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Abstract

This paper provides a model encompassing both partisan influences on monetary policy and the issue of Central Bank independence. In a regime of partial independence, Central Bank's policy responses are not immune from partisan influences. Still, the latter fail to affect sistematically the expected output level in election years. The predictions of the model are consistent with the empirical literature on partisan cycles and account for some of its controversial findings.

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Introduction

In the field of macroeconomics, the last twenty years have witnessed an unprecedented interest in the interaction between policymakers and private sector and in the institutions that shape it. The Rational Partisan Theory (Chappell and Keech, 1986 and 1988; Alesina, 1987, 1988 and 1989) assumes that politicians are ideologically motivated and adopt their most preferred policy during their term in office. Because of electoral uncertainty, the victory of the more conservative party is accompanied by a recession while the success of the less conservative one pushes output above its natural level. To the contrary, Political Business Cycles theorists posit that politicians act to maximise their chances of being re-elected by attempting to stimulate output just before elections (Nordhaus, 1975). This prediction is mitigated if expectations are rational (Persson and Tabellini, 1990).

Both political and partisan models assume that governments are in full control of monetary policy. This is in sharp contrast with a large body of literature which has ranked the degree of independence enjoyed by Central Banks in OECD countries (Grilli, Masciandaro and Tabellini, 1991; Alesina and Summers, 1993). We believe that standard partisan (political) models and the related empirical evidence should be reconsidered to take into account the dampening effect of Central Bank independence on electoral monetary policy shifts.

This paper builds on two strands of macroeconomic theory: monetary policy under electoral uncertainty and Central Bank independence. Theoretical and empirical literature has developed around each of these ideas [1], but no unified treatment of them has been provided so far. We blend the well-known rational partisan model by Alesina

(1987) with the model of Central Bank independence by Lohmann (1992) to appraise the effects of electoral uncertainty. In a regime of partial independence, the incumbent government can revert the Central Bank's decisions at a positive and finite cost. This arrangement lends credibility to Central Bank's policy, while preserving its accountability. Since the incumbent policymaker can credibly threaten to take back control of monetary policy, a policy-motivated Central Banker is prepared to adjust its monetary stance when requested. Thus, if the policymaker's benefits from assuming control of monetary policy fall short of costs, the Central Banker is allowed to follow an unconstrained policy. But, if the policymaker's benefits exceed the overriding costs, the Central Bank partly fulfills the desiderata of the elected government. It is only in this case that partisan influences are felt. We show that, in a partial independence regime, partisan influence persists but partisan cycles may fail to materialise. Thus — in contrast with the predictions of the popular Rogoff (1985) model and the original Lohmann model — greater independence may lower inflation without raising output variability: the limited scope for post-electoral surprises offsets the distortionary output responses of a conservative Central Bank. This is consistent with the results presented in Alesina and Summers (1993) who find that the degree of Central Bank independence — albeit negatively correlated with national inflation rates — is orthogonal to output variability.

Finally, we focus on the conduct of U.S. monetary policy. The partial independence model is well-suited to describe the behavior of the Fed and allows to rationalise some empirical evidence on output cycles in the U.S. which is not entirely consistent with the partisan model (Alesina and Sachs, 1988; Klein, 1996).

The rest of the paper is laid out as follows. In Section 1 we discuss the implications of the partisan model and the consequences of commitment to a fully independent Central Bank. In Section 2 we develop a model of partial Central Bank independence under partisan policymakers. In Section 3 we discuss the U.S. case. Section 4 concludes.

1. Models of Partisan Cycles and Central Bank Independence

Consider an economy described by the following supply function (Fischer, 1977):

$$y_t = -(w_t - \pi_t) + z_t \tag{1}$$

The log of output y_t is a function of real wages $(w_t - \pi_t)$ and a shock z_t which is normally distributed with zero mean and finite variance. Nominal wages (w_t) are rational expectations of inflation based on information available at time $t-1$:

$$w_t = E_{t-1}\pi_t \tag{2}$$

where E is the expectation operator.

In this economy, an election takes place at the beginning of every second period. Two ideologically motivated parties enter the electoral contest: the Democrats (D) and the Republicans (R). In the conduct of monetary policy these parties differ only in the relative weight they attach to inflation *vs.* output stabilisation around a target $\tilde{y} > 0$, as reflected in their loss function:

$$L_t^D = \left(y_t - \tilde{y}\right)^2 + \tau^D \pi_t^2$$

$$\tag{3}$$

$$L_t^R = \left(y_t - \tilde{y}\right)^2 + \tau^R \pi_t^2$$

where $\tau^R > \tau^D$, implying that the Republicans are the most inflation-averse party.

The probability of winning an election for the Democratic (Republican) party is P $(1-P)$. As in Alesina (1987), we take P as exogenous and assume it to be common knowledge. Alternative institutional arrangements close the model.

In the case of *full discretion,* monetary policy is entrusted with the elected party. We refer to it as the incumbent: $i = D, R$. When in office the incumbent takes nominal wages as given and after observing the shock z_t sets the policy instrument —π_t — so as to minimise its loss function. Thus,

$$\pi_t^i = -\frac{z_t}{1+\tau^i} + \frac{w_t + \tilde{y}}{1+\tau^i} \tag{4}$$

The optimal monetary response consists of a countercyclical component, $\left(-\dfrac{z_t}{1+\tau^i}\right)$, constant across election and non-election periods and a term which varies depending on whether or not an election is held in t, $\left(\dfrac{w_t + \tilde{y}}{1+\tau^i}\right)$. Suppose t is an *election year.* Since nominal wages are based on information available at $t-1$, they reflect electoral uncertainty:

$$w_t = \left[\frac{(1+\tau^D) + P(\tau^R - \tau^D)}{\tau^R(1+\tau^D) - P(\tau^R - \tau^D)}\right]\tilde{y} \tag{5}$$

As a consequence, nominal wages differ from the time-consistent level — $\dfrac{\tilde{y}}{\tau^i}$ — which would prevent monetary surprises. It follows that in election periods

$$y_t^i = \left(\frac{\tau^i}{1+\tau^i}\right)z_t - \left(w_t - \frac{\tilde{y}}{\tau^i}\right)\left(\frac{\tau^i}{1+\tau^i}\right) \tag{6}$$

where the term $\left(w_t - \dfrac{\tilde{y}}{\tau^i} \right)\left(\dfrac{\tau^i}{1+\tau^i} \right)$ describes the impact of a monetary surprise on output. Observe that since $\dfrac{\tilde{y}}{\tau^R} < w_t < \dfrac{\tilde{y}}{\tau^D}$, a Democratic (Republican) incumbent generates a positive (negative) surprise.

Monetary surprises cannot be replicated at $t+1$. In fact, nominal wages w_{t+1} are set when the identity of the incumbent is known. Thus,

$$w_{t+1} = \frac{\tilde{y}}{\tau^i} \tag{7}$$

Under full discretion, a partisan cycle emerges. As soon as elected, a Democratic Administration masters an expansion while a Republican one delivers a recession. Later in their term in office, both Democrats and Republicans lack incentives to generate surprises.

There are several ways to test for partisan cycles. Partisan effects may show up in inflation [2] and output shifts. Alesina and Roubini (1992) and Alesina, Cohen and Roubini (1993) find evidence of partisan effects in inflation for a number of countries including the U.S.. Lockwood, Maloney and Hadri (1995) point out that these estimates do not pass standard misspecification tests. Moreover, tests of the Partisan hypothesis rest upon the unspelled assumption that the incumbent Administration has full control of monetary policy instruments (Alesina, 1988 and 1989; Alesina and Sachs, 1988; Alesina and Roubini, 1992; Alesina and Rosenthal, 1995 [3]). The findings of the literature on Central Bank independence question this assumption: it is widely acknowledged that in some countries, notably the U.S. and Germany, the Central Bank is entrusted with a

significant degree of independence in the conduct of monetary policy (Grilli, Masciandaro and Tabellini, 1991; Alesina and Summers, 1993)[4]. Taking this view to the extreme, Alesina and Gatti (1995) investigate the consequences of monetary policy delegation to a fully *independent Central Bank.* Suppose the Central Bank is entitled to set the inflation rate so as to minimise its loss function:

$$L_t^B = \left(y_t - \tilde{y}\right)^2 + \tau^B \pi_t^2 \tag{8}$$

Independence isolates monetary policy from political influences:

$$\pi_t^B = -\frac{z_t}{1+\tau^B} + \frac{w_t + \tilde{y}}{1+\tau^B} \tag{9}$$

and

$$w_t = w_{t+1} = \frac{\tilde{y}}{\tau^B} \tag{10}$$

If, as in Rogoff (1985), monetary policy is delegated to a "conservative" Central Banker, that is

$$\tau^B > \frac{\tau^R(1+\tau^D) - P(\tau^R - \tau^D)}{(1+\tau^D) + P(\tau^R - \tau^D)} \tag{11}$$

this regime lowers the inflationary bias which would otherwise prevail under discretion[5]

$$E(\pi^B) < PE(\pi^D) + (1-P)E(\pi^R) \tag{12}$$

but need not raise output variability. For $\tau^R < \tau^B$ in non-electoral years output variability under a conservative Central Banker is greater than in a regime of full discretion[6]:

$$\left(\frac{\tau^B}{1+\tau^B}\right)^2 \sigma_z^2 > \left[P\left(\frac{\tau^D}{1+\tau^D}\right)^2 + (1-P)\left(\frac{\tau^R}{1+\tau^R}\right)^2\right]\sigma_z^2 \tag{13}$$

But in electoral years the reverse may hold :

$$\left(\frac{\tau^B}{1+\tau^B}\right)^2 \sigma_z^2 \langle \qquad\qquad (14)$$

$$\left[P\left(\frac{\tau^D}{1+\tau^D}\right)^2 + (1-P)\left(\frac{\tau^R}{1+\tau^R}\right)^2\right]\sigma_z^2 + \tilde{y}^2 P(1-P)\left\{\frac{\left(\tau^R - \tau^D\right)^2}{\left[(1-P)\tau^R\left(1+\tau^D\right) + P\tau^D\left(1+\tau^R\right)\right]^2}\right\}$$

because, although output variance in the face of supply shocks increases, electoral effects are wiped off [7].

This result provides an intuitive explanation for the findings of Alesina and Summers (1993), but the key underlying assumption — full Central Bank independence — is at odds with the empirical evidence on both partisan cycles and Central Bank independence. In fact, if monetary institutions in OECD countries behaved according to the Alesina and Gatti model, we should not observe electoral effects at all. Moreover, although the studies cited above show that some Central Banks are more independent than others, this does not imply that any Central Bank is entirely immune from political influences. For instance the Bundesbank's decisions can be vetoed by the government (Kennedy, 1991), while the Federal Reserve's monetary policy is reviewed twice a year by the Congress Banking Committee (Akhtar and Howe, 1991). The working principle of these arrangements is that attempts to bend ex-post the Central Bank's commitment to a low inflation policy has to be costly. This gives rise to the notion of partial independence introduced by Lohmann (1992) on which we rely to develop our model.

2. Partial Independence and Policy Convergence

Suppose monetary policy is delegated to a Central Banker whose objective function is as in (8). As in Lohmann (1992), the incumbent Administration retains the option to ex-post revoke the Central Banker's decisions at a strictly positive and finite cost c. The actual degree of conservatism of a Central Banker is the outcome of a particular institutional design reflecting a complex bargaining process among several interest groups. It may well be the case that at any point in time the Central Bank is too conservative according to some factions and not enough so according to others. For this reason, albeit we present formal results only for $\tau^R < \tau^B$, in the following we also discuss the implications of $\tau^R > \tau^B$ [8].

The Central Banker sets the inflation rate to minimise its loss function subject to the following constraint:

$$L_t^i\left(\pi_t^B\right) - L_t^i\left(\pi_t^i\right) \le c, \qquad i = D, R \tag{15}$$

Due to (15), the Central Banker follows a non-linear policy rule [9]:

$$\pi_t^B(I_i) = \frac{-z_t + w_t + \tilde{y}}{1 + \tau^B} \qquad \text{if } z_t \in I_i \tag{16a}$$

$$\pi_t^B(A_i) = \left[\begin{array}{ll} \dfrac{-z_t + w_t + \tilde{y}}{1 + \tau^i} - \sqrt{\dfrac{c}{1 + \tau^i}} & \text{if } z_{t|\in A_i} < \underline{z}_i \\ \\ \dfrac{-z_t + w_t + \tilde{y}}{1 + \tau^i} + \sqrt{\dfrac{c}{1 + \tau^i}} & \text{if } z_{t|\in A_i} > \overline{z}_i \end{array} \right. \tag{16b}$$

where

$$I_i = \left\{ z_t \,\middle|\, L_t^i\!\left(\pi_t^{\,B}\right) - L_t^i\!\left(\pi_t^{\,i}\right) \le c \right\}$$

$$A_i = \mathbb{R} \setminus I_i = \tag{17}$$

$$\left\{ z_t < \underline{z}_{t,\,i} \equiv (w_t + \tilde{y}) - \sqrt{c\!\left(1+\tau^{\,i)}\right)\!\left(\frac{1+\tau^{\,B}}{\tau^{\,B}-\tau^{\,i}}\right)^2} \;\; ; \;\; z_t > \bar{z}_{t,\,i} \equiv (w_t + \tilde{y}) + \sqrt{c\!\left(1+\tau^{\,i)}\right)\!\left(\frac{1+\tau^{\,B}}{\tau^{\,B}-\tau^{\,i}}\right)^2} \right\}$$

We can identify two regions: an independence region, *I*, where the Central Banker runs an unconstrained policy, and an accommodating region, *A*, where the Central Banker adopts a monetary stance such that the incumbent Administration is indifferent between overriding or not his decisions [10]. Lohmann (1992) shows that in equilibrium the Central Banker is never overridden.

As a simple inspection of (16) and (17) reveals, the degree of independence enjoyed by the Central Banker depends on the outcome of the electoral contest. Rational agents anticipate this. Hence, in election periods nominal wages reflect electoral uncertainty.

If *t* is an *election year*

$$w_t = PE(\pi_t^{\,B}\,|\,\tau^{\,i} = \tau^{\,D}) + (1-P)E(\pi_t^{\,B}\,|\,\tau^{\,i} = \tau^{\,R}) \tag{18}$$

As in the case of full discretion, expected and actual monetary policy differ systematically. But underpartial independence neither the election of a Democratic (Republican) Administration need imply a positive (negative) monetary surprise.

Consider first the case of a Democratic Administration. If $z_t \in I_D$, the Central Banker is allowed to run an unconstrained policy. By substituting (16a) into (1), we obtain:

$$y_t\Big|z_t \in I_D = \left(\frac{\tau^B}{1+\tau^B}\right)z_t - \left(w_t - \frac{\tilde{y}}{\tau^B}\right)\left(\frac{\tau^B}{1+\tau^B}\right) \tag{19}$$

If $w_t > \dfrac{\tilde{y}}{\tau^B}$ the Central Banker's independent policy generates a negative surprise under

a Democratic incumbent. Observe that this inequality holds in a number of

circumstances. Since $\dfrac{\tilde{y}}{\tau^B}$ coincides with inflation expectations in a regime of full

independence, it falls short of w_t whenever $\tau^B > \tau^R > \tau^D$. On the other hand, even if the

Central Banker is less inflation-averse than a Republican Administration, the inequality

may still be satisfied. This would be the case when either τ^D is relatively low or the

chances of a Democratic victory are judged substantial by the private sector[11].

It is only for $z_t \in A_D$ that monetary policy can be expansionary under a Democratic

incumbent. In fact, for large shocks the benefits from output stabilisation exceed the cost

of overriding the Central Bank and the Administration can credibly threaten to take back

control of monetary policy. The Central Banker's optimal response is to accommodate.

By substituting (16b) into (1) we obtain:

$$y_t\Big|z_t < \underline{z}_D = \left(\frac{\tau^D}{1+\tau^D}\right)z_t - \left(w_t - \frac{\tilde{y}}{\tau^D}\right)\left(\frac{\tau^D}{1+\tau^D}\right) - \sqrt{\frac{c}{1+\tau^D}} \tag{20a}$$

$$y_t\Big|z_t > \bar{z}_D = \left(\frac{\tau^D}{1+\tau^D}\right)z_t - \left(w_t - \frac{\tilde{y}}{\tau^D}\right)\left(\frac{\tau^D}{1+\tau^D}\right) + \sqrt{\frac{c}{1+\tau^D}} \tag{20b}$$

Since $\dfrac{\tau^D}{1+\tau^D} < \dfrac{\tau^B}{1+\tau^B}$ the accommodating policy limits the direct impact of shocks on

output. But only if $w_t < \left(\dfrac{\widetilde{y}}{\tau^D} - \dfrac{\sqrt{c(1+\tau^D)}}{\tau^D} \right)$ an expansionary surprise accompanies the

election of a Democratic Administration for any $z_t \in A_D$ [12].

We turn now to the case of a Republican incumbent. If $z_t \in I_R$, the Central

Banker retains independence and output amounts to

$$y_t \Big|_{z_t \in I_R} = \left(\frac{\tau^B}{1+\tau^B} \right) z_t - \left(w_t - \frac{\widetilde{y}}{\tau^B} \right) \left(\frac{\tau^B}{1+\tau^B} \right) \tag{21}$$

If $w_t > \dfrac{\widetilde{y}}{\tau^B}$, as we argued above, a negative surprise accompanies the election of a

Republican Administration. When $z_t \in A_R$, output amounts to

$$y_t \Big|_{z_t < \underline{z}_R} = \left(\frac{\tau^R}{1+\tau^R} \right) z_t - \left(w_t - \frac{\widetilde{y}}{\tau^R} \right) \left(\frac{\tau^R}{1+\tau^R} \right) - \sqrt{\frac{c}{1+\tau^R}} \tag{22a}$$

$$y_t \Big|_{z_t > \overline{z}_R} = \left(\frac{\tau^R}{1+\tau^R} \right) z_t - \left(w_t - \frac{\widetilde{y}}{\tau^R} \right) \left(\frac{\tau^R}{1+\tau^R} \right) + \sqrt{\frac{c}{1+\tau^R}} \tag{22b}$$

Negative surprises occur if [13]

$$w_t > \left(\frac{\widetilde{y}}{\tau^R} + \frac{\sqrt{c(1+\tau^R)}}{\tau^R} \right) \tag{23}$$

Finally, in *non-election years*, electoral uncertainty disappears, but — due to the

working of the partial independence regime — partisan influences are still felt when large

shocks hit the economy. In fact

$$w_{t+1} = E(\pi_{t+1}) = (1 - q_i)E\left(\pi_{t+1}^B(I_i)\right) + q_i E\left(\pi_{t+1}^B(A_i)\right) \qquad (24)$$

where $q_i = \Pr\{z_t | z_t \in A_i\}$.

Last but not least, the partial independence model explains why an increase in the Central Bank degree of independence lowers inflation but need not raise output variability. The intuition behind this result is indeed very simple. Under a partial independence regime output variance in each period amounts to

$$\sigma_y^2 = P\sigma_y^{2,D} + (1 - P)\sigma_y^{2,R} + P\left[E(y^D)\right]^2 + (1 - P)\left[E(y^R)\right]^2 \qquad (25)$$

where $\sigma_y^{2,D}$ and $\sigma_y^{2,R}$ define output variance under a Democratic and a Republican incumbent, respectively. As the Central Bank degree of independence increases, regions I_i widen, and monetary policies implemented under each incumbent converge to $\pi^B = \dfrac{-z + w + \tilde{y}}{1 + \tau^B}$. Thus, the size of expected post-electoral surprises falls. This implies that both $\left[E(y^D)\right]^2$ and $\left[E(y^R)\right]^2$ fall. On the other hand, since the Central Bank is by assumption more conservative than a Democratic incumbent $(\tau^B > \tau^D)$, greater independence raises $\sigma_y^{2,D}$. Finally, the effect of an increase in c on $\sigma_y^{2,R}$ is ambiguous, depending on the sign of $(\tau^B - \tau^R)$: if $(\tau^B - \tau^R) < 0$, $\sigma_y^{2,R}$ falls. For the same reason, greater Central Bank independence may reduce σ_y^2 even in non-electoral years, when $E(y^i)^2 = 0$ [14].

3. Partisan Cycles and the Independent Status of the Fed

Monetary institutions in the U.S. economy provide a good case study to investigate the interactions between partisan politics and a partially independent Central Bank. On one hand, the American political system is "polarised" (Alesina and Rosenthal, 1995). On the other, although the Federal Reserve independent status is widely recognised, there is ample evidence that the Bank responds to signals from the Administration (Havrilesky, 1988 and 1994; Grier 1991).

The institutional features of the Federal Reserve support our view that a regime of partial independence characterises monetary policy in the U.S.. Seven members of the Federal Reserve's Federal Open Market Committe (FOMC) are presidential appointees, but there are good reasons to believe that their policy preferences are at best imperfectly coincident with those of their political principal (Havrilesky and Gildea, 1992). Last but not least, theoretical models suggest that the staggered-appointments rule reduces the scope for introducing a partisan bias in monetary policy [15], and should provide the incentive for each party in power to appoint relatively conservative Governors (Waller, 1989). It is also well known that the remaining members of the FOMC, being Chairmen of the Federal District Banks, *de facto* represent the interests of the financial community, bringing the Fed policymaking body closer to the Rogoff-Lohmann model of conservative Central Banker [16]. Nevertheless the Fed is far from enjoying full independence. In fact, scholars of the political economy of monetary policy in the U.S. have presented accounts of the relationship between the Bank and its political principals which appears to be more complex than one would expect on the grounds of the Fed statutory obligations. It has been repeatedly pointed out that political pressures become

more stringent — and more difficult to resist — during adverse cyclical conditions whereas in "normal" times the Fed is able to run an independent policy. These distinctive features have long characterised the conduct of monetary policy in the U.S.. Wicker (1993, p.238) remarks this with reference to the early years of the Fed. Havrilesky (1994, p.125) strengthens this view relatively to the post World War II period, presenting two indexes for measuring Administration and Congressional influence on the Fed. His work provides "....._statistical evidence of a direct link between the state of the economy (as a cause) and political pressures (as a proximate effect) and changes in monetary policy (as an ultimate effect)... _". This is strikingly consistent with the working of a partial independence regime.

Empirical tests of the partisan hypothesis reflect the mix between partisan influences and partial Central Bank independence which, in our view, characterises the conduct of U.S. monetary policy. Alesina and Sachs (1988) test the implications of the partisan model for the U.S., focusing on output [17]. The data do not reject the prediction that the election of a Republican Administration coincides with negative surprises, but the election of a Democrat is not significantly related to output expansions [18]. Klein (1996) applies duration analysis to detect the temporal links between elections and the turning points of the U.S. business cycle. Similarly to Alesina and Sachs (1988), he finds "._.a difference by the party of the victorious presidential candidate_" (Klein, 1996, p.100). In fact, following a Republican victory it is less (more) likely that an expansion begins (comes to an end). To the contrary, the prediction that Democratic incumbents sistematically expand output finds less support (Klein, 1996, p.97). This asymmetry is difficult to rationalise within the framework of the standard partisan model. By contrast,

our model is consistent with the asymmetric effect of Republican and Democratic incumbents on output.

Let us assume that the economy is characterised by some values of P, τ^i, τ^B, c, $\tilde{y}$, such that the following inequalities obtain:

$$w_t > \frac{\tilde{y}}{\tau^B} \tag{26}$$

$$\left(\frac{\tilde{y}}{\tau^R} + \frac{\sqrt{c(1+\tau^R)}}{\tau^R} \right) < w_t < \left(\frac{\tilde{y}}{\tau^D} - \frac{\sqrt{c(1+\tau^D)}}{\tau^D} \right) \tag{27}$$

Monetary surprises are always negative under a Republican incumbent, apparently confirming the standard partisan model. However this is due to partisan influences only when $z_t \in A_R$. By contrast, the election of a Democratic government will trigger a positive surprise only if $z_t \in A_D$. This may explain why evidence on the influence of Democratic incumbents is inconclusive, since small shocks trigger a negative surprise even under a Democratic incumbent. Hence, the partial independence model outperforms the standard partisan model as well as the full independence model, supporting the view that partisan influence matters only when large shocks hit the economy.

4. Conclusions

This paper calls for a reassessment of the relationship between monetary policy and politics, taking into account the role of Central Banks. Standard partisan models assume full government discretion in the conduct of monetary policy. Tests of the partisan hypothesis for the U.S. are often based on the assumption that "...*no distinction is made between the "Administration" and the Central Bank. The implicit assumption is that the Administration has some direct or indirect control over monetary policy.*" (Alesina and Sachs, 1988, p.67).

In our work, we show that when explicit attention is paid to the costs of pressurizing the Central Bank in an economy where constitutional provisions are made to preserve its independence, the predicted partisan cycles may fail to materialize. We find that the partial independence model provides a more satisfactory explanation of the available empirical evidence on the U.S. business cycle than the standard partisan model does. As it suggests that in the U.S. economy partisan influences are felt only when large shocks hit the economy, it allows to rationalise the different degree of significance of explanatory variables related to Republican vs. Democratic incumbents, emerging from the empirical literature. Thus, our analysis bears implications for the debate about the over-politicization of the Fed. If the accountability of a conservative Central Bank to an elected body is deemed desirable —— as in Lohmann (1992) —— our work shows that it comes at the cost of exposing the economy to some electoral uncertainty.

Appendix I

To establish that delegating monetary policy to a conservative Central Banker lowers the inflationary bias, observe that if t is an election year and a regime of full discretion prevails:

$$E_t w_t = \left[\frac{(1 + \tau^D) + P(\tau^R - \tau^D)}{\tau^R (1 + \tau^D) - P(\tau^R - \tau^D)} \right] \tilde{y} \qquad (A.1.1)$$

$$E_t w_{t+1} = \left[\frac{\tau^D + P(\tau^R - \tau^D)}{\tau^R \tau^D} \right] \tilde{y} \qquad (A.1.2)$$

As simple algebra shows, $E_t w_t < E_t w_{t+1}$. Moreover, if condition (11) holds, $\frac{\tilde{y}}{\tau^B} < E_t w_t$. It follows that delegating monetary policy to a fully independent Central Banker lowers the inflationary bias.

Appendix II

We proceed in steps to prove that (16a) and (16b) are the solution to:

$$\min L_t^B = (y_t - \tilde{y})^2 + \tau^B \pi_t^2 \quad s.t. \quad L_t^i(\pi_t^B) - L_t^i(\pi_t^i) \le c \qquad (A.2.1)$$

Step 1: Call π_t^{**} the solution to:

$$\min L_t^B = (y_t - \tilde{y})^2 + \tau^B \pi_t^2 \qquad (A.2.2)$$

Thus,

$$\pi_t^{**} = \frac{-z_t + w_t + \tilde{y}}{1 + \tau^B} \qquad (A.2.3)$$

Step 2: Call π_t^* the value of the inflation rate that leaves the incumbent policymaker indifferent between overriding or not the Central Banker: