

# Dealing with the Deficit Bias: Principles and Policies

Signe Krogstrup      Charles Wyplosz\*  
Graduate Institute of International Studies, Geneva

April 13, 2007

## Abstract

This Chapter formulates a common pool model of fiscal policymaking including both countercyclical and productive spending motives to run deficits, and derives key principles for the optimal design of fiscal restraints. The model is then used to evaluate the welfare and design aspects of fiscal rules and delegation, with a view to the special cases of the recently amended Stability and Growth Pact and National Fiscal Councils. We find that simple numerical fiscal rules are prone to cause pro-cyclicality and to suppress productive public spending projects in the presence of a deficit bias. The amendments to the Stability and Growth Pact introduced in 2005 are helpful in this respect. National Fiscal Councils generally satisfy the principles for optimal deficit restraint, but neither Councils nor Rules are enough to ensure an optimal fiscal outcome, even if optimally conditioned on economic circumstances. Both arrangement must be combined with a budgetary institution allowing for productive public investments and spending projects to take precedence in the budget process.

## 1 Introduction

Budget deficits and public debts increased with unprecedented pace on average in OECD countries since the 1970s, pointing to the emergence of a deficit bias in

---

\*Signe Krogstrup: krogstru@hei.unige.ch. Charles Wyplosz: wyplosz@hei.unige.ch. Address for correspondence: The Graduate Institute of International Studies, 11A Avenue de la Paix, CH-1202 Geneva. We are grateful to Guido Tabellini, Xavier Debrun, Heikki Oksanen, Marco Hoeberichts, Jürgen von Hagen, Carlos Martinez-Mongay and participants at seminars at Bocconi, the University of Copenhagen, The Graduate Institute of International Studies, University of Basel, the 2006 MAPMU conference, the 2006 EEA congress, the European Commission Workshop on the Role of Fiscal Rules and Institutions in Shaping Budgetary Outcomes, Brussels, 24 November 2006, the European Central Bank and the Swiss National Bank, for helpful comments and discussions on a previous version of this paper, and finally to the European Commission (under the MAPMU network) for financial support.

fiscal policy making. The policy debate regarding how to best deal with the tendency of national governments to run excessive deficits is currently centered on the advantages and drawbacks of mainly two types of anti-bias fiscal arrangements, namely fiscal rules and delegation. The Stability and Growth Pact is the prime example of a fiscal rule in place, and has been discussed heavily in both academic and policy circles ever since it was proposed by Theo Weigel in 1996. The main critiques of the Pact, at least in its initial form, relate to its seeming inability to appropriately allow for countercyclical fiscal policy due to inappropriate design and incentive incompatibility (it has in fact been accused of producing pro-cyclical fiscal policy outcomes in signatory countries), and its tendency to suppress productive public investments. National fiscal councils, as an example of the delegation approach, have been proposed as a solution to some of these problems, but involve more far-reaching changes to domestic budgetary institutions than simple fiscal rules.

The aim of this Chapter is to provide a model based policy evaluation of fiscal rules and delegation, with a view to the special cases of the recently amended Stability and Growth Pact and National Fiscal Councils. A number of papers have already taken a first step in this direction. Von Hagen and Harden (1995) and Hallerberg and Von Hagen (1999) use a deficit bias model to show that fiscal restraints are desirable and that delegation of the budget decision to a Finance Minister reduces the bias. Beetsma and Uhlig (1999) show that a Stability and Growth Pact can be welfare improving in the presence of a deficit bias, and Beetsma and Debrun (2004, 2005) and Blanchard and Giavazzi (2004) focus on how the Stability and Growth Pact may suppress incentives to carry out productive and therefore desirable public investments. The analyses in these papers are based on models which are adapted to the particular issue in focus. We instead formulate a more general common pool model of fiscal policymaking including both countercyclical and productive spending motives to run deficits. The resulting model allows us to derive some very general insights and principles regarding the welfare aspects and the desirable institutional design of fiscal restraints. The principles can be implemented both through the rules based approach and through the institutional or delegation approach. We first discuss the characteristics of the necessary fiscal institutions in the case of the Stability and Growth Pact. The Pact was recently amended, notably to allow for more flexibility in the interpretation of the budget ceiling and to put more emphasis on the medium term objectives, and we consider some of these amendments in the light of the theoretical model. We also consider how National Fiscal Councils compare to the principles derived from the theoretical model, and go into more detail regarding the institutional mandate and desirable design and accountability of such councils.

Throughout our discussion, we take as given that once fiscal rules are in place, they are complied with by fiscal policymakers. We hence do not enter the debate on enforcement or the possible endogeneity of fiscal rules here - see instead chapter XX (Ter-Minassian, Debrun and Kumar) of this book.

The Chapter is structured as follows. The next Section is theoretical. Based on the previous theoretical literature on the deficit bias, we set up a common

pool model of the deficit bias with a business cycle component and two types of public expenditures, productive spending and non-productive "pork-barrel"-style transfers. We then derive the fiscal policy outcomes in the unconstrained case and under simple balanced budget rules, and derive the properties of optimally designed fiscal restraints conditional on the underlying process for dividing the budget between unproductive and productive expenditure types. Section (3) contains policy implications, as it applies the findings of the theoretical analysis to a discussion of the Stability and Growth Pact in its recently amended form, and to the design and mandate of National Fiscal Councils. The final section concludes.

## 2 The Deficit Bias in Theory

In order to characterize and compare the properties of numerical fiscal rules and national fiscal councils as fiscal restraints, a general model of the deficit bias is needed. In this section, we take a brief overview of the theoretical literature. We then proceed to set up a common pool model of the deficit bias, which is solved for the social optimum case, the unconstrained Nash outcome and the outcome under various fiscal restraints.

### 2.1 The literature

The most influential theories of the deficit bias are in the political economy tradition<sup>1</sup> and comprise the common pool theory and the time inconsistency of preferences theory. The common pool problem, formalized by Von Hagen and Harden (1995), Hallerberg and Von Hagen (1999) and Velasco (1999, 2000), arises when there are several policymakers (ministers, parties, lobby groups) involved in setting the budget<sup>2</sup>. Tax revenues represent a common resource for these policymakers and since the budget deficit represents claims on future tax revenues, the budget deficit can be considered a common as well. Thus, when a policymaker wishes to increase public spending that benefits her constituency, or enact a tax reform which reduces the tax incidence on her constituency, the cost of these measures will be shared by all constituencies through a higher general future tax burden. If unconstrained, policymakers will hence have a tendency to push for policies which increase the budget deficit while there will not be a similar push for fiscally conservative budgetary measures, resulting in a deficit bias. The deficit bias due to time inconsistency of government preferences (Alesina and Tabellini, 1990) is similar in nature to the common pool problem. It arises when policymakers are subject to elections, and therefore do not internalize the cost of running deficits because they do not sufficiently care about the public finances of its potential successors.

---

<sup>1</sup>More complete surveys can be found in Persson and Tabellini (2000), Chapter 9 and Alesina et al. (1999), Chapter 9. The seminal contribution is Weingast et al. (1981).

<sup>2</sup>The delayed stabilizations case, developed by Alesina and Drazen (1991), can be seen as a case of common pool.

A deficit bias can also arise for purely economic reasons in an integrated world, if national fiscal policies spill over into other countries through economic linkages. The debate surrounding the adoption of the Stability and Growth Pact have identified potential negative externalities of government debt levels on the common interest rate, exchange rate and inflation rate of the EMU countries<sup>3</sup>.

The existence or strength of an international externality of budget deficits and public debt levels remains a matter of debate, as the empirical evidence is very scarce. However, a number of empirical studies document that common pool problems play a role in explaining the deficit bias among OECD countries (Persson et al. 2003; Fabrizio and Mody, 2006; Roubini and Sachs, 1989; von Hagen 1992; von Hagen and Harden, 1994). There is less empirical support for the view that uncertainty of reelection causes deficits. Roubini and Sachs (1989) find some support, but a more comprehensive and rigorous test of the reelection uncertainty hypothesis is still missing<sup>4</sup>. For simplicity, we therefore focus on domestic political distortions as the source of the deficit bias<sup>5</sup>. Moreover, we take a common pool interpretation of the domestic political distortion. The common pool model currently has the strongest empirical support, and as shown in Krogstrup (2006), nesting common pool problems and reelection uncertainty in the same model complicates the modeling without gaining much insight<sup>6</sup>.

## 2.2 A Common Pool Model of the Deficit Bias

The model is based on Krogstrup and Wyplosz (2006) without an international externality of debt, in which the deficit bias is characterized as a domestic common problem a la Velasco (2000) in a two period framework. Zoom in on a small country in a large world economy. The country's government, which decides on fiscal policy in the two periods, is made up of  $n$  decision makers that we broadly refer to as interest groups in the following. The deficit bias arises when interest groups seek to redistribute resources to their advantage through the public tax and transfer system. Assume that the  $n$  interest groups are of the same size. Each interest group  $i$ ,  $i = 1, \dots, n$ , decides on the amount of net transfers,  $g_t^i$ , that it obtains in period  $t = 1, 2$ . Net transfers are defined as gross transfers received less taxes paid by the members of that interest group.

In addition to net transfers, which only benefit the receiving interest group, the government can also undertake productive spending in the first period. These spending items are productive in the sense that they raise public revenues

---

<sup>3</sup>See the papers collected in Brunila, Buti and Franco (2001). See also Giuliodori and Beetsma (2004, 2007), and Krogstrup and Wyplosz (2006) for a discussion of the these channels.

<sup>4</sup>Alesina et al. (1999) make this same observation.

<sup>5</sup>See Krogstrup and Wyplosz (2006) for a similar model which also allows for an international externality of debt.

<sup>6</sup>In fact, with minor modifications in the modeling setup, the common pool externality can be interpreted as an externality due to reelection uncertainty. The common pool model hence also allows for drawing policy implications based on a time inconsistency interpretation of the deficit bias. We leave this for future work and focus on a common pool interpretation of the model's conclusions in Section 3.

in the second period. One interpretation is public infrastructure or human capital investments and another is costly reforms which raise future taxable income (the interpretation given in Beetsma and Debrun, 2004, 2005). We assume that productive spending does not directly benefit interest groups and hence does not feature directly in the utility functions of interest groups. Productive public spending only serve interest groups in the sense that they increase the intertemporal common pool from which transfers to interest groups are made. This assumption is meant to capture the idea that common pool pressures are stronger on targeted transfers which do not benefit the population as a whole than on certain types of productive expenditures/investments. Formally, denote productive spending in period 1 as  $X$ . Spending  $X$  in period 1 raises tax revenues by  $\theta(X)$  in period 2. We assume  $\theta' > 0$  and  $\theta'' < 0$ , i.e. these expenditures are subject to decreasing returns, which is needed for the second order condition to be satisfied. Since the interest groups are identical, they will want the same level of productive spending, so we let the interest groups select productive spending by consensus<sup>7</sup>.

To generate a motive for the government to wish to run countercyclical fiscal policy, we further extend the model with a simple business cycle. Assume that in period one, a shock  $\gamma$  hits the budget. If  $\gamma < 0$  ( $> 0$ ), the economy is in a downturn (upturn). If the shock is positive, the country starts out in a good year, meaning that additional tax revenues  $\gamma$  enter into the budget in the first period. In a bad year (negative initial shock), tax revenues are  $-\gamma$  lower than the baseline case. We assume that if the economy starts in a good year, it always ends with a bad year and vice versa, such that the business cycle always cancels out across the two periods.

The country is fully financially open. The government can therefore borrow or lend internationally any amount that it wishes at the constant world real interest rate, but is bound by the intertemporal budget constraint. The international real interest rate is normalized to zero. The budget constraint is understood and accepted by all interest groups. This assumption rules out defaults, an extremely rare occurrence in developed economies. Further, to break Ricardian equivalence, assume that citizens and interest groups are personally credit constrained. The first period government budget constraint is then given by:

$$\sum_{i=1}^n g_1^i + X - \gamma = B \tag{1}$$

and the second and final period budget constraint is:

$$\sum_{i=1}^n g_2^i + \gamma + B = \theta(X) \tag{2}$$

---

<sup>7</sup>We could also let the interest groups elect one amongst themselves who then selects the level of productive spending - this assumption would yield the same outcome.

The intertemporal budget constraint is therefore given by:

$$\sum_{i=1}^n g_2^i + \sum_{i=1}^n g_1^i + X = \theta(X) \quad (3)$$

We assume that the interest groups making up government have the same preferences over the net transfers, represented by the following utility function for interest group  $i$ :

$$U^i = \log(g_1^i + \bar{g}) + \log(g_2^i + \bar{g}). \quad (4)$$

where the rate of time preference is set equal to the world interest rate<sup>8</sup>. The term  $\bar{g}$  represents the maximum amount of net taxes that each interest group is willing and able to pay. More precisely, we assume that there is a lower limit  $-\bar{g} < 0$  for the net total transfers received by each interest group. The maximum net revenues that can be collected is therefore  $\bar{G} = n\bar{g}$ .

### 2.3 The Socially Optimal Deficit

Suppose that a social planner decides on fiscal policy and observes the fiscal shock before making the deficit decision. The social planner's objective is to maximize social welfare, defined as a monotonic transformation of the sum of the interest groups' utilities:

$$W = \frac{1}{n} \sum_{i=1}^n (\log(g_1^i + \bar{g}) + \log(g_2^i + \bar{g})) + 2 \log n$$

This expression is convenient as it reduces to

$$W' = \log(G_1 + \bar{G}) + \log(G_2 + \bar{G}) \quad (5)$$

under symmetry. The socially optimal fiscal policy is a set of policy choices  $\{X^*, G_1^*\}$  such that  $\{X^*, G_1^*\} = \arg \max W$  subject to the intertemporal budget constraint (3), and conditional on the realization of the fiscal shock,  $\gamma$ . Since the social planner cares equally about each interest group, she will always distribute transfers equally in social optimum, so  $g_1^* = \frac{G_1^*}{n}$ . The social planner's problem therefore reduces to:

$$\max_{G_1} W' = \log(G_1 + \bar{G}) + \log(G_2 + \bar{G})$$

---

<sup>8</sup>This assumption eliminates deficits or surpluses due to smoothing, which we are not interested in here. See Krogstrup and Wyplosz (2006) for the general case in which  $\beta \neq R$  in a similar model.

subject to the budget constraint (3),  $G_2 = \theta(X) - G_1 - X$ . The first order condition for optimal productive spending is:

$$\theta'(X^*) = 1 \quad (6)$$

where a star denotes socially optimal values. Given optimal productive spending, the first order condition for transfers then becomes:

$$G_1^* = \frac{\theta(X^*) - X^*}{2} \quad (7)$$

When the business cycle is characterized as symmetric across the two periods, it does not affect the amount of the optimal fiscal transfer. This means that the business cycle shock will translate one to one into the optimal actual deficit of:

$$B^* = G_1^* + X^* - \gamma = \frac{\theta(X^*) - X^*}{2} + X^* - \gamma \quad (8)$$

The socially optimal deficit consists of three components: smoothing to the present of net future returns to current productive spending (the first term of the right hand side of (8)), borrowing to finance current productive investments (the second term of the right hand side of (8)), and finally, borrowing (or saving) to smooth the business cycle (the last term of the right hand side of (8)). Considering the business cycle smoothing part of the budget in isolation, optimal fiscal policy dictates that in downturns, it is optimal to borrow an amount equal to  $\gamma$  in the world markets, and pay back this amount in the subsequent upturn. Conversely, starting in an upturn, it is optimal to save in period one, and dis-save in period two, not borrow. Finally, note that the optimal cyclically adjusted budget balance,

$$B_{struc}^* = \frac{\theta(X^*) - X^*}{2} + X^*, \quad (9)$$

is only zero when there are no net returns to productive spending, i.e. when  $\theta(X^*) - X^* = X^* = 0$ . The socially optimal structural budget balance hence fluctuates with the returns to productive spending (however defined).

Plugging (7) and (3) into the social welfare function (5) yields welfare in social optimum:

$$W^* = 2 \log \left( \frac{\theta(X^*) - X^*}{2} + \bar{G} \right) \quad (10)$$

## 2.4 The Actual Deficit Outcome

In the absence of a social planner, the interest groups choose their respective net transfers, and select the aggregate level of productive spending by consensus. The model is solved backwards. The debt level in the second period is predetermined by the choices of the interest groups regarding net transfers and productive spending in the first period. The second period budget constraint

hence gives us the aggregate net transfer possible to interest groups in the second period, which we assume is shared equally among the  $n$  interest groups:

$$g_2 = \frac{\theta(X) - \gamma - B}{n} = \frac{\theta(X) - \sum_{i=1}^n g_1^i - X}{n}. \quad (11)$$

(11) makes the common pool problem clear. All else equal, if an interest group increases its first period transfer  $g_1^i$  by one unit, it will see a reduction of its second period transfer of only  $\frac{1}{n}$ , while the remaining  $\frac{n-1}{n}$  units of reduction on the second period transfer will be held by the other interest groups. The cost of increasing ones' transfer in the first period is hence not fully internalized, leading to a deficit bias which increases in the number of interest groups  $n$ .

In the first period, the interest groups select by consensus the amount they want to spend on  $X$ . They will choose productive spending so as to satisfy (6). This is the level of  $X$  that maximizes the net discounted return to productive spending. The interest groups subsequently select their net transfers simultaneously given the budget constraints and the observed realization of the fiscal shock. We could alternatively let the interest groups select net transfers prior to or at the same time as selecting the level of productive spending. Since the optimal level of productive spending is independent of the chosen net transfer profile, the outcome would be the same. The sequencing of the game only matters when the overall deficit is constrained, as shown in Section (2.5) below.

Each interest group hence maximizes (4) with respect to (11) and (6), taking all other interest groups' choices as given. The first order condition yields the reaction function of interest group  $i$ :

$$g_1^i = \frac{\theta(X^*) - X^*}{2} - \frac{1}{2} \sum_{\substack{f=1 \\ f \neq i}}^n g_1^f + \frac{n-1}{2n} \bar{G}$$

Imposing symmetry across interest groups yields the Nash equilibrium unconstrained transfer (denoted by  $N$ ):

$$G_1^N = \frac{n}{n+1} (\theta(X^*) - X^*) + \frac{n-1}{n+1} \bar{G} \quad (12)$$

(12) shows that the actual outcome for the transfer is above the socially optimal one due to common pool problems. As  $n$  goes to infinity, the entire net discounted return to productive spending in addition to the entire future taxing capacity of the economy is spend on period one transfers. This excess is not dependent on the business cycle, which cancels out across the two periods.

The unconstrained Nash deficit outcome for the first period hence becomes:

$$B^N = G_1^N + X^* - \gamma = \frac{n}{n+1} (\theta(X^*) - X^*) + \frac{n-1}{n+1} \bar{G} + X^* - \gamma \quad (13)$$

Just as the socially optimal deficit, the outcome for the unconstrained Nash deficit consists of borrowing to finance productive spending and smoothing of

the business cycle (the last two terms of the right hand side of (13)). But now, the smoothing to the present of future net returns to productive spending is biased toward period one due to the common pool problem described above. Note that it is the structural deficit,  $B_{struct}^N = \frac{n}{n+1}(\theta(X^*) - X^*) + \frac{n-1}{n+1}\bar{G} + X^*$ , which is biased.

Welfare in the unconstrained Nash outcome is

$$W^N = 2 \log \left( \frac{\theta(X^*) - X^*}{2} + \bar{G} \right) + \log \left( \frac{4n}{(n+1)^2} \right) < W^* \text{ for } n > 1 \quad (14)$$

## 2.5 Policy Responses

We use this model to analyze the properties and welfare implications of numerical fiscal rules and optimally designed fiscal restraints below. Attention is limited to issues of design and welfare.

### 2.5.1 Numerical fiscal rules

Numerical fiscal rules cap the maximum budget deficit at a numerically fixed level; usually somewhere in the range of between 0 and 3 percent of GDP in industrial countries. As such, these rules are not contingent on the business cycle, and (unless they only apply to the current and not the capital budget) do not take into account financing needs for productive public spending or productive spending projects. To analyze the welfare implications of numerical fiscal rules using the model presented above, we focus our attention on the simplest case of a national balanced budget rule of  $\hat{B} = 0$  (where hats denote deficit ceilings in the following). Considering balanced budget rules simplifies the analysis relative to that of numerically fixed positive deficit ceiling, without losing insights regarding welfare aspects of numerical fiscal rules in general.

Assume that a balanced budget rule is in place and that the rule is credible and always complied with. When there is no borrowing, the second period net transfer is given by the level of productive spending undertaken in the first period, and the fiscal shock according to

$$G_2 = \theta(X) - \gamma \quad (15)$$

Before solving for first period transfers and productive spending, note that reaching social optimum is only feasible under a balanced budget rule in the special case of an initial upturn for which the above-normal budgetary revenues ( $\gamma$ ) are equal to the funds needed to undertake the socially optimal level of productive spending plus the socially optimal level of transfers, i.e. if

$$\gamma = \gamma^* \equiv \frac{\theta(X^*) - X^*}{2} + X^* \geq 0 \quad (16)$$

If  $\gamma$  is below  $\gamma^*$  (as defined by (16)) in upturns, then first period borrowing is necessary in order to be able to carry out the socially optimal level of productive

spending and transfers simultaneously. Conversely, if the business cycle revenues are so abundant that good public spending opportunities are exhausted before reaching a balanced budget (i.e. of  $\gamma > \gamma^*$ ) then there is room for common pool inefficiencies to lead to excess spending in the first period.

To solve for the first period outcome, assume that the balanced budget rule always binds, i.e. the revenue gains from the business cycle are not important enough to allow for the unconstrained Nash outcome to occur under the balanced budget rule, or  $G^N + X^* > \gamma$ . There are two possible outcomes depending on the sequencing of decisions regarding net transfers and productive spending, henceforth referred to as the precommitment and the non-precommitment cases.

**A simple balanced budget rule (non-precommitment)** Assume first that the interest groups cannot precommit to productive spending ahead of deciding on net transfers. The timing of the game is as follows. In an initial stage of the game, the balanced budget rule of  $\widehat{B} = 0$  is observed and accepted by all actors and the fiscal shock is realized and observed by all actors. In a second step, the interest groups select their net transfers. Finally, the level of productive spending is determined as a residual under the balanced budget rule:

$$X = \gamma - G_1 \quad (17)$$

Each interest groups will choose a level of transfers that maximizes their individual utility (4) subject to (15) and taking into account the balanced budget rule, (17). The first order condition for the interest group's problem is

$$\theta \left( \gamma - \sum_i g_1^i \right) - \gamma + \bar{G} = \theta' \left( \gamma - \sum_i g_1^i \right) (g_1^i + \bar{g})$$

We cannot solve explicitly for the deficit outcome, but applying symmetry across interest groups yields the first order condition for the constrained Nash outcome under the balanced budget rule without precommitment:

$$\theta' (X^{BBR,NP}) = n \frac{G_2^{BBR,NP} + \bar{G}}{G_1^{BBR,NP} + \bar{G}} \quad (18)$$

where *BBR* denotes outcomes under a balanced budget rule, and *NP* denotes outcomes in the non-precommitment case. (18) shows that even in the special case of  $\gamma = \gamma^*$ , where reaching social optimum without borrowing is feasible, imposing a balanced budget rule in the absence of precommitment to productive spending does not yield the socially optimal welfare level. The reason is that the interest groups will have individual incentives to increase their net transfers above the socially optimal levels, even if this means that public spending will suffer. In the general case in which  $\gamma \neq \gamma^*$  welfare is also below social optimum and the deviation of welfare from its optimal value depends on the deviation of the business cycle from the optimal level of transfers and productive spending, in addition to the strength of the common pool distortion.

Finally note that under a balanced budget rule, where the overall deficit is acyclical per definition, we will tend to see a procyclical structural deficit when common pool distortions push the budget to the limit.

Whether or not the fiscal outcome under a simple balanced budget rule is better or worse than in the unconstrained Nash outcome depends on the degree of the common pool problem in the unconstrained case (i.e. the size of  $n$ ) relative to the deviation of the business cycle from the optimal level of transfers and productive spending<sup>9</sup>.

**A balanced budget rule with precommitment** Assume now that the interest groups decide on the level of productive spending by consensus, and precommit to this level before selecting transfers. The timing of the game taking place in the first period is now as follows. As before, the balanced budget rule of  $\widehat{B} = 0$  is observed and accepted by all actors, and the fiscal shock is realized and observed in a first step. In a second step, the interest groups decide on the level of productive spending to carry out and precommit to this level. Finally, the interest groups set the transfers to comply with the balanced budget rule. Transfers in period one are hence determined residually by the balanced budget rule, productive spending and the fiscal shock:

$$G_1 = \gamma - X \tag{19}$$

The optimal choice for the level of productive spending maximizes the utility of the representative interest group (4) subject to the balanced budget rule (19) and second period transfers (15). The first order condition becomes

$$\theta' (X^{BBR,P}) = \frac{G_2^{BBR,P} + \overline{G}}{G_1^{BBR,P} + \overline{G}} \text{ for } \gamma > 0 \tag{20}$$

where a  $P$  denotes outcomes in the precommitment case. The marginal gross return to productive spending is set equal to the ratio of the marginal utilities of transfers in the two periods. The intuition is straightforward. Under a balanced budget rule, there is a one-to-one trade-off between the level of current transfers and productive spending which the interest groups take fully into account when selecting the public spending level in the first step. Productive spending can hence be used to smooth the positive (negative) current returns from the business cycle to the future downturn (upturn). In the second stage of the first period game, the interest groups will then select transfers which take the total deficit to the ceiling. These transfer can either be positive or negative, depending on whether the gross returns to productive spending in the second period sufficiently compensate for a possible future business cycle downturn or not.

---

<sup>9</sup>Plugging (15), (17) and (18) into the welfare function (5) yields welfare under the balanced budget rule without precommitment:  $W^{BBR,NP} = 2 \log (\gamma - X^{BBR,NP} + \overline{G}) + \log \frac{\theta'(X^{BBR,NP})}{n}$ . Since we cannot solve explicitly for  $G_1$  and  $X$ , we cannot compare this expression with that of the unconstrained Nash case.

As before, the deficit will be acyclical per definition of a balanced budget rule. But the precommitment technology will reduce, if not eliminate, the tendency for net transfers to be procyclical as the cycle is smoothed through productive spending instead of saving. The overall structural balanced, which includes productive spending, remains equally procyclical however. Thus, the precommitment mechanism for productive spending combined with a balanced budget rule partly internalizes the common pool problem. But another distortion is created in that the government cannot borrow in order to undertake additional productive spending in cases where the returns to such spending exceed the interest rate, and cannot save at the world interest rate in cases where returns to additional public spending are low.

(20) shows that in the special case in which  $\gamma = \gamma^*$ , precommitment combined with a balanced budget rule yields the socially optimal welfare level<sup>10</sup>. But in the general case in which  $\gamma \neq \gamma^*$  welfare is below social optimum and the deviation of welfare from its optimal value depends on the deviation of the business cycle from the optimal level of transfers and productive spending. If  $\gamma < \gamma^*$ , we have that  $\theta'(X^{BBR,P}) > 1$  and both transfers and productive spending are below socially optimal levels. On the other hand, when  $\gamma > \gamma^*$ , we have that  $\theta'(X^{BBR,P}) < 1$  and productive spending will be above its socially optimal level while transfers will be below their optimal level. In this case, it would have been better to invest less and run a surplus which would be spend on transfers only in the second period. But the interest groups know in advance that they will have to exhaust their budget "allowance" under the balanced budget rule if they want to transfer the funds to the future, because it will otherwise be used for current transfers due to common pool problems.

Per construction, the balanced budget rule combined with precommitment to productive spending will always yield higher welfare than the case of the a balanced budget rule without precommitment<sup>11</sup>. But as before, whether or not the fiscal outcome under a balanced budget rule combined with precommitment is better or worse than the unconstrained Nash outcome depends on the degree of the common pool problem in the unconstrained case (i.e. the size of  $n$ ) relative to the deviation of the business cycle from the optimal level of transfers and spending.

To sum up, the analysis of numerical fiscal rules suggest that combined with business cycles and common pool problems, such rules will have a tendency to engender procyclical structural fiscal policies, and too little productive spending. These results raise the question of what characterizes an optimally designed fiscal restraint. We turn to this issue next.

<sup>10</sup>(16) and  $X^{BBR,P} = X^*$  satisfies (20).

<sup>11</sup>Welfare under a balanced budget rule with precommitment is given by  $W^{BBR,P} = 2 \log(\gamma - X^{BBR,P} + \bar{G}) + \log(\theta'(X^{BBR,P}))$ .

### 2.5.2 Optimal Policy Responses

From the above analysis, we know that an optimally designed fiscal restriction will only achieve social optimum if it can be conditioned on the cycle and on the returns to productive spending. How would such a restriction look? Suppose that a social planner can choose a deficit ceiling after having observed the cycle and returns to productive spending, leaving the division of the deficit between productive spending and net transfers for the government to decide. Such a setup can only achieve social optimum if the government has a means to precommit to productive spending before choosing net transfers. To show this, we first solve for the outcome under an optimal deficit ceiling without precommitment.

**No precommitment** The game is structured as follows. All players first observe the realization of the fiscal shock  $\gamma$ . The social planner then selects a deficit ceiling after which the interest groups select their net transfers. Finally, productive spending are determined as a residual under the deficit ceiling:

$$X = \widehat{B} + \gamma - G_1 \quad (21)$$

Solving backwards, the interest groups choose their transfers to maximize (4) subject to (11) and (21). The first order condition for net transfers becomes:

$$\theta'(X) = n \frac{G_2 + \overline{G}}{G_1 + \overline{G}} \quad (22)$$

(22) shows that due to common pool problems under the deficit ceiling in the absence of precommitment, social optimum (characterized by  $\frac{G_2 + \overline{G}}{G_1 + \overline{G}} = \theta'(X) = 1$ ) is not possible to reach. The interest groups will set their transfer too high, leaving too little for productive spending given the ceiling over the first period deficit.

Taking (11), (21) and (22) into account, the social planner sets the deficit ceiling which maximizes social welfare. The first order condition for the problem is

$$\theta'(X^{O,NP}) = \frac{n}{1 + (n-1) \frac{\partial X^{O,NP}}{\partial \widehat{B}}}, \quad (23)$$

where

$$\frac{\partial X^{O,NP}}{\partial \widehat{B}} = \frac{\theta'(X^{O,NP}) + n}{\theta'(X^{O,NP})(n+1) - (G_1^{O,NP} + \overline{G}) \theta''(X^{O,NP})}. \quad (24)$$

where an O refers to outcomes under an optimal fiscal rule. We cannot solve explicitly for the optimal deficit ceiling in the absence of precommitment, but the first order condition reveals a few things about the outcome. Since  $\theta''(X^{O,NP}) < 0$ , (23) and (24) imply  $\theta'(X^{O,NP})' > 1$  i.e.  $X^{O,NP} < X^*$ , i.e. the deficit ceiling is set such that productive spending is below its socially optimal level. This

means that the net returns to productive spending are also below their potential level - the pie is smaller than it could be. Moreover, in spite of the ceiling, the division of the pie is suboptimally tilted toward the present in the form of too high net transfers due to common pool problems. The larger is  $n$ , the lower is the level of productive spending relative to net transfers under the ceiling, and for  $n$  large enough, investments are driven to zero. In this case, the social planner does not face any more a trade-off between squeezing the net transfers and reducing the net return to productive spending, and will choose a balanced budget rule. In short, a deficit ceiling, even if optimally conditioned on the cycle and returns to productive spending, cannot deliver the social optimum when national governments are subject to common pool problems and cannot precommit to productive investments. But the deficit ceiling nonetheless improves upon the Nash equilibrium and on the simple balanced budget rule; otherwise the social planner would set the ceiling at or above the unconstrained Nash deficit outcome<sup>12</sup>.

**Precommitment** Suppose now that the social planner can observe the outcome of the fiscal shock and then select a deficit ceiling,  $\widehat{B}$ . The sequencing of the game in the first period is now as follows. First, the social planner observes  $\gamma$  and selects  $\widehat{B}$ . In the second stage, the interest groups select the level of productive spending. Finally, transfers are set residually, as the difference between the maximum allowed budget deficit and that which is spent on investments. Solving backwards, transfers in the second period are equal to

$$G_2 = \theta(X) - \gamma - \widehat{B} \quad (25)$$

and transfers in the first period become

$$G_1 = \widehat{B} - X + \gamma \quad (26)$$

Taking (25) and (26) into account, the interest groups select the optimal level of productive spending by maximizing (4) subject to  $\widehat{B}$ . The first order condition for productive spending becomes

$$\theta'(X^{O,NP}) = \frac{G_2^{O,NP} + \overline{G}}{G_1^{O,NP} + \overline{G}} \quad (27)$$

The social planner then selects the deficit ceiling which maximizes social welfare, subject to (25), (26) and (27). The first order condition for this problem yields the socially optimal deficit ceiling:

$$\widehat{B}^{O,P} = B^* = G_1^* + X^* - \gamma = \frac{\theta(X^*) - X^*}{2} + X^* - \gamma \quad (28)$$

---

<sup>12</sup>Welfare under an optimally determined deficit ceiling but in the absence of precommitment is given by  $W^{O,NP} = 2 \log(\gamma - X^{O,NP} + \overline{G}) + \log \frac{\theta'(X^{O,NP})}{n}$ .

The optimal deficit ceiling is hence not a balanced budget rule, but fluctuates according to the need for countercyclical fiscal policy and the need for productive spending. (28) shows that the outcome for productive spending is also socially optimal in this case, i.e.  $\theta'(X^*) = 1$ . Thus, when a deficit ceiling is conditioned on the cycle and returns to productive spending and combined with precommitment to productive spending before the rest of the budget is determined, a socially optimal welfare level can be achieved.

## 2.6 A Welfare Ranking of Policy Responses

When domestic political distortions cause a deficit bias, the welfare ranking of the deficit restraints analyzed above is as follows:

$$\begin{aligned} W^* &= W^{O,P} > W^{O,NP} > U^N \\ &= W^{O,P} \geq W^{BBR,P} > W^{BBR,NP} \leq U^N \end{aligned}$$

First, note that we cannot generally rank all policy options. The relative welfare ranking of  $W^{O,NP}$ ,  $W^{BBR,P}$ ,  $W^{BBR,NP}$  and  $U^N$  depends on the relative strength of the common pool problem (i.e. the size of  $n$ ), the business cycle outcome and the returns to productive spending. But a few general conclusions emerge. First, social optimum can be reached when budgetary institutions allow the government to precommit to productive spending items before setting transfers, and when the overall deficit ceiling is optimally set according to the business cycle and returns to productive spending. It is, in other words, not enough to cap the deficit at its optimal level, the budget process has to make it possible to precommit the desirable or productive part of spending (productive in the sense that it raises output) in advance of the non-productive part of the budget. Deficit ceilings without precommitment can never reach social optimum. Second, in the special case in which the size and sign of the business cycle satisfies (16), a balanced budget rule combined with precommitment can also reach social optimum, but this is not the general case. Third, an optimally designed restriction applying to the overall budget deficit improves on the unconstrained Nash outcome even in the absence of appropriate budgetary institutions to allow for precommitment. Fourth, depending on the business cycle and on potential returns to productive spending, numerical fiscal rules can lead to procyclical fiscal outcome which are worse than the unconstrained Nash outcome, even if the government can precommit to productive spending under the ceiling. We turn next to how these analytical findings can guide the discussion of options for inducing fiscal restraints in the European Union context.

## 3 Policy Implications

The model suggests a number of policy implications. First, inasmuch as a common pool problem lies at the roots of the tendency to run budget deficits, any solution to the bias problem will have to constrain the interest groups'

ability to preempt budget decisions. Second, cyclical fluctuations complicate matters. Here we make the simplifying assumption that the cyclical conditions are known when the budget process gets under way, but this is not always the case. Even so, we find that a recession intensifies the common pool problem as it reduces the overall surplus and raises the marginal utility of transfers. On the other hand, an expansion creates some slack that interest groups see as even more of a free good. Third, we find that quantitative budget rules – here in the simple version of a balanced-budget rule, but any rule has the same qualitative effects – do not achieve the social optimum unless the interest groups commit to the level of productive spending before the size of transfers is negotiated. One of the negative effects of rules is that they tend to deliver procyclical fiscal policies. Fourth, pre-commitment is a necessary ingredient of any attempt to bring the budget to its socially desired level. Finally, the socially optimal budget must take into account time-varying conditions, here the productivity of spending and the stage of the business cycle.

In this section we attempt to move from theory to practical solutions. We first interpret the nature of interest groups. Then we discuss the Stability and Growth Pact in light of the model. We then develop the idea of fiscal councils.

### 3.1 Who are the Interest Groups?

In our model, the interest groups have the power to decide on the size of the transfers but they cannot really negotiate; they only stake out their conflicting claims on the common pool knowing full well that the outcome will be socially undesirable. We also need to provide an interpretation of how the level of productive spending is decided and who could be the social planner. As with all model interpretations, the link with the model is neither immediate nor compelling.

The simplest interpretation of interest groups is that they are ministries, as suggested by von Hagen and Harden (1994, 1995). In that view ministries are fully captured by interest groups whose utilities they simply attempt to maximize. The Minister of Finance sets the level of productive spending and, possibly along with the Prime Minister or the Head of State, is the only government agent who attempts to raise social welfare, the utilities of the interest groups. Furthermore, the model implicitly assumes that all citizens are member of one interest group, that all interest groups are of the same size and that each of them is represented by one ministry.

An alternative interpretation pits the government as a whole against the interest groups. In this view, it is the government that sets public spending. The government also decides on the transfers to the interest groups but under their direct control. This last description implies that the interest groups are perfectly organized to defend their narrow interests, up to the point where they effectively exercise total control over the government in their respective areas of interest. As before, the interpretation assumes that all citizens are members of one interest group and that all interest groups are of the same size.

Each of these interpretations is extreme. In the first one, it is not literally

true that each and every interest group is represented by a ministry, so some element of the second interpretation would need to be included to offer a better description of reality. Alternatively, in both interpretations, it would be desirable to allow for some segments of the population not to be part of any interest group. They could be represented by the Finance Minister in the first case and the government in the second case.

While both interpretations can be taken as an acceptable stylized fact in a theoretical model, it matters a lot which one is more relevant when we attempt to draw practical implications on how to deal with the deficit bias. For instance, under the first interpretation, a reasonably simple step would be to reduce the number of ministers since the size of the common pool problem is directly related to the number of interest groups. Under the second interpretation, political parties can be seen as the channels through which interest groups operate. The deficit bias would then be alleviated by adopting electoral laws that favor the existence of a small number of political parties. This would, of course, raise complex issues on how political parties relay the wishes of the interest group that they seek to agglomerate under their banners.

In what follows, we largely disregard this important issue, although we will at time discuss how the interpretations affect the arrangements discussed.

### **3.2 Where Does the Stability and Growth Pact Fit?**

The Stability and Growth Pact is not strictly a quantitative budget rule. At least in its revised version, it allows for a flexible interpretation of the deficit ceiling. In addition, the preemptive arm of the Pact requests that some restraint be exercised even when the ceiling is not binding. This allows for intertemporal smoothing of the rule itself and stands to alleviate its potential procyclical effects.

Similarly, the recognition that the budget balance should be cyclically adjusted helps to deal with the risk of pro-cyclicality. The model illustrates another risk, namely that deficit reductions first and foremost affect productive public spending. The risk arises when the interest groups succeed in sheltering the transfers of interest to them.

Indeed, one of our results is that quantitative rules are welfare-improving only when accompanied by a pre-commitment to the level of productive spending. The Stability and Growth Pact does not include any such provision. Yet, the numerous amendments adopted in 2005 allow for taking into account a number of spending items that can be broadly related to what the model describes as productive spending: major reforms, R&D, investment in the quality of public finances, international solidarity and a few less clearly defined items. However, such a pre-committed spending is not to be counted within the overall ceiling, rather it is allowed to be treated outside the ceiling. Consequently, the ceiling remains for what we call transfers.

From the perspective of our model, therefore, the Stability and Growth Pact allows for pre-commitment to some productive spending alongside a ceiling. Yet, it does not stand a chance of achieving the social optimum insofar as the

precommitment concerns a limited range of spending items and the amounts committed are not allowed to be adjusted to changing economic conditions, including cyclical conditions. In order to be optimal, the Stability and Growth Pact could be modified as follows.

Each government would identify a list of spending items that it considers as productive. The list would provide the background for setting a limit on the remaining deficit. For instance, should productive spending represent 15% of GDP, the ceiling on the remaining part of the budget would be a surplus of 15%, thus amounting to a total budget in balance, with the usual 3% tolerance margin and with the preemptive arm arguing for larger surpluses in good years. The productive spending list could be changed annually, to reflect changing circumstances, with adequate adjustment on the ceiling.

This modification would retain the objectives of the Stability and Growth Pact while allowing for a pre-commitment regarding the productive spending. It would effectively constrain non-productive spending as identified by each government. The obvious risk is that all spending items would be identified as “productive”, which would not allow for a compensatory surplus. This would not be a problem, though, since it would imply a ceiling on the empty remaining set equal to the size of productive spending, in effect reproducing the current pact.

### **3.3 National Fiscal Councils**

The Stability and Growth Pact rests on the principle that the agent of enforcement of any precommitment is external, the Council on the basis of a recommendation from the Commission. This feature raises a delicate issue of sovereignty. Through the Maastricht Treaty’s Excessive Deficit Procedure (EDP), member states have accepted the principle of some collectively enforced limit to their budget deficits. At the same time, in each country, a fundamental principle attributes to the national parliament the exclusive authority to approve the budget. Without going into legal issues, politically at least therein lies a conflict between sovereignty over budgetary matters and the acceptance of “peer pressure” to restrain deficits.

It has been suggested that a solution to this tension – which has led to the 2003 abeyance of the Stability and Growth Pact – would involve decentralizing the task of deficit restraint at the national level while allowing for a collective oversight of the solution adopted in each country. Such an approach satisfies both the need for restraint and the principle that monetary union members abide by commonly accepted procedures.

Von Hagen and Harden (1994) propose to strengthen the power of the finance minister in the budgetary process. This is in line with the first interpretation of our model. Empirical work has confirmed that such a solution succeeds in restraining budget deficits (see e.g., Hallerberg and Wolff, 2006). A different proposal is to delegate part or all of the budget balance decision to a fiscal council (see Wyplosz, 2005), which we now examine in some detail.

### 3.3.1 Principle

A fiscal council includes a group of non-elected independent persons who are given strong independence, along the lines of central bank monetary policy committees. Non-election and independence are the necessary conditions to sever the link between interest groups and decision-making. Because they will always retain the right to set the budget, delegation to non-elected officials must be severely restricted.

The fundamental reason why budgetary decisions are owned by elected officials is that they involve income transfers. Accordingly, the fiscal council's remit must carefully exclude any explicit income transfer. The budget balance approximately satisfies requirement, since it only transfers income over time, mainly across generations, all of which save one are not represented by the current population. Thus the only decision to be delegated to a fiscal council concerns the budget balance.

Like any non-elected body, the fiscal council must be given an explicit objective by elected officials. The natural objective is the evolution of the public debt. The objective must be given by the government with parliament approval, with changes possible but presumed to be infrequent.

Accountability is another required feature of delegation to non-elected officials. Accountability must not be the back door for reducing the council's independence. Various arrangements are possible, ranging from annual reports to formal periodical audits. Failure to achieve the objective must give rise to sanctions. In order to preserve independence, sanctions must be carefully designed. This issue is not pursued here.

### 3.3.2 Link with the theory and implications

We have defined social welfare as the intertemporal utility of interest groups under the assumption that all citizens are included in one or another group. As a consequence, we cannot examine some important issues like income redistribution and the protection of underprivileged groups. As always, the assumptions are restrictive, yet we believe that they are adequate to study the design of deficit restraints in the presence of a common pool problem. We also assume away debt sustainability, which we view as a reasonable assumption for European countries.

The model indicates the importance of pre-commitment to socially productive spending and the need to set a limit to the deficit – possibly a negative one, which implies a surplus. The limit is included in the debt target: combined with a set horizon, it specifies an intertemporal ceiling.

The model also attracts attention to the sensitivity of the optimal ceiling to cyclical conditions. This is why the debt objective must be set over the medium-term; the desirable term must be consistent with the length of business cycles. This is also why the optimal annual budget ceiling depends on current conditions.

The implication of our model that raises the biggest implementation diffi-

culty is that it is not enough to limit the deficit, there must be a procedure in place to ensure that socially productive public spending not be curtailed while transfers to interest groups are little affected. The solution, we suggested, is that the government be able to precommit to productive spending before the transfers are decided. A fiscal council that is only given authority to set the budget balance cannot interfere with the composition of public spending and therefore does not solve this problem. In order to achieve the social optimum as defined in our model, the council would have to be combined with government institutions that allow for productive spending to be determined before transfers. In that sense, fiscal councils do not improve upon budget rules.

### **3.3.3 Mandate of a national fiscal council**

In line with the preceding principles, a fiscal council should be given a mandate and an instrument over which it has exclusive authority. The mandate is a debt target over the medium run. This target, which will be changing over time as, hopefully, the debt to GDP ratio declines, is a political decision to be made by the government and, in some countries, the parliament.

The instrument is the budget balance. The council would operate as a flexible budget rule. Since the evolution of the debt over the medium run is driven by the cumulated budget balances over the intervening years, the fiscal council can map a variety of possible paths. Its margin of action is not negligible and ought to be used to take into account the general economic situation. This is where a fiscal council dominates a budget rule: instead of context-free ceilings, a council is able to optimize the ceilings given the current and foreseeable prevailing economic conditions.

This is also where a fiscal council dominates the Stability and Growth Pact: its incentive structure is strongly conducive to operate both the preventive and the corrective arms and, in addition, to optimize on both margins. The stronger is action in good years, the more room will the council have to maneuver in bad years. The less slippage it can tolerate in bad years, the easier will it be to achieve the debt target.

The debt target has to be realistic. It might be tempting for an incoming government to set an overly ambitious debt reduction target and then blame the fiscal council for failing to deliver. This risk does not exist if the council is given the exclusive control of the budget balance. In that case, given an excessively ambitious debt target, the council will enforce a restrictive strings of budget balances for which the government will have to assume full responsibility. Conversely, a modest debt target, which the fiscal council will easily deliver, will have to be defended by the government. We return to this question further below when we consider the role of the European Union.

### **3.3.4 Design of a national fiscal council**

The *raison d'être* of fiscal councils is to provide a commitment technology in a world where significant portions of national budgets are controlled by interest

groups through government capture. The implication is that councils be given an iron-clad protection against interest groups, which means that they should be composed of non-elected officials with strong personal qualifications.

The model to follow here is the monetary policy committees that now operate independent central banks around the world. Several formulae exist but they all share a few common characteristics. Crucially, council members ought to be given long mandates, which cannot be discontinued except for grave breach of duty. A good solution is that the length of the mandate exceeds the length of legislature in parliamentary regimes or the duration of the president's mandate in presidential regimes. Along with staggered appointments, this solution ensures that the council members are not all related to the ruling majority of the time.

A second feature of the model is the two-period setup. It is meant to capture the medium term: the current period describes policy options over a period for which economic forecasts are reasonably accurate, while the second period represents the horizon when the cycle unwinds so that the overall length captures a completed business cycle. This description is relevant for the definition of the medium run over which the debt target is set. Ideally, it should encompass the length of a business cycle. Unfortunately, business cycles do not exhibit stable duration. What then should be the medium run chosen for the mandate?

Given the lack of regularity of business cycle duration, another criterion should come to bear on this issue. Since, in our view, it is the government that sets the target debt, it would be logical that the medium run corresponds to the government's term in office. Indeed, a government cannot effectively bind its successor(s) in such matters. In addition, in most countries, the term of office is of 4-5 years, which closely matches the average duration of business cycles. The procedure would be for a newly elected government – possibly subjected to parliament approval – to determine the debt target that it wishes to reach at the end of its mandate. If, as is possible in many countries, the life of the government can be shortened, the debt target may not be reached and a new one will be established by the successor government. This raises a question of accountability, but otherwise adequately corresponds to the actual working of the democracy.

### **3.3.5 Accountability of a fiscal council**

As non-elected officials, a fiscal council ought to be strictly accountable for its actions to an elected body. It would seem natural that this body be the parliament. In order to carry out this mission, the parliament should be assisted by a highly competent advisory body, possibly patterned at the Congressional Budget Office of the US Congress.

Since its mandate is a medium-run target, in principle the council's actions can only be evaluated at the end of the period corresponding to the target. This suggests a two-stage procedure. The major stage is the end-of-period evaluation. There are many reasons why the best council could miss its target. Obviously, an unfortunate period of below-average growth may result in undershooting

the target. This can be explained by the council and the explanation can be evaluated by a well-assisted parliament. What happens if the explanation is found unconvincing? There should be a sanction, but designing it is made difficult by the need for the council to be independent and therefore for its members to hold secure positions. In serious cases of mis-performance, the parliament could determine a breach of duty and replace the whole council, but this would complicate the staggering process, which is crucial to achieving non-partisanship. Another solution would be to only replace the council chair. Because a vote of no-confidence would greatly weaken the council, it could be adequate as a sanction.

The other stage would be annual parliamentary reviews of the evolution of the debt. Each year, including at the start of the medium-run cycle that follows the appointment of a new government, the council would produce a report explaining its strategy to achieve the mandated target. The report would include a year by year projection of the debt, backed by the publication of each year's budget balance and key assumptions, in particular, growth, inflation and the interest rate. Each year, the report would have to explain any discrepancy between the projected debt and its realized level. Here again, a vote expressing concern when the parliament considers that the council's actions are not in line with its mandated debt target should provide for adequate accountability.

### **3.3.6 The role of the European Union**

The EDP enshrines the principle that, within the monetary union, one country's lack of fiscal discipline is a matter of common concern. The precise economic basis for this concern remains a matter of controversy but this is besides the point given the existence of the EDP. In Krogstrup and Wyplosz (2006) we study the role of this concern and find that it reinforces the need for supranational involvement to achieve optimal fiscal outcomes.

The general implication of the EDP is that each monetary union member country must offer its partners a reassurance that its fiscal policy is and will remain disciplined. The weakness of the Stability and Growth Pact in its original form was to focus on annual budget outcomes; the 2005 revision has taken a step forward by emphasizing the evolution of the debt. This fits well with the proposed fiscal council medium run mandate and makes it easy to reshape the EDP. The new EDP would rest on two formal measures.

The first measure would be that the national legislations that create the councils and define their tasks and independence would have to be EDP-compatible, as is the case with legislation that define national central bank independence. The measure would thus provide a solid reinsurance that each country has put in place adequate institutions for debt stability.

The second measure would organize mutual surveillance, as mandated by the EDP. A possible procedure would be that the medium run debt target, set by each government, would have to gain approval of the other monetary union members. This would take the form of an amended Stability and Convergence Program. A newly elected government would submit its planned debt target

to the Council, which would approve it following a report from the Commission. Then, each year, at the same time as the national parliament conducts its own accountability exercise, the Council would examine the council's report and would issue its own conclusions, following a recommendation from the Commission.

This procedure has several advantages. First, it would uphold the EDP's principle that a country's fiscal discipline is a matter of common concern. Second, it would allow for peer pressure, a key objective of the Stability and Growth Pact. Third, it would focus on the evolution of the debt and not on annual deficits, holding each member country council to its mandate. Finally, it would reduce the odds of unrealistic targets.

### 3.3.7 The asymmetry problem

A structural weakness of the EDP is that not all countries are equal when considering the common concern. Obviously, a small member country could display fiscal indiscipline without any serious consequence for the monetary union as a whole. On the other hand, even moderate slippages in the large countries are bound to attract attention and to potentially weaken the euro and to raise the euro area interest rate risk premium. This is an unavoidable economic asymmetry.

The implementation of the Stability and Growth Pact has led to another, political asymmetry, which aggravates the economic asymmetry. As the events that led to the 2003 decision to put the pact in abeyance have shown, the large countries, those whose fiscal discipline matters, can use their natural influence to avoid sanctions. The result has been a serious loss of credibility for the pact. The 2005 reform has sought to restore credibility but, by emphasizing flexibility, the solution – adequate as far as the economic logic of fiscal restraints is concerned – has not obviously brought renewed credibility.

Relying on national fiscal councils stands to alleviate the asymmetry problem. There is no reason that the rigor of council actions will be related to country size. It follows that we should not expect large countries to be less disciplined than smaller ones. This would not eliminate the economic asymmetry but it would eliminate its impact. The political asymmetry is less likely to be eliminated but, inasmuch as national councils deliver on their mandates, the issue is unlikely to emerge.

## 4 Conclusions

This chapter has two main objectives. The first one is to clarify the sources of the deficit bias that has been ubiquitous in most European countries. To that effect, using the common pool framework, we describe the budgetary process as a grab race among selfish interest groups. Along with time-inconsistency, this is a standard interpretation of the deficit. Our contribution is to enrich the setting by considering socially productive public spending and to allow for

cyclical fluctuations. The first addition allows us to capture the concern that fiscal restraints may act primarily on productive spending. The second addition illustrates the danger that deficit-reducing policies may make fiscal policy procyclical.

Our second objective is to use our theoretical results to explore what kind of policies can be used to correct the deficit bias. Indeed, with few exceptions, much of the relevant literature does not directly relate policy options to an explicitly articulated interpretation of the deficit bias. Our results provide support to those who argue that numerical fiscal rules, i.e. rules which unconditionally restrict the unadjusted budget balance, are not generally optimal and may actually worsen the fiscal outcome in terms of welfare. We also confirm that the common pool problem makes such rules a further source of procyclical fiscal policies. A frequently suggested response to the pro-cyclicality implication of numerical fiscal rules is to apply them to cyclically adjusted budgets. We find that, when a common pool problem exists, this is likely to remove pro-cyclicality. We also find that numerical rules do not prevent borrowing to finance productive public spending when they are optimally conditioned on the associated potential returns. Crucially, however, in our model, for such restraints to be socially optimal, they must be combined with budgetary institutions that allow the government to commit to productive spending before the rest of the budget is determined. In the absence of such a precommitment technology, the domestic political distortions which lie at the root of the deficit bias will continue to negatively influence the fiscal outcome under numerical fiscal rules.

Viewed in the prism of our model, the amendments to the Stability and Growth Pact introduced in 2005 are therefore helpful. They explicitly allow for the consideration of cyclically adjusted budgets and they recognize that spending on socially productive projects ought to be taken into account. Yet, our model suggests that this is not enough, since it shows the importance of a precommitment to productive spending. Our result can be seen as a particular case of the more general observation that no rule, however detailed, will ever be able to take into account all possible current and future events which may affect the optimal intertemporal allocation of public spending. Continuous judgment of the economic circumstances is needed.

The more general observation is simply another manifestation of the standard rules vs. discretion debate. The relevant literature has clearly shown that discretion is welfare-reducing when it leads to a loss of credibility of the authorities in charge. As is now well-understood, the resolution of the debate is to allow for constrained discretion by delegating decision to an agent that is not prone to political pressure – in this case, the common pool problem. In other words, institution building is the response to the standard rules vs. discretion debate.

This leads us to examine how such a delegation could be organized in the fiscal policy area. This is what lies behind the proposal of fiscal councils composed of independent wisepersons. We use the model to determine the instrument and the mandate that should be delegated to fiscal councils. The instrument is the annual budget balance – which stands in sharp contrast to numerical rules, such

as the Stability and Growth Pact, which identify the budget balance as the main objective. The mandate is the public debt level over the medium run, a horizon long enough to extend beyond the business cycle and thus avoid the risk of pro-cyclicality.

As we examine the various facets of optimal fiscal councils, we consider the definition of independence and the associated democratic accountability requirement. We pay particular attention to the requirement, embodied in the Excessive Deficit Procedure, that each country's fiscal discipline is a common concern for all other EU members. This leads us to examine the possibility of requiring that national legislation creating the fiscal councils be subject to collective approval. We also suggest that the annual reports submitted by the fiscal councils as part of the accountability procedure, become the main tool for mutual surveillance.

Yet, neither the revised Stability and Growth Pact nor the fiscal councils fully meet all the requirements suggested by our model. Indeed, the theoretical analysis reveals an important point regarding the optimality of fiscal restraints. Neither the rules based nor the institutions based approach to deficit bias correction automatically ensures that the mix of unproductive transfers and productive spending will be optimal under the deficit restraint. Both arrangements must be augmented with budgetary institutions which allow the government to identify productive spending items and to precommit to these ahead of deciding on the rest of the budget. Creating such a budgetary institution is complicated by the fact that it is not always possible to draw a line between productive and non-productive public goods. The implication is that some value judgment will be required here as well.

## References

- Alesina, Alberto and Allan Drazen (1991) "Why Are Stabilizations Delayed?", *American Economic Review* 81(5): 1170-88
- Alesina, Alberto, Nouriel Roubini and Gerald Cohen (1999) "Political Cycles and the Macroeconomy", MIT Press, Cambridge
- Alesina, Alberto and Guido Tabellini (1990) "A Positive Theory of Fiscal Deficits and Government Debt", *Review of Economic Studies* 57: 403-14.
- Beetsma, Roel and Xavier Debrun (2004) "Reconciling Stability and Growth: Smart Pacts and Structural Reforms", *IMF Staff Papers* 51(3): 431-456.
- Beetsma, Roel and Xavier Debrun (2005) "Implementing the Stability and Growth Pact: Enforcement and Procedural Flexibility", IMF Working Paper WP/05/59.
- Beetsma, Roel and Harald Uhlig (1999) "An Analysis of the Stability and Growth Pact", *Economic Journal* 109: 546-571.
- Blanchard, Olivier Jean and Francesco Giavazzi (2004) "Improving the SGP Through a Proper Accounting of Public Investment", CEPR Discussion Paper No. 4220.
- Brunila, Anne, Marco Buti and Daniele Franco, eds. (2001) *The Stability and Growth Pact*, Basingstoke: Palgrave
- Fabrizio, Stefania and Mody Ashoka (2006), "Can budget institutions counteract political indiscipline ?", IMF Working Paper 06/123
- Giuliodori, Massimo and Roel Beetsma (2004) "What are the Spill-overs from Fiscal Shocks in Europe? An Empirical Analysis", ECB Working Paper No. 325.
- Giuliodori, Massimo and Roel Beetsma (2007) "On the relationship between fiscal plans in the European Union: An empirical analysis based on real-time data. CEPR Discussion Papers 6088
- Hallerberg, Mark and Jurgen von Hagen, (1999), "Electoral Institutions, Cabinet Negotiations, and Budget Deficits in the European Union", in: James Poterba and Jürgen von Hagen (eds.), *Fiscal Institutions and Fiscal Performance*, University of Chicago Press.
- Hallerberg, Mark and Guntram B. Wolff (2006) "Fiscal Institutions, Fiscal Policy and Sovereign Risk Premia", Bundesbank DP 35-2006.
- Krogstrup, Signe (2006) "A note on the formal equivalence of the time inconsistency model and the common pool model for budget deficits", The Graduate Institute of International Studies, Geneva.
- Krogstrup, Signe and Charles Wyplosz (2006) "A common pool theory of deficit bias correction", CEPR Discussion Paper 5866
- Persson, Torsten and Guido Tabellini (2000) *Political Economics, Explaining Economic Policy*, MIT Press.
- Persson, Torsten, Gerard Roland and Guido Tabellini (2003) "How Do Electoral Rules Shape Party Structures, Government Coalitions, and Economic Policies?", NBER Working Papers 10176
- Roubini, Nouriel and Jeffrey Sachs (1989) "Government Spending and Budget Deficits in the Industrial Countries", *Economic Policy* 8: 100-132.

Velasco, Andres (1999) "A Model of Endogenous Fiscal Deficits and Delayed Fiscal Reforms", in: James Poterba and Jürgen von Hagen (eds.), *Fiscal Institutions and Fiscal Performance*, University of Chicago Press.

Velasco, Andres (2000) "Debts And Deficits With Fragmented Fiscal Policymaking" *Journal of Public Economics* 76(1): 105-125.

Von Hagen, Jürgen (1992), "Budgeting Procedures and Fiscal Performance in the European Communities", Economic Papers 96, European Commission, Brussels.

Von Hagen, Jürgen and Ian Harden (1994) "National Budget Processes and Fiscal Performance", *European Economy Reports and Studies* 3, 311-418.

Von Hagen, Jürgen, and Ian Harden (1995) "Budget Processes and Commitment to Fiscal Discipline", *European Economic Review* 39(3): 771-779.

Weingast, Barry, Kenneth Shepsle and Christopher Johnsen (1981) "The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics", *Journal of Political Economy* 89(4): 642-664.

Wyplosz, Charles (2005) "Fiscal Policy: Institutions Versus Rules", *National Institute Economic Review* 191: 70-84.