

EM U and Politically-Induced O utput V ariability:

C an the Stability and G row th Pact H elp?

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A bstract

Rogoff, 1985, suggested that central bank independence would lead to lower inflation but greater output variability. Alesina and Gatti, 1995, demonstrated Rogoff's work was partial by only considering economic sources of output variability. By including political factors, circumstances could be identified when making a central bank independent could reduce both inflation and output variability. In EM U , however, there is no choice about central bank independence. Starting with a review of the analysis presented by Alesina and Gatti, this paper suggests national fiscal policies could also be a source of politically-induced output variability. It reinterprets the analysis of Alesina and Gatti and identifies circumstances when the Stability and Growth Pact could help to reduce output variability in EM U .

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Introduction

One of the concerns with having monetary policy implemented by an independent central bank is the possible impact such policy delegation could have on the real economy in general and output variability in particular. Rogoff (1985) showed how the delegation of monetary policy to an independent central bank would result in higher output variability despite an unchanged average level of output. Alesina and Gatti (1995) develop this analysis by identifying two sources of output variability which we may identify as economically-sourced and politically-sourced. Rogoff focused on the first but Alesina and Gatti, by adding political uncertainty into the analysis, show how output variability may be reduced by the delegation of monetary policy to an independent central bank.

The present paper summarises the results of Alesina and Gatti and shows how the Rogoff results are a special case of their analysis. It then takes as given a country's membership of Economic and Monetary Union (EMU). It therefore accepts the delegation of monetary policy to an independent central bank (the European Central Bank or ECB) as given. In addition to countries delegating monetary policy to the ECB, they have also agreed upon The Stability and Growth Pact (SGP), which places a limit on national fiscal deficits of EMU members. It is then argued using the analytical framework developed by Alesina and Gatti that output variability may be lower with the SGP than without it.

The Results of Rogoff and Alesina & Gatti

Rogoff (1985) demonstrated how handing monetary policy to an independent central bank could reduce inflation bias but at the expense of increased output volatility. Yet by delegating the control of monetary policy to an agent who is more inflation-averse than themselves, a policy-maker increases their own welfare. Whilst this would result in a lower average inflation rate and lower inflation variance, the

economy's output variance would be greater despite the average level of output remaining at the natural rate.

Allesina and Gatti argue that not only can shocks to an economy generate output variance, but so can political factors. If there is uncertainty over the result of an election and if two parties assign different values to the relative benefits from stabilisation and inflation-reduction, a further source of variability in output is identified. This additional source of variability results from a particular sequence of events. First, wage bargainers set wages at the beginning of a period before an election is then held and when the outcome of the election is still unknown. The elected party then sets inflation, but the uncertainty over the election and which party would be coming to power means that actual and expected inflation diverge. This is because in setting wages, economic agents had given some weight to the likely inflation under both parties in determining what they expected future inflation to be. In the simplest form of the model, we assume that elections are held every period and wages are set before each election.

Both models are New-Classical and are represented by a Lucas Surprise Supply Function. Additionally, however, random economic shocks are allowed to hit the economy and are represented by an independently and identically distributed shock term, e_t . This has zero mean and variance, σ_e^2 . Therefore, we can model the output of the economy at time t as:

$$Y_t = \Pi_t - \Pi_t^e + e_t \tag{1}$$

where π_t and π_t^e are the actual and expected rates of inflation in period t . Further, both models assume a loss function Z_i for policy-maker i of the form :

$$Z_i = \frac{1}{2} \Pi_t^2 + \frac{b_i}{2} (k - Y_t)^2$$

(2)

where k is the target level of output of all policy-makers, which is assumed to be greater than the natural level of output, and Y is the actual level of output. b_i is the benefit parameter for policy-maker i and is the relative weight attached to output stabilisation as opposed to inflation.

Rogoff refers to only one policy-maker type but, following Alesina and Gatti, we can identify a left of centre party (L) and a right of centre party (R). We assume L places greater importance on stabilisation over inflation-reduction than R. The two parties thus have different benefit parameters b_L and b_R , with $0 < b_R < b_L$. That is to say, the left of centre party perceives a greater benefit from surprise inflation than the right of centre party, as that implies greater efforts are going into stabilisation, which is the (relatively) preferred policy choice of L. If monetary policy is delegated to an independent central bank, their benefit parameter will be chosen as \hat{b} . In the Rogoff model, with a single policy-maker type with benefit parameter b , it is optimal for the policy-maker to delegate such that $\hat{b} < b$. With Alesina and Gatti, we assume $\hat{b} < b_R < b_L$. The results of both models are summarised in Table 1:

Table 1: Economic Outcomes and Central Bankers

	Dependent	Independent
Π_t^e	$\frac{P(b_L - b_R) + b_R(1 + b_L)}{(1 + b_L) - P(b_L - b_R)} k$	$\hat{b}k$
Y_t^e	0	0
VAR(Y)	$\frac{P(1-P)(b_L - b_R)^2}{[(1 + b_L) - P(b_L - b_R)]^2} k^2 + \left[\frac{P}{(1 + b_L)^2} + \frac{1-P}{(1 + b_R)^2} \right] s_e^2$	$\frac{1}{(1 + \hat{b})^2} s_e^2$
VAR(Π)	$\frac{P(1-P)(b_L - b_R)^2}{[(1 + b_L) - P(b_L - b_R)]^2} k^2 + \left[P \left(\frac{b_L}{1 + b_L} \right)^2 + (1-P) \left(\frac{b_R}{1 + b_R} \right)^2 \right] s_e^2$	$\frac{\hat{b}}{1 + \hat{b}} s_e^2$

P is the probability of an election victory by L ($1-P$ being the probability of R winning). The results shown are from the Alesina and Gatti model. The variance terms for output and inflation under a dependent central bank and politicised monetary policy-making have two elements. The first is the politically-sourced variation and the second the economically-sourced variation. By making the central bank independent, the electoral considerations are removed. The differences between b_L and b_R are removed and the benefit parameter becomes \hat{b} , the parameter of the independent central bank. The effect of this is to remove most elements of the formulae in the left hand column and the equations collapse to those in the right hand column.

The equations shown for an independent central bank are therefore equal to the Rogoff results, that is to say Rogoff is a special case of Alesina and Gatti. An 'appropriate' choice of \hat{b} can deliver both lower expected inflation and a lower variance of inflation. However, the significant result highlighted by Alesina and Gatti is that an independent central bank does not necessarily infer greater output variability than with a dependent central bank, as concluded by Rogoff (1985). Alesina and Gatti argue that with a dependent central bank "the variance of output can easily be larger than the variance of output with an independent central bank" (p. 199). If the two parties were identical, the difference between the dependent and independent central banker scenarios would depend upon the degree to which $\hat{b} < b_L = b_R$. With identical parties, the politics disappears and we are left simply with the notion that the independent central banker is more inflation-averse. Nevertheless, as the difference between the benefit parameters of the two policy-makers increases, the importance of the political variance also increases with increased political uncertainty. For a sufficiently large difference between the benefit parameters b_L and b_R , the political term dominates. In this case, the variance of output with an independent central bank would be 'significantly lower' than that prevailing with a dependent central bank, whose policies would be determined by whichever party, L or R , that was in power.

EM U and the Stability and Growth Pact

The work of Rogoff and of Alesina and Gatti, outlined above, relates specifically to the case of a single country and the impact on the output variability of that country having a dependent or independent central bank. The conclusion of Rogoff is that such policy delegation will lead to greater output variability. Alesina and Gatti, however, suggest that Rogoff's analysis was partial, by examining only economic factors that could generate variability in output. By including political factors as well, the move to an independent central bank may reduce output variability.

The situation under EM U is, however, rather different. In particular, there is no choice about whether or not to have an independent central bank. This implies simply that, other things being equal, the independent central bank outcomes shown in Table 1 are those that apply in EM U. Intuitively, however, this is not the case, for a number of reasons. First, there is the difference created by having an international setting. Rather than having national monetary policy decisions and national electoral considerations, there is now an international Euro-wide setting for monetary policy. With an independent central bank there are, as already demonstrated in the national setting, no political influences on that monetary policy – all variation comes through economic factors only.

Contrasting with European monetary policy, however, is national fiscal policy and the potential influences domestic political considerations may have for that. The existence of the Stability and Growth Pact (SGP) indicates concern over possible negative spillovers for the monetary policy decisions of the ECB from national fiscal policies. Given the removal of intra-Euro exchange rates and the delegation of monetary policy to the ECB, the main economic tool retained by national governments is fiscal policy. To the extent that national authorities can generate inflation through their fiscal policies, via the impact on aggregate demand, a further

source of variability in output can be identified. Thus, despite the presence of an independent central bank politically induced variance still matters. The ECB protects monetary policy from domestic party-political considerations, but does not do the same for fiscal policy.

The presence of the SGP can be seen as an attempt to try to ensure national fiscal policies do not compromise the monetary policy stance of the ECB. To the extent that national authorities pursue expansionary and inflationary fiscal policies, the ECB must pursue a tighter monetary policy in order to achieve a particular inflation rate. Following on from the previous section, it is thus a question of whether or not the presence of the Stability and Growth Pact (SGP) is capable of reducing output variability below the level pertaining without its existence. This implies that Alesina and Gatti will become a specific case of a more general model still, which takes an independent central bank as given, but incorporates fiscal policy. In this model, in addition to the economically-sourced output variability from the exogenous shock, there could be a shock to output from political sources, as with Alesina and Gatti, but in this case deriving from different stances towards fiscal policy by different parties in each country.

In order to simplify the analysis, we can use exactly the same algebraic model as Alesina and Gatti if we can understand how a country can have different benefit parameters for different political parties which converge in the presence of the SGP. We can identify b_L and b_R as before and we assume that, via the impact of domestic fiscal policy on aggregate demand, the preferred inflation rate for L is greater than the desired inflation rate for R which is, in turn, greater than the desired inflation rate of the ECB. In other words, $\Pi_L > \Pi_R > \Pi_{ECB}^{des}$. In terms of short run political gain, we may assume that a national political party will increase expenditures above taxes and thus generate an increase in the deficit.

The presence of the SGP, however, is designed to try to ensure such national fiscal policy autonomy does not result in a higher deficit. This implies, therefore, that the 3% limit on permitted national deficits will restrain national governments'

ability to expand the economy using fiscal means for political gain – were the 3% limit under the SGP not binding, there would be no point in its existence. It is thus the case that the SGP attempts to reduce the ability of governments of L and R to generate inflation down towards the level desired by the ECB (even if the retention of a degree of national fiscal autonomy means it will remain narrowly above this level). As the SGP makes no allowance for political variation, it is also assumed that Π_L will need to fall further than Π_R and thus the two values converge on a level much closer to Π_{ECB}^{des} than would be the case in the absence of the SGP.

The presence of the SGP, in turn, also means that in calculating b_L and b_R , the respective parties assign a higher cost to inflation than before, given the presence of the financial penalty for exceeding the 3% deficit level. As the possible values of Π_L and Π_R fall and converge with the SGP, so in turn do the respective values of b_L and b_R .

Conclusions

The central conclusion from the foregoing discussion is essentially the same as that reached by Alesina and Gatti. Output variability can come from economic and political sources. In EMU, the economic variability can come from a shock to an economy, in much the same way as it can occur in the analysis of both Alesina and Gatti and Rogoff. The politically-induced output variability, however, comes not from a dependent central bank and politicised monetary policy, but from the continued possibility that national political and electoral conditions and uncertainty could lead to political parties in individual countries using fiscal policy for their own advantage, in turn generating inflation that could compromise the monetary policy stance of the ECB.

By placing an effective limit on the budget deficits a country can run, the SGP is imposing a limit on the extent to which a country can undertake expansionary or

tax fiscal policy in order to achieve short term political gains. It thus, in turn, raises the costs associated with inflation for individual political parties in member states. It is this which can be seen as leading to a convergence in the values of b_L and b_R .

The effect of the SG P on output variability can be seen as being represented by the algebra of Alesina and Gatti, as summarised in Table 1. With a sufficiently large difference between b_L and b_R , the politically-induced variability output can dominate the economically-induced variation. To the extent that the SG P leads to a convergence in b_L and b_R , it is possible that the existence of the SG P can result in a reduction in output variability compared to an EMU without an SG P.

References

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