1)	0.015 (2.92)***	0.017 (3.37)***	0.016 (3.24)***	0.023 (3.69)***	0.016 (3.24)***	0.016 (3.14)***	0.016 (3.31)***	0.017 (3.40)***
Output Gap (t-1)	-0.095 (3.05)***	-0.094 (3.03)***	-0.096 (3.09)***	-0.091 (2.40)**	-0.098 (3.17)***	-0.095 (3.06)***	-0.092 (2.98)***	-0.093 (2.99)***
Fiscal Rules Index (FRI)	0.277 (2.62)***	0.275 (2.59)***	0.283 (2.66)***	0.249 (2.26)**	0.232 (2.27)**	0.289 (2.73)***	0.295 (2.79)***	0.280 (2.65)***
Fiscal Council	0.543 (1.42)							
Legal indep.		0.930 (2.38)**						
Safeg. on budget			0.386 (0.71)					
Staff number (High level)				0.296 (2.34)**				
Fiscal rule monitoring					1.524 (2.80)***			
Costing of measures						1.355 (2.57)**		
Forecast Assessment							1.293 (2.78)***	
High media Impact								0.904 (2.32)**
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	901	901	901	890	901	901	901	901
Countries	58	58	58	58	58	58	58	58

Absolute bootstrapped t-statistics in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4: Fiscal councils and fiscal performance. Source: Debrun and Kinda (2014)

with a country's primary balance in a panel setting, additionally controlling for a fiscal rule index (FRI) and other macroeconomic covariates. The main results are displayed in Table 4.

We see that the "intensity" of fiscal rules again has a significant, positive effect, as discussed in the previous section. On the other hand, the mere presence of a fiscal council (modelled as a dummy variable) is not statistically significant (column 1 of Table 4). The authors therefore evaluate the impact of individual characteristics of a fiscal council in columns 2 to 8 and find that:

1. more independent or better staffed fiscal councils are associated with higher primary balances (columns 2 and 4);
2. councils that monitor fiscal rules are associated with better fiscal performance (column 5);
3. more technical contributions such as costing of government policies and the assessment of forecasts improve the primary balance (columns 6 and 7);
4. countries where councils have a high media impact exhibit better fiscal outcomes (column 8). This is due to the fact that fiscal councils do not make policy decisions themselves, but can increase the reputational costs of non-compliance by shaping the public debate.

Note that the same econometric caveats apply which we discussed in the context of fiscal rules. Additionally, the characteristics of fiscal councils themselves are highly correlated, i.e. a more independent council is also more likely to monitor fiscal rules and audit government forecasts, which makes it difficult to identify the individual contribution of each characteristic.

Debrun and Kinda (2014) also report that fiscal councils are associated with less biased forecasts of primary budget balances and lower forecast errors. They therefore limit a government's scope to circumvent fiscal rules by using over-optimistic forecasts.

A more recent assessment of the effectiveness of fiscal councils is provided in Beetsma et al. (2019), who use a newer vintage of the IMF fiscal council data set, but focus on Europe where two thirds of fiscal councils are located. They investigate whether the presence of fiscal councils is associated with less biased and more precise forecasts for real GDP and the primary balance, but their results are mostly insignificant. The only exception is that when fiscal councils are present, the forecast errors for the primary balance tend to be lower. Moreover they find significant and positive effects of fiscal councils on compliance with budget and expenditure rules, but no effect on debt rules.

To summarise, the empirical evidence on the effectiveness of fiscal councils is not overly strong at the moment, even though they seem to positively influence forecast accuracy of budget balances, and some characteristic are associated with greater fiscal discipline.

3.3 Case study: Office for Budget Responsibility

Institutional setting and remit

We finish this topic by more closely discussing the *Office for Budget Responsibility (OBR)*, the UK's fiscal council. The Conservative party included a proposal to establish a fiscal council in 2008, but this idea had been around in the (academic) debate even prior to that (see, for example, earlier versions of Kirsanova, Leith and Wren-Lewis (2009) who argue for a Fiscal Monitoring Commission). The coalition government under Conservative leadership proceeded to create the OBR after the election victory in 2010 and institutionalised it in the Budget Responsibility and National Audit Act 2011. The OBR's remit is spelled out in The Charter for Budget Responsibility which, for example, specifies the reports that the OBR needs to produce, and also clearly delineates the Treasury's and OBR's responsibilities. Additional memoranda of understanding guide its cooperation with other government agencies such as the Treasury, HM Revenues and Customs (HMRC) and the Department of Works and Pensions (DWP). One of the main drivers behind establishing the OBR was to eliminate the possibility for the Treasury to circumvent fiscal targets by using overly optimistic economic and fiscal forecasts, which explains the central role of forecasting compared to other fiscal councils.

The OBR's main duty is to examine and report on the sustainability of public finances in a broad sense, which includes assessing the impact of policies using forecasts, long-term projections and balance sheet analysis (HM Treasury, 2017). While the OBR is financed as part of the Treasury's budget, the charter makes clear that the OBR has full discretion when it comes to

- the methodology and judgments underlying its forecasts; and
- the contents of its reports, subject to some minimum requirements.

To ensure independence and credibility, the OBR is required to perform its duties objectively, transparently and impartially. Additionally, the OBR is guaranteed access to information from other government agencies, in particular from the Treasury, HMRC or the DWP. These agencies also provide some of the projections that the OBR uses in its forecasts: for example, HMRC supplies projections for tax revenues based on micro data that the OBR cannot access directly, while the DWP produces forecasts for welfare spending.

Some of the more specific tasks delegated to the OBR include:

1. Preparing the *Economic and Fiscal Outlook* twice a year, which is a medium-term (5-year) forecast of economic aggregates (e.g. GDP and its components) as well as various fiscal aggregates. This report is commissioned by the Treasury and used in its budget process.

   This report also includes an assessment of whether the government is likely to achieve its fiscal targets.

2. Publishing the *Fiscal Sustainability Report* every two years, which contains 50-year-ahead projections of the UK public finances.

3. Additional reports include the *Welfare Trends Report* which examines the evolution of welfare spending, the *Forecast Evaluation Report* in which the OBR assesses the quality of its past forecasts, and the *Fiscal Risk Report*. The latter two are released every two years.

4. Producing forecasts for taxes and welfare spending devolved to Scotland.

Compared to other fiscal councils, the OBR is an almost unique position in that its economic and budget forecasts have to be used by the Treasury as the basis for its own budgeting (see Table 3). The Treasury can disagree with the OBR's forecasts, in which case it has to explain the reason for doing so. This has never been the case so far.

On the other hand, the OBR is explicitly barred from examining policies other than the ones proposed by the current government, and it cannot provide normative comments on the merits of such policies or on their effectiveness.

Every five years the OBR is subject to an external evaluation, which was most recently performed this year by the OECD (see OECD (2020)). The report concluded that the

OBR has developed a solid reputation for independence and for its ability to produce high-quality analysis, on par with or exceeding other independent fiscal councils around the globe. For example, in terms of independence, the OBR achieved the highest score among 26 institutions examined by the OECD.

Fiscal sustainability report from July 2020

We conclude this section by examining the most recent release of one of the OBR's main reports, the *Fiscal Sustainability Report (FSR)* from July 2020.[4] This release is special in that it does *not* contain a forecast but three alternative scenarios of the Covid-19 pandemic and its aftermath. Usually, the FSR would be based on the March forecast, which has become completely obsolete due to the pandemic. This report also offers a good opportunity to look at the impact of Covid-19 on UK public finances.

As of July 2020, GDP was projected to decline by 10 percent annually, the largest decline in 300 years, resulting in a rise in borrowing predicted to be between 13% to 21% of GDP (note that these projections are from July, not taking into account the second round of lockdowns!). In terms of net government debt, this would put the UK back to levels last seen in the 1960s (see Figure 8).

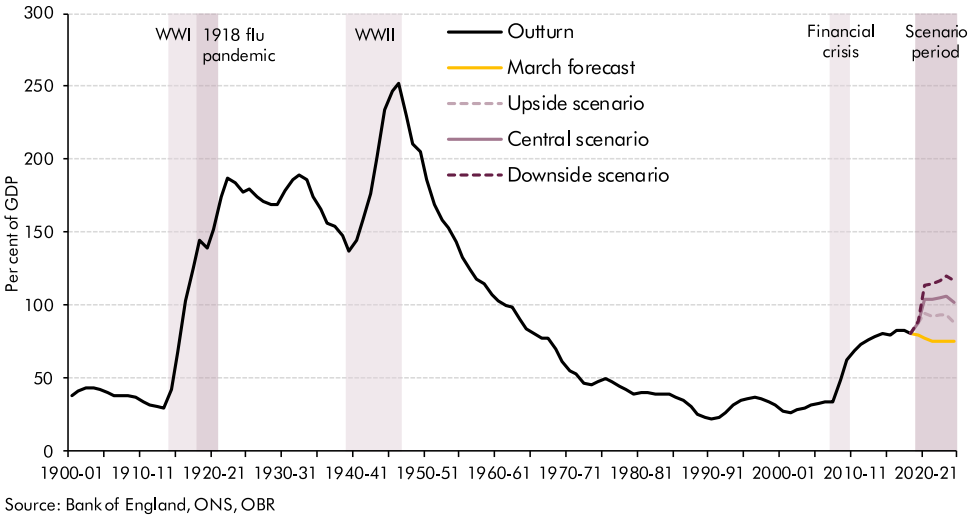


Figure 8: Public sector net debt: Covid-19 scenarios versus OBR's March forecast. Source: OBR (2020)

In this report, the OBR considers three different scenarios:

1. the *upside* scenario which assumes that economic activity will rebound to pre-pandemic levels in the first quarter of 2021;

[4]The next edition of its flagship report, the *Fiscal and Economic Outlook*, will be released on November 25th!

2. a *central* scenario in which the economy will be back at the pre-pandemic peak by the end of 2022; and
3. a *downside* scenario with a sluggish recovery in which the pre-pandemic peak will be only reached in 2024.

These GDP projections are shown in Figure 9, also highlighting the substantial collapse in economic activity relative to the OBR's March forecast.

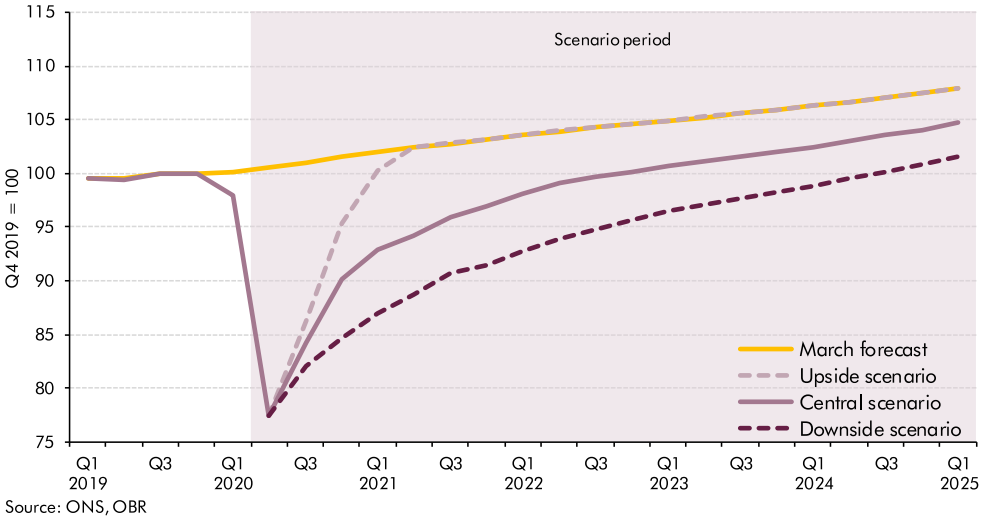


Figure 9: Real GDP: Covid-19 scenarios versus OBR's March forecast. Source: OBR (2020)

The pandemic affects the budget in two different ways: on the one hand, revenues from income taxes, VAT and corporation taxes shrink due to diminished economic activity resulting from voluntary or mandatory lockdowns, while at the same time welfare spending increases. Second, the government has introduced various measures to dampen the adverse impact on households and businesses, in particular:

- the Coronavirus Job Retention Scheme paid to employers (the "furlough scheme") and the Self-Employment Income Support Scheme;
- various business support measures such as grants to small businesses and guarantees for loans.
- additional spending on public services, e.g. health services; and
- welfare measures such as an increase in the standard allowance of universal credit.

Figure 10 lists the fiscal impact on additional borrowing in 2020–21 for each of these categories. The overall effect on public sector net borrowing and net debt are shown in Figure 11. In all but the most favourable scenario net debt increases to above 100% of GDP.

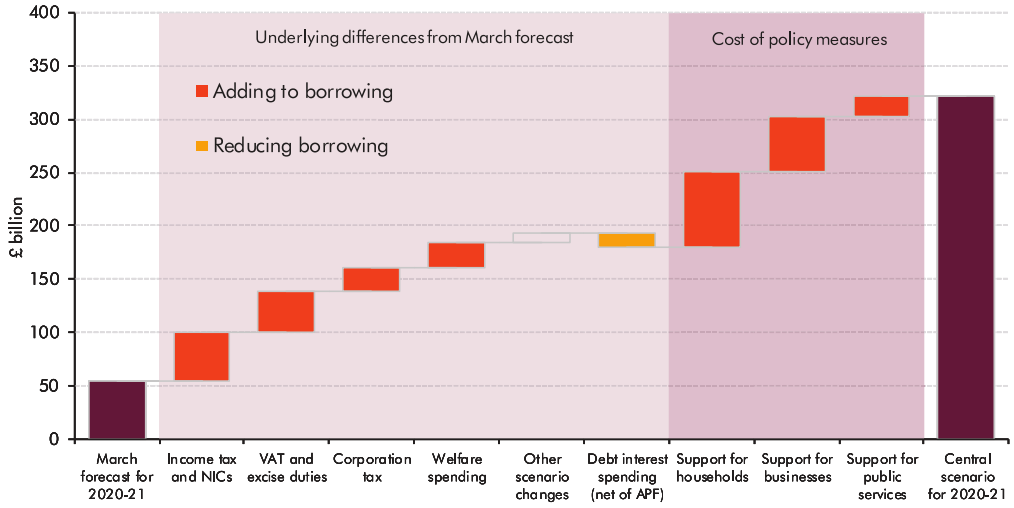


Figure 10: Sources of higher borrowing in 2020–21 in OBR's central scenario. Source: OBR (2020)

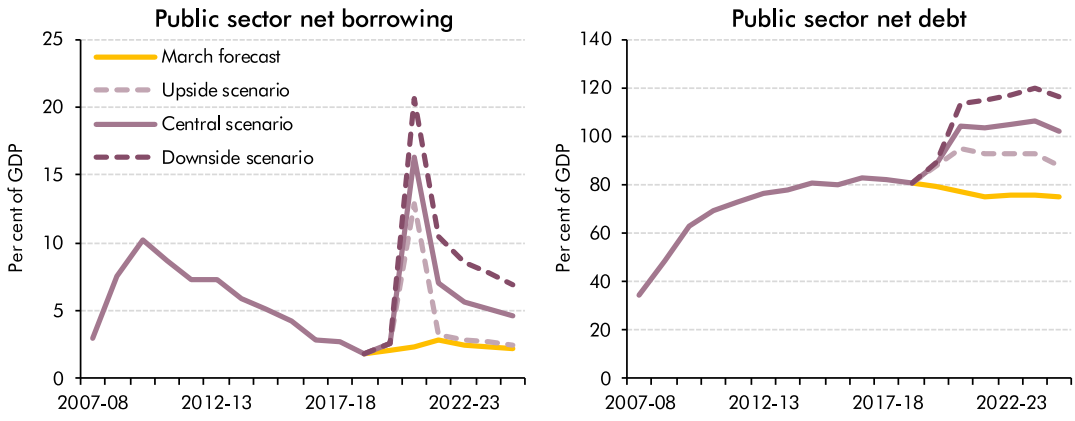
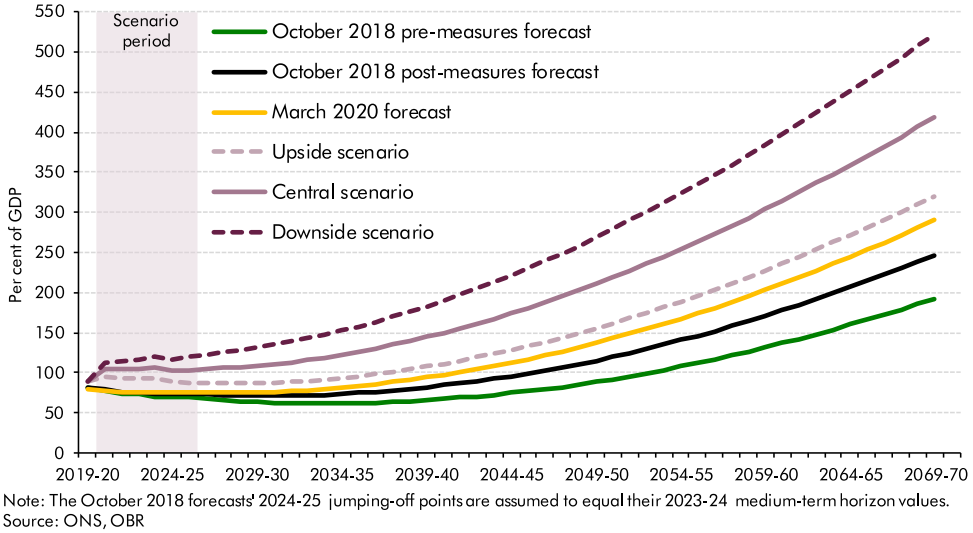


Figure 11: Public sector net borrowing and net debt. Source: OBR (2020)

The OBR points out that even prior to the pandemic, the government was never likely to meet its objective to "return the public finances to balance at the earliest possible date in the next Parliament." Factoring in the latest developments, the OBR concludes that public finances are on an unsustainable path in each of the three scenarios based on 50-year-ahead projections shown in Figure 12.



Note: The October 2018 forecasts' 2024-25 jumping-off points are assumed to equal their 2023-24 medium-term horizon values.
Source: ONS, OBR

Figure 12: Public sector net debt: long-term projections. Source: OBR (2020)

4 Things you should know

After working through this topic you should be able to discuss the following points:

1. Fiscal rules and fiscal councils are intended to create an institutional setup in which policy makers are not subject to the deficit bias.
2. Designing fiscal rules involves a trade-off between rules that allow for optimal fiscal policy (e.g. one that is flexible enough in crises) and rules that are sufficiently strict to reduce excessive deficits.
3. There is some evidence that fiscal rules lead to better fiscal performance, but fiscal rules have also failed to prevent massive build-ups of debt and even sovereign default (recall the Stability and Growth Pact).
4. Fiscal councils should be viewed as a complement to fiscal rules. Fiscal councils can help monitor compliance with fiscal rules, prepare forecasts and assess the long-term sustainability of fiscal policy.

5. The Office for Budget Responsibility (OBR) is the UK's independent fiscal watchdog. Its main responsibilities are to compile forecasts for the GDP and fiscal aggregates which are then used in the budgeting process, and to evaluate the Treasury's compliance with fiscal targets.
6. The Covid-19 pandemic imposes substantial burdens on the long-term sustainability of the UK's public debt.

5 Additional resources

- For those who want to read some of the original papers on fiscal rules and fiscal councils, broad, non-technical discussions are provided in Calmfors and Wren-Lewis (2011), Kirsanova, Leith and Wren-Lewis (2009) and Wyplosz (2012).
- Simon Wren-Lewis maintains a comprehensive collection of resources on fiscal councils, fiscal and monetary policy interactions, debt stabilisation policies as well as other related topics at https://sites.google.com/site/sjqwrenlewis/.
- The OBR publishes various reports as well as a public finance database which contains detailed data on UK fiscal aggregates on its website at http://www.obr.uk.
- VoxEU publishes policy-oriented discussions on public debt by economists working both in academia and at policy institutions such as central banks: https://voxeu.org/taxonomy/term/1441
- European Commission (2020): The European Commission maintains a database of fiscal rules in EU members states. Note that at this point the UK is still included.
- International Monetary Fund (2017): The IMF has another database covering national and supranational fiscal rules for 95 countries from 1985–2015.
- International Monetary Fund (2016): The IMF also maintains a database on fiscal councils that currently contains 39 institutions from 37 countries.

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