Document de travail

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N° 2009-06
April 2009

Jérôme Creel
(ESCP-EAP and OFCE/Sciences Po)

Etienne Farvaque
(Université de Lille)

The Political Economy of Balanced-Budget Rules

Jérôme Creel[*]
Etienne Farvaque[†]

Abstract

The paper first reviews the evolution of federal fiscal rules in the United States, showing a trend towards balanced-budget rules, not golden rules. An explanation to this trend is provided in a model that includes voter's preferences that are skewed by the history of the budget structure, and fiscal rules on the budget. Previous results in the literature are generalized, and the implications of fiscal rules for the use of debt as a strategic asset in the hands of politicians are derived. The inclusion of a golden rule of public finance is compared with that of a balanced-budget rule. Because of the presence of habits, we show that politicians are more prone to adopt balanced-budget rules than a golden rule.

Keywords: Budget deficit, debt, Political Economy, fiscal rules, habit effect

JEL Classification: D72, D78, H62

1 Introduction

Soaring public deficits in the crisis era will certainly renew interest in the debate over a constraining fiscal rule after the crisis has vanished, but the question remains on which rule politicians will endorse: will they turn towards a balanced-budget rule or a golden rule? In the past they favored the former at the federal level. The occurrence of federal public deficits (plus the accumulation of debt in many industrial countries) in the last decades had spurred the academic reflection on the properties of rules that would constrain "excessive" peacetime deficits. In parallel, some politicians (and sometimes, parts of the electorate) have pushed for the adoption of such rules. But there has been a gap between what academics generally recommended as a "good", "sensible" or "appropriate" rule and what politicians have proposed and may adopt, i.e. balanced-budget rules.

The United Kingdom appears as a counter-example: the now famous 'golden rule of public finance', a hard-budget constraint, has been adopted in 1997 and it can be argued that such a rule is, in the end, more sensible than a balanced-budget rule in that it is more flexible and contingent to economic events. Over the cycle, current expenditures are limited by current receipts, whereas public investment may be fully financed by debt. UK authorities are therefore provided with a countercyclical short run fiscal policy and with a structural long run policy. According to empirical estimations by Creel et al. (2009), the 'golden rule of public finance' has also been successful in increasing the multiplier effect of public investment on GDP. However, and quite interestingly for our purpose, the adoption of golden rules has not spread over the world despite their potential advantages, historically endorsed by academics since at least Pigou (1928) and Musgrave (1939). Hence, explaining why politicians favor balanced-budget rules instead of golden rules is the objective of this paper.

We consider if polarized budgets can occur under the two following assumptions. First, voters' preferences are shaped by the history of the budget structure, i.e past spending on a category of public goods induces future spending on this category. This fact can thus be used by politicians to influence their probability of reelection and the policy of their successors. Second, fiscal rules are imposed on the budget. The first assumption is now relatively common in the field of public economics (see for example, Laffont and Tirole, 1993), and has been empirically verified (see for example, Hercowitz and Strawczynski, 2004 on the post-1970s' rise in the public spending / GDP ratio in OECD countries). The second assumption has been the focus of a huge literature since the European Union began to consider implementing a common currency (see, e.g.,

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Eichengreen, 1990 for one of the first papers, and Krogstrup and Wälti, 2008, for a recent test showing the effectiveness of fiscal rules).

We build on Alesina and Tabellini (1990), Tabellini and Alesina (1990), and the recent elaboration on these by Matsen and Thøgersen (2007). The political arena is one with partisan politicians, the degree of partisanship being expressed and reflected in a different allocation of budget resources. In addition to the introduction of fiscal rules, differences from the latter authors are notably that (i) we consider two categories of public goods, operating expenditures and infrastructures expenditures and (ii) as these two categories of public goods are included in voters' preferences, their choice (and our framework) provides a richer description of policy choices. We also consider politicians more or less inclined towards favoring infrastructure or operating expenditures. Such an assumption has recently found empirical support, e.g. by Veiga and Veiga (2007a, b)[1]. This partisanship use of budget, plus the assumption of voters getting used to some levels of public goods spending (habit effect) gives the incumbent an incentive to distort the allocation to try to lure more voters, thus boosting her reelection probability.

Matsen and Thøgersen (2007) show that, in such a framework, the incumbent's optimal policy features both a more polarized allocation of the public resources and a debt bias. We verify if these results hold when the incumbent is confronted with fiscal policy rules. We notably aim to check if the strategic use of the debt bias exhibited by Persson and Svensson (1989) is still at work under the constraints imposed by these rules. We finally determinate the conditions under which a 'golden rule' would be preferable to a balanced-budget rule, even for an incumbent that would have a relative preference for operating expenditures. We show that these conditions are very difficult to fulfil.

The paper is structured as follows. Section 2 reviews the evolution of fiscal rules in the United States. Section 3 sets up the model, while section 4 analyzes the reelection prospects and policies implemented by incumbents. Section 5 then studies the influence of fiscal rules. Section 6 concludes and indicates directions for further research.

2   A quick refresher course on the evolution of federal fiscal rules

It is only relatively recently that American politicians have started to focus on the elaboration of fiscal rules. Since the 1980s, they have rivalled in cleverness to build always more stringent fiscal rules. Peach

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[1]Though Lambertini (forthcoming) finds no evidence for the strategic use of debt, but on aggregate data.

(2001) broadly divides their attempts in two successive waves, the first being numerical targets for the deficit, that finally proved out of reach, the second focusing the targets on categories of spending, and tightening procedural rules which, he estimates, have been "largely adhered to through most of the 1990s" (p. 217). Though it may be harder than one thinks to assess the efficiency of fiscal rules (as Auerbach, 2008, states, differentiating "real" changes from the ones without real impact is hard, and all the harder as no counterfactual policy path exists), the following periods can be distinguished, with reference to existing (and enforced) fiscal rules.

If, prior to 1974, no fiscal rules existed, the year 1974 marked a structural change. The Congressional Budget and Impoundment Control Act (generally known by its acronym: CBA) created the House and Senate Budget Committees, the Congressional Budget Office, and imposed a coordination process in the budget procedure, but no limits on receipts or expenditures. This was the first step on a march to an ever-increasing tightening of rules.

The 1980s have been a hot decade for fiscal rules in the United States. In 1985, the Balanced Budget and Emergency Deficit Control Act established targets for deficits, targets that were declining in time. The aim was to reach a balanced budget in 1991. Moreover, the Act (generally referred to as the Gramm-Rudman-Hollings Act, a confusing name as those Senators were also pushing the 1987 Act, see below) initiated a process of funds sequestration if the projected (and not the actual) deficit exceeds the target deficit. Though not necessarily successful, the Act is famous for the limitations on the politicians' margins of maneuver it hoped to create.

In 1987, Senators Gramm, Rudman and Hollings reiterated and initiated the process to the Balanced Budget and Emergency Deficit Control Reaffirmation Act. The need of a "reaffirmation" could be viewed as a proof that the preceding Act was not successful in correcting the drift towards higher deficits and debt emissions. However, it is also due to a Supreme Court decision, that declared the sequestration process to violate the principle of separation of powers. The aim was then to have a balanced budget by 1993.

The 1990s saw no less than five Acts that tried to limit the politicians' leeway. The Budget Enforcement Act of 1990 seems to mark the start of a reverse process, as it suppresses the deficit targets. But these are replaced by limits that are placed on discretionary budget authority and outlays, from 1991 to 1995 (see Peach, 2001, for a more precise description). Moreover, the Act implements the "pay-as-you-go" (or "PAYGO") process, under which all fiscal changes (whether in the

tax code or in the rules for eligibility to transfers) have to be "deficit neutral", over a one-year as well as over a five-year horizon. As the rules that were enacted in the 1980s were not enforced, the apparent suppression of the deficit targets does not show a relapse, but all the contrary, an increased realism from the politicians attached to budget balancing. It seems that they have become more pragmatic, as they pushed for changes that may have received more support, i.e. changes that provided targets that were de facto not out of reach[2]. This was supplemented, still in 1990, by the Federal Credit Reform Act, which has changed accounting rules for a better inclusion of loans that receive a federal guarantee.

The 1993 Act, called the Omnibus Budget Reconciliation Act, strives for a balanced budget by notably increasing taxes on high-income households, and by extending the spending caps and PAYGO process until 1998. Such a direction could have been made even clearer if the Line Item Veto Act had not been struck down by the Supreme Court. The Act would have permitted a Presidential choice for vetoing some spending (or tax provisions). Finally, in 1997, the Budget Enforcement Act extended the spending caps and PAYGO process until 2002.

The fact that the deficit turned into a surplus in 1998, a situation which lasted until 2001, has slowed the attempts to reform fiscal rules[3]. Since then, and with the end of the term limits of some Acts, limited budget rules have applied at the federal level. It is only in 2007 that the Congress decided to enforce PAYGO for the next ten years.

As a complement, it also has to be noted that a debt ceiling exists in the United States, since 1917 (Liberty Bond Act). However, not only is this ceiling far from being consistent with a 'golden rule', but it has also never been binding, as it has periodically been raised to permit new emissions of debt. Interestingly with regards to our purpose, each new increase in the debt ceiling seems to have triggered a new rash in amendments to the existing rules on deficits.

All in all, then, this quick presentation illustrates two features of American federal fiscal rules: (i) that the rules are inoperant as soon as a political consensus builds to renege on them (Auerbach, 2008), which is all the easier as budget rules are purely statutory, i.e. they can be revised or overturned by a simple majority vote (see Dharmapala,

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[2]Such a realism also appears at the state level, many rules on taxes and expenditures being adopted (or adapted where they existed) during the same period (see Kousser et al., 2008). For a theoretical proof of the necessary consistency between federal and state-level rules, see Cooper et al. (2008).

[3]Historical data on budget deficits and debt are available at the following URL: http://www.cbo.gov/budget/data/historical.xls.

2006) and (ii) that the rules tend to establish a balanced budget, but that 'golden rules' have not been considered. The last feature is all the more surprising as 'golden rules' are generally favored by academics over balanced budget rules. The gap between politicians' practice and theoretical results has thus to be understood. The next sections propose a political economy model that helps explain such a gap, responding, for example, to Auerbach's (1994) call.

3 The model

3.1 Basic hypotheses

The model is inspired by, but not similar to, the setting that Matsen and Thøgersen (2007) have endorsed: we start from the probabilistic voting approach of Persson and Tabellini (2000, section 13.3), and consider a political environment consisting of two competing political parties ($J = D, R$) with two associated natural constituencies in the form of identically large groups of voters ($j = d, r$). The two parties are outcome oriented and, following Alesina and Tabellini (1990) and Tabellini and Alesina (1990), they disagree about the composition of public spending. However, here we consider a more precise and realistic setting than preceding authors by differentiating specifically two types of public goods: the operating and infrastructures expenditures. To embed a potential debt bias effect, as in Persson and Svensson (1989), we consider a two-period framework. For simplicity, it is assumed that the real interest rate is zero which allows to disregard discounting of utility.

Description of the model starts with each political party's utility function:

$$u_t^J = \alpha^J \log e_t + \left(1 - \alpha^J\right) \log i_t \qquad (1)$$

where e and i are the spending levels, respectively, on operating expenditures and on infrastructures spending, in period t, $t = 1, 2$. The parameter α^J captures the preferences of party J for the composition of the goods. Without loss of generality, we assume in what follows that party R is the incumbent, and that she attaches a greater weight to operating expenditures: $\alpha^R > \alpha^D$, and $\alpha^R = 1 - \alpha^D > \frac{1}{2}$.

The government has to act under the following resource constraints:

$$e_1 + i_1 = 1 + b \qquad (2)$$
$$e_2 + i_2 = 1 - b \qquad (3)$$

where b is the public debt, potentially emitted in period 1, in which

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case it would have to be fully repaid in period 2.[4]

At the end of period 1, the incumbent government stands in the coming election. Her probability of being reelected is egal to π, in which case she will be able to implement her favored policy in period 2. The incumbent will thus maximise the following intertemporal utility function:

$$U^R = u_1^R \left(e_1^R; i_1^R \right) + \pi.u_2^R \left(e_2^R; i_2^R \right) \tag{4}$$

under the resource constraints defined above[5].

As in Matsen and Thøgersen (2007), the benchmark situation can immediately be defined as the one where the incumbent faces a certain reelection: $\pi = 1$. In this situation, one gets the favorite allocation of resources as : $e_1 = e_2 = \alpha^R$; $i_1 = i_2 = 1 - \alpha^R$. In this benchmark situation, there is no incentive to use debt as a strategic asset, and one gets: $b = 0$.

Concerning voters, they are ideologically biased, and their utility function is based on public spending[6]:

$$V_t^j = \log \left(e_t - \gamma e_{t-1} \right) + \lambda^j \log \left(i_t - \mu i_{t-1} \right) \tag{5}$$

where the parameters γ and μ, both lying in the $[0;1]$ interval, indicate the strenght of the habit formation mechanism, and the parameter λ ($\lambda \in [0;1]$) indicates the relative preference of any voter j for operating expenditures or infrastructures. These assumptions of differentiating the strenght of the habit formation according to the type of public goods and the introduction of relative preferences between both public goods enrich our framework in comparison with the preceding authors. Not only do we not constrain γ to be equal to μ, but we do not assume the politicians to have to reflect their constituencies' preferences. As a consequence, politicians may signal a preference at the first period that they may dismiss in the second period.

3.2 Equilibrium

To establish how the post-election policy will be chosen, one has to solve the last-period policy problem:

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[4]We assume that taxes are normalized to 1 or that the government is endowed with one unit of output.

[5]Contrary to Matsen and Thogersen (2007), we assume that the incumbent has neither a loss of utility nor a negative utility if she is not reelected.

[6]In the literature, independence between both types of expenditures is assumed. It is out of the scope of this paper to consider potential complementarities both between public goods and between public and private goods.

$$Max \ u_2^J = \alpha^J \log e_2 + \left(1 - \alpha^J\right) \log i_2 \qquad (6)$$
$$w.r.t. \ e_2 + i_2 = 1 - b$$

Choosing e_2 as the policy variable, this delivers, from the FOC: $e_2 = \alpha^J (1 - b)$, and from the resource constraint: $i_2 = \left(1 - \alpha^J\right) (1 - b)$.

The path of evolution for both categories of spending can thus be obtained (remember that $\sum (e_t + i_t) = 2$) as:

$$\Delta e = e_2 - \gamma e_1 = \alpha^J (2 - e_1 - i_1) - \gamma e_1 \qquad (7)$$
$$\Delta i = i_2 - \mu i_1 = \left(1 - \alpha^J\right) (2 - e_1 - i_1) - \mu i_1 \qquad (8)$$

As in Matsen and Thøgersen (2007), these expressions show that two effects are at play in this setting: the "habit effect" (through the γ and μ parameters), which lowers the funds available at period 2 for the alternative category of expenditures, and the "debt effect" (first part of both expressions), which reduces the whole possibilities of spending in period 2. When reelection is not certain, debt is a strategic asset in this framework.

The intertemporal utility function for the incumbent (assuming R is the incumbent with a probability equal to π for reelection and using equations 2 and 3) can thus be rewritten as the following:

$$U^R = \alpha^R \log e_1^R + \left(1 - \alpha^R\right) \log i_1^R + \pi \log (2 - e_1 - i_1) \qquad (9)$$
$$+\pi \left[\alpha^R \log \alpha^R + \left(1 - \alpha^R\right) \log \left(1 - \alpha^R\right)\right]$$

where the second and last term are negative, as $\alpha^R > \frac{1}{2}$ by assumption.

4   Reelection prospects and policies

As voters are sensitive to public spending and its evolutions, the reelection prospects are endogenous and can be written as a function of the two kinds of expenditures: $\pi \equiv \pi (e_1; i_1)$. We follow Matsen and Thøgersen (2007) and assume that:

$$\pi \equiv \pi (e_1; i_1) = \frac{1}{2} + \theta \frac{1}{2} \left(V_2^j\right) \qquad (10)$$

where θ is the density of a i.i.d. popularity shock, and V is the utility of any voter when the incumbent is *not* reelected.

From this, one can derive the impact of a period-1 policy on the probability of reelection:

$$\frac{d\pi}{de_1} = \frac{1}{2}\theta \left(\frac{dV_2^j}{de_1}\right) = \frac{-\theta\gamma}{2\Delta e}$$

$$\frac{d\pi}{di_1} = \frac{1}{2}\theta \left(\frac{dV_2^j}{di_1}\right) = \frac{-\theta\mu\lambda^j}{2\Delta i}$$

These expressions show the influence on the probability of reelection of a change in period-1 policy. It clearly appears that the habit effect has a negative impact on the reelection prospects, which can be explained by the constraint it imposes on the second period elected politician, as she will have less freedom to act, a fact that voters anticipate. The intensity of the relative preference of voters for infrastructures also plays a role, mitigating, in this case, the influence of the habit effect (as $\lambda \in [0;1]$). Hence, the habit effect cannot be discussed independently from the relative preferences of voters, though they do not deliver the same information: the habit effect states that constituencies have been used to benefiting to a certain extent from a certain kind of expenditures; at the same time, they always show a relative preference for one of these two kinds. Let us take an example: a citizen might be used to being offered a certain quality of services by civil servants, she would hence have a high habit effect for operational expenditures (if ever these are positively correlated with the quality of the services) although she may prefer investment expenditures to operational ones. Insofar as a deep change has not occurred in the allocation of expenditures between both types of it, at the benefit of her preferred expenditure, this citizen may keep the same high level of habit effect for her least-preferred expenditure.

From this, one can derive the optimal policies as implied by the maximization by the incumbent of her intertemporal utility function. One thus gets:

$$\frac{dU^R}{de_1} = 0 = \frac{\alpha^R}{e_1^R} - \frac{\theta\gamma\log(1-b)}{2\Delta e} - \frac{\pi}{1-b} \tag{11}$$
$$- \frac{\theta\gamma}{2\Delta e}\left[\alpha^R\log\alpha^R + \left(1-\alpha^R\right)\log\left(1-\alpha^R\right)\right]$$

$$\frac{dU^R}{di_1} = 0 = \frac{1-\alpha^R}{i_1^R} - \frac{\theta\mu\lambda^j\log(1-b)}{2\Delta i} - \frac{\pi}{1-b} \tag{12}$$
$$- \frac{\theta\mu\lambda^j}{2\Delta i}\left[\alpha^R\log\alpha^R + \left(1-\alpha^R\right)\log\left(1-\alpha^R\right)\right]$$

which can be rewritten as:

$$\frac{\alpha^R}{e_1^R} - \frac{1 - \alpha^R}{i_1^R} = \frac{\theta}{2} \left(\frac{\gamma}{\Delta e} - \frac{\mu \lambda^j}{\Delta i} \right) \quad (13)$$
$$\cdot \left(\log (1 - b) - \left[\alpha^R \log \alpha^R + \left(1 - \alpha^R \right) \log \left(1 - \alpha^R \right) \right] \right)$$

This equation defines the optimal policies relatively to the incumbent's preferences, but also relatively to the voters' preferences, and to the habit formation parameters. This equation is positive or negative, depending on the values of the γ, μ and λ parameters. This signifies that:

Proposition 1 *Period-1 R-incumbent sets her policies such as :*
$1 > \frac{i_1^R}{e_1^R} > \frac{1 - \alpha^R}{\alpha^R}$ *iif sign* $\left(\frac{\gamma}{\Delta e} - \frac{\mu \lambda^j}{\Delta i} \right) < 0$. *Otherwise, the contrary will be observed.*

This proposition generalizes the result Matsen and Thøgersen (2007) obtained. In their setting, this result depends on the value of the habit effect parameter, while it is more general in our setting, since it does depend on the *relative* values of the parameters. This sounds quite natural, as politicians will attempt to increase their reelection prospects, with due regard to voters' preferences. For this, they have to manipulate policies to send to the voters a signal of competence. Everything else being equal, politicians will distort the allocation towards their favorite spending (here, operational expenditures), unless the preferences of the electorate induce them to act contrarily to their own will, which will be the case when the voters' bias towards infrastructure spending and the habit effect for these items will be large relatively to operational expenditures. Our framework thus conditions the incumbent bias towards her favorite spending item on the reaction of voters to the whole composition of the budget. Voters' relative preferences thus act as a disciplining device on incumbents' behavior.

Will politicians use debt to increase any potential bias towards their favorite allocation?

Corollary 2 *Period-1 R-incumbent will use debt as a stategic asset, i.e. b>0. Either the incumbent politician is constrained on her favorite allocation, and will use debt to circumvent voters, or voters share her favorite spending, and she has an incentive in skewing the allocation to follow the electoral wind up to an endogenous limit.*
Proof. *From the definition of* U^R, *one can derive* $\frac{\partial U^R}{\partial b} = \frac{\partial U^R}{\partial e_1} \cdot \frac{\partial e_1}{\partial b}$. *We know from above that* $\frac{\partial U^R}{\partial e_1} > 0$ *and, from the first period constraint, we*

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can determine the sufficient condition to have $\frac{\partial U^R}{\partial b} > 0$. This condition is the following: $e_1^R < 2\alpha^R (1 - b)$. ∎

Interestingly, then, the decision to use debt as a strategic asset depends on the first period policy implemented by the incumbent politician. In other words, the sufficient condition shows the strategic use of debt to be endogenous to the political game: the improvement in the first-period utility of the politician (α^R / e_1^R) is conditioned by the amount of debt.

5   The influence of fiscal rules

Two rules are considered in this section: (i) the golden rule of public finance, where only infrastructures can be financed by debt and (ii) the balanced-budget rule (i.e. $e_1 + i_1 = 1$).

5.1   The golden rule

The now famous 'golden rule of public finance' has been advocated for the EU (e.g., by Fitoussi and Creel, 2002, or by Blanchard and Giavazzi, 2004). Such a rule states that, over the cycle, government borrowing should not exceed net government capital accumulation; hence, current expenditures should be financed by current receipts. One main rationale behind such a rule points to the necessity of spreading the costs of public capital formation over the years during which they will be used. Though it may be true that welfare benefits of boosting public investment may be unevenly distributed across generations – public investment should increase private capital formation and wages, but the latter rise only gradually whereas the former is in the hands of the "elderly" –, Heijdra and Meijdam (2002) show that financing some part of public investment with public bonds enhances equality across generations. A 'golden rule' is thus theoretically welfare-improving.[7]

The question then arises of knowing how such a 'golden rule' would influence the politicians' behavior. In our framework, the rule will be stated as $b = \rho i_1$ where ρ stands for the strength of the 'golden rule' $(\rho < 1)$. The first period budget constraint now writes: $e_1 + i_1 = 1 + b = 1 + \rho i_1$. That is, the new emission of debt can only finance infrastructure spending, for a proportion ρ of the total spending on that item.

The modified model, embedding the 'golden rule' now delivers the following results, after solving the last-period policy problem:

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[7]Note that Krogstrup and Wyplosz (2006) also derive the welfare gains of a 'golden rule', but in a different setting, as they compare it with the European monetary union rules known as the Stability and Growth Pact, and focus on the population's welfare. For a less enthusiastic view on 'golden rules', see, e.g. Buiter (2001).

$$Max \; \left(u_2^J\right)^G = \alpha^J \log e_2 + \left(1 - \alpha^J\right) \log i_2 \qquad (14)$$
$$w.r.t. \; e_2 + i_2 = 1 - b = 1 - \rho i_1$$

where G stands for 'golden rule'. Choosing e_2 as the policy variable, this delivers, from the FOC: $e_2 = \alpha^J \left(1 - \rho i_1\right)$, and from the resource constraint: $i_2 = \left(1 - \alpha^J\right) \left(1 - \rho i_1\right)$.

The path of evolution for both categories of spending does not change, as the total resource constraint is not modified $\sum \left(e_t + i_t\right) = 2$ (see equations (7) and (8)).

To derive the implications of the 'golden rule' on incumbents' behavior, one has to look at the influence of debt on the maximization of the R-type incumbent utility:

$$\frac{\partial \left(U^R\right)^G}{\partial b} = \frac{\partial \left(U^R\right)^G}{\partial e_1} \cdot \frac{\partial e_1}{\partial b} = \frac{\partial \left(U^R\right)^G}{\partial e_1} \cdot \frac{\partial e_1}{\partial i_1} \cdot \frac{\partial i_1}{\partial b} \qquad (15)$$

$$= \frac{\alpha^R}{e_1^R} - \frac{\theta \gamma}{2\Delta e} \left[\alpha^R \log \alpha^R + \left(1 - \alpha^R\right) \log \left(1 - \alpha^R\right)\right]$$

$$- \frac{\theta \gamma \log \left(1 - \rho i_1\right)}{2\Delta e} - \frac{\pi}{1 - \rho i_1} \qquad (16)$$

The sign of this expression depends on the sign of the difference between the first three terms (all positive) and the last (negative) term. Everything else being equal, the higher ρ, the higher the probability the expression turns positive ($\frac{\partial \left(U^R\right)^G}{\partial b} > 0$), meaning that the politician's bliss point is higher in this case, which can be interpreted as a reduced constraint on the R-incumbent's behavior.

Interestingly, then, in this setting, the 'golden rule' does not necessarily constrain the incumbent's choices, but only to the extent that she uses to a high degree the leeway for financing her budget. Remember that the 'golden rule' does not require the whole of the infrastructure spending to be financed by debt (in which case one would have $b = i_1$). In other words, the 'golden rule' simply states that, if there were debt, then this debt should only be used to finance infrastructure spending. Hence, the golden rule can be more or less used by a politician, depending on the part of the budget she wants for the operating expenditures. Here, the R-incumbent will be better off the more she uses the possibility to use debt. Hence, the golden rule will constrain a potential D-successor, as the incumbent as a preference for debt. In sum, if the allocation has been distorted in the past in one direction, then the future

incumbents will be constrained by their predecessors' choices. Thus, the golden rule of public finance is not always a constraint on politicians, but only insofar as former politicians have not used debt in the past. Debt is therefore a strategic asset in this framework, and the golden rule of public finance does not change the nature of the game, but reinforces the debt attraction for the R-type incumbent.

5.2 The balanced-budget rule

In this case, the period-budget constraints write:

$$e_1 + i_1 = 1 \tag{17}$$
$$e_2 + i_2 = 1 \tag{18}$$

The modified model, embedding the balanced-budget rule (also called the no-deficit rule) now delivers the following results, after solving the last-period policy problem:

$$Max \ \left(u_2^J\right)^{BB} = \alpha^J \log e_2 + \left(1 - \alpha^J\right) \log i_2 \tag{19}$$
$$w.r.t. \ e_2 + i_2 = 1$$

where the subscript BB stands for "balanced-budget". Again choosing e_2 as the policy variable, this delivers, from the FOC: $e_2 = \alpha^J$, and from the resource constraint: $i_2 = 1 - \alpha^J$.

The path of evolution for both categories of spending does not change, as the total resource constraint is not modified $\sum (e_t + i_t) = 2$ (see equations (7) and (8)).

How does such a rule affect the incumbent's behavior? To determine the answer to that question, we first look at the optimal policies chosen by the R-type incumbent, computing $\frac{d\left(U^R\right)^{BB}}{de_1}$ and $\frac{d\left(U^R\right)^{BB}}{di_1}$. From equation (13), those maximizations by the incumbent can be written as:

$$\frac{\alpha^R}{e_1^R} - \frac{1 - \alpha^R}{i_1^R} \tag{20}$$
$$= \frac{\theta}{2} \left(\frac{\gamma}{\Delta e} - \frac{\mu \lambda^j}{\Delta i}\right) \left[\alpha^R \log \alpha^R + \left(1 - \alpha^R\right) \log \left(1 - \alpha^R\right)\right]$$

From this, one can derive the following:

Proposition 3 *Period-1 R-incumbent sets its policies such as :*
$1 > \frac{i_1^R}{e_1^R} > \frac{1 - \alpha^R}{\alpha^R}$ *iif sign* $\left(\frac{\gamma}{\Delta e} - \frac{\mu \lambda^j}{\Delta i}\right) < 0.$

The sign of the condition is thus the same, relatively to the condition in the absence of a fiscal rule (see Proposition 1). This means that, given the reelection constraint, the higher the habit effect on infrastructures expenditures, the more distorted the first-period allocation will be, at the expense of the incumbent's preferences. By definition, the politician is no longer able, under a balanced-budget rule, to circumvent the voters' preferences by a strategic use of debt, but this does not change the policy choices, as the politician anticipates the second-period constraint and the impact of the voters' relative preferences and habits.

5.3 Comparing fiscal rules' impact

As we have seen, if the absence of fiscal rules can satisfy the incumbent, a balanced-budget rule can too, though the presence of a habit effect will constrain the politician's allocation. We have also shown that the presence of a golden rule reinforces the nature of debt as a strategic asset. It is not trivial then, in such a context, to foretell which rule a politician will support. In other words, which of the two fiscal rules studied above is more constraining for a politician? To assess this, we have to compare the impact of the fiscal rules on the incumbent's welfare. In formal terms, we have:

$$\Pi \equiv \frac{d\left(U^R\right)^G}{de_1} - \frac{d\left(U^R\right)^{BB}}{de_1}$$

$$\Pi = -\frac{\theta\gamma \log\left(1 - \rho i_1\right)}{2\Delta e} - \frac{\pi}{1 - \rho i_1}$$

$$-\frac{\theta\gamma}{2\Delta e}\left[\alpha^R \log \alpha^R + \left(1 - \alpha^R\right)\log\left(1 - \alpha^R\right)\right] - \frac{\alpha^R \pi}{e_1 + i_1 - i_2}$$

$$+\frac{\theta\gamma}{2\Delta e}\left[\alpha^R \log\left(e_1 + i_1 - i_2\right) + \left(1 - \alpha^R\right)\log\left(i_2\right)\right] \qquad (21)$$

The sign of this expression is indeterminate. However, it appears to depend on the value of the ρ parameter, i.e. on the degree of stringency of the golden rule. There is thus an optimal value of this parameter, ρ^*, under which the politician will be better off under a balanced-budget rule than under a golden rule. This optimal value can be derived as:

$$\rho^* = \frac{1}{i_1}[1 - \frac{2\pi\Delta e}{\theta\gamma}] \qquad (22)$$

This value itself depends on the value of the habit parameter on operating expenditures, γ, which leads to the following:

Proposition 4 *Everything else being equal, the higher the habit parameter on operating expenditures, γ, the higher the optimal degree of stringency of the golden rule, ρ^*.*

Proof. *It suffices to notice that $\frac{\partial \rho^*}{\partial \gamma} > 0$.* ∎

This proposition means that the politician will have to consider the voters' habit formation process. As voters get used to operating expenditures and the R-incumbent favors the same type of expenditures, she will have all the incentives to distort the budget towards operating expenditures, to the price of a strong constraint on the second period budget. More formally, one has to note that ρ^* is a maximum, meaning that, the higher the habit effect on operational expenditures (which in our context coincidates with the politician's preferences), then the less favorable the golden rule will be for the politician. In other words, if γ increases, it becomes all the more difficult to have $\rho < \rho^*$ to satisfy the R-incumbent. However, as the model is symmetric, the contrary would hold for a D-incumbent. There is thus no such thing as a satisfying golden rule for any politician at any time. Anticipating this, it will be hard for a politician to find a broadly based (bi- or multi-partisan) support for a golden rule. It is all the more true that the definition of ρ^* does not even make reference to the other habit (μ) and relative preferences (λ^j) parameters. Hence, the definition of this optimal value of the golden rule's stringency degree only refers to the politician and its constituencies' absolute preferences, implying that it will be hard to find a broad-based consensus on the issue.

On the contrary, as balanced-budget rules do not constrain politicians as golden rules would, it helps explain why so many politicians favor balanced-budget rules, instead of golden rules. In the United States, notably, as we have seen, since the 1970s (and under the pressure of voters, at least at the state level), many amendments have been proposed to the Federal budget rules to include a version or another of a balanced-budget rule, but not a golden rule.[8]

6   Conclusions

This paper has studied the political economy of fiscal rules. In a framework where public expenditures have a habit effect, it has been shown that the impact of fiscal rules on the politicians differ strongly. The presence of the habit effect constrains the incumbent's favorite allocation of resources, delivering a politicians' preference for a balanced-budget rule, more than for a golden rule. This contributes to explain why so

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[8]For a comparison of the American and European experiences since the 1990s, see Corsetti and Roubini (1996).

many politicians propose legal amendments that resemble more or less a balanced-budget rule, while golden rule, which may have the favor of the academic world, are less often present in existing laws. Such an explanation does not rule out others, complementary ones[9], but insists on the political economy determinants of the (non-)adoption of golden rules.

Extending our framework to more diverse fiscal rules, and bringing the theory to the data are obvious candidates for giving extensions to this paper.

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[9]Krogstrup and Wyplosz (2006), for example, cite the "politically delicate step" of the definition of the productive items that can be financed by debt emissions. Such practicalities are dealt with in Blanchard and Giavazzi (2004).

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