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Do We Really Need to Tame a Conservative ECB? When the Policy Mix Matters

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Do we really need to tame a conservative ECB?

When the policy mix matters.

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Abstract

This paper contributes to the *goal-versus-instrument independence* debate for the ECB exploring how these alternative monetary arrangements perform when the fiscal authority pursues a strategy of debt reduction in the long term but retains fiscal flexibility in response to supply shocks. If fiscal policy is sufficiently flexible, appointing a goal independent (i.e. conservative) central banker dominates inflation targeting. In fact, as the fiscal authority and the central bank act independently in setting their countercyclical policies, an activist central banker causes excess volatility of inflation. This result provides theoretical content to the claim that a strong and goal-independent ECB needs a political match able to engineer countercyclical fiscal policies.

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1. Introduction

The Stability and Growth Pact and the Statute of the European Central Bank (ECB) provide the institutional framework for fiscal and monetary policies within the European Monetary Union. The fiscal guidelines set strict limits to the size of budget deficits. The rationale for such fiscal rules may be found in the political distortions that generate incentives to excessive debt accumulation (Beetsma and Bovenberg, 1997). In fact, several EMU members have pledged to gradually reduce debt/GDP ratios[1]. If this happens, the Stability and Growth Pact will leave some room for countercyclical fiscal policies. Furthermore, the Pact allows discretionary debt accumulation in the event of large adverse shocks. On the monetary side, the Maastricht Treaty preserves the ECB legal independence from political powers and defines price stability as the Bank primary objective. The ECB is not only independent from governments, but also not really accountable to any parliamentary body (De Haan, Amtembrink and Eijffinger, 1998). This monetary regime *de facto* resembles an extreme form of *goal independence*, and several observers worry that the ECB will be concerned with inflation only. A number of scholars have argued that the ECB should be granted *instrument independence* and thus be made accountable for achieving a predetermined inflation target (Persson and Tabellini, 1996; CEPR, 1995). The reason why inflation targeting should be preferred lies in the familiar credibility-versus-flexibility dilemma. In fact, theoretical models of inflation targeting show that if the inflation target is suitably set below the socially optimal inflation rate, society can remove the inflation bias without incurring the output distortions caused by goal-independent weight-conservative bankers *à la* Rogoff.

This paper contributes to the *goal versus instrument-independence* debate for the ECB, exploring how these alternative monetary arrangements perform when the fiscal authority pursues a strategy of debt reduction in the long term but retains fiscal flexibility in response

to shocks. Countercyclical policies are often conceived as the exclusive domain of monetary policy, which provides a more flexible instrument. In fact, what matters is whether fiscal policy is sufficiently flexible to respond to shocks. Empirical evidence suggests that European governments have made substantial use of their fiscal and debt policies for stabilisation purposes (Sorensen and Yoshua, 1998). Therefore, our modelling choice is motivated by the belief that – setting aside national differences – the regime outlined above captures some important aspects of the conduct of fiscal policy within EMU.

Following Jensen (1994), we present a model where time inconsistency in monetary policy is the result of labour market imperfections and tax distortions. The latter are caused by the need to finance public expenditures and debt service payments. As a first step, we consider a policy of debt reduction in a deterministic framework. We find that the optimal inflation target is negative whenever the inflation bias caused by tax and labour market distortions is large relative to the socially optimal inflation rate. There are two reasons why this is likely to be the case for EMU. On one hand, limited money holdings prevent seigniorage (Gros, 1993), suggesting that the optimal inflation rate should be small. On the other, tax and labour market distortions blight many European economies (Daveri and Tabellini, 1997; IMF, 1998). Furthermore, due to the gradual reduction of debt, the inflation target turns out to be inversely related to current debt levels and time-dependent. These are unappealing features that undermine the role of the target as focal point in expectations co-ordination. In fact, negative targets are systematically missed while time-dependent and debt-related ones are subject to frequent updating, due to the persistence of debt and distortionary taxation. Thus, a "contract" between the Bank and her political principal seems unlikely to deliver the much advocated credibility for the EMU monetary policy. However, we do not claim that the ECB should abstain from announcing her inflation objective, as transparency helps in co-ordinating expectations. In fact, we argue that the credibility of monetary policy should rely

[1] The EMU average structural deficit is projected at 1.25% of GDP in 1998. IMF estimates suggest that balanced structural positions will be achieved by the year 2001 (IMF, 1998, p.92). This implies that the

on the ECB legal independence and on reputation. Indeed, we show that the time-varying inflation bias is removed by simply delegating monetary policy to a weight-conservative banker whose only concern is price stability.

The obvious counter-argument to this arrangement is that, in an economy subject to random shocks, an exclusive concern for price stability is always counterproductive. We show that such claim is not true. As long as the fiscal instrument and the debt policy are aimed at stabilising supply side shocks, assigning the conduct of monetary policy to a conservative central banker allows reducing inflation variability without sacrificing stabilisation. The reason why this happens is that the fiscal authority and the central bank act independently – do not co-operate – in setting their countercyclical policies. Hence, when both authorities care about output stabilisation, excess volatility of inflation arises. As the ranking of the monetary regimes depends on the policy mix, the paper provides theoretical content to the claim that EMU needs a political pillar to engineer fiscal policies and so complement a strong and goal-independent ECB. It is worth noting that in our framework concerns about co-ordinated fiscal authorities acting strategically to weaken the disciplining effect of an independent central bank (Beetsma and Bovenberg, 1998) do not arise. Fiscal authorities have an incentive to set strategically tax distortions in order to increase the inflation bias only if seigniorage revenues are not too small relative to their budget. But as stressed above, this is unlikely to be the case within EMU.

The rest of the paper is organised as follows. Section 2 presents the model. Section 3 discusses the welfare implications of adopting alternative monetary regimes in a context where the fiscal authority pursues debt reduction. Section 4 is concerned with stabilisation policies. Section 5 concludes.

2. The model

average debt/GDP ratio will fall correspondingly.

The Jensen's model (Jensen, 1994; Beetsma et al. 1996) describes an economy where the government provides a certain amount of public goods G_s financed by means of distortionary taxes, seigniorage revenues and public debt accumulation. The government's budget constraint is defined as follows[2]:

$$D_{s+1} = D_s(1+r) + (G_s - t_s - k_0 p_s) \qquad (1)$$

D_{s+1} is the stock of government debt at the end of period *s*. To limit analytical complexities, the *real* interest rate *r* is assumed constant and government debt fully indexed, as in Jensen (1994) and Beetsma and Bovenberg (1997). The term $k_0 p$ denotes seigniorage revenues. In the following we set $k_0 = 0$. In fact, within EMU seigniorage revenues from anticipated inflation[3] are a tiny percentage of GDP, due to the limited amount of money holdings.

For the moment, we also assume that the aggregate per-period supply function

$$y_s = p_s - p_s^e - t_s - \tilde{u} \qquad (2)$$

is deterministic[4] and depends on inflation surprises $(p_s - p_s^e)$, distortionary taxes t_s and labour market imperfections $\tilde{u}$ [5]. The government minimises the following intertemporal loss function:

$$W_t^G = \sum_{s=t}^{\infty} b^{s-t} L_s^G \qquad (3)$$

where b is a discount factor and $L_s^G = \frac{1}{2}\left[y_s^2 + k_1(G_s - \tilde{G})^2 + k_2(p_s - \tilde{p})^2\right]$ is the per-period loss function. $\tilde{G} > 0$ and $\tilde{p} \geq 0$ define the socially optimal levels of expenditures and inflation. The Jensen model allows for a socially optimal inflation rate that is endogenously

[2] For a derivation of equation (1), see Jensen (1994).
[3] Gros (1993) estimates that seigniorage revenues range between 0.3% and 0.6% of GDP. The potentially large revenues from the use of unanticipated inflation - when debt is imperfectly indexed - are another source of time inconsistency that we do not consider for sake of analytical tractability.
[4] The role of supply shocks will be discussed in section 4.
[5] Following Alesina and Tabellini (1987), we define t as a tax rate on the total revenue of firms. Labour market imperfections are a consequence of monopolistic unions.

determined by the seigniorage motive. Since we assume $k_0 = 0$, $\tilde{p}$ is exogenous, as in Svensson (1997).

In the case of *discretion*[6], inflation, taxes and the stock of debt carried over to the next period are determined as a result of the following optimisation exercise:

$$V(D_t) = \min_{p_t, t_t, D_{t+1}} \left\{ \frac{1}{2} \left[y_t^2 + k_1 \left(G_t - \tilde{G} \right)^2 + k_2 \left(p_t - \tilde{p} \right)^2 \right] + bV(D_{t+1}) \right\} \tag{4}$$

subject to (1) and (2).

To solve the model, we derive the first-order conditions:

$$y_t + k_2 \left(p_t - \tilde{p} \right) = 0 \tag{5}$$

$$y_t + k_1 \left(G_t - \tilde{G} \right) = 0 \tag{6}$$

$$\left(G_t - \tilde{G} \right) = (1 + r) b \left(G_{t+1} - \tilde{G} \right) \tag{7}$$

Equation (5) is the first order condition for monetary policy, and defines the policymaker's incentive to offset output distortions by means of inflation surprises[7]. Equation (6) equates the marginal benefits of a tax-financed increase in expenditures with the marginal output costs of higher taxes. The intertemporal condition (7) states that the marginal gains[8] from a debt-financed increase in current expenditures must equal the discounted value of future losses – reduced availability of resources for future public spending – imposed by the debt increase. Forwarding (7) we have the general form of the Euler equation defining the optimal relationship between current and expected expenditures in any future period:

$$\left(G_t - \tilde{G} \right) = (1 + r)^j b^j \left(G_{t+j} - \tilde{G} \right) \tag{8}$$

Using equation (5) and (6), we obtain the open-loop solutions for inflation and taxes under the assumption of rational expectations:

$$p_t^d = \tilde{p} - \frac{k_1}{k_2} \left(G_t - \tilde{G} \right) \tag{9}$$

[6] We closely follow Jensen (1994).

[7] Observe that, in contrast to Jensen (1994), since $k_0 = 0$ equation 5 does not account for the benefits from seigniorage-financed increases in public expenditure.

$$t_t^d = -\tilde{u} - k_1\left(G_t - \tilde{G}\right) \tag{10}$$

The policymaker reacts to labour market distortions by lowering the tax rate. By contrast, the tax rate is increasing in the expenditure gap: for any G_t below target, the policymaker has an incentive to levy distortionary taxes. Since monetary policy aims to offset output distortions, inflation responds only to the expenditure gap. To obtain the optimal level of expenditures under discretion, we proceed as follows. Having imposed the standard no-Ponzi-Game condition, the intertemporal budget constraint takes the form[9]:

$$\sum_{s=t}^{\infty}(1+r)^{-(s-t)}\left(G_s - \tilde{G}\right) + \frac{1+r}{r}\tilde{G} + (1+r)D_t = \sum_{s=t}^{\infty}(1+r)^{-(s-t)}t_s \tag{11}$$

Substituting (8), (9) and (10) into (11) yields:

$$G_t^d - \tilde{G} = -\frac{(1+r)}{(1+k_1)l}\left[\frac{\tilde{G}+\tilde{u}}{r} + D_t\right] \tag{12}$$

where $l = (1+r)^2 b / (1+r)^2 b - 1$.

Substituting into equation (1) for G_t^d and t_t^d we characterise debt dynamics:

$$D_{t+1}^d = \frac{D_t^d}{(1+r)b} - \frac{(1+r)b - 1}{(1+r)br}\left(\tilde{G} + \tilde{u}\right) \tag{13}$$

which are stable only if $(1+r)b > 1$.

The steady-state solution of the model (Jensen 1994) implies that the government accumulates negative debt (financial claims on the private sector) in order to finance current expenditures and to subsidise labour market distortions. This conclusion is perhaps questionable and obviously difficult to reconcile with empirical evidence. In fact, there are theoretical reasons why positive debt levels obtain in steady state. Cukierman and Meltzer (1989) argue that accumulation of public debt allows bequest-constrained individuals to

[8] Raising expenditures is obviously beneficial as long as they are below target.

[9] The term $(1+r)/r$ appears in (11) because we express current and future expenditures as deviations from the target.

raise their consumption levels at the expenses of future generations[10]. As a result, politico-economic equilibria emerge where the policymaker uses debt to subsidise the consumption of such bequest-constrained individuals. To capture this effect, Tirelli (1998) modifies the loss function in (3) assuming that a policy of debt reduction is costly for the policymaker. He shows that debt levels may be positive in steady state. Since the present paper is not concerned with the discussion of steady states, we choose to retain the original features of Jensen's model and to focus instead on the link between monetary and fiscal policy during a phase of debt reduction. In fact, the model provides a plausible description of the link between public debt dynamics, distortionary tax policy and the inflation bias. We now turn to the analysis of these aspects.

Assuming stability, i.e. $(1+r)b>1$, equation (10) and (12) show that labour market distortions weaken the policymaker's incentive to levy taxes and therefore increase the expenditure gap. The outstanding stock of debt generates an identical effect because debt service payments reduce the amount of resources available for public spending. The size of the parameter l is crucial to define how current expenditures respond to the forcing variables – labour market distortions and the amount of inherited debt. For what concerns the latter, the adjustment of expenditures to an increase in debt is inversely related to the policymaker's discount factor. A relatively large l – a relatively small β – implies that a limited amount of resources is devoted to the reduction of debt. This delays adjustment, but raises expenditures in the short term, allowing the policymaker to keep down current taxes and inflation.

The impossibility of exploiting monetary surprises to offset output distortions implies that, absent supply shocks and the seigniorage motive, the first best monetary policy would be a simple zero-inflation rule. To achieve this outcome, the policymaker can either assign an inflation target to an instrument-independent central bank or delegate monetary policy to a

[10] Alternatively, the policymaker may wish to limit the savings available to her opponent in the event of an electoral defeat (Persson and Svensson, 1989; Alesina and Tabellini, 1990).

goal-independent central banker, characterised by weight conservatism. The working of these two alternative solutions is explored in the next section.

3. Monetary delegation: target vs. weight conservatism

Suppose the central banker's intertemporal loss function is:

$$W_t^B = \sum_{s=t}^{\infty} b^{s-t} L_s^B \tag{14}$$

where $L_s^B = \frac{1}{2}\left[y_s^2 + gk_2\left(p_s - p_s^b\right)\right]$ is the per-period loss function. Note that $p_s^b < \tilde{p}$ defines a target-conservative central banker. The parameter $g \geq 1$ describes instead the central banker's degree of weight-conservatism[11].

We assume that fiscal and monetary authorities act non-co-operatively and confine our analysis to Markov equilibria. A linear Markov perfect equilibrium in the game between the policymaker and the central banker is characterised by a set $\left(p_t, t_t, D_{t+1}\right)$ such that the pair $\left(t_t, D_{t+1}\right)$ minimises (3) taking p_t as given and p_t minimises (14) taking t_t and D_{t+1} as given. The first-order conditions for t_t and D_{t+1} are as in (6) and (7), respectively. Equation still holds, because public expenditures are invariant to inflation. On the other hand, in each period the central banker takes expectations and D_{t+1} as given. Therefore the inflation rate is set to equate its current marginal benefits and costs. The open-loop solution for inflation is:

$$p_t^B = p_t^b - \frac{k_1}{gk_2}\left(G_t - \tilde{G}\right) \tag{15}$$

Inflation as low as under precommitment can be achieved by setting $g = 1$ and assigning to the central banker in each period an inflation target p_s^* such that:

$$p_s^* = \tilde{p} - \frac{k_1}{k_2}\frac{(1+r)}{(1+k_1)l}\left[\frac{\tilde{G} + \tilde{u}}{r} + D_s\right] \tag{16}$$

p_s^* has some unappealing features. First, a time-dependent and debt-related target is likely to require frequent revisions and this may undermine its role as a focal point for the co-

[11] The reason why we assume that the central bank is not concerned with the level of expenditures is twofold. First, the Maastricht Treaty explicitly forbids monetary financing of public deficits. Second, postulating a loss function akin to (3) for the central banker would yield identical results under the assumption that $k_0 = 0$. On the other hand equation (14) posits that the central bank does worry about output distortions while accounting for the extreme hypothesis that the ECB might be concerned with inflation only.

ordination of expectations. Second, (16) implies that the target must increase over time if the policymaker pursues a strategy of debt reduction. Finally, within EMU the inflation bias caused by distortionary taxation is likely to be large relative to $\tilde{p}$ [12]. This implies that p_s^* is negative unless public debt is substantially reduced[13].

Delegation to a weight conservative central banker is immune from these drawbacks and entirely removes the inflation bias if the central bank is only concerned with inflation control, i.e. $g \to \infty$ and $p_s^b = \tilde{p}$. Nonetheless, this raises the obvious criticism that, in an economy subject to random shocks, such a weight-conservative central banker would deliver less output stabilisation than society deems desirable, resurrecting the familiar trade-off between credibility and flexibility. Thus, we now proceed to evaluate the two regimes in a stochastic framework.

[12] Absent the seigniorage motive, one may ask why should $\tilde{p} > 0$ especially if one takes into account the adverse effects of inflation on long-term growth (Barro, 1995). Akerlof, Dickens and Perry (1996) argue that a little inflation might "grease the wheels" of the labour market. Card and Hyslop (1996) estimate such effect to be negligible.

[13] Negative targets have been subjected to open criticism as they are systematically missed. For a discussion of this point, see DeGrauwe (1996) and Persson and Tabellini (1997). Linear contracts *à la* Walsh (Walsh, 1995) would be immune from this criticism.

4. Supply shocks and monetary regimes

The aggregate supply function takes the following form:

$$y_s = p_s - p_s^e - t_s - \tilde{u} + e_s \tag{17}$$

where e_s is a random disturbance i.d. with zero mean and finite variance s_e^2. A stochastic supply function implies that policy variables respond to shocks. Let us focus on the first order condition for the tax rate:

$$t_t^B = -\tilde{u} - k_1\left(G_t - \tilde{G}\right) + e_t + \left(p_t - p_t^e\right) \tag{18}$$

The fiscal authority finds it optimal to tax away any unexpected output increase in order to finance expenditures. This implies that – for a given level of expenditures – the flexibility of the tax instrument will isolate output from shocks and from monetary surprises. Simultaneously solving for the tax rate and the inflation rate, the following open-loop solutions obtain:

$$p_t^B = p_t^b - \frac{k_1}{gk_2}\left(G_t - \tilde{G}\right) \tag{19}$$

$$t_t^B = -\tilde{u} - k_1\left(G_t - \tilde{G}\right) - \frac{k_1}{gk_2}\left[\left(G_t - \tilde{G}\right) - E\left(G_t - \tilde{G}\right)\right] + e_t \tag{20}$$

The non co-operative equilibrium between the fiscal and the monetary authority implies that inflation responds only to the expenditure gap. However supply shocks still have an impact on inflation through their effect on current expenditures:

$$G_t^B - \tilde{G} = -\frac{(1+r)}{(1+k_1)l}\left[\frac{\tilde{G} + \tilde{u}}{r} + D_t\right] + \frac{e_t}{(1+k_1)l + \frac{k_1}{gk_2}} \tag{21}$$

An adverse supply shock triggers a tax reduction that causes a simultaneous fall in expenditures. Inflation therefore rises above its expected level, weakening the response of taxes to shocks. We are now able to comment on the sensitivity of expenditures to shocks, which is inversely related to three factors. The first is the trade-off between expenditures and distortionary taxation, defined by parameter k_1. The willingness to bear the cost of

distortionary taxation increases with it, and the sensitivity of expenditures to shocks falls accordingly. The second factor is related to the policymaker's intertemporal preferences: the larger is l, the more the policymaker uses debt policy to spread adjustment onto future periods. The third factor is the impact of the inflation surprise on taxes in period *t*, which limits the response of the fiscal instrument to shocks. This effect explains why expenditures are more sensitive to a change in the labour market distortions and the amount of inherited debt than to stochastic disturbances.

Turning to the analysis of monetary regimes, we still focus on the two polar cases discussed above, that is when either $p_t^b = p_t^*$ and $g = 1$ or $p_t^b = \tilde{p}$ and $g \to \infty$. The expected values for the policy variables are identical under the two regimes[14]. On the other hand, their variances will differ. It is straightforward to show that an increase in the degree of weight conservatism lowers the volatility of inflation but raises that of expenditures and taxes. However, the impact of g on the variance of expenditures becomes negligible when l is relatively large. To understand this, consider the time pattern of debt:

$$D_{t+1}^B = \frac{D_t^B}{(1+r)b} - \frac{(1+r)b-1}{(1+r)b}\left(\tilde{G}+\tilde{u}\right) - \left[1 - \frac{(1+k_1)}{(1+k_1)l + \frac{k_1}{gk_2}}\right] e_t \qquad (22)$$

As $(1+r)b \to 1$, $l \to (1+r)/r$ and debt is used as a shock absorber[15] which allows an almost complete stabilisation of expenditures.

Comparing expected welfare losses under the two regimes, we obtain:

[14] We obviously assume that the sequence of targets is defined before observing the current realisation of the shock.

[15] Observe that if $(1+r)b = 1$ debt follows a random walk. This implies that the steady state equilibrium described above no longer holds, but the results concerning monetary regimes are still valid. We owe this point to G. Femminis.

$$EW^G\left(p_t \middle| p_t^*, g=1\right) - EW^G\left(p_t = \tilde{p}\right) =$$

$$\frac{1}{2}\frac{(1+r)}{r} k_1 \left[\frac{\left(1+k_1+\frac{k_1}{k_2}\right)}{\left[(1+k_1)l+\frac{k_1}{k_2}\right]^2} - \frac{1}{(1+k_1)l^2} \right] s_e^2 \tag{23}$$

Some tedious algebra shows that the weight-conservative central banker improves welfare whenever[16] $l > 1+\left[1+\frac{k_1}{(1+k_1)k_2}\right]^{\frac{1}{2}}$. This result derives from the lack of co-ordination in the game between the central bank and the fiscal authority, where the former does not take into account the role of debt as a shock absorber. From this standpoint, the paper adds to the literature on the relevance of co-ordinated actions among fiscal and monetary authorities. Furthermore, the above result stresses the importance of flexibility in the use of both debt and taxes[17].

To prove these claims we proceed as follows. To start with, consider the case where the fiscal authority is constrained to implement a balanced budget rule. Equation (1) becomes:

$$D_s(1+r) = t_s - G_s \tag{24}$$

where $D_s = D_0$ is exogenous and fixed. The policy rules defined in equation (19) and (20) still hold and the expenditure gap amounts to:

$$G_t - \tilde{G} = -\left[\frac{\tilde{G}+\tilde{u}+(1+r)D_0}{(1+k_1)}\right] + \frac{e_t}{1+k_1+\frac{k_1}{gk_2}} \tag{25}$$

In this case, the second best outcome for monetary policy is achieved by assigning to the central banker in each period the following inflation target:

$$p_s^* = \tilde{p} - \left[\frac{\tilde{G}+\tilde{u}+(1+r)D_0}{(1+k_1)}\right]\frac{k_1}{k_2} \tag{26}$$

[16] This constraint is very likely to be met in practice. For a real interest rate $r = 5\%$ and under the extreme assumption $b = 1$, the weight-conservative banker is preferred unless $1+\left[k_1/(1+k_1)k_2\right] > 95$.

[17] Observe that we are not invoking the return to demand management policies. Our focus is on the supply side. When an adverse shock hits the economy both taxes and expenditures fall, the former more so than the latter.

Moreover, the policymaker's discount factor no longer affects the sensitivity of expenditures to shocks. In each period the difference between the expected welfare losses under the two monetary regimes amounts to:

$$EL^G\left(p \middle| p^*, g=1\right) - EL^G\left(p=\tilde{p}\right) = -\left[\left(1+k_1+\frac{k_1}{k_2}\right)\left(1+k_1\right)\right]^{-1}\frac{k_1}{k_2}s_e^2 \qquad (27)$$

When the policymaker cannot use debt policy, it is always preferable to retain monetary flexibility. In fact, the increased volatility of inflation is more than compensated by the reduction in expenditures variability . On the other hand, the availability of debt policy is of little help if political constraints limit the policymaker's ability to react to shocks. Consider the extreme case where the fiscal authority can choose the size of the deficit but taxes must be set before shocks are observed.

The first order condition for the tax instrument becomes:

$$-E\left(y_t\right)+k_1\left(G-\tilde{G}\right)=0 \qquad (28)$$

and the solutions for inflation is as follows:

$$p_t^B = p_t^b - \frac{k_1}{gk_2}\left(G_t-\tilde{G}\right) - \frac{1}{1+gk_2}e_t \qquad (29)$$

Debt, taxes and expenditures follow the deterministic pattern outlined in section 2, whilst monetary policy takes up the burden of stabilising output. It is straightforward to show that in this case welfare losses are always smaller when $g=1$ and the optimal inflation target for a deterministic environment[18] is adopted.

5. Conclusions

Two fundamental results emerge from this paper. The first is that a strategy based on holding the ECB accountable by means of an inflation target presents several shortcomings, due to the persistence of debt and distortionary taxation. The second result is that delegating monetary policy to a conservative central banker enhances welfare as long as fiscal policy

remains flexible. It follows that co-ordination of countercyclical national fiscal policies is desirable, given the ECB institutional conservatism. Unfortunately, it is not granted that European governments will be able to implement such flexibility. Even though automatic stabilisers could do part of the job, national fiscal policies might be bogged down in a lengthy decision-making process. Hence, a role emerges for European institutions apt at spurring fiscal action when required.

[18] See equation (16).

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