The Political Economy of Government Debt[*]

Alberto Alesina[†]

Harvard University and IGIER Bocconi

Andrea Passalacqua[‡]

Harvard University

First Draft: March 2015

This Draft: November 2015

Abstract

This paper critically reviews the literature which explains why and under which circumstances governments accumulate more debt than it would be consistent with optimal fiscal policy. We also discuss numerical rules or institutional designs which might lead to a moderation of these distortions.

1 Introduction

Fiscal policy is deeply intertwined with politics since it is mostly about redistribution across individuals, regions and generations: the core of political conflict. The redistributive role of governments has been increasing over time starting with the welfare programs introduced during the Great Depression and then with the additional jumps in the sixties and seventies of last century. But even recently the size of social spending (as defined by the OECD[1]) in 18 OECD countries jumped from 18 per cent of GDP in 1980 to 26 per cent in

---

[†]aalesina@harvard.edu

[‡]andreapassalacqua@fas.harvard.edu

[1]OECD defines Social Expenditure as the provision by public (and private) institutions of benefits to, and financial contributions targeted at, households and individuals in order to provide support during

2014.[2] In addition,the provision of public goods, which is therefore not classified as directly redistributive, has a redistributive component to the extent that public goods are used more or less intensively by individuals in different income brackets. The structure of taxation, such as the progressivity of the income tax brackets, also implies redistributions.[3] Politics matter for other macro policy areas, such as monetary policy and financial regulation. The recent financial crisis, for example, has reopened issues regarding the desirable conduct of monetary policy and the connection between monetary and fiscal policy. The ECB is at the center stage of the political discussion about institutional building in the Euro area. In the present paper we focus exclusively on fiscal policy.[4]

The politics of fiscal policy could cover issues as diverse as the level of centralization versus decentralization, the structure of taxation, pension systems, the design of insurance programs like health care and unemployment subsidies, the optimal taxation of capital, international coordination of tax systems, just to name a few topics. In this paper we focus on debt. Many countries have been struggling with large debt over GDP ratios even before the financial crisis: countries which faced the Great Recession starting with large debt risked (or experienced) debt crises, like Greece, Italy, and Portugal putting at risk even the survival of the Monetary Union. Japan has a public debt held by the private sector of at least 140 per cent of GDP.[5] The political debate on how and at what speed to reduce the public debt after the Great Recession is at the center stage of the political debate.[6] When adding expected future liabilities of entitlements and pensions the public budget of most OECD countries, including the Unites States, look bleak. Debt problems in developing countries, especially in Latin America have been common. Any attempt to

circumstances which adversely affect their welfare, provided that the provision of the benefits and financial contributions constitutes neither a direct payment for a particular good or service nor an individual contract or transfer. Such benefits can be cash transfers, or can be the direct ("in-kind") provision of goods and services.

[2]Source: OECD (2014). The list of countries is: Australia, Austria, Belgium,Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, UK, USA.

[3]Alesina and Giuliano (2012) review the vast literature which has investigated the political and social determinants for the demand of redistribution.

[4]Alesina and Stella (2010) address old and new issue regarding the politics of monetary policy.

[5]The gross figure is well above 200 per cent but it includes debt held by various public institutions.

[6]Reinhart and Rogoff (2010) and Rogoff (1990) have emphasized the cost of debt burden for long run growth.

explain all of these phenomena leaving politics out is completely pointless.

In particular we ask two broad questions. First, is there a tendency in democracies to pursue sub optimal fiscal policies which lead to the accumulation of excessive debt, where "excessive" is in reference of what a benevolent social planner would do? In other words, how far are the observed pattern of debt accumulation and fluctuations in line with normative prescription of the literature on debt management like, in particular, Barro (1979), Lucas and Stokey (1983) and Aiyagari et al. (2002)? What explains substantial departure from optimality?[7] Second, are fiscal rules (and which ones) a possible solution to limit the extent of the problem of excessive deficits? The balanced budget rule is the most famous one, but may other have been proposed, especially in the Euro area. Two are the key issues in this debate. The trade off between the rigidity of a rule and the lack of flexibility which these rules create. More flexible rules may be superior but harder to enforce because they have too many escape clauses. Finally, assuming that a rule would work, would a country adopt it? Or would political distortions prevent it?[8]

We shall begin with a brief sketch of the prescriptions of the optimal debt management in order to identify the normative implication against which to confront actual policies. The goal of this paper is not to review in detail the optimal debt literature. We will exclusively focus on models with distortionary taxation and we will not enter the discussion of the Ricardian equivalence. We will not discuss issues regarding governments' defaults on their liabilities, a topic which would deserve an entire paper on its own. After having described which are the implications of the optimal taxation theory regarding debt management, we show that even a cursory look at the empirical evidence suggest substantial deviations from these prescriptions even amongst OECD countries. In fact, in terms of empirical evidence we will focus almost exclusively on OECD economies. Then, we discuss several different approaches which have tried to explain these deviations from optimality, in introducing political variables in debt management models. Finally, we return to a normative question. Given the presence of all of the potential political distortions examined above, which rules,

---

[7]For a review of an early literature on this point see Alesina and Perotti (1995). For more recent surveys see Persson and Tabellini (2000) and Drazen (2000).

[8]An issue which we do not consider in this paper is the question of procyclicality of budget deficits and the political distortions which may lead to this problem. See Gavin and Perotti (1997) and Alesina, Tabellini, and Campante (2008).

institutions, procedures or a combination of them is more likely to bring actual fiscal policy closer to the social planner ideal policy? In addition, are these rule and procedures likely to be chosen? Have they worked in the past?.

This chapter is organized as follows. In section 2 we briefly review the theories of optimal deficit management and the related empirical evidence. In section 3 to 7 we address the first question, namely whether or not there is a deficit bias in modern economies, and what explains it. In sections 7 to 10 we cover the question of fiscal rules and of which institutional arrangement would be more suitable to limit sub optimal conduct of fiscal policy. The last section discusses open issues for future research.

2 Optimal debt policies: a brief review

2.1 Tax smoothing

The theory of tax smoothing is due to Barro (1979) in a model where debt is not contingent and risk-free, spending needs are exogenously given and known, taxes have convex costs. The public debt takes the form of one-period, single-coupon bond and the rate of return on public and private debt is constant over time. The government raises in each period tax revenues τ_t. Government spending is indicated with G_t and debt with b_t and the interest rate on debt with r. Thus the government budget constraint in each period is given by:

$$G_t + rb_{t-1} = \tau_t + (b_t - b_{t-1}) \tag{1}$$

The lifetime government budget constraint is given by:

$$\sum_{t=1}^{\infty} \left[\frac{G_t}{(1+r)^t} \right] + b_0 = \sum_{t=1}^{\infty} \left[\frac{\tau_t}{(1+r)^t} \right] \tag{2}$$

Raising taxes generates some extra costs which can be interpreted as collection costs, or more in general deadweight losses or excess burden of taxes and the timing in which taxes are collected. Let Z_t be this cost which depends on the taxes of that period τ_t and negatively on the pool of taxable income/resources Y_t. In particular, let Z_t be defined as:

$$Z_t = F(\tau_t, Y_t) = \tau_t f\left(\frac{\tau_t}{Y_t}\right) \tag{3}$$

with $f'(\cdot) > 0$ and $f''(\cdot) > 0$. The present discounted value of these costs is:

$$Z = \sum_{t=1}^{\infty} \tau_t \frac{f\left(\frac{\tau_t}{Y_t}\right)}{(1+r)^t} \tag{4}$$

The social planner chooses τ_t in order to minimize (4) subject to the budget constraint (2). From the first order conditions one can find that the tax-income ratio $\frac{\tau}{Y}$ is equal in all periods. Given that, the level of taxes in each period is determined from the values of income $(Y_1, Y_2, \ldots)$, government expenditure $(G_1, G_2, \ldots)$, interest rate r and the initial debt stock b_0. The properties of the solution are considered under different assumptions about the time paths of income Y and government expenditure G. With constant income and government expenditure (i.e. $Y_t = Y_{t+1} = \ldots = Y$ and $G_t = G_{t+1} = \ldots = G$) since the tax-income ratio is constant, this implies that τ is also constant and the government budget is always balanced. With transitory income and government expenditure (e.g. transitory expenditure during wartime or during recessions) deficits are larger the longer and the larger is the transitory shock. The debt-income ratio would be expected to be constant on average, but would rise in periods of abnormally high government spending or abnormally low aggregate income.

2.2 Keynesian stabilization

This is not the place to discuss the potential benefits of discretionary countercyclical fiscal policy actions, namely increases in discretionary spending during recessions and reductions during booms. According to Keynesian theories, higher government spending or lower taxes during a recession may help economic recovery. The reason is that under high unemployment and low capacity utilization, higher government spending and lower tax rates may increase aggregate demand. Note that Keynesian models would prescribe that deficits should be countercyclical (that is, increase in recessions), but should not lead to a secular increase in debt over GDP. The reason being that spending increases during recessions should be compensated by discretionary spending cuts during booms.

We only note that the "long and variable lags" argument raised by Milton Friedman regarding monetary stabilization policy applies even more to fiscal policy where the lags are even longer and less predictable than for monetary policy. Friedman's original argument

5

was applied to monetary policy. He argued that the lags in between the uncovering of the need of, say, a stimulus, the discussion of it, the implementation and the realization of its effects were "long and variable". Therefore, by the time the expansionary policy came into action it was too late and it was counterproductive. This argument applies even more strongly to fiscal policy since the latter requires also an explicit political process, debate and approval in parliaments. The recent Great Recession and the lower bound issue for monetary policy has made popular the view that in this scenario, aggressive discretionary fiscal policies are necessary since automatic stabilizers are not enough. We do not enter in the zero lower bound debate in the present paper.

2.3 Contingent Debt

Lucas and Stokey (1983) build on Ramsey (1927) and show that Barro's intuition does not generally apply. The main difference with Barro (1979) is in the set of instruments available to the government to smooth the distortionary cost of taxation. While Barro (1979) focuses in only one instrument, namely non-contingent one-period bonds, Lucas and Stokey (1983) consider a model with complete markets, no capital, exogenous Markov government expenditures, state-contingent taxes and government debt. In this environment optimal tax rates and government debt are not random walks, and the serial correlations of optimal taxes are tied closely to those for government expenditures. Moreover, they find that taxes should be smooth, not by being random walks, but in having a smaller variance than a balanced budget would imply. Thus, to some extent, the idea of tax smoothing holds but not in the extreme version as in Barro (1979).[9]

---

[9]Interestingly, Klein, Krusell, and Ríos-Rull (2008) address the same issue raised in Lucas and Stokey (1983) but find different and strikingly results. In particular, they find that the time series of debt in the economy without commitment is extremely similar to that with commitment. Welfare is very similar as well. This result is surprising: under commitment, there is always an incentive for a once-and-for-all tax cut/debt hike, thus suggesting ever-increasing debt under lack of commitment. However, they show that the incentives that naturally arise in the dynamic game between successive governments actually help limit the time-consistency problem: they lead to very limited debt accumulation, and long-run debt levels can even be lower than under commitment. This incentive mechanism is a result of forward-looking and strategic use of debt.

2.4 Accumulation of government assets

Aiyagari et al. (2002) reconsider the optimal taxation problem in an incomplete markets setting. They begin with the same economy as in Lucas and Stokey (1983), but allow only risk-free government debt. Under some restrictions on preferences and the quantities of risk-free claims that the government can issue and own, it is possible to obtain back Barro's random walk characterization of optimal taxation. However, by dropping the restriction on government asset holdings (or modifying preferences) generates different results.

More specifically, under the special case of utility linear in consumption and concave in leisure, the authors show that as long as the government can use lump-sum transfers and spending shocks are bounded, than distortionary labor taxes converge to zero in the long run. The optimal solution prescribes reducing debt in good times, so that eventually the government has accumulated enough assets to finance the highest possible expenditure shock with the interest earned on its stock of assets. This is the so-called "war chest of the government". Instead, if one set a binding upper bound on the government asset level ("Ad Hoc Asset Limit"), the Ramsey solution for taxes and government debt will resemble the results stated in Barro (1979).[10]
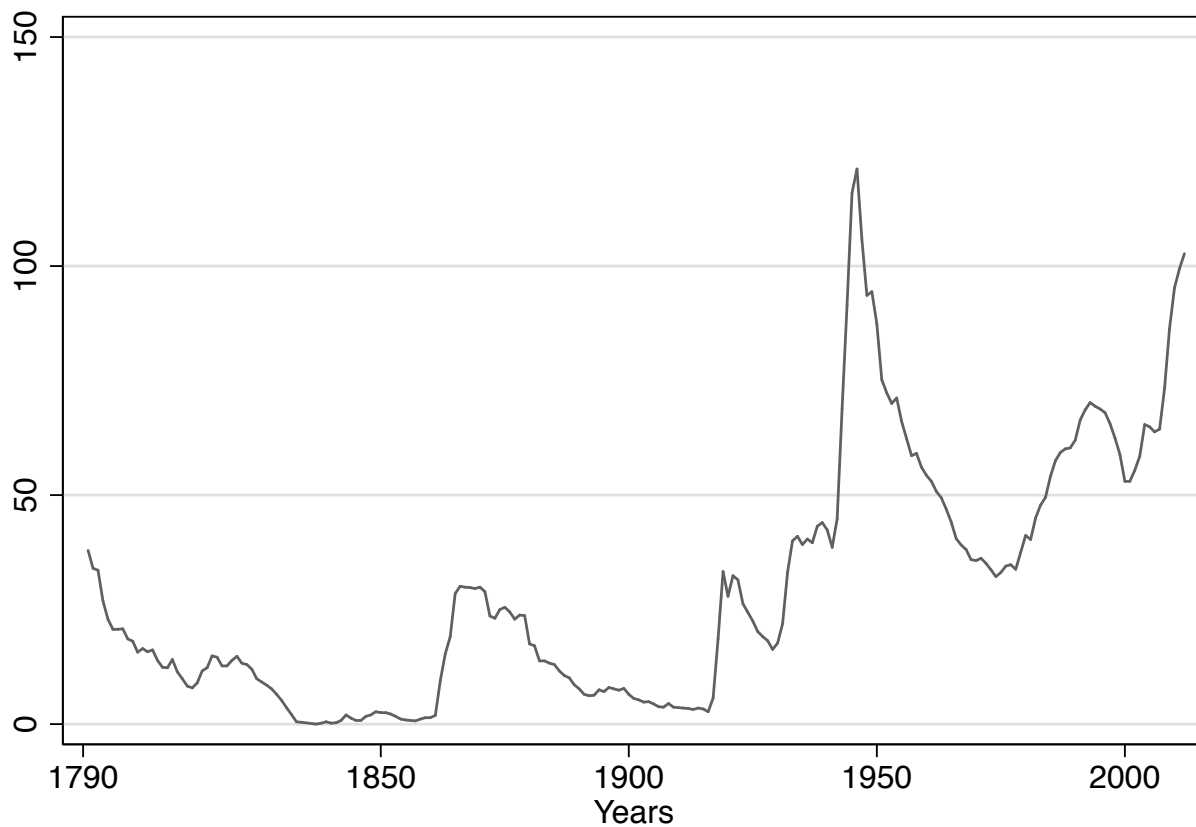
2.5 Evidence on Optimal Policy

The very basic principles of optimal debt policies, namely the debt-income ratio would be expected to be constant on average, but would rise in periods of abnormally high government spending or abnormally low aggregate income, are generally not satisfied by the data.

Government debts do go up during wars and major recessions, but beyond that, deviations from optimal policy are widespread. Figure 1 and 2 clearly show that government debts do go up in wars and recessions in the UK and US.

The major role played by wars is evident in these graphs. However even the US shows anomalous features, like the accumulation of debt in the eighties, which is a period of peace.

---

[10]By imposing a time-invariant ad hoc limit on debt, the distribution of government debt will have a non-trivial distribution with randomness that does not disappear even in the limit. In particular, rather than converging surely to a unique distribution, it may continue to fluctuate randomly if randomness on government expenditures persists sufficiently.

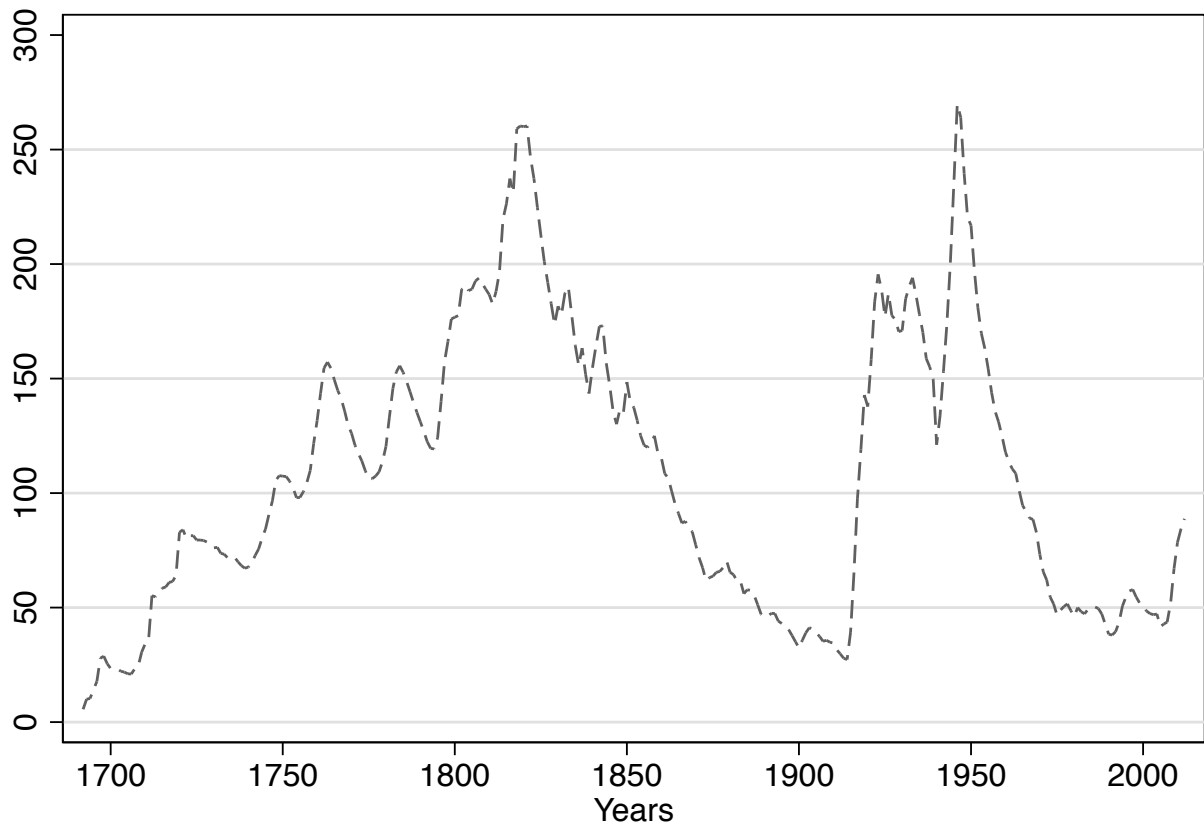Figure 1: Ratio of Public Debt to trend real GDP,
USA, 1790-2012

Source: Abbas et al. (2010)

This episode (the so-called "Reagan deficits") in fact inspired a few papers reviewed below and that, at the time, generated a major policy debate about the political forces which lead to these deficits. Other OECD countries show remarkable deviation from optimality.

We show in figure 3 and 4 two graphs for a group of relatively high and low debt countries.

Several observations are in order. First, the decline in the debt ratios after the Second World War in both groups of countries stopped in the seventies. In both groups of countries
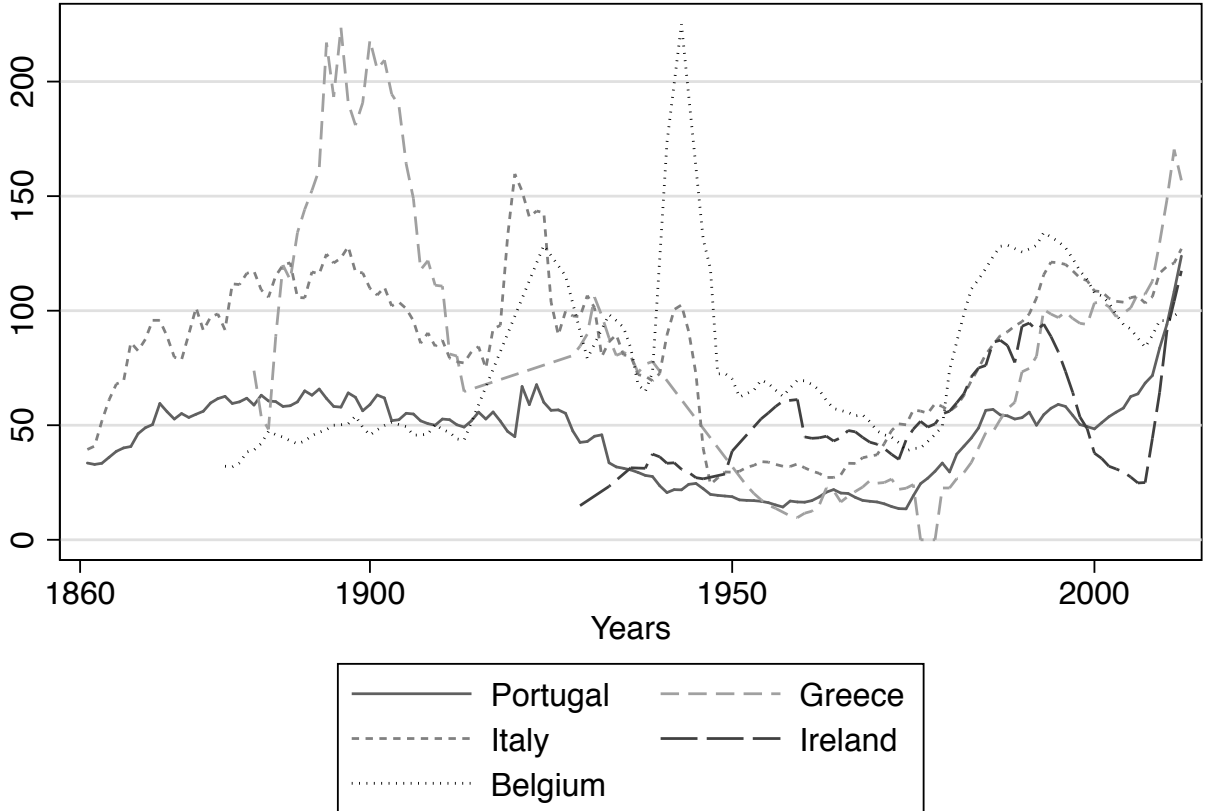
Figure 2: Ratio of Public Debt to trend real GDP,
United Kingdom, 1692-2012

Source: Abbas et al. (2010)

it increased for several decades in peace time, obviously much more in the high debt group. For instance, in Italy and Greece the debt to GDP ratio skyrocketed in the eighties and nineties in a period of relatively rapid growth for these countries. Belgium and Ireland as well entered the nineties with debt level normally typical of post war periods well above 100 per cent of GDP. Second, several countries (i.e. Ireland, Belgium, Denmark) had massive variations up and down of their debt ratios in peace time. Third, very few countries when they adopted the Euro satisfied the requirement of a less than 60 per cent debt over GDP
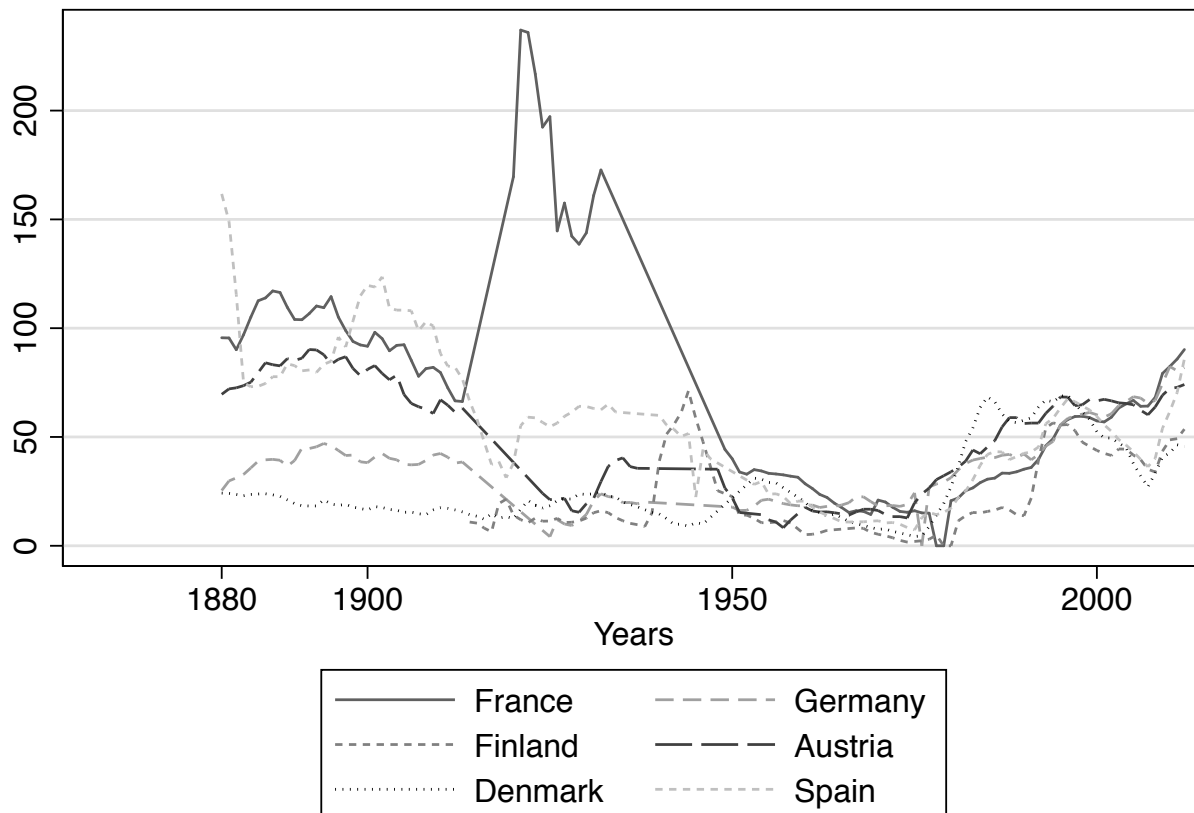
9

Figure 3: High Debt Countries, Ratio of Public Debt to trend real GDP

ratio. In addition, in the first decade of the Euro, up to the financial crisis, there was not much of an effort to converge to the prescribed target of 60 per cent. Fourth, no country comes even close to a policy as prescribed by Aiyagari et al. (2002) which would imply the accumulation of assets to build a "war chest". Fifth, the Great Recession has led to very large accumulation of government debts and this is, at least in large part, consistent with the tax smoothing hypothesis. However, countries which had already accumulated large debts for no obvious reasons before the crisis were constrained in how much they could accumulate more. Some additional accumulation created market panics; Greece had

Figure 4: Low Debt Countries, Ratio of Public Debt to trend real GDP

a partial default; Italy in 2011 was on the brink of a major crisis. Fifth, a few countries like Ireland and Spain entered the Great Recession with relatively low debt/GDP ratio but their fiscal position looked better than they really were due to extraordinarily and temporary tax revenues, namely the housing boom. When this became apparent these countries also faced debt panics. In fact, public debt problem in Europe almost degenerated to the point of a collapse of the Euro.

A table in Wyplosz (2014) shows that out of 20 OECD countries only 4 had a deficit for less than 50 per cent of the time since 1960, and 11 countries had a deficit for more

than 80 per cent of the years. Italy and Portugal achieved a "perfect" 100 per cent! These data do not distinguish between primary and total deficit, do not account for the cycle but nevertheless raise a significant flag about government profligacy. After the first oil shock of 1973-74, surpluses close to disappear. Easterly (1993) suggests that at that time (early seventies) many countries did not internalize a secular downturn of their growth process which would have required a reduction in the growth of government spending to keep the size of government constant. This lead to an accumulation of debt. Whether this misperception was an "honest mistake"or it was due to political distortions is a topic of discussion. In fact, it is pretty common for governments to justify large spending programs with very optimistic growth forecasts.

Table 1: Percent Years of Deficit over 1960-2011

	Australia	Austria	Belgium	Canada	Germany
Percent	80	82	96	76	78
Last Surplus	2008	1974	2006	2007	2008
	Denmark	Spain	Finland	France	UK
Percent	48	78	20	90	84
Last Surplus	2008	2007	2008	1974	2001
	Greece	Ireland	Italy	Japan	Netherlands
Percent	80	80	100	68	88
Last Surplus	1972	2007		1992	2008
	Norway	New Zealand	Portugal	Sweden	USA
Percent	4	46	100	42	92
Last Surplus	2011	2008		2008	2000

Source: Wyplosz (2014).

When considering the future liabilities of government, the picture regarding debt levels, appears substantially worse. The aging of the population (and the retirement of the baby boomers) will induce substantial strains over the social security budgets. In different degrees, in various countries health expenses (also related to the aging of the population) are rising at phenomenal rates. The US Congressional budget office (CBO (2014)) predicts

that with unchanged legislature, the debt over GDP ratio in the US will never fall in the most optimistic scenarios in the next couple of decades. With "middle range" assumptions, the (net) debt over GDP ratio may be well above 100 per cent. The forecasts of the social security administration have been called into question for being too optimistic and not transparent (Kashin, King, and Soneji (2015)). Similar considerations apply to Japan and European countries. There is a large difference between US versus European countries, and also within European countries. Specifically, in the US these entitlement programs are about 18.5 per cent of the GDP, while in the European countries between 20 and 30 per cent of GDP. Within the European countries, Norway is the leading country which spent about 30 per cent of the GDP in Entitlement programs. Regarding the type of entitlement programs, pension expenditures account for more than half of the entitlements in Italy and Greece, while they are less than 20 per cent in Ireland and Denmark.[11] In countries like Italy we are reaching paradoxes in which youngsters do not find jobs because of high labor taxes and high labor cost for firms to collect tax revenues needed to pay pensions for the parents who then support the unemployed children.

The intergenerational accounting procedure for evaluating liabilities of the government offers an alternative measure to federal budget deficit to gauge intergenerational policy. It was developed by Auerbach, Gorkhale, and Kotlikoff (1991) and it computes the net amount in present value that current and future generations are projected to pay to the government now and in the future. If one thinks that the government has an intertemporal budget constraint, then this constraint would require that the sum of generational accounts of all current and future generations plus existing government net wealth be sufficient to finance the present value of current and future government consumption. The generational accounts can be viewed simply as a tabulation of the net effect of future taxes paid and transfers received by various generations, assuming that current policy remains unchanged into the indefinite future. Auerbach, Gorkhale, and Kotlikoff (1991) compute the "lifetime net tax rate", which measures the burden of taxes minus transfer payment on a generation over its lifetime. The Generational accounting criteria presumes that fiscal policies should be generational balanced. This would imply that the net tax rate for current and future

---

[11]Specifically, in 2011 pensions account for 51.9 per cent of total Entitlement programs in Italy, 51.1 per cent in Greece, 19.6 per cent in Denmark and 16.8% in Ireland. Source: OECD.

generations should be the same. If the net tax rate for future generations exceeds the net tax rate for newborns, then according to this criteria, fiscal policy is not in generational balance. Haveman (1994) provides an excellent discussions of the pros and cons of generational accounting methods.

3   Deficits and elections

3.1   Fiscal illusion

The idea of "fiscal illusion" is due to the public choice school (see in particular Buchanan and Wagner (1977)). According to this argument voters do not understand the notion of intertemporal budget constraint for the government, therefore when (especially close to elections) voters see pending hikes or tax cuts (the public choice schools was especially concerned with the former) they reward the incumbent, and remain unaware of the consequences of such policies on public debt and the future costs of taxation needed to service it. The problem, according to the Public Choice school, is aggravated by the "Keynesian" policy stand. Politicians are eager to follow the Keynesian rule of increasing discretionary spending during recessions, but then they do not counterbalance it with cuts during booms. Thus, the result of keynesianism and fiscal illusion leads to persistent deficits and explosive debt levels.

In general the view that the best way to please the voters is to spend more and tax less is so pervasive that it is assumed to be an obvious fact. As we show below, the evidence is much more nuanced than it would appear. In addition, given the extensive discussion of the deficits, the pros and cons of austerity policies in the US and Europe, it is hard to believe that today's voters are unaware of the potential cost of deficits because of fiscal illusion, even though there may be disagreement on what policies to follow to respond to deficits. The fiscal illusion argument is overly simplistic although it does raise important warning bells on the conduct of fiscal policies in democracies.

3.2   Political budget cycles: Theory

The traditional fiscal illusion argument rely on some form of irrationality or ignorance on the part of the voters. However, political budget cycles can be derived also in models

where voters are fully rational but imperfectly informed as in Rogoff (1990) and Rogoff and Sibert (1988). What leads to these cycles is a combination of delays in the acquisition of information on the part of the voters regarding the realization of certain policy variables and different degrees of "competence" of policymakers.[12]

In Rogoff and Sibert (1988) more competent governments can tax less to provide public goods, because they introduce less wastage in the fiscal process. However, the full combination of income taxes, spending, seigniorage and government wastage (i.e. negative competence) is learned with one period delay by the voters. A higher level of competence implies that the government can provide public goods with lower taxes (or seigniorage). Suppose that before an election voters see a tax cut. They cannot distinguish whether the cut is due to a high realization of competence (which is unobservable by them immediately) or transitory deficit which they do not fully observe. After the election a less competent government would have to increase seigniorage generating also an inflation cycle. With a finite time horizon the only equilibrium that exists is a separating equilibrium, i.e. the one in which voters are able to infer exactly the incumbent's level of competency from the tax she selects in order to signal her competence. The competent policymaker cut taxes before election to a level that cannot be matched by the less competent one. A somewhat unpleasant feature of these models is that the more competent policymakers engages in budget cycles by cutting taxes before elections to signal their competence and distinguish themselves from the less competent ones who cannot afford such a large tax cut. Rogoff (1990) adds a distinction between two types of public goods, those that are clearly visible before an election, say fixing the holes in the street, and those less immediately visible, like increasing the quality of the training of teachers. In this model politicians have an interest in overspending in more visible but not necessarily the most productive public goods close to election time.

While, in principle, the implication of rationally-based modern theories of political business cycles may be similar to the traditional one, they differ in two ways. First, the rationality of voters output a limit on the extent of these policies. Second, and this will be revealed by the empirical evidence, the more the voters are informed and understand

---

[12]For a review of political business cycles in general see Alesina, Cohen, and Roubini (1993) and Drazen (2000).

the incentive of policymakers, the less they reward them for their behavior; thus for instance more freedom of the press in established democracies would be a constraint on this behavior.[13]

Drazen and Eslava (2010a) present models of political budget cycles in which the incumbent favors with certain spending projects specific and critical to constituencies and/or localities. By varying the composition of government spending the incumbent can target swing voters before elections. Incidentally, this imply that a political budget cycles may imply distribution of spending from one district to another, holding constant the total amount of government spending.[14]

3.3 Political budget cycles: Evidence

Are political budget cycles common? Persson and Tabellini (2000) argue that the answer depends upon the nature of the political institutions of the country. In particular, they argue that political budget cycles are less likely to occur in majoritarian systems rather than proportional representation systems. Brender and Drazen (2005) however, challenge these results. They find that the existence of political budget cycles do not depend on voting rules. Political budget cycles exist only in "new democracies," where fiscal manipulation may work because voters are inexperienced with electoral politics or may simply lack information, which may be one of the main factors generating the political budget cycle, as implied by the models reviewed above.

The role of information is tested by Brender (2003) for local elections in Israel. Peltzman (1992), and Drazen and Eslava (2010b) perform an analogous analysis in the United States and Colombia, respectively.[15] Gonzalez (2002) and Shi and Svensson (2006) test the importance of transparency, which ultimately means the probability that voters at no costs learn the incumbent's characteristics. They find that the higher the degree of

---

[13]For instance Besley and Prat (2006) develop a model in which more press freedom reduces the space for policymakers to extract rents. For a review of the political economy of mass media refer to Prat and Stromberg (2013).

[14]Hassler et al. (2005) show an interesting result, namely that the introduction of political distortions would reduce, instead of exacerbate, oscillations in tax rates. This is contrast with the predictions of the literature on political business cycles.

[15]Schuknecht (2000) presents evidence of cycles in 35 developing countries, Buti and Van Den Noord (2004) some evidence on European Union countries.

transparency, the smaller the political budget cycle. Moreover, while the proportion of uninformed voters may be initially large, it is likely to decrease over time, thus decreasing the magnitude of the budget cycle. Akhmedov and Zhuravskaya (2003) find that measures of the freedom of the regional media and the transparency of the regional governments are important predictors of the magnitude of the cycle. Alt and Lassen (2006) find that, in the sample of OECD countries, higher fiscal transparency eliminates the electoral cycle. [16]

The other important aspect is whether or not governments which generated political budget cycles are more easily reelected. Brender and Drazen (2008) consider the effect of deficits on the probability of reelection and show that voters are (weakly) likely to punish rather than reward budget deficits over the leader's term in office. Their results are robust by considering different sub-samples: (i) developed countries and less developed countries; (ii) new and old democracies; (iii) countries with presidential or parliamentary government systems; (iv) countries with proportional or majoritarian electoral systems; (v) countries with different levels of democracy.

A related literature directly tests the political consequences of large fiscal adjustments, i.e. whether large reductions of budget deficit have important negative political consequences. Alesina, Perotti, and Tavares (1998) consider a sample of OECD countries and they find that fiscal austerity has a weakly positive, rather than negative, electoral effect. However, they focus on cabinet changes and opinion pools, rather than on election results. Alesina, Carloni, and Lecce (2012) fill this gap, by looking directly at the election results. They find no evidence of a negative effect on the election results due to a fiscal adjustment. Buti et al. (2010) find that the probability of reelection for the incumbent politicians are not affected by their efforts in implementing pro-market reforms. This literature however suffers from a potential sort of reverse causality problem, namely governments which are especially popular for whatever reasons, manage to get reelected despite their deficit reduction policies, not because of them. While the authors are aware of this issues and try to asses it, measuring the "popularity" of a government is not always straightforward.

The bottom line is that political budget cycles may explain relative small departures from optimal policy around election times, especially in new democracies. However, they

---

[16]Alesina and Paradisi (2014) show evidence of political budget cycles in Italian cities. Foremny et al. (2015) provide evidence on political budget cycles using data on two German regions. Arvate, Avelino, and Tavares (2009) find evidence on localities in Brazil.

cannot be the main explanation for large and long lasting accumulation of public debt, as we documented above. Also, the cross country empirical evidence seems to have been exhausted. Perhaps natural experiments at the local level might be interesting.

4 Social conflict: war of attrition and riots

4.1 War of attrition: Theory

War of attrition models do not explain "why" a deficit occurs, but they explain why deficit reduction policies are postponed Alesina and Drazen (1991) focus on the case of a country that for whatever reason, due a permanent shock on revenues (or on expenditures), is on a "non sustainable" path of government debt growth. The debt is held by foreigners and the interest rate is constant and exogenously given and there is no default. The longer the country waits to raise tax rates to stop the growth of debt, the more the interest burden accumulates and the more expensive the stabilization will be. The latter implies a reduction to zero of total deficits.

There are two equally sized groups of equal (exogenous) income which cannot agree on how to share the costs of the stabilization. The social planner would choose an equal division of costs for each group since the groups have the same income and size. In this case stabilization would occur immediately since delays only create inefficient costs, namely higher interests on the accumulated foreign debt. The critical feature of the model is that without a social planner political polarization leads to an uneven distribution of the costs of the stabilization. In particular, one group has to pay more than 1/2 of the taxes needed for the stabilization and in every period after that. When both groups perceive the possibility of shifting this burden elsewhere, each group attempts to wait the other out. In order for this to happen there has to be some uncertainty about the costs of each group to wait the other out, namely how long a group can bear the costs of delaying the stabilization. These costs are modeled as the economic costs of living in the distorted pre-stabilization economy (for instance with inflation) or the political cost of "blocking" attempts of the opponent to impose an undesired stabilization plan. This war of attrition ends, and a stabilization is enacted, when a group concedes and allows its political opponents to be the winner. The loser then pays more than half of the costs of the stabilization, allowing the winner to

pay less. The condition which determines the concession time is the one which equals the marginal cost living an extra moment in the unstable economy to the probability that in the next moment the opponent group will concede, multiplied by the differences the costs of being the winner rather than the loser. This is why uncertainty about the strength of the groups is critical. If one group knew from the beginning that its cost of living in an unstable economy were larger than those of the other group, it would know that it may end up losing the war of attrition and therefore it would concede immediately; this would be cheaper than postponing the inevitable loss. The passage of time reveals the type of the groups, namely which one is stronger. The more unequal are the divisions of the cost of the stabilization, which can be interpreted as a degree of polarization of a society, the longer the war of attrition and the higher the level of debt accumulated since the relative benefit of winning increase.

The war of attrition implies that individually (group level) rational strategies lead to a sub optimal accumulation of debt. The group which will end up being the loser is the one with the highest cost of prolonging the war of attrition. This is why uncertainty about these cost are critical. If it was common knowledge which was the weaker groups, the latter would capitulate immediately, since waiting adds to the costs and this group would lose anyway. Therefore anything that eliminates this uncertainty ends the war of attrition.

4.2   War of attrition: Empirical evidence

The model has several empirical implications. The first one is that the passage of time may lead a country to stabilize even if nothing observable happens, simply because one group has reached the condition of "conceding" namely has learned its relative strength to that of the opponent. Second, an electoral or legislative victory of one of the groups may signal its superior political strength and may lead the opponent to concede. Third, longer delays and higher debt should occur in polarized societies which cannot reach a "fair" and acceptable distribution of costs. In addition, delays are longer when many groups have a "veto power" to block policy decisions which they do not like. Fourth, a worsening of the economic crisis may lead to a resolution of the war of attrition. When the costs of delay increase for one of the groups the latter may concede sooner. Drazen and Grilli (1993) show that in their case a "crisis" can be beneficial, since it worsens the utility level of one of the groups in the

short run, but it may be welfare improving for all in the long run since the war of attrition ends sooner. Fourth, for the opposite reason foreign aid can be counterproductive (Casella and Eichengreen (1996)). If foreign aid makes life easier before the stabilization, delays are longer and in the long run welfare is lower. The result, however, depends on how aid is disbursed; for instance foreign aid that implicitly "picks" a winner would end the war of attrition sooner. Finally, an external commitment, say an IMF conditionality agreement, may accelerate the resolution of the war of attrition making it more costly to "fight it."

Several authors have suggested empirical observations consistent with the implications of the war of attrition model. Alesina and Drazen (1991) discuss a few historical examples of cases in which the same government first fails to stabilize because it encounters political opposition then it succeeds because the opposition is defeated. The idea that multiple veto players delay the elimination of deficits is consistent with the evidence by Grilli et al. (1991) and Kontopoulos and Perotti (1999). The former argue that in the eighties, debt accumulated more in parliamentary democracies with multiparty systems. The latter argue that the number of spending minister is associated with looser fiscal controls, an issue upon which we return later. Volkerink and De Haan (2001) and Elgie and McMenamin (2008) provide evidence on a sample of 22 advanced economies showing that more fragmented governments with smaller majorities in parliaments have larger deficits. Persson and Tabellini (2000) review and add to this line of research with additional evidence. These authors and Milesi-Ferretti, Perotti, and Rostagno (2002) show also that coalition governments spend more on welfare, a point analyzed also by Alesina and Glaeser (2005) in a comparison of US versus Europe. As we discussed above, Easterly (1993) noted that countries accumulated debt because they did not adjust their spending programs to the secular reduction of growth which started in the late seventies. These delays in adjusting to a permanent shock is consistent with the general message of the war of attrition. Various constituencies objected to reducing the growth of their favorite spending programs.

A second line of inquiry has focused on the idea that "crisis generates reforms", as in Drazen and Easterly (2001). Needless to say, the evidence suffers from problems of reverse causality: why would you need a reform if you did not have a problem to begin with?[17] Alesina, Ardagna, and Galasso (2010) combine these institutional hypothesis with the crisis

---

[17]Similar issues arise on the huge literature on foreign aid, which we can not even begin to survey here.

hypothesis, making a step closer toward testing the war of attrition model. In particular, they test whether certain institutions are more likely and rapid to resolve crisis, a result consistent with the model by Spolaore (2004). Alesina, Ardagna, and Galasso (2010) define a country as being in a "crisis" if at time t the country is in the "worst" 25 per cent of the countries in the (large) sample in terms of budget deficits.[18] They find support for the view that "stronger governments" stabilize more in time of crisis, i.e. when a crisis comes, strong governments adjust more and exit more quickly from the state of "crisis." Strong governments are presidential systems and amongst parliamentary systems those in which the majority has a greater share advantage over the minority. They also find that stabilization (i.e. exit from crisis) are more likely to occur at the beginning of a term of office of a new government. These results are consistent with the war of attrition model in the sense that in an unstable situation (i.e. a crisis), a stabilization occurs sooner with fewer veto players or with a clear political winner. Results on the effect of IMF programs are inconclusive but, as discussed above, causality problems are especially serious in this case.

4.3   War of Attrition: Summing up

The war of attrition model has proven to be successful as an explanation of observed characteristics of run away debts and the timing of stabilization. One issue with this model is that it has been proven difficult to extend it. In particular, the division of costs of the stabilization is taken as exogenous and not bargained amongst groups. Moving in that direction would lead to bargaining models where institutional details on how the game occurs are critical. Perhaps one may think about connecting this approach with the one discussed below on voting in legislatures. Also the extensions to n rather than 2 groups implies results which are not clear cut and the formation of coalitions amongst n groups are intractable (thus far) problems. Finally, in the model, a stabilization is a zero-one event. Partial or failed attempts are not explicitly modeled even though in reality are quite common.

---

[18]In their paper these authors also consider inflation crisis, not only deficit crisis.

4.4 Riots

Passarelli and Tabellini (2013) provide a model of political competition which has some connection to the war of attrition although with substantial differences and a "behavioral" bend. In their model several social groups have views about what is a "fair" allocation of resources. The sum of those views about what is fair for each groups may be larger than the available resources. In addition groups are willing to engage in costly political actions (riots) when they feel that they have not obtain their fair allocation. When a group perceives that fairness (according to this group's view) has been violated, individuals are willing to engage in costly political actions, like riots, because of this emotional reaction to a perceived unfair behavior. The groups which are more homogeneous are also more likely to be more successful in organizing riots. This feeling of "anger" when perceived fairness has been violated solves the free rider problem of political actions. In a dynamic setting the threats of riots pose constraints to the government. In particular, even a benevolent government may be forced to accumulate excessive debt (above the optimal level) to reduce the threats of riots. Empirically, Woo (2003) shows that public dent accumulation is associated with the occurrence of riots. Ponticelli and Voth (2011) and Passarelli and Tabellini (2013) show how budget cuts are sometimes followed by riots.

It is interesting to compare this evidence on riots and the one reviewed above by Brender and Drazen (2008) and Alesina, Carloni, and Lecce (2012) which suggest that, at least in democracies fiscal adjustments are not associated with consistent electoral losses for the incumbent. Perhaps homogeneous and organized groups organize riots while the less organized median voter is much more prone to accept fiscal retrenchments when necessary. In other words, a government may face strikes and riots organized by specific homogeneous constituencies and those actions may bloc fiscal adjustment policies and increase public debt. However the unorganized voters (which may be the majority) may not approve of those policies.

It would be interesting to expand Passarelli and Tabellini (2013) framework to incorporate these features in which part of the electorate is organized and has this behavioral bend about fairness, and another part of the electoral is unorganized and does not have self serving feelings of fairness.

5 Debt as a strategic variable

Government debt is a state variable which "links" several successive governments. Different governments may have different preferences over fiscal policy, say the level and/or composition of public spending. If the current government is not sure of its reappointment, it may want to choose a level of deficit while in office (thus a level of debt) in order to influence the fiscal choices of future governments. In these models, deficits do not affect the probability of reelection since the voters are fully rational, fully informed and forward-looking, but deficits serve the purpose of insuring that future governments follow policies closer to the preference of the current government by constraining future governments' actions. The asymmetry of information that would lead to political business cycles, as we discussed above, are assumed away here, and the strategic manipulation of the debt by the current government or majority in office is fully in the interest of those who supported the current government. Another way to put this is the following. Given the inability of current government to control future public spending, it may prefer to take a $1 of tax revenue away from the future government by borrowing because it may not be in power and be able to decide how that $1 is spent in future, but it can decide how it can be spent today. Clearly, this logic applies only if there is political turnover and heterogeneity of preferences over fiscal policy amongst the different potential governments.

In Alesina and Tabellini (1990) two parties, with exogenously given preferences, stochastically alternate in office. They care about the level of income of the representative individual and care about two different public goods, say military spending versus domestic spending (more generally they place different weights on these two public goods). In the model there is a representative voter/citizen in terms of his/her choices of labor and leisure but with a distribution of preferences about the type of public goods that they prefer, so they would vote for different parties depending on the parties' choice of public goods. Private and public goods enter separately in the utility function. If a party is unsure of being reappointed, it will issue debt. By doing so it "forces" the following government (possibly of a different party) to spend less on the public good the current government does not care as much. In other words, the current government chooses to distort the path of income taxation in order to spend more on the public goods that it prefers leaving future governments with the task of reducing the debt since default is ruled out by assumption. The future

government will do so, at least in part, by cutting spending on the public good the current government does not care much about.[19] The lower is the probability of reappointment of the current government the higher the level of debt chosen. Only a government sure of reappointment would issue no debt. The social planner would issue no debt since there is no reason to do so and would choose a stable combination of the two public goods in order to satisfy, say, utilitarian social preferences. Tabellini and Alesina (1990) provide analogous results in a model in which fiscal decisions are taken by the median voter. The current median voter is uncertain about the preferences of future median voters, because of shocks to the distribution of preferences. Today's median voter choose to issue debt for the political incentives of creating "facts" for future majorities. Alesina and Tabellini (1989) extend this type of model to a small open economy and show a connection between excessive public debts and private capital flights.

Persson and Svensson (1989) provide a related model which however does not imply a deficit bias but non obvious implications about which government would lead a deficit and which would run a surplus. In their model, there are two parties, one of the left who likes a large amount of public goods even at the cost of high taxes, and a party of the right which, on the contrary dislikes public spending and taxation. The public debts links the two alternating parties in office. When the left is in office it chooses to leave a surplus by taxing more in order to generate an incentive for the right when in office to spend more on public goods. The right, when in office, will cut taxes creating a deficit in order to prevent easy spending when the left comes in to office.[20]

In a similar vein Aghion and Bolton (1990) consider the commitment effect of debt in two ways. First, by limiting future expenditure on public goods. Second, in forcing to raise higher tax revenues to repay the debt. Lizzeri (1999) uses similar insights, linking excessive debt accumulation and redistributive policies. In his model, two candidates, motivated purely by the desire of winning elections, can redistribute to some citizens and cannot make promises on future redistribution. In the first period, by running deficits they can target with "excessive" redistribution of transfer skewed in favor of a majority and against a minority.

---

[19]When both parties care (with different weights) about the two public goods the result about excessive deficit require a weak condition on the third derivative of the utility function on the public goods.

[20]Pettersson-Lidbom (2001) presents supporting evidence for this model using Swedish data on localities.

6 The common pool problem

In these types of models agents do not fully internalize the tax burden of spending decisions leading to "excessive" spending. The most widely studied "common pool problem" is the one of legislators (like the United States Congress) which would like to approve spending programs for their districts without fully internalizing the cost of taxation; in fact, the latter are spread on all (or many other) districts. As we discuss below, similar political distortions arise in different institutional settings.

6.1 Bargaining in legislatures

Weingast, Shepsle, and Johnsen (1981) provide a model of excessive spending on pork barrel projects which was later extended to various voting rules and applied to study debt accumulation. These authors show how representatives with a geographically based constituency overestimate the benefits of public projects in their districts relative to their financing costs, which are distributed nationwide. The voters of district i receive benefits equal to B_i for a project, but have to pay $1/N$ of the total costs if taxes are equally distributed among districts. Thus, a geographically based representative does not internalize the effect of his proposals on the tax burden of the nation. The aggregate effect of rational representatives facing these incentives is an oversupply of geographically based public projects. Specifically, the size of the budget is larger with N legislators elected in N districts than with a single legislator elected nationwide, and the budget size is increasing in N, the number of districts.

Baron and Ferejohn (1989) substantially improve upon this model by considering voting on the distribution of taxes rather than assuming that every district pays $1/N$ of the cost of every project. They study decisions with majority rule with various alternative procedural rules. In their model there are n members (they can be interpreted as people, districts, or States) in the legislature. The task of the legislature is to choose the distribution of one unit of benefits among the n districts, with no side payments outside the legislature. A "recognition rule" defines who, at each session is going to be the agenda setter with the task of making a proposal. In each session, member i is chosen with probability p_i. Member i then puts forward a bargaining proposal a proposal of the form $x^i = (x^i_1, x^i_2, \ldots, x^i_n)$

such that $\sum_j^n x_j^i \leq 1$. If no proposal is approved, each member of the legislature gets zero benefits, the status quo. Members of the legislature have a common discount factor δ.

These authors distinguish between a "close amendment rule" and an "open amendment rule". In the first case, the proposal on the floor is voted upon against the status quo, with no amendments. If the proposal is approved, then the benefits are distributed and the legislature adjourns. If the proposition is rejected the benefits are not distributed and the legislature moves to the next turn. In this case the process starts over, but the benefits are discounted by the factor δ. With an "open amendment rule", after the member is randomly chosen to make the proposal, another member can be recognized at random and may either offer an amendment (i.e. an alternative allocation) or move to vote. If the proposal is seconded, the legislature votes as previously. If the proposal is amended, a runoff election is held to determine which proposal will be on the floor. The process is repeated until a recognized member moves the previous question and a yes vote is reached.

In the case of closed amendment Rule, the subgame perfect equilibrium has the following characteristics: (i) the equilibrium distributions of benefits is majoritarian, i.e. only a minimum majority gets something; (ii) the agenda setter can get a strictly greater allocation, and (iii) the legislature completes its task in the first session. In the case of open amendment rule, the agenda-setting power of the first proposer is diminished. Indeed, each member must consider the fact that her proposal may be pitted against an amendment. Thus, she has to take this into account when making the proposal. In particular, the proposing member must make a proposal acceptable for at least m out of $n-1$ other members in the legislature. By choosing m, the original proposer determines the likelihood of acceptance. The higher is m, the higher the probability that the section rule will choose one of the m legislators and the proposal is accepted, but also the lower the benefits that the agenda setter can keep for himself.

6.2 Bargaining in legislatures and government debt

In Velasco (1999, 2000) several interest groups benefit from a particular kind of government spending. Each group can influence the central fiscal authorities to set net transfers on the group's target item at some desired level. The equilibrium implies a debt level at the maximum feasible level. In fact each group demands transfers large enough to cause fiscal

deficits and a sustained increase in government debt. Eventually, the government hits its credit ceiling, and is locked forever in a position of paying sufficient taxes to service the associated maximal debt level. The intuition for this result is simple. Property rights are not defined over each group's share of overall revenue or assets. A portion of any government asset, which is not spent by one group, will be spent by the other group. Hence, there are incentives to raise net transfers above the collectively efficient rate. Groups do not fully internalize the costs of public spending, namely each of them uses the whole stock of resources instead of a fraction, as the basis for consumption of spending decisions. Krogstrup and Wyplosz (2010) provide a related common pool model of deficit bias in an open economy.

Battaglini and Coate (2008) adopt the Baron and Ferejohn (1989) framework described above and study how such bargaining leads to deviations from the optimal path of debt. They focus on the case in which a social planner would implement the solution by Aiyagari et al. (2002). Battaglini and Coate (2008) link the Baron and Ferejohn (1989) model of bargaining in a legislature with the insight of the literature on strategic debt which we have reviewed above, in particular the model by Tabellini and Alesina (1990). Current majorities in the legislature will bargain over spending with uncertainty about the nature of future majorities and the debt becomes, as above, a strategic tool to control future fiscal decisions.[21] While in Tabellini and Alesina (1990) the will of the majority is simply represented by the optimal policy of the median voter, Battaglini and Coate (2008) provide a much richer institutional setting to characterize decision making.

Battaglini and Coate (2008) model a continuum of infinitely lived citizens located in n identical districts. A single (non-storable) consumption good z and a public good g are produced using labor. Citizens maximize their lifetime utility which depend on consumption, labor supply, and a parameter A_t, which is the realization at time t of a random variable, which represents the value of the public good for citizens at time t. If, for instance, the public good is defense spending, we value it a lot higher during a war. The

---

[21] In a related work Barseghyan, Battaglini, and Coate (2013) consider, as a driver of fiscal policy persistent tax revenue shocks, which come from business cycle impacts on the private sector. Battaglini and Coate (2015, forthcoming) consider an economic model with unemployment and the distinction between private and public sector jobs. They explore the relationship between debt, unemployment, and the relative size of the public and private sector.

legislature provides the public good g and it can finance targeted-district specific transfers s_i, i.e. "pork-barrel" spending. To finance its activities, the legislature can either set a proportional tax on labor τ or issue one-period risk free bonds x. The legislature faces three different constraints. A feasibility constraint, which imposes that the government revenues have to be high enough to cover expenditures. The "District Transfer Constraint", which imposes that the district-specific transfers must be non-negative. This constraint excludes lump negative transfers (lump sum taxes) to finance government spending. Finally, the government has to satisfy the Borrowing Constraint, which implies setting an upper and lower bound on the amount of bonds that can be issued or bought back each period. The lower bound is set without loss of generality. Indeed, the government would never need more than the assets the lower bound implies so the constraint never binds. An upper bound is necessary to avoid the government to issue an amount of debt which is unable to pay back the next period. A lower bound is defined by the level according to which it is possible to finance the optimal level of public good just with the interests on the assets the government has accumulated.[22] The legislature, consisting of a representative from each of the n districts, make decisions with closed rules. The legislature meets at the beginning of each period knowing both b_t and A_t. One representative is randomly selected to make the government policy proposal, which consists of the tax rate on labor r_t, the level of public good g_t, the level of bonds x_t and the district-specific transfers $(s_1, \ldots, s_n)$. The proposal requires consensus of a minimum winning coalition of $q < n$ legislators to be accepted and implemented. If the proposal is rejected another legislator is randomly chosen to make a new proposal. If, after τ rounds, all the proposals are rejected, then the government implements the "Default Policy", which has to satisfy the feasibility constraint and has to treat all the districts equally, i.e. $s_1 = \ldots = s_n$.

In this model a social planner would choose the optimal debt path as in Aiyagari et al. (2002). More specifically, the social planner takes as given (b, A) and chooses a policy $\{r, g, x, s_1, \ldots, s_n\}$ which maximizes the utility of citizens in all district. Given (b, A) there are two possible cases, namely with or without transfers to the districts. In the first case, with positive pork-barrel transfers, the optimal tax rate on labor is set to zero and the

---

[22]The optimal level of public good is the one which satisfies the Samuelson Rule, i.e. the level at which the sum of marginal benefits is equal to the sum of marginal costs.

optimal level of public good is set to $g_S(A)$, i.e. the level that satisfies the Samuelson's Rule. The reason is straightforward. Suppose that the tax rate is positive. Then, the Social planner finds strictly dominant to reduce the pork-barrel transfers and to reduce the (distortionary) tax. If the Social Planner does not make any pork-barrel transfer, it must be the case that the tax rate is positive, the level of public good provided is less than $g_S(A)$ and the level public debt exceeds the one with transfers. Thus, pork-barrel transfers depend upon the realization of the value for the public good, A. In particular, for high enough values of A, the optimal policy has no transfers: g is high and no room is left for pork barrel. Instead, if the government has resources left to provide pork-barrel transfers, then the level of debt must be the lowest possible, i.e. the lower bound $\underline{x}$. (Remember that the lower bound implies accumulation of assets). Intuitively, if the planner is willing to give revenues back to citizens through district transfers $(s_1, \ldots, s_n)$, then it must expect not to be imposing taxes in the next period; otherwise, he would be better off reducing transfers and acquiring more bonds. This suggests that the steady state debt level must be such that future taxes are equal to zero, implying it to be equal to $\underline{x}$.

Consider now bargaining in the legislature. The agenda setter has to find $q - 1$ supporters for his proposal to pass. The equilibrium policies are driven by the realization of the value of the public good, A, and the value of the public debt left from the previous period. For high enough values of A and/or b, the marginal value of the public good is so high that the proposer does not find it optimal to make positive pork-barrel transfers. Thus, the equilibrium policy consists of the outcome as the proposer maximize the utility of all representatives. In other words, we are back to the Social Planner solution with no transfer. For low levels of b and/or A, there may be resources left that can be transferred to the q districts. This implies there exists a cutoff value A^* which divides the space into two different regimes. For $A > A^*$ the economy is in the "Responsible Policy Making" regime (RPM). In this case, the optimal level of the tax rate, the public good and the debt to issue are defined by the Social Planner's optimal conditions with no pork-barrel. For $A < A^*$ the economy is in the "Business-As-Usual" regime (BAU). In this case the proposer defines $\left(r^*, g^*(A), x^*\right)$ by maximizing the utility for the q districts included in the "Minimum Winning Coalition". This equilibrium includes also transfers $(s_1, \ldots, s_q)$ high enough to induce the member of the coalition to accept the proposal.

The same optimal conditions can be defined in terms of the public debt. In particular, the equilibrium debt distribution converges to a unique invariant distribution whose support is a subset $[x^*, \bar{x}]$. When the debt level is x^*, then the optimal conditions for the tax rate and the public good are those defined by the BAU, with the proposer who makes pork-barrel transfers to the q districts. If instead the debt level exceeds x^*, then the economy is in the RPM regime where the tax rate is higher than the one defined in BAU, the provision of public good is lower, and no districts receive transfers.

In the long-run, the economy oscillates between BAU and RPM regimes, depending on the realization of the value of the public good A. For instance, pork barrel would disappear during a war when A is large.[23]

In summary, the political distortions which make the social planner solution differs from the political equilibrium arises for two specific reasons. The first one, which can be related to the "Common Pool problem" discussed in the previous section. The minimum winning coalition does not fully internalize the costs of raising taxes or reducing the public good but it fully enjoys the benefit of receiving the pork-barrel transfers. The other distortion comes from the uncertainty suffered by the legislators. They do not know *ex-ante* whether they are going to be included in the minimum winning coalition next period. Thus, they do not fully internalize costs and benefits across periods. In particular, they compare $\$\frac{1}{q}$ benefit today by belonging to the coalition, versus $\$\frac{1}{n}$ expected costs tomorrow. This intuition is similar to the strategic model of debt of Tabellini and Alesina (1990) reviewed above. In conclusion, this paper makes two important contributions. First, it merges the results found in Tabellini and Alesina (1990) by using Baron and Ferejohn (1989) type of model. Second, it shows that taxation smoothing "a la Barro" is still an important factor in a political economy model, but distortion smoothing through debt is inefficient, and therefore not only this results in excessive accumulation of debt, but also in excessive volatility of the policies in the steady state. From an empirical standpoint, Baqir (2002) shows results consistent with the common pool problem using data from US cities. He shows that larger city council, where the common pool problems may be larger, are associated with more public spending, holding other determinants of the latter constant.

---

[23]Battaglini (2014) illustrates an extension of that model, which includes two-party competition in a legislature modeled as above.

There is also a potential connection with the war of attrition model discussed above. In these bargaining models the passage of time is not considered. With a closed rule agreement is immediate but even with an open rule to the extent that proposals and amendments can be made instantaneously time does not matter. In reality, bargaining in legislatures takes time, and the passage of time is critical in the war of attrition models to allow the game to be resolved. At the same time the passage of time leads to the accumulation of debt. Allowing for a realistic consideration of time in these bargaining model could be an interesting avenue for theoretical and empirical research.

6.3 The common pool problems in other institutional settings

The general idea of the common pool problem with strategic debt is relevant for other institutional settings beyond the US Congress.

In particular, in many democracies the budget is crafted by a government (possibly formed by more than one party), it is presented in the legislature and approved, if the parties of the government have a majority, with or without amendments. In this case, we may have a common pool problem with the spending ministers in the government even before the budget reaches the legislature. Each spending minister would generally like to obtain more spending for its own ministry, often pushed by the bureaucracy of the latter. A winning coalition of spending ministers may lead to the approval of a budget which, like in the BAU regime of Battaglini and Coate lead to a sort of "pork-barrel" transfers to a minimum winning coalition of spending ministers. These pork-barrel spending may be geographically or functionally defined and the bargaining may get especially complicated when different spending ministers belong to different competing parties. In this institutional setting normally the Treasury Minister has the task of preventing spending ministers to overspend but he or she may be overruled by a minimum winning coalition of spending ministers. In fact, as we shall discuss below, different institutional settings attribute different levels of prerogatives to spending ministers versus the Treasury, making the problem arising in the BAU regime more or less serious. In addition, even in parliamentary democracies, legislatures have the ability of proposing and voting upon amendments on the budget presented by the government.[24].

---

[24]Tornell and Lane (1999) develop a model of a sort of common pool problem applicable more directly

Often budget deficits at the national levels originate at subnational levels of governments. Some famous examples are both from Latin America (i.e. Argentina) and European countries (Italy and Spain, for instance). This is related to suboptimal allocation of spending and taxing prerogatives amongst various level of governments. Suppose that spending is decided by local governments and revenues are collected by the national government and allocated to localities on the basis of their spending decisions. Obviously, in this case localities do not internalize the full cost of taxation of their spending decisions since taxes are levied nationally. Most countries have arrangements which attempt to put a limit on these incentives, such as having some local taxes required to finance some type of spending, or having budget rules on local governments (as we will discuss below). In many cases, however, these arrangements are imperfect and a common pool problem remains. The relationship between local governments and the Central Government may also imply a case of soft budget constraint (see Kornai, Maskin, and Roland (2003)). Localities expect Central Government to bail them out and overspend. Pettersson-Lidbom (2010) provides a test using Swedish data.

This discussion is of course related to the fundamental issues of fiscal federalism.[25] The trade off is well known. On the one hand, one wants to allow to federal countries some freedom of choice on their localities. On the other hand, such freedom should not imply a deficit bias at the national level.

7 Intergenerational redistribution

Current generations, by means of government debt, redistribute from future generations to themselves. The argument is very appealing. However, it needs to take into account the fact that private bequest are positive, thus one needs to account for negative "public" bequest

to developing countries with poorly developed institutions and large informal sectors. They develop a dynamic model of the economic growth process that contains two common characteristics of those developing countries that have grown slowly in the last decades, namely (i) the absence of strong legal and political institutions; (ii) the presence of multiple powerful groups in society. The focus is on the fiscal process as it is the mechanism through which powerful groups interact with the society (which is characterized by weak legal and political institutions) and where they can enforce discretionary fiscal redistribution - a kind of pork-barrel transfer - as a way to appropriate national resources for themselves

[25]See Oates (2011) for the classic work.

(government debt) and private positive bequests. In this respect Cukierman and Meltzer (1986) consider the standard framework with overlapping generation model, lump-sum taxes and intergenerational transfers from parent to child, and no uncertainty. Individuals differ in their abilities, (and therefore in wage earnings) and in their nonhuman wealth. Some of them desire to leave positive bequests, and others would prefer to borrow resources from future generations. Individuals who would choose to leave negative bequests are "bequest-constrained" individuals. These individuals favor any fiscal policy that increases their lifetime income at the expense of future generations. Individuals who are not bequest-constrained are indifferent to an intergenerational reallocation of taxes. In fact they can adjust up or down their private bequest when public bequests (government debt or assets) move up or down. By majority rule, if the decisive voter is bequest-constrained, he will choose lower current taxes financed by additional debt, which cannot be defaulted. If instead the decisive voter is not bequest-constrained, he is indifferent to a reallocation of taxes and social security over time that maintains present value. Thus, in this model by majority rule we will easily have an accumulation of debt. The likelihood to have deficits increases with an extension of the franchise to low wealth individuals who are likely to be bequest-constrained. This is a simple but very powerful idea which strikes us as just right.

Tabellini (1991) explores a different argument, that is the redistribution consequences of debt repudiation in an overlapping generation framewrok implying both intra and inte-generational redistributions. The main idea is that issuing debt creates a constituency in support of repaying it. Thus, issuing debt makes a coalition of voters favorable to repaying it in order to avoid intragenerational redistributive consequences of the debt repudiation. In particular, parents have a first-mover advantage since they can vote on how much debt they want to be issued (i.e. how much resources they want to extract from future, yet-unborn generation), without the future generation to have a word. Issuing government debt results in intergenerational redistribution to be tight to intragenerational consequences of choosing how much debt to repay. In particular, debt reputation harms the old, but it harms the wealthy more than the poor. Young voters (specifically the children of the wealthiest debt holder parents) want to avoid intragenerational redistribution (i.e. repudiation would re-sult in redistributing wealth from rich to poor families) and for this reason they are willing to accept to repay some debt (i.e. transferring resources to the parents), an action that

would have been opposed by them *ex-ante*.[26] Therefore, there is a coalition that includes both old and young voters (the wealthiest) who vote in favor of debt repayment. The most interesting and valuable aspect of this paper is the joint consideration of intra and intergenerational redistribution, a topic which is surprisingly understudied both theoretically and empirically. In many countries pension systems redistribute both across and within generations, to the extent that poor citizen get proportionally more than rich ones from pensions. This is an excellent topic for further theoretical and empirical research.

Song, Storesletten, and Zilibotti (2012) develop a dynamic general equilibrium model of small open economies where voters in each period choose domestic public goods and the financing via taxes and debt. Within each country, old agents support high spending on public goods, high labor taxes and large debt. Instead, the young dislike debt, since it crowds out public good provision when they will be old. Specifically, the model consists of a set of small open economies populated by overlapping generations of two-period-lived agents who work in the first period and live off savings in the second period. In each country j there two types of goods: a private good c and a domestic public good g provided by each economy's government. There are two types of agents, the young and the old, each with a different preference towards the public good, which are represented respectively by the parameters θ_j and $\lambda\theta_j$. λ represents a preference weight that old put on the public good. Intuitively, this parameter can take value 0 - individuals do not value the public good - or positive values - not necessarily bounded to 1. There are cross-country differences in θ which may reflect cultural diversity or differences in the efficiency and quality of public good provision, related to the technology and organization of the public sector. Capital is perfectly mobile across countries and it fully depreciates after one period. The private good is produced by using both capital and labor as inputs in the production function. The domestic fiscal policy is determined through repeated elections and government debt is traded on worldwide markets. Given an inherited debt b_j, the elected government chooses the labor tax rate τ_j, public expenditure g_j and debt accumulation b'_j, subject to a standard dynamic government budget constraint. A probabilistic voting model delivers

---

[26]This is because, *ex-ante* issuing debt has only intergenerational, but not intragenerational effect. Given that agents would prefer not to redistribute resources, they would vote against this policy *ex-ante*. However, *ex-post* the policy has also intragenerational effect and the young generation would prefer to transfer resources to their parents rather than to the fraction of poor people in the same cohort.

an equilibrium in which fiscal policy maximizes a weighted sum of young and old voters' utility. The weights assigned to each group represent the relative political influence of each group. The model yields a trade-off between the marginal costs of taxation, due to the reduction in private consumption c suffered by the young, and the marginal benefit of public good provision. Such a trade-off reveals a conflict of interest between young and old voters. The old want higher taxes and current spending on public goods. Thus, the more power held by the old, the greater the reduction in private consumption. The preference for public good provision affects this trade-off: a higher θ or a higher λ reduces private consumption c. Moreover, there exists a sort of "disciplining effect" exercised by the young voters. In particular, they anticipate that increasing debt will prompt a fiscal adjustment reducing their future public good consumption. A key result is that the model provides a politico-economic theory of the determination of the debt level. In particular, in spite of the complete lack of intergenerational altruism (assumed through finite lives) debt converges to a finite level, strictly below the natural borrowing constraint. This results from the combination of forward-looking repeated voting and distortionary taxation. Higher debt can be financed by increasing taxes or cutting public good provision. As debt grows larger, the convexity of tax distorsions (a Laffer curve effect) implies that most of the adjustment will be in the form of less future public goods. The concern for avoiding a future situation of private affluence and public poverty makes young voters oppose debt increases. Given the prediction of a determined debt level, the model yields mean-reverting debt dynamics. Suppose that the economy is hit by a one-time fiscal shock (e.g., a surprise war) requiring an exogenous spending. The government reacts by increasing taxes and decreasing non-war expenditure in wartime. After the war, debt, taxes, and expenditure revert slowly to the original steady state. These predictions accord well with the empirical evidence of Bohn (1998), who finds the US debt-to-output ratio to be highly persistent, but mean reverting and Müller, Storesletten, and Zilibotti (2016, forthcoming) which provide similar evidence for the period 1950-2010 for a panel of OECD countries.

Müller, Storesletten, and Zilibotti (2016, forthcoming) extend their model by assuming that there are two types of voters, left-wing (l-type) and right-wing (r-type), who differ in their trade-off between private consumption and public good consumption: l-type voters like government expenditure and public good provision more than do r-type voters. Voters

choose sequentially a fiscal policy which includes labor taxation, government expenditure on public goods, and debt policy, subject to the government's dynamic budget constraint. The novelty of this model compared to Song, Storesletten, and Zilibotti (2012) is that, here there are political shocks which can be interpreted as shocks over time to the preference for public goods. In particular, during a left-wing wave the government increases taxation and public expenditure while reducing debt. Instead, during a right-wing wave the opposite occurs. In fact the driver of fiscal discipline of the young is based on their preferences for public good when old - that is how much the young expect that they will appreciate public good provision as they become old. During left-wing governments, the demand for fiscal discipline is stronger because the young left-wing voters - who are more concerned for future public good provision than right-wing voters of the same age - detain more political influence. This is because r-type voters have less appeal to public good and more for private consumption. Thus, when the right-wing party is in power is less concerned to the provision of public good in the future and instead it would push up current debt today in order to use the resources as subsidies for private consumption. Left-wing voters are instead concerned with future public good provision, and would oppose such fiscal policy. The key predictions of the model are that, on the one hand, right-leaning governments are more prone to issue debt in normal times, while on the other hand left-leaning government engage in more proactive countercyclical fiscal policy - including issuing more debt during recessions. In other words, during normal times left-leaning governments do more public savings but use the debt to smooth income shortfalls associated with recessions.[27] This result is reminiscent of the model by Persson and Svensson (1989) reviewed above, in a non overlapping generation framework.[28]

It should be mentioned that all the models discussed above imply voting. Mulligan and Sala-i Martin (1999) argue that indeed spending on pensions is high in non-democracies

---

[27]They show that these theoretical predictions are consistent with US post-war data on debt, and also with a a panel of OECD countries.

[28]However, the key difference between the two papers is that in Persson and Svensson (1989) a conservative government expecting to be replaced in the future strategically issues more debt. In contrast, the results in Müller, Storesletten, and Zilibotti (2016, forthcoming) are unrelated to persistence or reelection probabilities. The robust prediction of their theory is that a left-leaning government issues less debt, irrespective of the probability of being replaced.

as well as democracies, namely variables like the aging of population and the relative size of young and old matter in both regimes. In fact the relative "strength" (i.e. political influence) of the constituencies of young and old may be relevant in both democracies and non democracies even though the nature of the way in which this relative strength manifests itself is of course different. These differences in the intergenerational games in perfect and imperfect democracies and in dictatorships is an excellent topic for additional research.[29]

8   Rent Seeking

Acemoglu, Golosov, and Tsyvinski (2008a, 2010, 2011a) study the dynamic taxation in a standard neoclassical model under the assumption that taxes and public good provision are decided by a self-interested politician who cannot commit to policies. Citizens can discipline politicians by means of election as in Barro (1973) and Ferejohn (1986) in a dynamic game. The self-interested politician creates distortions, namely he wants to extract rents from being in office. This adds an additional constraint in the economy, the political economy constraint. This constraint implies that politicians in power compare the lifetime utility from extracting rents in each period versus the one-time shot deviation of extracting all the resources available in the economy in one period and being voted out of office. Distortions are generated by the fact that citizens have to provide incentives to politicians to stay in office. These distortions may or may not disappear in the long-run. In particular, if politicians are as patient or more patient than citizens, they value more staying in office and thus they set a tax rate equal to zero. If politicians are less patient than citizens, it may be optimal to set positive taxation. The idea is that, starting from a situation with no distortions as before, an increase in taxation has a second-order effect on the welfare of the citizens holding politician rents constant, but reduces the resources available in the economy

---

[29]Azzimonti, Francisco, and Quadrini (2014) make the case that the secular increase in debt to output ratios can be due to the liberalization of financial markets that took place in the mid eighties. While the political-economy comes from probabilistic voting, the paper provides an alternative theory of debt (to that of tax smoothing) and an explanation of why we could observe inefficiently higher debt to GDP ratios in the recent years. Specifically, they propose a multi-country political economy model with incomplete markets and endogenous government borrowing and show that governments choose higher levels of public debt when financial markets become internationally integrated and inequality increases.

and, thus, the rents that should be provided to politicians by a first-order amount.[30] Thus, it is less costly to reduce the potential output in the economy, than to provide a higher rents to politicians to stay in office. These types of models therefore focus on the role of taxation as a tool to govern the interaction between citizens and self-interested politicians. There is no role for government deficit.

Yared (2010) develops a rent seeking model with implications on the accumulation of public debt using a Lucas and Stokey (1983) model. Yared considers a closed economy with no capital, with shocks to the productivity of public spending, and with complete markets. The self-interested politician has a utility function which is increasing in rents (namely tax revenues not used for productive public goods, i.e. spending with no social value). A politician cannot commit to policies once in office and citizens cannot commit to keeping the incumbent in power in the future. Thus, in an infinitely repeated game, reputation sustains equilibrium policies. The focus is on "Efficient Sustainable Equilibria" in which a politician who pursues rent seeking extractive policies is voted out of office, and a politician who purses the policies expected by citizens is rewarded with future office.[31] Therefore, the incumbent politician follows equilibrium policies as long as rents are sufficiently high, since this raises the value of cooperation, and as long as government debt is sufficiently high, since this limits what he can acquire through maximally extractive policies prior to removal from office. There is no default. Citizens reward a well-behaved incumbent by not replacing him as long as equilibrium taxes are sufficiently low and productive public spending is sufficiently high. Note that given the fact that citizens are all identical, there

---

[30]Specifically, the marginal cost of additional savings for the citizens is higher in equilibrium than in the undistorted allocation, because a greater level of the resources in the economy increases the politician's temptation to deviate and thus necessitates greater rents to the politician to satisfy the political sustainability constraint.

[31]The equilibrium refinement used is the sustainable equilibrium as in Chari and Kehoe (1993). In particular, individual households are anonymous and non-strategic in their private market behavior (i.e. buying government debt), while the representative citizen is strategic in the replacement decision. The politician in office is strategic in his decision regarding the policies, which have to satisfy the government dynamic budget constraint. The set of sustainable equilibrium are those in which citizens solve their optimal decision with respect to consumption, labor supply and bonds' decision given their individual budget constraints. Within the set of sustainable equilibrium, the focus is on the efficient ones, i.e. the ones that maximize citizens' utility.

is no conflict in the political decision. Efficient sustainable policies thus solve the standard program of the benevolent government subject to incentive compatibility constraints for the politician and the representative citizen.

Consider now the rent seeking politicians. Given the lack of commitment, there are two set of incentives that have to be satisfied, the politician's and the citizens' incentives. The incumbent politician knows that citizens will remove him from office at the beginning of the following period if he misbehaves. In particular, a politician who is removed after period t receives period t rents and a punishment which is a function of χ^p, i.e. an exogenous parameter representing the strength of political institutions, namely the institutional constraints on politicians. The optimal policy for the citizens has to satisfy the constraint that the politician does not want to extract maximal rents and be removed from office. Maximal rents implies getting as much revenues as possible today, take out as much debt as possible today, delivering zero public goods, and repaying current debt. Therefore, the incumbent politician is less likely to deviate from the equilibrium policies if: (i) he is receiving a high level of equilibrium rents today and in the future because in this case the value of cooperation is high; (ii) if government debt is high because there is little space for him to expropriate resources through increasing his rents. Satisfaction of this incentive compatibility constraint implies a lower bound on taxes and an upper bound on public spending which both bind whenever the incentive compatibility constraint binds. This is because there has to be a limit on the size of resources owed to the government in each period. Indeed, if the size of these resources is too large, there is a high incentive for the politician to deviate and appropriate them as rents. This implies that resources going into a given period cannot be too large, and government activity must be financed mostly with current and future taxes, instead of past taxes.

The second set of incentives to take into account are those for the citizens. In this model, citizens may have an incentive to replace an incumbent politician even if he is well behaving. In this sense, citizens cannot commit to a plan where they keep an incumbent in power no matter what. Therefore, the incumbent politician has to set fiscal policies such that they define a sufficiently low level of taxation and/or a sufficiently high level of public expenditure in order to have some chances to stay in office the subsequent period. In this framework, replacing an incumbent politician provides a benefit for the citizens which is

a function of the exogenous parameter χ^c. Here, χ^c represents the lack of popularity of the incumbent.[32] These conditions provide upper bounds on revenues and lower bounds on public spending.

Summing up, satisfying the incentives of politicians requires sufficiently high revenues and sufficiently low levels of public spending. In contrast, satisfying the incentives of citizens requires sufficiently low level of taxes and sufficiently high level of public spending. The best policy is therefore found to be the one that maximizes citizens' lifetime utility subject to the two set of incentive compatible constraints. This political distortion leads to several departures from the social planner policies. In particular, taxes are not constant but *volatile*. This is because the constant revenue policy characterizing the benevolent government is associated with too much rent-seeking by politicians. Second, the increase in debt reduces the potential rents that the politician can appropriate and thus make it easier for citizens to provide the incentives to politicians. This approach is elegant, although contingent debt a la Lucas and Stokey (1983) is not issued by real world governments.

9   Budget Rules

Given that for so many reasons there are incentives for the government to run excessive deficits, is it feasible to devise rules and institutions that limit or eliminate those problems? By rules we mean numerical targets like a balanced budget rules, or a limit on the level of deficit, perhaps adjusted by the cycles, or excluding certain items such as public investment.[33]

9.1   Balanced Budget Rule for National Governments

The pros and cons of national balanced budget rules, namely rules which imply zero or negative deficits (surpluses) are clear. A balanced budget rule does not allow to smooth out spending shocks (i.e. to run deficits when the need for spending are especially large) or fluctuations of tax revenues over the cycle for given tax rates. However, to the extent that

---

[32]Another interpretation may be the gains for the citizens from having a new incumbent, reflected in the policies that are promoted during the electoral campaign. The author interprets it as a general "social benefit of political turnover."

[33]For a review see Fatás and Mihov (2003a).

political distortions are so large that governments may be far from the optimal policy, then a balanced budget rule might be a second best solution to massive political distortions.

The political debate on balanced budget rules is extensive, since the pros and cons are, in principle, straightforward but there are strong prior views about which costs or benefits are bigger and those views are not likely to be changed by the available, relatively scant, evidence.[34] An additional set of issues relates to the enforceability of balanced budget rules, namely whether governments restricted by these rules would engage in "creative accounting" to circumvent them or simply *de facto* ignore them.

Azzimonti, Battaglini, and Coate (2015) present a quantitative evaluation of the net benefits of a balanced budget rule (BBR) for the US economy using the political economy model developed by Battaglini and Coate (2008).[35] As reviewed above, political economy frictions lead to inefficiently high levels of government debt in the long run. A constitutional requirement that imposes that tax revenues must be sufficient to cover spending and the interest on debt (e.g. permitting surpluses but not deficits) may improve welfare by restraining policymakers from excessive debt creation. The authors show that the BBR leads to a gradual reduction of debt in equilibrium. Intuitively, the reduction in flexibility to smooth taxes imposed by the rule increases the expected costs of taxation. Therefore, savings become more valuable as a buffer against adverse shocks. By lowering the stock of debt in good times, legislators reduce interest payments, which decreases pressure on the budget in bad times. In the long run, this results in lower taxes and higher spending in equilibrium than in the unconstrained case, "pushing" the model on the direction of optimal fiscal policy. The impact of a BBR on welfare is theoretically ambiguous: in the short run, citizens experience a loss in utility since the government has to cut spending and raise taxes to reduce debt above what might be optimal. In the long run, citizens benefit from lower debt levels but, due to the inability to borrow in bad times, suffer from higher volatility. Because the net effect depends on parameters, the authors calibrate the model to the US economy using data between 1940 and 2013, and show that it can fit the path of US fiscal policy reasonably well. One immediately wonders whether including the Second

---

[34]See Sabato (2008) for a presentation of the policy debate. Fatás and Mihov (2003b) present evidence on a cross section of countries consistent with the view that the presence of budget rules limits the volatility of fiscal policy

[35]See also Stockman (2001) for calibrations of balanced budget rules in RBC models.

World War years in this exercise is appropriate given that during a major war probably the balanced budget rule could be easily abandoned. By including a major war period they, in a sense, may set the stage for a framework with high costs for balanced budget rules. The authors find that the short run costs are too large to compensate for the steady state benefits of a lower stock of debt. However, quite apart from the parametrization (which, as always, could be debatable) the model makes an interesting point: the balanced budget rule could be costly in the short run and beneficial in the long run. This result leads to interesting and immediate consequences on the political economy implications on voting upon a balanced budget rule in say, an overlapping generations model.

Halac and Yared (2015) discuss the optimal design of centralized supranational fiscal rules like those for Euro area countries, and how they compare to decentralized (national) fiscal rules in an environment in which there is a trade-off between allowing flexibility while also reducing a government's deficit bias. They consider a two-period model in which a continuum of identical governments choose deficit-financed public spending. At the beginning of the first period, each government suffers an idiosyncratic shock to the social value of spending in that period. Governments are benevolent *ex-ante*, prior to the realization of the shock, but present-biased ex post, when it is time to choose spending - which can be interpreted as the results of the potential political turnover (i.e. the political business cycle). The results of the paper compare optimal rules - which maximize the social welfare of all countries - when it is set by a central authority or an individual government. The results can be summarized as follows: when governments are not too impatient when choosing public spending, then the optimal centralized fiscal rule is tighter than the decentralized one, and hence interest rates are lower under centralization. The idea is that, in choosing decentralized rules, an individual country does not internalize the fact that by allowing itself more flexibility, a country pushes the global interest rate up, and thus redistributing resources away from governments that borrow more towards governments that borrow less. Instead, committing *ex-ante* to tighter rules is good as this pushes down the global interest rate and therefore allows countries with higher marginal value of spending to borrow more cheaply. If governments' present bias is large, the optimal centralized fiscal rule is slacker than the decentralized one, and hence interest rates are higher under centralization. The idea is that governments choosing rules independently

do not internalize the fact that by reducing their own discretion - i.e., by choosing very tight borrowing limits - they lower interest rates, thus increasing governments' desire to borrow more and worsening fiscal discipline for all. Instead, committing *ex-ante* to more flexibility is socially beneficial: the cost of increasing discretion for over borrowing countries is mitigated by the rising interest rate, which induces everyone to borrow less. The interest rate has a disciplining effect in the sense that it reduces the incentives for over borrowing countries to borrow more.

One could also think of balanced budget rule with escape clauses. An obvious one, mentioned above already would be a major world war. This (fortunately) rare event may be used as a relatively easy contingency to verify, but if the contingencies become too frequent then not only the stringency of the rule but even its enforceability is called into question. For instance, how does one define a "major" war? Clearly the Second World War was major, but would the Iraq war be a major one? Also one might think of cyclically adjusted balanced budget rules to overcome some of the rigidity of the latter, but then debates about how to measure the cyclical adjustment might lead to strategic manipulation of the rule itself. With specific reference to the US, Primo (2007) discusses the pitfalls of balanced budget rules with complicated escape clauses.

An additional argument against formal budget rules is that financial markets might impose increasing borrowing costs on government which move far away from the optimal policy and accumulate large debts. Increasing borrowing costs would lead to more discipline even without rules. The recent experience of the Euro area and its fiscal crisis, casts doubts on this argument. Until 2008 the interest rate spread on, say German government bonds and even Greek ones was virtually nil. In fact, as a result of this low spreads several countries accumulated large debts in the first decade of the monetary union even when these countries were growing at respectable rates, including Greece whose economy was booming and debt skyrocketing. The reason of this is that probably investors did not believe the no bail out case of European treaties and assumed (largely correctly) that in case of a debt crisis they would be protected. In fact, probably because market discipline was not considered sufficient the funding fathers of the monetary union introduced contingent budget rules, like the stability and growth pact. These rules have been changed repeatedly and generally implied a maximum level of deficit (3 per cent of GDP) with various escape

clauses in case of major recessions. The discussion about the optimality of such rules in the Euro area is immense and we do not review it here (see the excellent discussion in Wyplosz (2014)).[36] However, we want to make three points here. One is that the enforceability of these rules has been questionable. Even as early as 2002 Germany itself broke the rule and then many countries followed this example. The complexity and contingency of these rules did not help. The second is that probably now some European countries are feeling the bite of such rules, binding during a prolonged recession. The third is that especially at the time of the introduction of the Euro much creative accounting was widely used to satisfy "on paper" the 3 per cent rule. These procedures introduced confusion and decreased trust amongst members of the Euro area.[37]

How can balanced budget rules for a sovereign national government can be enforced? One possibility is to have the law in the constitution so that it would take a Constitutional revision to change it. An alternative would be to require a qualified majority. Such rules need to be stable, namely they should not imply that the rule itself can be changed, as in Barbera and Jackson (2004). For some discussion of this issue see Primo (2007) which elaborates over the Baron and Ferejohn (1989) approach with specific reference to the US institutional setting. This is an excellent topic for future research not only within the specific American institutions.

9.2 Balanced Budget Rules for Local Governments

The pros and cons of balanced budget rules discussed above for national government apply also to sub national ones. However, there are reasons to believe that balanced budget rules for local governments may be more attractive than for national governments. First, as we discussed above, local governments add an additional political distortion: a common pool problem given by the fact that their local spending is at least in part financed by national transfers and therefore local governments do not fully internalize the taxation costs of their spending decisions. Second, some (or most) of the countercyclical fiscal stabilizers may be national not local. In fact balanced budget rules for local governments should be accompanied by nationally based automatic stabilizers, to avoid procyclical fiscal policy, unless, as

---

[36]For some empirical evidence on the Stability and growth Pact see von Hagen and Wolff (2006).

[37]Von Hagen (2006) compare the effectiveness of budget rules in the EU versus Japan.

were discussed above, a balanced budget rule is chosen also for the national government. Third, enforcement of local balanced budget rule may be easier since it may be done by the national governments. Fourth, a balanced budged rule for local governments would avoid accumulation of unsustainable debts with the related uncertainty, disruption and costs associated with bail outs of excessively indebted localities. In summary, balanced budget rules for local government may be a tool of an optimal allocation of fiscal responsibilities between national and local governments.[38]

Indeed, work by Alt and Lowry (1994), Poterba (1995), Bayoumi and Eichengreen (1994), Bohn and Inman (1996) and Alesina and Bayoumi (1996) show that more strength budget rules in the US, namely tight fiscal controls which impose restrictions on government deficit, have been more effective at creating incentives to states more quickly responding to spending or revenue shocks.[39]

9.3   Other types of budget rules

The policy discussion over balanced budget rules has also dealt with other types of budget restrictions. One is the so-called "golden rule", namely a rule which allows budget deficits only to finance public investments but not current expenditures. Bassetto and Sargent (2006) discuss the optimality of such rules. In principle this may be a "good" rule especially for developing countries in need of investment in infrastructures. The problem, however, is that this rule may lead to creative accounting, namely simply reporting as spending in infrastructures what is really current spending. For developed countries one may wonder whether the political incentives to spend in physical infrastructures which would be induced by this rule is really necessary. In Western Europe, in particular, the emphasis on physical infrastructures seem overplayed already, relative to other fiscal problems in this continent, and a budget rule of this type may add to this misperception and lead to overinvestment in physical infrastructures.

Another possible budget rule would impose limits on spending. The issue here is that while we have a theory of optimal deficit management, reasonable people can disagree

---

[38]See Inman (1997) and Poterba (1996) for a review of this literature.

[39]Canova and Pappa (2006) however present result suggesting that in some cases US states managed to circumvent the rules.

on the optimal size of government spending because of different views about the role of the state and the size of welfare policies, for instance. Thus, while pork barrel inefficient programs (like bridges to nowhere) might be constrained by spending limits, the latter may interfere with programs desired by the majority.

10 Budget Institutions

10.1 Theory

The definition and approval of a budget in an advanced democracy is often a complex process, possibly kept strategically complex to achieve behind the scene deals or to be able to introduce them in some corner of the budget provisions in a sufficiently obscure manner to escape detection of the voters. One can identify three phases in the budget process: (1) the formulation of a budget proposal within the executive; (2) the presentation and approval of the budget in the legislature; and (3) the implementation of the budget by the bureaucracy. Two issues are crucial: the voting procedures leading to the formulation and approval of the budget, and the degree of transparency of the budget. We begin with the former.

We focus upon a key trade-off between two types of institutions. One type, which we label "hierarchical", limits the democratic accountability of the budget process with a high degree of delegation. The second type, we label "collegial", has the opposite features. Hierarchical institutions are those that, for instance, attribute strong prerogatives to the prime minister (or the Finance or Treasury minister) to overrule spending ministers within intergovernmental negotiations on the formulation of the budget. Hierarchical institutions also limit in a variety of ways the capacity of the legislature to amend the budget proposed by the government. Collegial institutions emphasize the democratic rule in every stage, like the prerogatives of spending ministers within the government, the prerogatives of the legislature vis-a-vis the government, and the rights of the minority opposition in the legislature. There is a trade-off between these two types of institutions: hierarchical institutions are more likely to enforce fiscal restraint, avoid large and persistent deficits, and implement fiscal adjustments more promptly. On the other hand, they are less respectful of the rights of the minority, and more likely to generate budgets heavily tilted in favor of the interests

of the majority. Collegial institutions have the opposite features.

Let's begin with the definition of the budget within the government where we have a division of responsibilities between spending ministers and the Treasury minister, The latter has the role of aggregating the spending proposals of other ministers and produce a budget document. Spending ministers prefer a larger fraction of the budget devoted to their department: more money means more favors to constituencies. Thus, more hierarchical institutions are those which attribute stronger prerogatives to the Treasury. In the legislature, as we discussed above, different amendment rules may aggravate or reduce the common pool problem. Much of this research is based, directly or indirectly, upon a view of the budget as the result of conflicting interests of representatives with geographically based constituencies. The literature on procedures has addressed three related questions: what procedural rules mitigate or aggravate the problem of oversupply of pork barrel projects? What procedural rules make the choice of projects, given a certain total budget, more or less efficient? How do different procedural rules influence the final allocation of net benefits among districts? Two issues are particularly interesting for our purposes: (a) the sequence of voting on the budget, and (b) the type of admissible amendments on the proposed budget. Intuitively, one may argue that by voting first on the maximum size of the budget (and eventually of the deficit) one would limit the excessive multiplication of budget proposal. Ferejohn and Krehbiel (1987) study theoretically the determination of the size of the budget under the two alternative voting procedures. They assume that the budget can be allocated to two projects and different legislators have different preferences for the relative benefits of these two projects. It is not always the case that the size of the budget is smaller when the legislatures vote first on the size and then on the composition, relative to the case in which the overall budget size is determined as a residual. While the size of the budget is in general not independent on the order of votes, the relative size of the budget with different orders of votes depends on the distribution of legislatures' preferences for budget composition.[40]

In parliamentary democracies, the agenda setter in the budget process is the government. Thus, closed rules attribute more power to the government and less to the floor of the legislature. The result is that closed rules are more hierarchical as we discussed

---

[40] The same issue has been revisited by Hallerberg and Von Hagen (1999).

above. They give more influence to the government and lead to an immediate approval of the budget than the government poses. Open rules require more time for voting and with those rules the government gets a lower surplus relative to the non governmental minority. With a closed rule you achieve quick approval of a proposal, at the cost of implementing "unfair" budgets. Budgets are unfair in the sense that they are tilted in favor of those who make the first proposal, and always distribute benefits to the smallest possible majority. Hierarchical procedures are obviously preferable when the key problem is the control of the size of the budget and the implied deficit.

Finally, the issue of transparency. The budgets of modern economies are very complex, sometimes unnecessarily so. This complexity, partly unavoidable, partly artificially created, helps in various practices to "hide" the real balance (current and future) of costs and benefits for the taxpayers. Politicians have incentives to hide taxes, overemphasize the benefits of spending, and hide government liabilities (the equivalent of future taxes). At least two theoretical arguments support this claim. The first is the theory of "fiscal illusion "reviewed above. By taking advantage of voters' irrational confusion, politicians can engage in strategic fiscal policy choices for reelection. The second argument does not rely on voters' irrationality and confusion. Several papers, although in different contexts (e.g., Cukierman and Meltzer (1986); Alesina and Cukierman (1990)), highlight the benefit for policymakers of a certain amount of ambiguity even when they face a rational electorate. The idea is that, by creating confusion and, in particular, by making it less clear how policies translate into outcomes, policymakers can retain a strategic advantage versus rational, but not fully informed, voters. This advantage would disappear with "transparent" procedures; therefore, policymakers would often choose to adopt ambiguous procedures. Milesi-Ferretti (2004) shows that politicians who want to run excessive deficits would choose nontransparent procedures, and the latter would help them to achieve their (distorted) goals. As we discussed above, Rogoff and Sibert (1988) and Rogoff (1990) make a similar point in the context of political business cycle models. They show that if voters cannot easily observe the composition of the budget (on the spending or on the financing side), then policymakers can follow loose fiscal policies before elections and increase their chances of reappointment. Gavazza and Lizzeri (2009) develop a model in which the lack of voters' information about the complexity of the budget lead to transfers to voters even

when taxation is distortionary and voters are homogeneous. Transfers are financed with debt and the latter is higher the less transparent the system is, that it the less likely it is that voters can fully observe fiscal variables.[41]

How, in reality, do policymakers obfuscate the budget? and what to do about it? In practice, a variety of tricks can serve the purpose of strategically influencing the beliefs and information of taxpayers/voters. For instance: (1) Overestimate the expected growth of the economy, so as to overestimate tax revenues, and underestimate the level of interest rates, so as to underestimate outlays. At the end of the fiscal year, the "unexpected" deficit can be attributed to unforeseen macroeconomic developments, for which the government can claim no responsibility; (2) Project overly optimistic forecasts of the effect on the budget of various policies, so that, for instance, a small new tax is forecast to have major revenue effects, thus postponing to the following budget the problem of a real adjustment; (3) Keep various items off budget; (4) Use budget projections strategically. For example, in all the discussions about future budgets, a key element is the "baseline." By inflating the baseline, politicians can claim to be fiscally conservative without having to create real costs for the constituencies. In this way, they create an illusion: they appear conservative in the eyes of the taxpayers, worried about the size of the budget, but they do not really hurt key constituencies with spending cuts. Clearly, this illusion cannot last forever, since adjustment, rigorous only relative to inflated baseline, in the end will not stop the growth of the debt. However, this procedure creates confusion and, at the very least, delays the electorate's realistic perception of the actual state of public finance; (5) Strategic use of multi-year budgeting. By announcing a, say, three-year adjustment plan in which all the hard policies occur in years two and three, politicians can look responsible and can buy time; then, they can revise the next three-year budget policies to further postpone the hard choices.[42]

We can think of three possibilities for increasing transparency. The first and most commonly followed is a "legalistic" approach. That is, more and more rules and regulations are imposed on how the budget should be prepared, organized, and executed. This approach is unlikely to be successful: complicated rules and regulations provide fertile ground for

---

[41]The same authors (Gavazza and Lizzeri (2011)) investigate how lack of trasparency may lead to the choice of inefficient fiscal tolls for redistribution.

[42]See Alesina, Favero, and Giavazzi (2015) for a detailed study of multi-year fiscal adjustment plans.

nontransparent budget procedures. A second alternative is to create legislative bodies in charge of evaluating the transparency, accuracy, and projections of the government budget. This approach is superior to the legalistic one, but it relies heavily on the political independence of this public body. This independence may be problematic, particularly in a parliamentary system where the government parties control a majority in the legislature. A third alternative, the most radical but the most effective, is to delegate to a respected private institution the task of verifying the accuracy and transparency of the budget process. In addition, the government budget should be based on an average of the economic forecasts of and projections derived by international organizations or private institutions.

10.2   Empirical evidence

The empirical evidence on the relationship between rules and deficit is, generally speaking, supportive of the idea that hierarchical institutions are associated with lower deficits. Hallerberg, Strauch, and Von Hagen (2009), in a book which also summarizes and consolidate previous works by the same authors, classify budget institutions for the EU countries in terms of delegation of prerogatives to the Treasury minister versus a contracting approach within ministers, the presence of targets, voting rules in parliament, relationship between central and local governments. They argue that institutions matter and delegations and targets (i.e. hierarchical institutions) are effective at containing deficits and debts. Alesina, Perotti, and Tavares (1998) and Stein, Talvi, and Grisanti (1999) consider Latin America countries and construct an index of their budget institutions based upon surveys of local officials. In doing so they can distinguish up to a point between *de iure* and *de facto* procedures. These authors correlated positively an index of hierarchical of budget institutions and of transparency to lower levels of debt. Fabrizio and Mody (2006) obtain similar results for Center and Eastern European countries. Dabla-Norris et al. (2010) on a vast sample of developing countries. These results should be taken very cautiously since they are based upon a handful of countries and often the classification of procedures is open to question. For instance, *de iure* and *de facto* procedures may differ substantially. Also comparing along those lines very different countries might be challenging, for instance think of a comparison of US versus parliamentary democracies budget institutions. Debrun et al. (2008) compile a detailed data set for European Union countries for the period 1990

50

to 2005. They consider numerical fiscal rules on any fiscal aggregate, their legal status (normal law, constitutional law, supranational rules, accepted norms) and consider both national and sub national governments. Based upon this vast data set they build an index of stringency of the rules and they find that it strongly correlates with fiscal performance. More stringent rules reduce a deficit bias and improves upon the countercyclical stance of fiscal policy in EU countries. Miano (2015) has shown that national rules have the effect of reducing deficits. A recent work at IMF (Budina et al. (2012)) provide extensive data on budget institutions for many countries and examine how the recent financial and fiscal crisis in many countries have led to reforms in budget institutions. These data have not been used yet for extensive empirical analysis.

11 Questions for future research

In this final section we elaborate on some issues which in our view are left open in this literature.

11.1 Endogenous institutions

The literature which we have reviewed thus far uses certain political institutions (e.g. type of government, electoral rules, presidential versus parliamentary systems) as exogenous or at least predetermined in explaining economic variables. In the present paper we focus on debt and deficits but a vast literature also considers other related variables like the size of government and the level of redistribution for instance.

The assumption of exogeneity of predetermined institutions as "cause" of deficits can however be called into question. The same historical, sociological, cultural variables which may have led to the choice of certain institutions may also be correlated with fiscal policies.[43] For instance, suppose that a parliamentary proportional system (generating a multiparty system with many veto players) was adopted because it was the only way to guarantee representation to very polarized and divided societies (across income, ideological, religious or ethnic lines). Those same characteristics of society might lead to certain choices of fis-

---

[43]See Alesina and Giuliano (2015, forthcoming) for a discussion of the relationship between culture and institutions.

cal policies (spending, deficits, debt). Thus, proportional representation and deficits would correlate but causality is called into question. Along those lines, Alesina and Glaeser (2005) review the literature showing that in many European countries proportional representation was introduced after the First or Second World War under pressure from Socialist and Communist parties. The presence of the latter clearly is not exogenous to fiscal policy decisions. Aghion, Alesina, and Trebbi (2004) discuss how certain types of voting rules would be chosen optimally or not (i.e. with or without a veil of ignorance) in divided societies.[44] Empirically, they show how ethnic fractionalization is correlated with various institutional variables. Galor and Klemp (2015, unpublished) present results along similar lines using different measures of diversity. On the other hand a vast literature on ethnic fractionalization (see the survey by Alesina and La Ferrara (2005)) show how the latter variable is correlated with several economic variables which may be directly or indirectly correlated with deficits and debt. Thus, diversity of populations may "cause" both institutions and fiscal outcomes. The correlation between the latter two does not imply causality, strictly speaking. Persson and Tabellini (2000) in their work on institutional determinants of fiscal policies are aware of this limitation and make some progress in addressing causality, but this remains an open question. The literature on fiscal policy which appeals to institutional variables as causal explanation for deviations from optimality (especially when thinking of long run horizons) needs to make the extra step. At this point the correlations seem clear, identification of causality is not.

These arguments apply even more strongly when focusing specifically to budget institutions. The latter may work very differently in different countries depending upon their interaction with other features of the country itself. Hallerberg, Strauch, and Von Hagen (2009) argue that delegations to the Treasury minister does not work well in countries with sharp differences in the preferences of different parties for fiscal policy, a result which is consistent also with the model of political delegation by Trebbi, Aghion, and Alesina (2008). With a deep political conflict delegation to one decision maker is hard, undesirable by the minority and possibly counterproductive. Budget institutions are clearly endogenous. Why do countries choose different budget institutions and therefore to what extent the latter can be used as right hand side variables in a regression with debt and deficits

---

[44]See also Trebbi, Aghion, and Alesina (2008) for an application to US cities.

on the left hand side? Countries with lower polarization and more homogeneous governments may be more likely to choose more hierarchical fiscal institutions, since delegation is easier, as argued above. But then it may be that the lower political conflict leads to more restrained fiscal policies; in this case, institutions are just an "intermediate" variable. In other words, paradoxically countries which needs stringent budget rules the least, since they have a lower tendency to run deficits, may be those which adopt more stringent budget rules. As noted by Hallerberg, Strauch, and Von Hagen (2009), some institutional reforms in the direction of making them more hierarchical have followed deep crisis, like the case of Sweden in the nineties. But again, causality is an issue: perhaps changes in attitudes due to the crisis might have led to a political equilibrium with more fiscal restraints regardless of the institutions. It is virtually impossible to establish causality from budget institutions to fiscal outcomes, although the correlations are interesting. Debrun et al. (2008) are fully aware of this problem and attempt to instrument their index of stringency of rules with some institutional variables but the exclusionary restriction is highly questionable. Miano (2015) shows how the adopting of various budget institutions are endogenous to a host of sociopolitical variables and are affected by the timing of elections. Overall, the argument that budget institutions "cause" fiscal discipline is virtually impossible to make empirically given the endogeneity of these institutions. Countries with a culture of fiscal profligacy will not adopt them (or will not enforce them) while countries with a culture of rigor will adopt and enforce them. The evidence presented above is consistent with a weaker argument namely that countries which, for whatever reason, cultural or otherwise, prefer budget discipline will be helped in their goal by choosing certain institutions rather than others. We think that we need more research on this point: to what extent institutions "cause" fiscal policies? Perhaps more natural experiment-based research may help address this question.

A second line of argument relates to the time consistency of institutional rules. To what extent institutional choices would be time consistent and not reversed as a result of various shocks? Halac and Yared (2014) address precisely this issue in a model where a government has an incentive to overspend. The government chooses a fiscal rule to trade off its desire to commit to not overspend against its desire to have the flexibility to react to shocks. These authors show that in the case of persistent shocks the *ex ante* optimal rule is not sequentially optimal. The optimal rule in fact is time dependent with large fiscal

shocks leading to an erosion of future fiscal discipline. It would be very useful to investigate the choice of budget rules under a Rawlsian veil of ignorance at the constitutional table or in a situation in which the veil of ignorance has holes, as in related work by Trebbi, Aghion, and Alesina (2008) on voting rules.

11.2   Culture

A rapidly growing literature has recently explored how various cultural traits affect economic decisions in a variety of dimensions including, savings, investment, trade, labor markets and the private or public provisions of safety networks and, more generally, growth and development.[45] Cultural traits like trust, relationship between family members (including intergenerational generosity), individualism, respect of the rules of laws, propensity to save and in which form, have been widely studied and their relevance for economic behavior is well established. Many of these attitudes are relevant for a society's acceptance of government deficits, including their intergenerational redistributive effects. Also the acceptability of policies geared towards reducing excessive deficits may be different in different cultural settings. For instance Guiso, Herrera, and Morelli (2015, unpublished) investigate how cultural difference among Euro area countries may have led to the aggravation of conflict over debt policies and delayed resolutions of the latter. Cultural values certainly affect decisions about tax evasion,[46] another variables which clearly determines the accumulation of debt. While a relatively vast literature studies tax evasion, we are not aware of much work linking it to the accumulation of debt.[47]

The connection between institutions and culture is important (Alesina and Giuliano (2015, forthcoming), Bisin and Verdier (2015, unpublished)). The adoption of certain budget institutions may be endogenous to certain cultural traits. Countries more prone to thriftiness (say Germany) may be more likely to adopt certain budget rules and institutions, others may do the opposite. In addition, the rigorous application of certain budget rules (say a balanced budget amendments) may be endogenous to certain cultural traits having to do, for instance with the social acceptability towards "bending the rules", which may

---

[45]Guiso, Sapienza, and Zingales (2006) and Alesina and Giuliano (2015, forthcoming) provide surveys of this literature.

[46]See Richardson (2008).

[47]An exception on Italy is Alesina and Maré (1996) on Italy.

vary greatly across countries.[48] Both cross-country and within-country evidence would be useful. The latter could hold constant national institutions and examine the effect of difference cultural attitudes within the same national institutions.

The control of politicians is also a "public good" which may be under supplied in certain cultures, as shown by Nannicini et al. (2012) who develop an intuition by Banfield (1958). When "social capital" is low, people do not feel compelled to participate in political activities, control politicians and punish the latter when they misbehave. In fact, with low social capital individuals may expect private favors rather than public goods. Politicians then feel more free to exert less effort, be self-motivated or corrupt. Less control by voters may also allow powerful lobbies to have easier access to politicians. For instance, Campante and Do (2014) show that more isolated capital cities show more levels of corruption and are associated with a greater role for money in state-level elections. In particular, firms firms and individuals contribute disproportionately more compared to non-isolated capital cities. Thus, lower social capital may be associated with more political distortions and rent seeking of policymakers which may aggravate the deficit bias problem.

11.3 Delegation

In the case of monetary policy the benefit of delegation to an independent (up to a point) agency is widely accepted. For fiscal policy this kind of delegation is virtually non existent. The question is why and whether some delegation in fiscal policy (and how and to whom) might be useful.

The fundamental reason why delegation of an independent agency in monetary policy is more acceptable than fiscal policy goes back to where we started in this paper. Fiscal policy is perceived as much more closely linked to redistributions of various type than monetary policy. In the case of the latter, instead a policy based upon some form of Taylor rule is (at least in normal times) considered as beneficial for society as a whole and redistributions issues may eventually be corrected by fiscal policy (say unemployment benefits during a recession). Alesina and Tabellini (2007) and Alesina, Tabellini, and Campante (2008) discuss issues of delegation and show results consistent with this argument: delegation is

---

[48]On this point see for instance Guiso, Sapienza, and Zingales (2011), Tabellini (2010), and Guiso, Herrera, and Morelli (2015, unpublished).

much less agreed upon when it involves redistribution while it is easier to achieve for more technical questions (say the conduct of monetary policy) with less direct distributional consequences.[49] Blinder (1997) argues that even aspects of fiscal policies may benefit from some delegation. He notes that the benefits of Central Bank independence derive from the technical nature of the task, the long term effects of certain decisions, the desire to delegate to bureaucrats through choices when needed (say creating unemployment to fight inflation and diffuse the blame away from politicians) and the tendency of policymakers to inflate too much, possibly close to elections. This author correctly notes how many of these features apply also to certain fiscal policy decisions, especially in the case of tax policy. During the financial crisis the close connections between monetary and fiscal policy (immortalized by the dramatic joint appearance of Henry Paulson and Ben Bernanke in front of Congress at the outset of the crisis) also made the sharp distinction between independent central banks and totally "political" governments even more striking and possibly artificial.

An intermediate step which does not imply delegation can be to create an independent fiscal council which examines the fiscal policy of the government and expresses an evaluation in terms of its short and long run effects and its technical problems. In the US, the Congressional Budget Office with a reputation of skills and independence has this role. In Sweden a highly respected fiscal council issues an influential document every year to review the policy of the Swedish government. In the matter of delegation, even to a Council, probably cultural variables examined above play a role. In countries with high level of trust, delegation is easier and the independence of, say, a fiscal council would be (correctly) believed. This might be precisely the case of Sweden. In countries with low levels of trust (say Italy, Spain, or France), the independence of the council would not be believed, and this skepticism might not be unreasonable. Thus, the status of the council would be compromised and it would be viewed as politically influenced and would lose its legitimacy and its potentially useful role. This is another example of the interaction between institutions and culture discussed above. What and how to delegate in the area of fiscal policy remains an excellent topic of research.

---

[49]Pettersson-Lidbom (2012) discuss evidence on legislature and bureaucratic relationship as a determinant of the size of government using two natural experiments.

11.4 Lobbyist and bureaucrats

The role of the bureaucracy in the implementation of the budget is hardly studied by economists.[50] Highly ranked bureaucrats may have an influence which goes well beyond the implementation of executive decisions. Thus, even without any formal delegation (discussed above) highly ranked bureaucrats when applying the fiscal provisions of the budget may have sufficient discretion to favor this or that pressure groups. Up to a point this may be a sort of "unwanted" delegation, that is a delegation which *de facto* but not *de iure* has the bureaucracy gains. This may increase the difficulty in implementing reforms because of a status quo preferences of existing bureaucratic bodies.

Finally, virtually all of the models we have considered model the polity by means of voting. A different view about the political process sees voting in legislatures simply as a result of lobbying pressure and therefore modeling lobbies' behavior is the fundamental step. While a rich literature on lobbies exist (see Grossman and Helpman (2008)), especially with regard to trade issues, we are not aware of lobbying models related to optimal debt management. Lobbyist and bureaucrats may be connected because the former may have access to the latter and may obtain favors in the implementation of various fiscal measures. This is especially the case when budget procedures and prescriptions are sufficiently opaque so as to guarantee a *de facto* discretion of bureaucrats. In turn, this lack of transparency may be strategically preserved precisely to allow for such pressures from lobbyist, with the related gains for policymakers. Linking the lobbying literature to government debt is an excellent topic of research.

11.5 Empirical work

Much of the politico-economic literature reviewed above is theoretical. We think that there are high payoff in empirical research. Probably cross-country regressions have exhausted what they can teach us in most (but necessarily all) cases. Other tools are available. One is of course dynamic general equilibrium models where one could introduce political constraints or distortions and quantify their effects. A good example of this type of empirical work is the paper by Azzimonti, Battaglini, and Coate (2015) on the balanced budget rule

---

[50]See Bertrand et al. (2015, unpublished) and Gratton et al. (2015, unpublished) for some recent work on the bureaucracy in India and Italy respectively.

reviewed above. At the opposite extreme of methodology one can think of historical case studies which would be especially helped by "natural experiment". For instance, imagine natural experiments which imply institutional changes (or other kind of changes) which can be considered relatively exogenous to fiscal policy. These studies may help address the question of endogeneity emphasized above. The use of historical evidence with time period spanning over institutional changes can be especially useful.

Within-country studies can also be helpful. Imagine a situation in which different localities within a country display very different policy stance regarding deficits. These studies may shed some light on determinants of deficits, holding institutions constant. Evidence on localities is useful for two reasons. One because local public finance is important and interesting per se. Second, because, holding constant national institutions, we can investigate variations in other determinants of deficits. Much of this type of research is on US localities. Thus, there is room for work on other countries.

Another dimension in which progresses could be made is in the disaggregation of fiscal variables. Most of the literature refers to government spending, taxes and debt, without distinguishing within these broad categories. This is true (with few exceptions) both for the macro literature on fiscal policy and for the political economy literature. There is much unexplored territory here.

References

S. A. Abbas, N. Belhocine, A. Elganainy, and M. Horton. A Historical Public Debt Database. Working Papers 245, International Monetary Fund, 2010.

D. Acemoglu and J. A. Robinson. *Economic Origin of Dictatorship and Democracy*. Cambridge Books, Cambridge University Press, 2009.

D. Acemoglu, M. Golosov, and A. Tsyvinski. Markets versus governments. *Journal of Monetary Economics*, 55(1):159–189, 2008a.

D. Acemoglu, M. Golosov, and A. Tsyvinski. Notes and Comments: Political Economy of Mechanisms. *Econometrica*, 76(3):619–641, 2008b.

D. Acemoglu, M. Golosov, and A. Tsyvinski. Political Economy of Mechanisms. *Econometrica*, 76(3):619–641, 2008c.

D. Acemoglu, M. Golosov, and A. Tsyvinski. Dynamic Mirrlees Taxation under Political Economy Constraints. *Review of Economic Studies*, 77(3):841–881, 2010.

D. Acemoglu, M. Golosov, and A. Tsyvinski. Political economy of Ramsey taxation. *Journal of Public Economics*, 95(7-8):467–475, 2011a.

D. Acemoglu, M. Golosov, and A. Tsyvinski. Power fluctuations and political economy. *Journal of Economic Theory*, 146(3):1009–1041, 2011b.

P. Aghion and P. Bolton. Government domestic debt and the risk of default: a political-economic model of the strategic role of debt. In R. Dornbusch and M. Draghi, editors, *Public debt management: Theory and History*. Cambridge University Press, 1990.

P. Aghion, A. Alesina, and F. Trebbi. Endogenous Political Institutions. *Quarterly Journal of Economics*, 119(2):565–611, 2004.

S. Ahmed. Balanced-budget rules and public deficits: evidence from the U.S. states A comment. *Carnegie-Rochester Conference Series on Public Policy*, 45:77–87, 1996.

S. R. Aiyagari, A. Marcet, T. J. Sargent, and J. Seppälä. Optimal Taxation without State-Contingent Debt. *Journal of Political Economy*, 110(6):1220–1254, 2002.

A. Akhmedov and E. Zhuravskaya. Opportunistic Political Cycles: Test in a Young Democracy Setting. *The Quarterly Journal of Economics*, 119(4):1301–1338, 2003.

S. Albanesi and C. Sleet. Dynamic Optimal Taxation with Private Information. *The Review of Economic Studies*, 73(1):1–30, 2006.

A. Alesina. Credibility and Policy Convergence in a Two-Party System with Rational Voters. *The American Economic Review*, 78(4):796–805, 1988.

A. Alesina and T. Bayoumi. The costs and benefits of fiscal rules: evidence from U.S. states. 1996. URL http://www.nber.org/papers/w5614.pdf.

A. Alesina and A. Cukierman. The Politics of Ambiguity. *Quarterly Journal of Economics*, 105(4):829–850, 1990.

A. Alesina and A. Drazen. Why are Stabilizations Delayed? *American Economic Review*, 81(5):1170–1177, 1991.

A. Alesina and P. Giuliano. Preferences for redistribution. In A. Bisin and M. O. Jackson, editors, *Handbook of Social Economics*, volume 1, pages 93–131. The Netherlands: North Holland, 2012.

A. Alesina and P. Giuliano. Culture and Institutions. *Journal of Economic Literature*, pages 1–59, 2015, forthcoming.

A. Alesina and E. L. Glaeser. *Fighting Poverty in the US and Europe: A World of Difference.* The Rodolfo De Benedetti Lecture Series. Oxford University Press, 2005.

A. Alesina and E. La Ferrara. Ethnic Diversity and Economic Performance. *Journal of Economic Literature*, 43:762–800, 2005.

A. Alesina and M. Maré. Evasione e debito. In A. Monorchio, editor, *La Finanza Italiana Dopo la Svolta del 1992.* Il Mulino, Bologna, 1996.

A. Alesina and M. Paradisi. Political budget cycles: Evidence from italian cities. *NBER Working Paper*, (20570), 2014.

A. Alesina and R. Perotti. The Political Economy of Budget Deficits. *NBER Working Paper Series*, 4637(1):1–31, 1995.

A. Alesina and A. Stella. The Politics of Monetary Policy. In B. M. Friedman and M. Woodford, editors, *Handbook of Monetary Economics*, volume 3, pages 1001–1054. Elsevier Inc., 2010.

A. Alesina and G. Tabellini. External Debt, Capital Flight and Political Risk. *Journal of International Economics*, 27:199–220, 1989.

A. Alesina and G. Tabellini. A Positive Theory of Fiscal Deficits and Government Debt. *The Review of Economic Studies*, 57(3):403–414, 1990.

A. Alesina and G. Tabellini. Bureaucrats or politicians? Part I: A single policy task. *American Economic Review*, 97(1):169–179, 2007.

A. Alesina, G. D. Cohen, and N. Roubini. Electoral business cycle in industrial democracies. *European Journal of Political Economy*, 9(1):1–23, 1993.

A. Alesina, R. Perotti, and J. Tavares. The Political Economy of Fiscal Adjustments. *Brooking Papers on Economic Activity*, 1(1):197–266, 1998.

A. Alesina, R. Hausmann, R. Hommes, and E. Stein. Budget institutions and fiscal performance in Latin America. *Journal of Development Economics*, 59(2):253–273, 1999.

A. Alesina, G. Tabellini, and F. R. Campante. Why is fiscal policy often procyclical? *Journal of the European Economic Association*, 6(5):1006–1036, 2008.

A. Alesina, S. Ardagna, and V. Galasso. The Euro and Structural Reforms. In *Review of Economics and Institutions*, volume 2 of *NBER Chapters*, pages 1–37. National Bureau of Economic Research, Inc., 2010.

A. Alesina, C. Favero, and F. Giavazzi. The output effect of fiscal consolidation plans. *Journal of International Economics*, 96:19–42, 2015.

A. F. Alesina, D. Carloni, and G. Lecce. The electoral consequences of large fiscal adjustments. In A. Alesina and F. Giavazzi, editors, *Fiscal Policy after the Financial Crisis*, pages 531–570. National Bureau of Economic Research, Inc., 2012.

J. E. Alt and A. K. Chrystal. *Political Economics*. Berkeley University Press, Berkeley, CA, 1983.

J. E. Alt and D. D. Lassen. "Fiscal Transparency, Political Parties, and Debt in OECD countries". *European Economic Review*, 50(6):1403–1439, 2006.

J. E. Alt and R. C. Lowry. Divided Government, Fiscal Institutions, and Budget Deficits: Evidence From the States. *American Political Science Review*, 88(4):811–828, 1994.

K. Arrow. A Difficulty in the Concept of Social Welfare. *Journal of Political Economy*, 58 (4):328–346, 1950.

P. R. Arvate, G. Avelino, and J. Tavares. Fiscal conservatism in a new democracy: "Sophisticated" versus "naïve" voters. *Economics Letters*, 102(2):125–127, 2009.

A. J. Auerbach, J. Gorkhale, and L. J. Kotlikoff. Generational Accounts : A Meaningful Alternative to Deficit Accounting. *Tax Policy and the Economy*, 5:55–110, 1991.

M. Azzimonti, E. D. Francisco, and V. Quadrini. Financial globalization, inequality, and the raising of public debt. *American Economic Review*, 104(8):2267–2302, 2014.

M. Azzimonti, M. Battaglini, and S. Coate. Costs and benefits of balanced budget rules: Lessons from a political economy model of fiscal policy. *MPRA Paper*, (25935), 2015.

E. Banfield. *The Moral Basis of A Backward Society*. The Free Press, 1958.

R. Baqir. Districting and Government Overspending. *Journal of Political Economy*, 110: 1318–1354, 2002.

S. Barbera and M. O. Jackson. Choosing How to Choose: Self-Stable Majority Rules and Constitutions. *The Quarterly Journal of Economics*, 119(3):1011–1048, 2004.

D. P. Baron. Regulation and legislative choice. *RAND Journal of Economics*, 19(3):467–477, 1988.

D. P. Baron. Design of regulatory mechanisms and institutions. In R. Schmalensee and R. Willig, editors, *Handbook of Industrial Organization*, volume 2, pages 1347–1447. The Netherlands: North Holland, 1989.

D. P. Baron and J. a. Ferejohn. Bargaining in Legislatures. *American Political Science Review*, 83(4):1181–1206, 1989.

R. J. Barro. The control of politicians: An economic model. *Public Choice*, 14-14(1):19–42, 1973.

R. J. Barro. Are Government Bonds Net Wealth? *Journal of Political Economy*, 82(6): 1095, 1974.

R. J. Barro. On the Determination of the Public Debt. *Journal of Political Economy*, 87 (5):940, 1979.

R. J. Barro. *Macroeconomics*. MA: MIT Press., fifth edition edition, 1997.

L. Barseghyan, M. Battaglini, and S. Coate. Fiscal policy over the real business cycle: A positive theory. *Journal of Economic Theory*, 148(6):2223–2265, 2013.

M. Bassetto and T. J. Sargent. Politics and Efficiency of Separating Capital and Ordinary Government Budgets. *Quarterly Journal of Economics*, 121(4):1167–1210, 2006.

M. Battaglini. The Political Economy of Public Debt. *Annual Review of Economics*, 3(1): 110301095653089, 2010.

M. Battaglini. A Dynamic Theory of Electoral Competition. *Theoretical Economics*, 9(2): 515–554, 2014.

M. Battaglini and S. Coate. A Dynamic Theory of Public Spending, Taxation, and Debt. *American Economic Review*, 98(1):201–236, 2008.

M. Battaglini and S. Coate. A political economy theory of fiscal policy and unemployment. *Journal of the European Economic Association*, 2015, forthcoming.

K. Bawn and F. Rosenbluth. Short versus long coalitions: Electoral accountablity and the size of the public sector. *American Journal of Political Science*, 50(2):251–265, 2006.

T. Bayoumi and B. Eichengreen. Restraining yourself: Fiscal rules and stabilization. *CEPR Discussion Papers*, (1029), 1994.

M. Bertrand, R. Burgess, A. Chawla, and G. Xu. Determinants and consequences of bureaucrat effectiveness: Evidence from the indian administrative service. 2015, unpublished.

T. Besley and A. Prat. Handcuffs for the Grabbing Hand? Media Capture and Government Accountability. *The American Economic Review*, 96(3):720–736, 2006.

A. Bisin and T. Verdier. On the joint evolution of culture and institutions. 2015, unpublished.

A. Blinder. Is the government too political? *Foreign Affairs*, 1997.

H. Bohn. The behavior of u. s. public debt and deficits. *Quarterly Journal of Economics*, 113(3):949–963, 1998.

H. Bohn and R. P. Inman. Balanced Budget Rules and Public Deficits: Evidence From the U.S. States. *Carnegie-Rochester Conference Series on Public Policy,*, 45(1):13–76, 1996.

A. Brender. The effect of fiscal performance on local government election results in Israel: 1989-1998. *Journal of Public Economics*, 87(9-10):2187–2205, 2003.

A. Brender and A. Drazen. Political budget cycles in new versus established democracies. *Journal of Monetary Economics*, 52(7):1271–1295, 2005.

A. Brender and A. Drazen. How Do Budget Deficits and Economic Growth Affect Reelection Prospects? Evidence from a Large Panel of Countries. *The American Economic Review*, 98(5):2203–2220, 2008.

M. J. Buchanan and E. R. Wagner. *Democracy in Deficit: The Political Legacy of Lord Keynes.* Ney York: Academic Press., 1977.

N. Budina, A. Schaechter, A. Weber, and T. Kinda. Fiscal Rules in Response to the Crisis: Toward the "Next-Generation" Rules: A New Dataset. Working Papers 187, International Monetary Fund, 2012.

M. Buti and P. Van Den Noord. Fiscal Discretion and Elections in the Early Years of EMU. *JCMS: Journal of Common Market Studies*, 42(4):737–756, 2004.

M. Buti, A. Turrini, P. Van den Noord, and P. Biroli. Reforms and re-elections in OECD countries. *Economic Policy*, 25:61–116, 2010.

R. J. Caballero and P. Yared. Future rent-seeking and current public savings. *Journal of International Economics*, 82(2):124–136, 2010.

F. R. Campante and Q.-A. Do. Isolated Capital Cities, Accountability, and Corruption: Evidence from US States. *American Economic Review*, 104(8):2456–2481, 2014.

F. Canova and E. Pappa. The Elusive Costs and the Immaterial Gains of Fiscal Constraints. *Journal of Public Economics*, 90(8-9):1391–1414, 2006.

A. Casella and B. Eichengreen. Can Foreign Aid Accelerate Stabilisation. *Economic Journal*, 106:605–619, 1996.

V. V. Chari and P. J. Kehoe. Sustainable Plans. *Journal of Political Economy*, 98(4):783, 1990.

V. V. Chari and P. J. Kehoe. Sustainable Plans and Debt. *Journal of Economic Theory*, 61(2):230–261, 1993.

A. Cukierman and A. H. Meltzer. A positive theory of discretionary policy, the cost of democratic government and the benefits of a constitution. *Economic Inquiry*, 24(3): 367–88, 1986.

A. Cukierman and A. H. Meltzer. A Political Theory of Government Debt and Deficits in a Neo-Ricardian Framework. *American Economic Review*, 79(4):713–732, 1989.

E. Dabla-Norris, R. Allen, L.-F. Zanna, T. Prakash, E. Kvintradze, V. D. Lledo, I. Yackovlev, and S. Gollwitzer. Budget Institutions and Fiscal Performance in Low-Income Countries. Working Papers 80, International Monetary Fund, 2010.

J. de Haan and J. E. Sturm. Political and institutional determinants of fiscal policy in the European Community. *Public Choice*, 80(1-2):157–172, 1994.

J. de Haan and B. Volkerink. Fragmented Government Effects on Fiscal Policy: New evidence. *Public Policy*, 109:221–242, 2001.

X. Debrun, L. Moulin, A. Turrini, J. Ayuso-i Casals, and M. S. Kumar. Tied to the mast? National fiscal rules in the European Union. *Economic Policy*, (April):297–362, 2008.

A. Drazen. The political business cycle after 25 years. NBER Macroeconomics Annual 2000. MIT Press., Cambridge, MA.

A. Drazen. *Political Economy in Macroeconomics*. Princeton University Press, Princeton, NJ, 2000.

A. Drazen and W. Easterly. Do Crises Induce Reform? Simple Empirical Tests of Conventional Wisdom. *Economics & Politics*, 13(2):129–157, 2001.

A. Drazen and M. Eslava. Pork Barrel Cycles. *NBER Working Paper Series*, 12190, 2010a.

A. Drazen and M. Eslava. Electoral manipulation via voter-friendly spending: Theory and evidence. *Journal of Development Economics*, 92(1):39–52, 2010b.

A. Drazen and V. Grilli. The Benefits of Crises for Economic Reforms. *American Economic Review*, 83:598–607, 1993.

W. Easterly. How much do distortions affect growth? *Journal of Monetary Economics*, 32 (2):187–212, 1993.

R. Elgie and I. McMenamin. Political Fragmentation, Fiscal Deficits and Political Institutionalisation. *Public Choice*, 136(3-4):255–267, 2008.

M. Eslava. The political economy of fiscal deficits: A survey. *Journal of Economic Surveys*, 25(4):645–673, 2011.

S. Fabrizio and A. Mody. "Can budget institutions counteract political indiscipline?". *Economic Policy*, 21(48):689–739, 2006.

A. Fatás and I. Mihov. On Constraining Fiscal Policy Discretion in EMU. *Oxford Review of Economic Policy*, 19(1):112–131, 2003a.

A. Fatás and I. Mihov. The case for restricting fiscal policy discretion. *The Quarterly Journal of Economics*, 118(4):1419–1447, 2003b.

J. Ferejohn. Incumbent performance and electoral control. *Public Choice*, 50:5–25, 1986.

J. A. Ferejohn and K. Krehbiel. The Budget Process and the Size of the Budget. *American Journal of Political Science*, 31(2):296–320, 1987.

D. Foremny, M.-D. M. Freier, and M. Yeter. Overlapping political budget cycles. *IEB Working Paper*, (02), 2015.

O. Galor and M. Klemp. Roots of autocracy. 2015, unpublished.

A. Gavazza and A. Lizzeri. Transparency and economic policy. *Review of Economic Studies*, 76(3):1023–1048, 2009.

A. Gavazza and A. Lizzeri. Transparency and Manipulation of Public Accounts. *Journal of Public Economic Theory*, 13(3):327–349, 2011.

M. Gavin and R. Perotti. Fiscal Policy in Latin America. In B. Bernanke and J. Rotemberg, editors, *NBER Macroeconomics Annual*, volume 12, pages 11 –72. MIT Press., 1997.

M. D. L. A. Gonzalez. Do Changes in Democracy Affect the Political Budget Cycle? Evidence from Mexico. *Review of Development Economics*, 6(2):204–224, 2002.

G. Gratton, L. Guiso, C. Michelacci, and M. Morelli. From weber to kafka: Political activism and the emergence of an inefficient bureaucracy. 2015, unpublished.

V. Grilli, D. Masciandaro, G. Tabellini, E. Malinvaud, and M. Pagano. Political and Monetary Institutions and Public Financial Policies in the Industrial Countries. *Economic Policy*, 6(13):342–392, 1991.

G. M. Grossman and E. Helpman. Separation of Powers and the Budget Process. *Journal of Public Economics*, 92(3-4):407–425, 2008.

L. Guiso, P. Sapienza, and L. Zingales. Does Culture Affect Economic Outcomes? *Journal of Economic Perspectives*, 20(2):23–48, 2006.

L. Guiso, P. Sapienza, and L. Zingales. Civic capital as the missing link. In J. Benhabib, A. Bisin, and M. O. Jackson, editors, *Handbook of Social Economics*, volume 1, pages 417–480. The Netherlands: North Holland, 2011.

L. Guiso, P. Sapienza, and L. Zingales. Long Term Persistence. 2015.

L. Guiso, H. Herrera, and M. Morelli. A cultural clash view of the eu crisis. 2015, unpublished.

J. Hagen. Fiscal Rules and Fiscal Performance in the European Union and Japan. *Monetary and Economic Studies*, 24(1):25–60, 2006.

M. Halac and P. Yared. Fiscal Rules and Discretion Under Persistent Shocks. *Econometrica*, 82(5):1557–1614, 2014.

M. Halac and P. Yared. Fiscal rules and discretion in a world economy. *NBER Working Paper 21492*, 2015.

M. Hallerberg and J. Von Hagen. Electoral Institutions, Cabinet Negotiations, and Budget Deficits in the European Union. In *Fiscal Institutions and Fiscal Performance*, number 1, pages 209–232. National Bureau of Economic Research, Inc., 1999.

M. Hallerberg, R. Strauch, and J. von Hagen. The design of fiscal rules and forms of governance in European Union countries. *European Journal of Political Economy*, 23(2): 338–359, 2007.

M. Hallerberg, R. Strauch, and J. Von Hagen. *Fiscal Governance: Evidence from Europe.* Cambridge University Press, 2009.

J. Hassler, P. Krusell, K. Storesletten, and F. Zilibotti. The dynamics of government. *Journal of Monetary Economics*, 52(7):1331–1358, 2005.

R. Haveman. Should Generational Accounts Replace Public Budgets and Deficits? *Journal of Economic Perspectives*, 8(1):95–111, 1994.

R. P. Inman. Rethinking federalism. *Journal of Economic Perspectives*, 11(4):43–64, 1997.

K. Kashin, G. King, and S. Soneji. Systematic Bias and Nontransparency in US Social Security Administration Forecasts. *Journal of Economic Perspectives*, 29:239–58, 2015.

P. Klein, P. Krusell, and J.-V. Ríos-Rull. Time-Consistent Public Policy. *The Review of Economic Studies*, 75(3):789–808, 2008.

Y. Kontopoulos and R. Perotti. Government fragmentation and fiscal policy outcomes: Evidence from oecd countries. In *Fiscal Institutions and Fiscal Performance*, NBER Chapters, pages 81–102. National Bureau of Economic Research, Inc., 1999.

J. Kornai, E. Maskin, and G. Roland. Understanding the Soft Budget Constraint. *Journal of Economic Literature*, 41(4):1095–1136, 2003.

S. Krogstrup and C. Wyplosz. A common pool theory of supranational deficit ceilings. *European Economic Review*, 54(2):269–278, 2010.

L. Lambertini. Are budget deficits used strategically? *Economics & Politics*, (September): 1–38, 2003.

A. Lizzeri. Budget Deficits and Redistributive Politics. *Review of Economic Studies*, 66 (4):909–928, 1999.

R. E. J. Lucas and N. L. Stokey. Optimal Fiscal and Monetary Policy in an Economy without Capital. *Journal of Monetary Economics*, 12(1):55–93, 1983.

A. Miano. Determinants and consequences of fiscal rules: Evidence form the world economy. Master's thesis, Bocconi University, 2015.

G. M. Milesi-Ferretti. Good, bad or ugly? On the effects of fiscal rules with creative accounting. *Journal of Public Economics*, 88(1-2):377–394, 2004.

G. M. Milesi-Ferretti, R. Perotti, and M. Rostagno. Electoral Systems and Public Spending. *Quarterly Journal of Economics*, 117(2):609–657, 2002.

A. Müller, K. Storesletten, and F. Zilibotti. the Political Color of Fiscal Responsibility. *Journal of the European Economic Association*, 2016, forthcoming.

C. Mulligan and X. Sala-i Martin. Gerontocracy, retirement, and social security. *NBER Working Paper*, (7117), 1999.

T. Nannicini, A. Stella, G. Tabellini, and U. Troiano. Social Capital and Political Accountability. *American Economic Journal: Economic Policy*, 5(230088):222–250, 2012.

W. D. Nordhaus. The Political Business Cycle. *The Review of Economic Studies*, 42(2): 169–190, 1975.

W. E. Oates. *Fiscal Federalism*. Edward Elgar Pub, 2011.

OECD. Social expenditure. URL www.oecd.org/els/social/expenditure.

OECD. Social spending - statextracs, 2014. URL http://stats.oecd.org/Index.aspx? DataSetCode=SOCX_AGG.

F. Passarelli and G. Tabellini. Emotions and political unrest. *CESifo Working Paper Series*, 2013.

S. Peltzman. Voters as Fiscal Conservatives. *The Quarterly Journal of Economics*, 107(2): 327–361, 1992.

R. Perotti and Y. Kontopoulos. Fragmented fiscal policy. *Journal of Public Economics*, 86 (2):191–222, 2002.

T. Persson and L. E. O. Svensson. Why a Stubborn Conservative would Run a Deficit: Policy with Time- Inconsistent Preferences. *The Quarterly Journal of Economics*, 104 (2):325–345, 1989.

T. Persson and G. Tabellini. *Political Economics: Explaining Economic Policy*. MIT Press, Cambridge and London, 2000.

T. Persson and G. Tabellini. Constitutional rules and fiscal policy outcomes. *American Economic Review*, 94(1):25–45, 2004a.

T. Persson and G. Tabellini. Constitutions and Economic Policy. *Journal of Economic Perspectives*, 18(1):75–98, 2004b.

P. Pettersson-Lidbom. An Empirical Investigation of the Strategic Use of Debt. *Journal of Political Economy*, 109(3):570–583, 2001.

P. Pettersson-Lidbom. Dynamic Commitment and the Soft Budget Constraint: An Empirical Test. *American Economic Journal: Economic Policy*, 2(August):154–179, 2010.

P. Pettersson-Lidbom. Does the size of the legislature affect the size of government? Evidence from two natural experiments. *Journal of Public Economics*, 96(3-4):269–278, 2012.

J. Ponticelli and H.-J. Voth. Austerity and Anarchy: Budget Cuts and Social Unrest in Europe, 1919-2008. *SSRN Electronic Journal*, (July):1–39, 2011.

J. M. Poterba. Capital budgets, borrowing rules, and state capital spending. *Journal of Public Economics*, 56:165–187, 1995.

J. M. Poterba. Budget Institutions and Fiscal Policy in the U.S. States. *American Economic Review*, 86(2):395–400, 1996.

A. Prat and D. Stromberg. *The Political Economy of Mass Media*. Advances in Economics and Econometrics. Cambridge University Press, 2013.

D. Primo. *Rules and Restraint: Government Spending and the Design of Institutions.* American Politics and Political Economy Series. University of Chicago Press Chicago., 2007.

F. P. Ramsey. A Contribution to the Theory of Taxation. *The Economic Journal*, 37(145): 47–61, 1927.

C. M. Reinhart and K. S. Rogoff. Growth in a time of debt. *American Economic Review*, 100(2):573–578, 2010.

G. Richardson. The relationship between culture and tax evasion across countries: Additional evidence and extensions. *Journal of International Accounting, Auditing and Taxation*, 17(2):67–78, 2008.

K. Rogoff. Equlibrium Political Budget Cycles. *The American Economic Review*, 80(1): 21–36, 1990.

K. Rogoff and A. Sibert. Elections and macroeconomic policy cycles. *The Review of Economic Studies*, 55(1):1–16, 1988.

L. J. Sabato. *A More Perfect Constitution: Why the Constitution Must Be Revised: Ideas to Inspire a New Generation*. New York: Walker Publishing Company., 2008.

L. Schuknecht. Fiscal Policy Cycles and Public Expenditure in Developing Countries. *Public Choice*, 102(1/2):115–130, 2000.

K. Shepsle. Institutional Arrangements and Equilibrium in Multidimensional Voting Models. *American Journal of Political Science*, 23(1):27–59, 1979a.

K. Shepsle and B. Weingast. Political Preferences for the Pork Barrel: A Generalization. *American Journal of Political Science*, 25(1):96–111, 1981.

K. A. Shepsle. The role of institutional structure in the creation of policy equilibrium. In R. W. Douglas and T. J. Eismeier, editors, *Public Policy and Public Choice*, volume 6 of *Sage Yearbook in Politics and Public Policy*. Beverly Hills Sage, 1979b.

M. Shi and J. Svensson. Political budget cycles: Do they differ across countries and why? *Journal of Public Economics*, 90(8-9):1367–1389, 2006.

Z. Song, K. Storesletten, and F. Zilibotti. Rotten parents and disci- plined children: a politico-economic theory of public expenditure and debt. *Econometrica*, 80(6):2785–2803, 2012.

E. Spolaore. Adjustments in different government systems. *Economics & Politics*, 16(2): 117–146, 2004.

E. Stein, E. Talvi, and A. Grisanti. Institutional arrangements and fiscal performance: The Latin American experience. chapter Fiscal Institutions and Fiscal Performance, pages 103–134. NBER/University of Chicago Press, Chicago, 1999.

D. R. Stockman. Balanced-Budget Rules: Welfare Loss and Optimal Policies. *Review of Economic Dynamics*, 4(2):438–459, 2001.

M. Sutter. The political economy of fiscal policy: An experimental study on the strategic use of deficits. *Public Choice*, 116(8487):313–332, 2003.

G. Tabellini. The Politics of Intergenerational Redistribution, 1991.

G. Tabellini. Culture and Institutions: Economic Development in the Regions of Europe. *Journal of the European Economic Association*, 8(4):677–716, 2010.

G. Tabellini and A. Alesina. Voting on the budget deficit. *American Economic Review*, 80 (1):37–43, 1990.

M. Tommasi and A. Velasco. Where are we in the political economy of reform? *The Journal of Policy Reform*, 1(2):187–238, 1996.

A. Tornell and P. R. Lane. The Voracity Effect. *The American Economic Review*, 89(1): 22–46, 1999.

F. Trebbi, P. Aghion, and A. Alesina. Electoral Rules and Minority Representation in U . S . Cities. *The Quarterly Journal of Economics*, 123(1):325–357, 2008.

A. Velasco. A Model of Endogenous Fiscal Deficits and Delayed Fiscal Reforms. In J. M. Poterba and J. Von Hagen, editors, *Fiscal Institutions and Fiscal Performance*, volume 6336, pages 37 – 58. NBER/University of Chicago Press, 1999.

A. Velasco. Debts and deficits with fragmented fiscal policymaking. *Journal of Public Economics*, 76(1):105–125, 2000.

B. Volkerink and J. De Haan. Fragmented government effects on fiscal policy: New evidence. *Public choice*, 109(3-4):221–242, 2001.

J. Von Hagen. Budgeting procedures and fiscal performance in the european communities. Economic Paper 96, Commission of The European Communities, Brussel, Belgium, 1992.

J. Von Hagen. Fiscal rules and fiscal performance in the eu and japan. *Discussion Paper Series of SFB/TR 15 Governance and the Efficiency of Economic Systems 147*, 2006.

J. von Hagen and I. J. Harden. Budget processes and commitment to fiscal discipline. *European Economic Review*, 39(3-4):771–779, 1995.

J. von Hagen and G. B. Wolff. What do deficits tell us about debt? Empirical evidence on creative accounting with fiscal rules in the EU. *Journal of Banking and Finance*, 30 (12):3259–3279, 2006.

B. Weingast, K. Shepsle, and C. Johnsen. The political economy of benefits and costs: A neoclassical approach to distributive politics. *Journal of Political Economy*, 84(4): 642–64, 1981.

J. Woo. Economic, political, and institutional determinants of public deficits. *Journal of Public Economics*, 87(3-4):387–426, 2003.

C. Wyplosz. Europe's quest for fiscal discipline. European Union Economic Papers 498, Directorate General Economic and Monetary Affairs (DG ECFIN), European Commission., Brussel, Belgium, 2013.

C. Wyplosz. Fiscal rules: Theoretical issues and historical experiences. In A. Alesina and F. Giavazzi, editors, *Fiscal Policy after the Financial Crisis*, volume Fiscal Rules: Theoretical Issues and Historical Experiences, pages 495–529. University of Chicago Press and National Bureau of Economic Research., 2014.

P. Yared. Politicians, taxes and debt. *Review of Economic Studies*, 77(2):806–840, 2010.