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The Political Business Cycle after 25 Years

1. Introduction

A quarter of a century has passed since the initial outburst of formal theoretical and empirical work on political business cycles, that is, on political determinants of macroeconomic cycles. On the empirical side, there was Kramer's (1971) influential study of economic determinants of U.S. congressional voting, followed by the work of Tufte (1975, 1978) and Fair (1978).¹ Nordhaus's (1975) pioneering formal model of the political business cycle (PBC) due to opportunistic pre-electoral manipulation was published exactly twenty-five years ago.² Soon after, Hibbs (1977) presented a model of partisan policymakers (that is, policymakers having different macroeconomic goals) in an environment similar to that of the Nordhaus, but where these partisan differences were the key driving force. Perhaps as influential in stimulating research was the 1972 Presidential election in the United States, in which incumbent Richard Nixon was justifiably viewed as engaging in significant pre-electoral manipulation.³

I wish to thank my discussants, Alberto Alesina, Carl Walsh, and conference participants and seminar participants at the Hebrew University of Jerusalem and the Bank of Israel for helpful comments, and Stefan Hubrich for extraordinarily able research assistance and many very useful discussions. This research was supported in part by the Maurice Falk Institute for Economic Research, Hebrew University of Jerusalem.

1. Early work on connections between politics and fluctuations in economic activity is reviewed in Kramer (1971).
2. Kalecki (1943) presented an early explicit model of the PBC; the political nature of economic fluctuations was recognized by Schumpeter (1939) in his study of business cycles. Simultaneously with Nordhaus, Lindbeck (1976) presented a similar idea; soon after, McRae (1977) also presented a formal model of the PBC.
3. Rogoff (1988) called Nixon "the all-time hero of political business cycles," at least in contemporary U.S. history. Tufte (1978) begins his famous book on the PBC with a quotation from 1814, "A Government is not supported a hundredth part so much by the

Subsequent to this flurry of research, there has been a large amount of further work. Theoretical research has concentrated on making both opportunistic and partisan models consistent with voters behaving rationally, both in forming expectations about future policy and in voting on the basis of those expectations. The success of opportunistic pre-electoral manipulation was rationalized by assuming that there is imperfect information about an incumbent's competence, with expansionary policy before an election taken as an indicator of high competence, as in the pioneering work of Rogoff (1990) and Rogoff and Sibert (1988), and in papers that followed. A partisan postelectoral cycle was argued to be consistent with rational expectations in the important work by Alesina (1987, 1988). On the empirical side there has been extensive work testing the original and subsequent models, and more generally, looking for empirical evidence of political determinants of business-cycle activity. In his *NBER Macroeconomics Annual* paper in 1988, Alesina presented an excellent summary of much of the work up to that time.

It is over a decade since Alesina's paper was published. It now seems like a good time to look at the past twenty-five years of work and to evaluate the state of the literature. What is our current state of understanding of the PBC, both theoretically and empirically? On what points is there agreement and on what points is there still significant disagreement? How well do the models explain the data? What does existing theory as well as data suggest about directions for future research?

The short answer to these questions is that we have learned quite a bit, with agreement on a number of issues, but still significant disagreement on others. On the empirical side, there are a number of clear electoral effects on macroeconomic variables. However, at least for the opportunistic model in developed countries, there is much less hard evidence than both the theoretical models and the conventional wisdom about the prevalence of "election-year economics" would suggest. Although there is wide (but not universal) agreement that aggregate economic conditions affect election outcomes in the United States, there is significant disagreement about whether there is opportunistic manipulation that can be observed in the macro data. There is a clear partisan effect in the United States (as well as in some other countries), with economic activity being lower in the first part of Republican than Democratic administrations, but still disagreement about the underlying driving mechanisms. On the theoretical side, many of the leading models have been criticized for implausibility of key assumptions. Two key

constant, uniform, quiet prosperity of the country as by those damned spurts which Pitt used to have just in the nick of time."

points, as I will discuss below, are: first, the assumption of seemingly irrational behavior by the public in some of the models; and, second, the reliance on monetary surprises as the driving force.

The purpose of this paper is twofold: first to present a short review and critical assessment of the existing literature, both opportunistic and partisan models, the principal aim being to point out what we know empirically and to what extent existing models explain the empirical regularities. A principal conclusion is that models based on manipulating the economy via monetary policy are unconvincing both theoretically and empirically, while explanations based on fiscal policy conform much better to the data and form a stronger basis for a convincing theoretical model of electoral effects on economic outcomes. Second, I present a new model of political cycles based on Rogoff's (1990) model of political budget cycles, extended to include monetary policy. The model is the first to incorporate both monetary and fiscal policy in a rational opportunistic framework with separate monetary and fiscal authorities.⁴ This separation of monetary policy from the direct control of elected officials is crucial for a number of reasons. It is both in sharp contrast to existing PBC models and far more institutionally realistic than the policy-making structure in those models. Moreover, it is crucial to the nature of the electoral cycle, which depends on the interaction between the incumbent politician who can influence fiscal policy and an independent central bank that controls monetary aggregates and interest rates, but may be pressured to accommodate fiscal shocks. We also present some non-parametric empirical evidence in favor of the *active-fiscal, passive-monetary* (AFPM) model of the opportunistic PBC.

The roadmap for the paper is as follows. In the next section I quickly review the opportunistic PBC model based on expansionary monetary shocks and present a conceptual assessment. In Section 3 the empirical work on this approach is summarized. In Section 4 I move on to partisan models driven by monetary policy, both the original Hibbs model and Alesina's rational partisan model. In Section 5 the empirical evidence on partisan effects on macroeconomic outcomes is reviewed. In Section 6, I sum up what I consider to be the conceptual and empirical problems with monetary-based PBC models and present evidence in favor of a fiscal-based model. In Section 7 recent work on fiscal cycles in developing countries is summarized, both theoretical extensions of the political budget-cycle model of Rogoff (1990), and empirical results supporting the importance of fiscal influences in political business cycles in a wide

4. Rogoff and Sibert (1988) present a model of fiscal-based PBC with inflation effects, but where both tax and inflation policy are chosen by a single authority.

range of countries. In Section 8, two central questions related to a fiscal-based PBC model are posed; the answers presented motivate the AFPM model of Section 9, which combines election-influenced fiscal policy with accommodating monetary policy. In Section 10, I take a look at some data for the United States that are consistent with the AFPM model, and I present concluding comments.

2. *The Monetary Opportunistic Model*

Beginning with Nordhaus's (1975) model, early models of the PBC, whether opportunistic or partisan, were based on monetary policy as the driving force. Expansionary monetary policy led to a temporary increase in economic activity, followed with a lag, by an increase in inflation. Models differed in the motivation of policymakers, as well as in the modeling of expectation formation, and these differences led to very different types of politically induced economic cycles. Nonetheless, it is useful to review monetary-based models as a group in assessing their success in explaining a PBC. All are based on some variant of a basic three-equation framework, one equation representing the policymaker's objective, one giving the relation between changes in the rate of money growth or inflation on the one hand and economic activity on the other (a Phillips curve), and finally, one specifying how expectations of inflation are formed. We begin with a brief review of these models, brief because we simply want to point out some of their theoretical shortcomings and to summarize empirical tests of their ability to explain political business cycles. This review, contained in Sections 2, 3, 4, and 5, is based on Chapter 7 of Drazen (2000a), where a fuller treatment may be found.

2.1 NORDHAUS'S OPPORTUNISTIC MODEL

Nordhaus's model was meant to show that if voting were based on economic performance in the recent past and if expectations of inflation were backward-looking, an opportunistic incumbent who controlled monetary policy would find it optimal to induce an inflation–unemployment cycle corresponding to the length of his term, with a boom just before an election and a recession afterwards.

The structure of the economy is summarized by a nonstochastic, expectations-adjusted Phillips curve, yielding an inflation–output trade-off.

$$x_t = \pi_t - \pi_t^e, \tag{1}$$

where x_t is the deviation of actual from potential output and where the monetary authority is assumed to control the inflation rate π_t .⁵

The objective of the policymaker is to maximize his probability of reelection. Voting behavior is retrospective, in that it depends on economic performance under the incumbent in the past. Economic performance in a period is measured by the behavior of inflation and unemployment, so that voter dissatisfaction in any period can be represented by a loss function of the form

$$\mathcal{L}_t = \alpha \frac{(x_t - \bar{x})^2}{2} + \frac{(\pi_t - \tilde{\pi})^2}{2}, \quad (2)$$

where $\tilde{\pi}$ is the electorate's target rate of inflation, \bar{x} is the target rate of economic activity (relative to potential output), and α is the relative weight the electorate puts on output fluctuations relative to inflation fluctuations. An opportunistic policymaker will choose the policy that attracts most voters, so that these parameters could be thought of as representing the preferences of the median voter.

In the basic model, one then posits a retrospective voting function for an election at the end of period t , of the form:

$$N_t = N \left(\sum_{s=0}^T \delta^s \mathcal{L}_{t-s} \right) + \epsilon_t, \quad (2a)$$

yielding the number of votes N_t as a function of voters's well-being, where $N'(\cdot) < 0$. The exogenous length of time between elections is $T + 1$ periods, $0 < \delta < 1$ is the factor with which voters discount past economic performance (a "forgetfulness coefficient"), and ϵ_t is a mean-zero stochastic term relating economic performance to electoral outcomes. The electoral mechanism is not made more specific. The standard opportunistic PBC model assumes that δ is small, in the sense that recent economic performance counts far more heavily in influencing voter choices than economic performance in the more distant past. The stochastic element is added to allow for the possibility of an incumbent losing the election.

To close the model one must specify the formation of expectations.

5. In order to reproduce the regularity of high inflation lagging the monetary expansion, one must decouple money growth and inflation. A simple assumption along these lines is that inflation reflects money growth in the previous period, that is, $\pi_t = \mu_{t-1}$, with μ_t being the monetary authority's control variable, and with the divergence of actual from potential output depending on the difference between the actual rate of money growth and the economy-wide expected rate of money growth μ_t^e . See Chapter 7.3 of Drazen (2000a) for precise details.

Crucial to the main results of the Nordhaus model is some form of adaptive expectations. A standard formulation of adaptive inflation expectations is:

$$\pi_t^e = \pi_{t-1} + \theta(\pi_{t-1}^e - \pi_{t-1}), \quad (3)$$

where θ is a coefficient between 0 and 1 representing the speed with which expectations adapt to past inflation. What is crucial in the formation of expectations is that π_t^e does *not* depend on the expectation of future policies, so that expectations are not rational. It is this characteristic (combined with the absence of any other connections between periods) which gives the incumbent policymaker an exploitable trade-off between inflation and unemployment in the attempt to affect election outcomes.

Voter behavior in the Nordhaus model is backward-looking in two dimensions: voting depends on past incumbent performance, and expectations of money growth depend only on past inflation rates. The incumbent policymaker elected at $t-3$ chooses inflation rates π_{t-3} , π_{t-2} , π_{t-1} , and π_t to maximize his expected vote in the next election. This simple structure yields the following behavior of incumbents who wish to maximize the probability of remaining in office. Immediately preceding an election the government stimulates the economy via expansionary monetary policy. The levels of monetary expansion and economic activity are those that maximize voter satisfaction in an election period taken alone. In the period immediately after the election, the government reverses course. It engineers a recession via contractionary monetary policy to bring down inflationary expectations. The incumbent keeps economic activity low to keep expected inflation low until the period immediately before the next election, so that a given rate of economic expansion (induced by a monetary surprise) can be obtained at a relatively low rate of inflation. In the next election cycle, the same behavior is repeated. Hence, we have a simple example in which the possibility of influencing the probability of re-election, combined with the structure of the economy, yields a cycle in economic activity. [The exact solution may be found in any treatment of the Nordhaus model, for example, Drazen (2000a, p. 233–236).]

2.2 CONCEPTUAL CRITIQUE

There are three general conceptual criticisms of the basic Nordhaus model as a tool for explaining a PBC. First, it assumes that the president controls monetary policy, an assumption that is inconsistent with the independence of the Federal Reserve. Although some observers argue

that decisions on monetary policy in the United States are strongly influenced by the executive branch, the notion that the president can easily use monetary policy as an electoral tool does not fit the institutional facts. A more subtle argument is that an independent Federal Reserve may be especially willing to accommodate the executive branch's pressures for monetary policy during election years in order to prevent sharp movements in interest rates which would lead the Fed to be criticized. We return to this argument below.

A second, more serious problem with the Nordhaus model is its reliance on *irrational* behavior on the part of voters. Voters are naive, not simply in the way they form expectations of inflation, but also in the way they assess government performance. Any voter who has lived through an election cycle in Nordhaus's world should not be fooled into voting for an opportunistic, manipulative policymaker. He will know that the pre-election period of low inflation and high economic activity will be followed by a postelection period of both high inflation and high unemployment. He should therefore punish rather than reward an incumbent who engages in pre-electoral manipulation.

Finally, and more generally, one may question the central role assigned to moving along the Phillips curve to reduce unemployment via inflation surprises. Fiscal policy plays no role in the PBC in the model, though transfers and other types of fiscal policy appear to play an important role in some episodes of pre-electoral policy manipulation.

3. Empirical Tests of the Nordhaus Model

There have been many econometric tests of the monetary opportunistic PBC, both for economic outcomes and for policy instruments. The most common form of econometric test of these models in terms of outcomes is to run an autoregression of an economic performance measure on itself, a small set of economic variables, and political dummies to test a specific theory. Consider a regression of the form:

$$Y_t = \sum_{i=1}^s a_i Y_{t-i} + b_0 + \sum_j b_j X_{jt} + d \text{PDUM}_t + \epsilon_t, \quad (4)$$

where Y is an outcome variable such as GDP, the X_j are other economic variables that may also affect Y , such as world economic activity, and PDUM is a political dummy variable (or set of variables) meant to represent a given political model. The autoregressive specification for Y_t is adopted as a parsimonious representation of the time-series behavior of

Y_t , instead of using a structural model. For example, as a test of the Nordhaus model on quarterly data, Alesina and Roubini (1992), Alesina, Cohen, and Roubini (1992), and Alesina, Roubini, and Cohen (1997) use a dummy variable that equals 1 in the election quarter and in the $T-1$ quarters before the election, and 0 otherwise, where T may equal 4, 6, or 8. As the measure of economic activity Y they take the year-over-year growth rate of GNP or an unemployment measure, the exact specification depending on the model and data set.

3.1 THE EFFECT OF ECONOMIC CONDITIONS ON ELECTIONS

Prior to discussing the effect of elections on macroeconomic variables, one must consider the effect of economic conditions on elections. A crucial assumption in the Nordhaus model, or in any model of pre-electoral manipulation, is that voters vote on the basis of economic variables. Kramer (1971) regressed votes received by the incumbent party in U.S. congressional elections on two measures of performance in the year of the election—the growth rate of real per capita income and the rate of inflation in that year—and found they were both significant determinants of vote totals. The importance of economic conditions for voting in congressional elections was confirmed by Tufte (1975).⁶

The most influential work was probably that of Fair (1978) [updated in Fair (1982, 1988)], who found similar results for the United States. In his original article, Fair looked at presidential elections from 1916 through 1976, arguing that if voters hold the party that holds the presidency accountable for economic events, their influence should be seen most strongly in presidential elections. Fair found that the change in real economic activity in the year of the election, as measured either by the change in real per capita GNP or the change in unemployment in the election year, does appear to have an important effect on votes for president. Specifically, a 1% increase in the growth rate increases the incumbent's vote total by about 1%. (Further evidence suggests it may be the growth of real per capita GNP in the second and third quarters of the election year that is important, but data limitations prevent Fair from drawing any definitive conclusions about what part of the election year is most important in determining voter behavior.) Given the growth of economic activity, other measures of macroeconomic performance contribute little; the most important of the other measures is the inflation rate in the two-year period before the election, as measured by the change in the GNP deflator. A second key finding of Fair's is that voters

6. Though most studies confirm the basic results, Stigler (1973) concluded that congressional election results are not affected by economic fluctuations. See also Okun's (1973) comment on Stigler, as well as Arcelus and Meltzer (1975) and Bloom and Price (1975).

appear to have a high discount rate on past economic performance; they don't look back more than a year or two.⁷

Numerous other articles find similar results on the importance of pre-election conditions on voting patterns in both the United States and other countries. Looking at voting or popularity functions, Lewis-Beck (1988) found that the sort of results that Kramer and Fair report for the United States hold in Britain, France, West Germany, Italy, and Spain as well. Madsen (1980) reported similar results for Denmark, Norway, and Sweden.⁸ We summarize this as:

REGULARITY 1 Aggregate economic conditions before an election, specifically per capita output or income growth (and to a lesser extent inflation), have a significant effect on voting patterns in the United States and other countries.

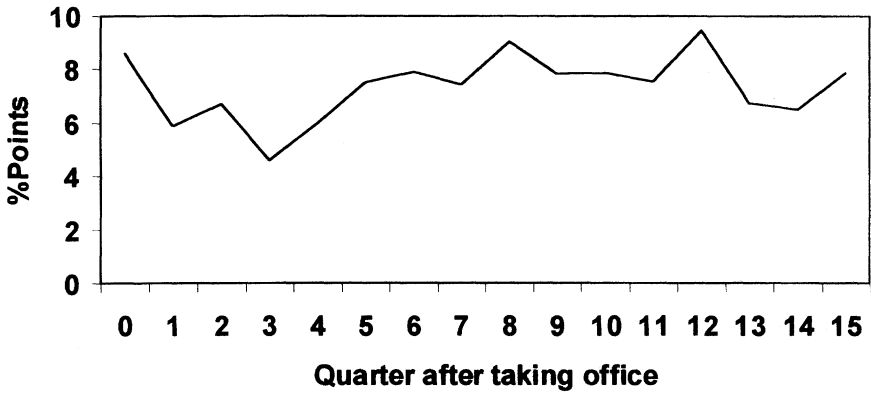
3.2 ECONOMIC ACTIVITY

Numerous econometric tests provide little support for the political cycle in economic activity predicted by the Nordhaus model. Studies for the United States began with McCallum's (1978) study of unemployment fluctuations before elections. Alt and Chrystal (1983) summarize early empirical studies as showing a striking lack of support, a point reinforced by results summarized in Alesina, Roubini, and Cohen (1997). Faust and Irons (1999), using more sophisticated techniques, come to a similar conclusion. Figure 1, showing mean rates of GNP growth (seasonally adjusted) by quarter of the president's term in the United States from 1948 to 1998, illustrates the point.⁹

Similarly, no evidence was found in developed economies outside the United States for a Nordhaus-style PBC for unemployment or economic growth (Paldam, 1979; Lewis-Beck, 1988). Alesina, Roubini, and Cohen

7. One should distinguish aggregate from individual economic conditions on voting. Lewis-Beck (1988) argues that individuals vote on the basis of national economic performance (sociotropic voting) rather than their own personal economic situation ("narrow pocketbook" voting).
8. What about the effect of economic conditions on the timing of elections when governments can call early elections? Ito (1990) finds evidence that governments in Japan do not manipulate policies in anticipation of upcoming elections, but that they opportunistically manipulate the timing of elections to take advantage of autonomous economic expansions. Specifically, high growth significantly increases the probability of an election, while high inflation significantly reduces it. Chowdhury (1993) reports similar results for India, with the government more likely to call early elections when economic times are good. On the other hand, Alesina, Cohen, and Roubini (1993), argue that for a sample of 14 OECD countries with endogenous election timing, there is no evidence of such an effect in countries other than Japan.
9. A plot of median growth rates, or of other measures of aggregate economic activity, for the United States would tell a similar story.

Figure 1 MEAN GNP GROWTH RATE, 1948–1998



(1997) reject an opportunistic cycle in real activity for a sample of 18 OECD countries over the period 1960–1993.¹⁰

We summarize the general consensus that the opportunistic PBC receives little support in the pre-electoral behavior of GNP or unemployment as:

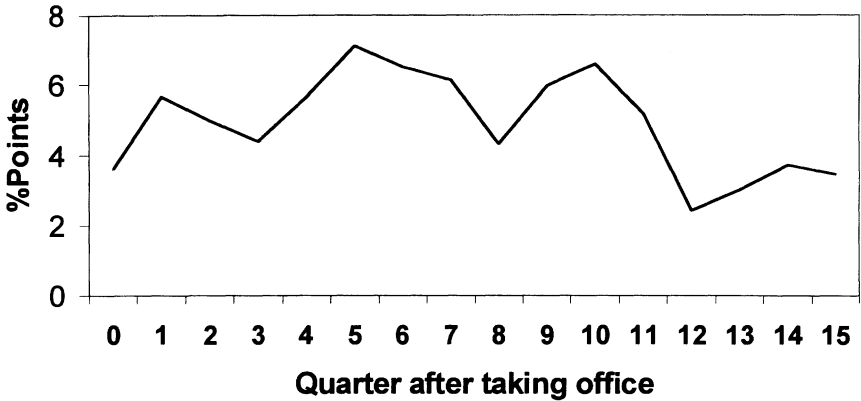
REGULARITY 2 *There is no significant increase in aggregate economic activity prior to elections in either the United States or other OECD countries.*

3.3 INFLATION

The postelectoral increase in inflation predicted by the Nordhaus model receives support in some countries and not in others. Alesina, Cohen, and Roubini (1992) and Alesina, Roubini, and Cohen (1997) test for a political cycle in inflation (measured as the growth rate of the CPI over the previous 4 quarters), using the same data set and methodology they used for GNP growth, and defining a political dummy equal to 1 in the election quarter and in the 3 quarters *following* the election, and 0 otherwise. In a pooled cross-section, time-series regression, they find a highly

10. If aggregate economic performance is important in determining the way people vote and governments want to win re-election, why don't we observe a clear opportunistic PBC? Lewis-Beck (1988) argues that it is because it is exceedingly hard to time economic manipulation. Monetary and fiscal policy can be used only with great imprecision, so that politicians cannot expect to time the aggregate stimulus to come right before an election, while the risks associated with a mistimed expansion are high. Another explanation is that opportunistic politicians target transfers to a fraction of voters with minor effect on aggregate economic activity. The AFPM model in Section 9 includes both of these possibilities.

Figure 2 MEAN INFLATION RATE (CPI), 1960–1978



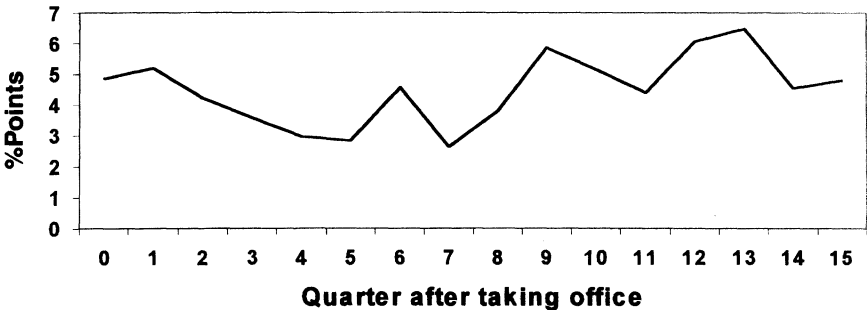
significant coefficient of the correct sign on the political dummy; in the individual country regressions, they find the coefficient is of the correct sign in almost all the regressions, and significant at the 10% or higher level for Denmark, France, Germany, Italy, and New Zealand. Overall, they conclude the PBC effect on inflation is widespread across OECD countries (on the basis of their pooled regression) and on a much stronger empirical footing than the effect on GNP and unemployment.

The evidence for the United States is less clear. In similar tests to those described above, Alesina, Roubini, and Cohen (1997) reject the existence of a postelectoral surge in inflation over the period 1947–1994. However, the behavior of inflation after elections changed over this sample period. After 1979 there is no evidence of a political inflation cycle, which corresponds to the timing of the change in Federal Reserve policy rules in 1979. (See, for example, the estimated policy rules in Clarida, Gali, and Gertler, 2000.) Prior to this however, there is more evidence of a possible postelectoral increase in inflation. This is consistent with other studies, and is illustrated in Figures 2 and 3, showing mean annualized CPI inflation (seasonally adjusted) from 1960 to 1979 vs. 1979 to 1998 by quarter of the president's term. (A graph for 1948–1979 looks very similar to 1960–1979, but the latter is used for better comparability with later figures.)

To summarize:

REGULARITY 3 *In many OECD countries there is a clear postelectoral increase in inflation. In the United States, there is evidence of such a postelectoral increase in inflation prior to 1979, but no evidence thereafter.*

Figure 3 MEAN INFLATION RATE (CPI), 1979–1998



3.4 MONETARY INSTRUMENTS

Not surprisingly, the results for expansionary monetary policy before elections mirror those for inflation after elections. Using the same political dummy they did for inflation, Alesina, Cohen, and Roubini (1992) find a significant political effect for the yearly M1 growth rates in pooled cross-section, time-series regressions in their sample of OECD countries, with money growth being higher for the year to year-and-a-half before elections. In the country regressions, the results are less strong, though a number of countries display significant effects.

For the United States, the sensitivity of the inflation results to the time period considered is seen in money growth rates as well. Alesina, Cohen, and Roubini (1992) find only very weak evidence of a political monetary cycle in the postwar period, a conclusion reinforced in Alesina, Roubini, and Cohen (1997) for the period 1949–1994. In contrast, Grier (1989) and Beck (1987) both find significant support for an office-motivated model of monetary policy in the United States over the subperiod 1960–1980. Grier, using U.S. quarterly data from 1961 to 1982, regresses M1 growth on its previous value, the full-employment deficit, and a political dummy specified as a fifteen-quarter second-degree polynomial distributed lag on a dummy which takes a value of one in the election quarter and zero otherwise. (The polynomial distributed lag is chosen to conserve on degrees of freedom.) He finds that the timing of an election significantly influences money growth, even when fluctuations in output, interest rates, and the deficit are held constant. Beck (1987) also finds a political cycle in the money supply in the United States over the same period. Figures 4 and 5 present mean M1 growth rates (seasonally adjusted) by quarter of the president's term over the periods 1960–1979 and 1979–1998. Interestingly, Beck finds no similar cycle in monetary instruments, such as reserves or

Figure 4 MEAN M1 GROWTH RATE, 1960–1978

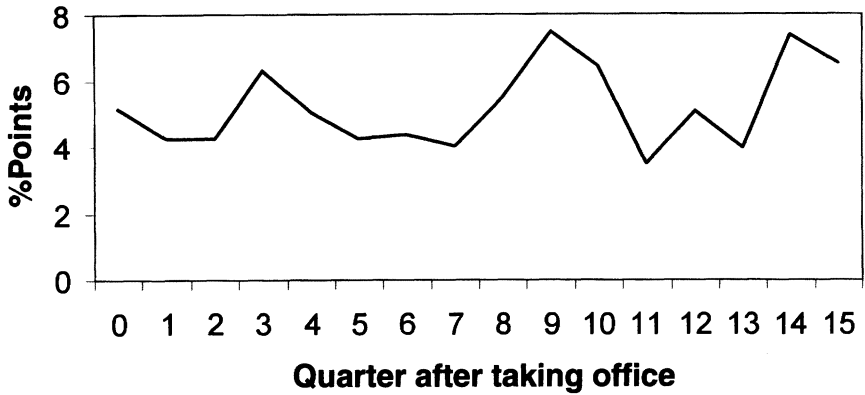
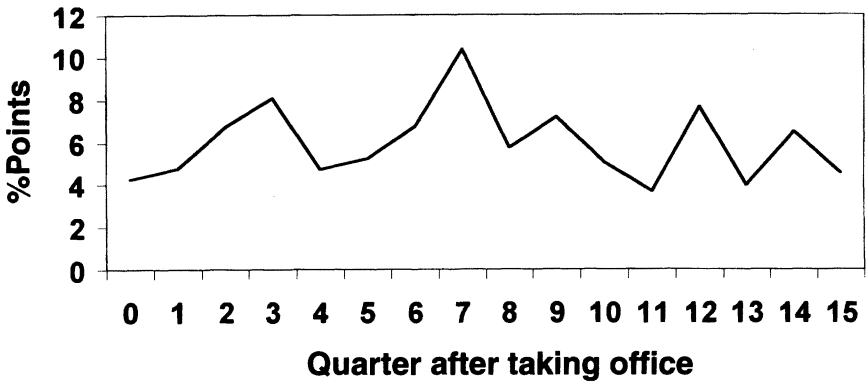


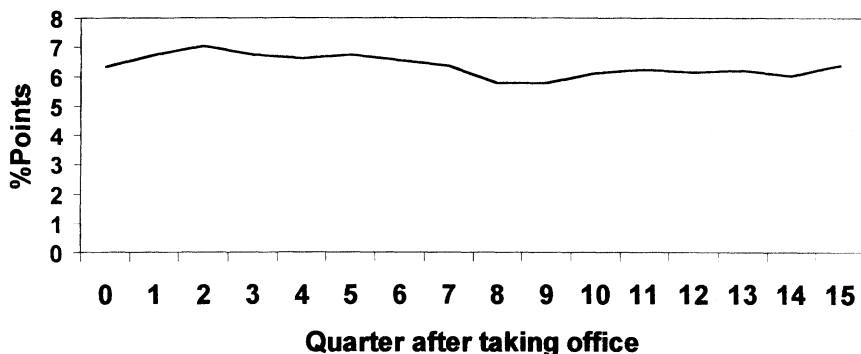
Figure 5 MEAN M1 GROWTH RATE, 1979–1998



the federal funds rate, a point made clear in Figure 6, giving the mean federal funds rate by quarter of term from 1959 to 1998. The difference in results for the behavior of money growth and instruments of monetary control will be central to our model of the PBC presented below. We summarize these results as:

REGULARITY 4 *There is evidence of a pre-electoral increase in money growth rates in many countries. In the United States, there is a pre-electoral effect from 1960 to 1980, but none thereafter. There is no evidence for the United States of an electoral cycle in the federal funds rate.*

Figure 6 MEAN FEDERAL FUNDS RATE, 1959–1998



4. Monetary Partisan Models

The basic partisan model starts with the observation that right-wing and left-wing parties have different positions on economic issues and hence different macroeconomic objectives. In terms of the objective function (2), they have different preferences over inflation and unemployment, both in inflation and unemployment targets and the relative dislike of inflation vs. unemployment.

4.1 THE BASIC HIBBS MODEL

The partisan PBC model was introduced by Hibbs (1977). To represent the difference in interests, we replace the social loss function (2) by a partisan loss function:

$$\mathcal{L}_t^j = \alpha^j \frac{(x_t - \bar{x}^j)^2}{2} + \frac{(\pi_t - \bar{\pi}^j)^2}{2} \quad (5)$$

for party j , where $\bar{\pi}^j$ is party j 's target rate of inflation, \bar{x}^j is party j 's target for economic activity, and α^j is the relative weight put on output fluctuations relative to inflation fluctuations by party j . There are two parties, a left-wing party, denoted L , and a right-wing party, denoted R . The two parties are characterized by the following possible differences in their objectives. First, the left-wing party may have a higher target for economic activity than the right-wing party. Second, the left-wing party may assign a larger cost to deviations of economic activity from its target level than to deviations of inflation from the target. Finally, the left-wing party may have a higher inflation target than the right-wing party, *independent* of the effects on economic activity via the Phillips curve, which

could reflect other effects of inflation viewed differently by the two parties. To summarize the difference between the parties:

$$\begin{aligned}\bar{x}^L &\geq \bar{x}^R \\ \alpha^L &\geq \alpha^R, \\ \bar{\pi}^L &\geq \bar{\pi}^R.\end{aligned}\tag{6}$$

To obtain the partisan cycles, at least one of these must hold with strict inequality.

Fluctuations in economic activity induced by these partisan differences are generated in the basic Hibbs model by movements along an exploitable Phillips curve, where it is assumed, as in the basic Nordhaus model, that expectations are not rational. Thus, the left-wing party will pursue a more expansionary monetary policy throughout its term.¹¹ How long these effects last depend on the exact specification of expectations. In an adaptive expectations framework, the more slowly inflation expectations adjust to actual inflation, the longer will be the partisan effect.

A basic criticism of the original Hibbs model is the same as the one that was applied to the Nordhaus model, namely that it relies on mistaken expectations of what policy will be in order to get real effects. Hence, to the extent that it is assumed that monetary policy is used to hit partisan unemployment and growth targets, the explanation of the political business cycle is unsatisfactory.

4.2 ALESINA'S RATIONAL-PARTISAN MODEL

Alesina (1987, 1988) introduced rational expectations into a monetary-based PBC, influenced by the criticism of models based on an exploitable Phillips curve. In his partisan model with rational expectations, only surprise inflation affects output, leading to Alesina's terming the approach the *rational-partisan* model. The rational-partisan model can be represented by a similar three-equation model to that used by Nordhaus, retaining the expectations-augmented Phillips curve (1) but changing the other two components. First, following Hibbs, the motivation of policymakers is quite different than in the Nordhaus model: they are purely partisan, with no opportunistic motives and hence no desire to manipulate outcomes. To represent the difference between economic effects in the early part and the latter part of an incumbent's term of office, Alesina divides a term of office into two periods and assumes that

11. As in the Nordhaus model, the key assumption here is that, in spite of the Federal Reserve's formal autonomy in the United States, monetary policy reflects the administration's macroeconomic goals.

there is an election every other period, say at $t, t+2, t+4, \dots$. It is assumed that a party cares only about its own term of office, so that the objective function of party j at time t may then be represented by an extended version of (5), namely

$$\Lambda_t^j = \alpha^j \frac{(x_t - \bar{x}^j)^2}{2} + \frac{(\pi_t - \bar{\pi}^j)^2}{2} \quad (7)$$

$$+ \beta \left(\alpha^j \frac{(x_{t+1} + \bar{x}^j)^2}{2} + \frac{(\pi_{t-1} - \bar{\pi}^j)^2}{2} \right)$$

for party j , where $\bar{\pi}^j$ and \bar{x}^j are the partisan targets, α^j is the relative weight put on output deviations by party j , and β is the discount factor. These are characterized, as in the Hibbs model, by (6) above, where, in order to obtain the cycles in the rational-partisan model, at least one of the inequalities in (6) must be strict.

The other crucial change, relative to both the Nordhaus and Hibbs models, is that Alesina replaces the assumption of adaptive expectations by rational expectations, so instead of (3), expected inflation π_t^e is given by

$$\pi_t^e = E_{t-1}(\pi_t). \quad (8)$$

In determining the evolution of inflation and unemployment during a term of office, say t and $t+1$, the key variable in the model is expected inflation in those periods, this expectation being formed before the election in period t . Conditional on expected inflation in each half term, the party in power chooses its optimal policy, by maximizing (7) subject to (1). We retain the assumption from earlier models that the government has perfect control over inflation. In turn, expectations of inflation depend on the expectation of who will win the upcoming election. If outcomes were fully known, there would be no cycle, since a party's policy would be fully anticipated and hence have no effect on real activity.

The existence of a cycle thus depends on uncertainty about election outcomes. Expected inflation for the half term after the election is the weighted sum of the two parties' policies, weighted by the probability that each will win the election, namely,

$$\pi_t^e = q^L \pi_t^L + (1 - q^L) \pi_t^R, \quad (9)$$

where q^L is the probability that the left-wing party will win the election, and where π_t^L and π_t^R are the optimal policies of the two parties in the

first half of the term, which depend not only on their policy preferences (6), but also on the election probability q^L itself, as optimal policy depends on π^e . Since the left-wing party follows a more inflationary policy once in office than the right-wing party, expected inflation is between these two values. Hence, there is a positive inflation surprise if the left-wing party wins the election, implying unemployment below the natural rate, and a negative inflation surprise if the right-wing party wins the election, implying unemployment above the natural rate. In the second half of a president's term, there are no fluctuations in economic activity, as the identity of the party in power is known when contracts are signed (in the first part of the term). In contrast, Hibbs's partisan model suggests higher economic activity in left-wing administrations than in right-wing administrations over the life of the term.¹²

4.3 A CONCEPTUAL ASSESSMENT OF THE RATIONAL-PARTISAN MODEL

The theoretical structure of the rational-partisan model raises a number of questions about the underlying driving forces. First, and most difficult, there is the question of whether the underlying microeconomic structure, namely nominal wage contracts signed before elections, makes sense in the context of the model. The question of microfoundations is often raised about models in which policymakers exploit an expectations-augmented Phillips curve, but the importance of electoral effects gives it special importance here. A standard argument, used also by Alesina, is that nominal wage contracts are signed at discrete intervals, where nominal wage increases reflect rationally anticipated inflation at the time the contract is signed, so that surprise inflation between contract dates can have real effects even when agents are rational. The basic problem, as Rogoff (1988) points out, is that, on the one hand, elections are an important source of fluctuations due to their outcomes being less than fully anticipated, but, on the other, the election date is fully known. The magnitude of the changes in inflation and unemployment the model is meant to explain are sufficiently large that there should be a large utility payoff to eliminating the uncertainty that leads to these fluctuations. But that is easy to do. To the extent there is a significant effect on unemployment,

12. Hibbs (1994) presents such a theory of adjustment of partisan objectives contingent on economic outcomes and learning, which predicts that unemployment and inflation outcomes across the two parties may diverge more in the first part of their terms than in the second, though not because of uncertainty about electoral outcomes. The key to Hibbs's model of changing objectives (and to the result on time-varying outcomes) is that *policymakers* are uncertain about the structure of the economy and the effects of policies. They use outcomes to refine their beliefs about attainable targets, leading to a feedback from outcomes to partisan objectives and thus policies.

old contracts should be timed to expire and the signing of new contracts postponed until just after an election, so that they can reflect the election results. Hence, the main driving force of the model would seem to depend on behavior of workers and unions that is less than rational, not in the formation of their expectations per se, but in their labor-supply behavior. A simple change in the timing of contract behavior would eliminate the political cycle. Garfinkel and Glazer (1994) present empirical evidence that for labor contracts of less than two years signed in a presidential election year, there is a clear tendency to delay the signing of labor contracts until after the election.¹³

A second crucial question concerns the electoral uncertainty that drives the model. The magnitude of the cycle depends on the degree of electoral uncertainty, as well as on the difference in the parties' desired inflation rates. One problem is that these key driving forces are exogenous. Far more troublesome is the predicted positive correlation between the extent of the electoral surprise and the size of postelectoral movements in real economic activity. As the key probability q^L approaches zero or one, the magnitude of the fluctuations will approach zero, with fluctuations being maximal (all else equal) for $q^L = \frac{1}{2}$. Hibbs (1992), among others, has argued that this prediction is not consistent with the empirical evidence for the United States. Consideration of individual elections reveals the problem. For example, the outcome of the 1964 presidential election is probably the closest we have seen to a sure thing in the postwar era, with Lyndon Johnson's victory widely anticipated. Yet the rate of real GNP growth in the first two years of the Johnson administration averaged 5.8% per year, the highest figure of any Democratic administration. In contrast, among postwar Republican victories through Regan's first election, Nixon's victory in 1968 was the closest and least certain, but corresponds to the smallest drop in real output in the critical second year of the administration.

Alesina, Roubini, and Cohen (1997, Chapter 5) construct an index of electoral surprise for the U.S. presidential elections from 1948 to 1992, with Republican victories entering as negative surprises. They use different variants as an explanatory variable in a real-GDP-growth regression of the form (4) and find that the coefficient on the surprise variable is significantly positive, meaning that larger Democratic (Republican) surprises imply higher (lower) postelection real growth rates. The construc-

13. Garfinkel and Glazer's results may be interpreted in two ways. One is that postponement of contract signing indicates that electoral uncertainty is important in forming inflation expectations, consistent with the basic thrust of the rational-partisan model. The other is that in industries where this is true, contract signing is postponed, undercutting the empirical relevance of the main driving force of the model.

tion of the variable is complicated, so that it is not easy to see why the results of the regression and of the simple case study do not agree. The relation of pre-electoral uncertainty and postelectoral fluctuations is an important question deserving further research.

A final question, which can be applied to all the models discussed so far, is the central role assigned to moving along the Phillips curve to reduce unemployment via inflation surprises. That is, even though real effects of monetary policy are consistent in this approach with rational expectations, the reliance on monetary policy as the driving force of cycles is inconsistent with the evidence on the important role of fiscal policy in PBCs. We return to this point in Section 6.

5. Empirical Tests of Partisan Models

The partisan PBC has been tested less than the opportunistic model. There is general agreement on the existence of partisan effects per se, especially on economic activity. However, there is far less consensus on the mechanism at work.

5.1 ECONOMIC ACTIVITY

Perhaps the strongest regularity in the U.S. data was first pointed out by Alesina (1988), with Faust and Irons (1999) confirming the effect over a longer time period using more sophisticated econometric techniques: For the United States, real GDP growth is substantially higher under Democrats than Republicans in years 2 and 3 of their administrations. Alesina, Roubini, and Cohen (1997) report that over the period from the first quarter of 1949 through the second quarter of 1994, growth rates during Democratic and during Republican administrations sharply diverge starting about the third quarter after the election. The quarterly growth rate averaged over Democratic administrations rises from about 3% per annum in quarter 3 to about 6% per annum by quarter 6 or 7 in the administration's term of office, and falls from the same level to zero by quarter 6 or 7 in the administration's term averaged over Republican administrations. Real GDP growth rates then improve under Republican and worsen under Democratic administrations, so that in the fourth year of the administration, the growth performance under the two parties is identical. Unemployment shows analogous partisan patterns in the expected direction. Alesina, Roubini, and Cohen (1997) present more formal econometric tests for the United States to confirm this result, using autoregressive equations like (4) in quarterly data from 1947:I through 1993:IV with a political dummy that equals +1 in the first part of a Republican administration, -1 in the first part of a Democratic adminis-

tration, and 0 otherwise. They report results favorable to the rational partisan theory for real GDP growth and for unemployment. They find a significant political dummy over the whole life of an administration, but by dividing the variable into first and second halves of the administration, they reject Hibbs's version of the partisan theory. They run similar tests on a sample of 18 OECD countries over the period 1960–1993, also finding support for the rational-partisan model and lack of support for both the Hibbs and the Nordhaus model.

Faust and Irons (1999) find similar partisan differences in both output growth and unemployment, which are strongest in the first half of the term. However, they find this partisan difference remains even after controlling for observable economic variables and for political effects as in partisan models, suggesting that the data do not give support to any partisan model. Graphs of quarter-after-inauguration effects similar to those presented here may be found for a large group of variables. The key empirical regularity on which there is wide agreement is

REGULARITY 5 *There is a clear partisan effect on economic activity in the United States, with economic activity being significantly higher under Democrats than Republicans in the first half of their terms.*

5.2 INFLATION AND MONETARY POLICY

There are partisan differences in inflation (as measured by the rate of change in the Consumer Price Index), though they do not conform simply to the partisan theory, especially the rational-partisan theory. Democratic administrations have *lower* average inflation than Republican administrations in the first half of their terms, but that inflation is rising under Democrats and falling under Republicans, a finding reported both by Alesina, Roubini, and Cohen (1997) and by Faust and Irons (1999). Hence, the basic inflation data for the United States do not support a monetary partisan model, whereby the *level* of inflation should be higher under Democrats than Republicans.

In interpreting these results, Alesina, Roubini, and Cohen argue that the differences found in *changes* in inflation rates are consistent with their theory, though the argument is only partially convincing, since the rational-partisan theory based on the expectations-augmented Phillips curve is built on the rate of inflation, not on changes in that rate. The econometric tests for inflation cycles in the United States are far less favorable to partisan models, paralleling the nonparametric tests discussed above. Alesina, Roubini, and Cohen (1997) find that after 1973 (and the move to floating rates after the collapse of Bretton Woods), the difference in average inflation rates between Democratic and Republican

administrations is only about 1.8% per year. They present no formal tests of the timing of inflation within administrations, that is, whether inflation rates are higher in the first half of Democratic than Republican administrations, with these differences narrowing in the second half.

In contrast to the work of Alesina and coauthors, Sheffrin (1989) finds the empirical evidence in favor of the rational-partisan theory to be weak for both the United States and other countries. For example, he argues that economic fluctuations following Republican presidential victories in the United States are generally inconsistent with the rational-partisan theory, postelectoral recessions often coming as a surprise. He argues that his weak results are due, among other things, to the importance for macroeconomic fluctuations of factors other than unanticipated monetary policy. Similarly, Faust and Irons (1999) find no support for partisan effects operating through monetary policy. We sum up these disagreements as:

“REGULARITY” 6 There is no consensus on the role of monetary policy or inflation surprises in driving partisan effects, with views varying widely.

6. From Monetary to Fiscal Policy

We have so far considered a number of theoretical and empirical issues raised by monetary models of the PBC. Each of the models had conceptual and empirical shortcomings, some more than others. I think it is fair to say that none of the three basic models considered so far receive overwhelming support in the data. This suggests that after twenty-five years, monetary surprises as a driving force of a PBC just do not provide a very convincing story.

I considered the basic opportunistic and partisan model and the rational model as a group to stress this point, that is, to stress their similarities rather than their differences. All three models mentioned above rely on a Phillips curve as the vehicle by which the economy is manipulated. Inflation, particularly when it is unanticipated, induces movements in unemployment, as the economy moves up or down the Phillips curve. Hence, *active monetary policy is the key driving force*. Second, *monetary policy is basically chosen by politicians* according to their desires—an incumbent facing re-election in the opportunistic models, or a newly elected administration with specific macroeconomic goals in the partisan models. The monetary authority is subservient to the politicians, and in no sense does it make independent monetary decisions. These two characteristics—activist monetary policy (more specifically, monetary surprises) as the driving force, and control of monetary policy by politicians—do not very

well describe either PBCs or central-bank behavior. Countries in which political cycles are observed are often countries seen as having highly independent central banks. Hence, the view of monetary policy as being dictated by politicians doesn't sound right.

An alternative approach is that *fiscal policy* is the key driving force, especially in pre-electoral manipulation, in many countries. Tufte (1978) documents a number of clear incidents of pre-electoral opportunistic manipulation of fiscal transfers, both social security payments and veterans benefits. Keech and Pak (1989) found an electoral cycle for veterans' benefits in the United States between 1961 and 1978, but argued that it had subsequently disappeared. Similarly, Alesina (1988) shows that there was an electoral cycle in net transfers relative to GNP over the period 1961 to 1985, but that the electoral effect disappears if one extends the sample back to 1949. Alesina, Cohen, and Roubini (1992), as well as Alesina and Roubini (1990), find evidence for an opportunistic cycle in transfers, though they argue that there is no evidence of a fiscal cycle for instruments other than transfers.

These effects may be seen by looking at government transfers to individuals net of social insurance contributions relative to GNP (seasonally adjusted and detrended), as a function of the quarter of the president's term before, from 1960 to 1978 in Figure 7 and from 1979 to 1998 in Figure 8.

This evidence on fiscal policy suggests a last regularity for the United States and other developed countries:

REGULARITY 7 *There is evidence of pre-electoral increases in transfers and other fiscal policy instruments in a number of countries. In the United States, this effect appears strongest prior to 1980.*

7. Fiscal Cycles in Developing Countries

Before considering the implications of these regularities in the United States for modeling the business cycle, it is instructive to look at developing countries. Recent research has found that the fiscal cycle is especially strong in developing countries. As in the United States, there is much anecdotal evidence of fiscal manipulation before elections in other countries. For example, in Israel, Ben-Porath (1975) shows convincingly that opportunistic policymaking in light of elections was quite consistent over the period 1952–1973, with tax cuts implemented before elections, but tax increases only after. Pre-electoral fiscal manipulation was especially strong in the 1982 elections, and Brender (1999) finds evidence of

Figure 7 RATIO OF NET TRANSFERS TO GNP, 1960–1978

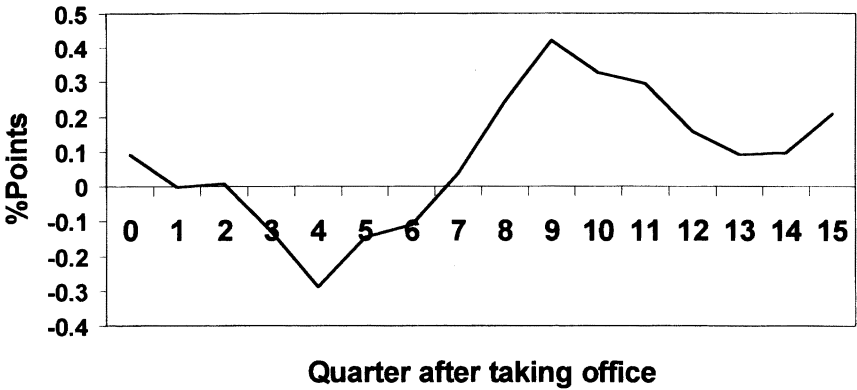
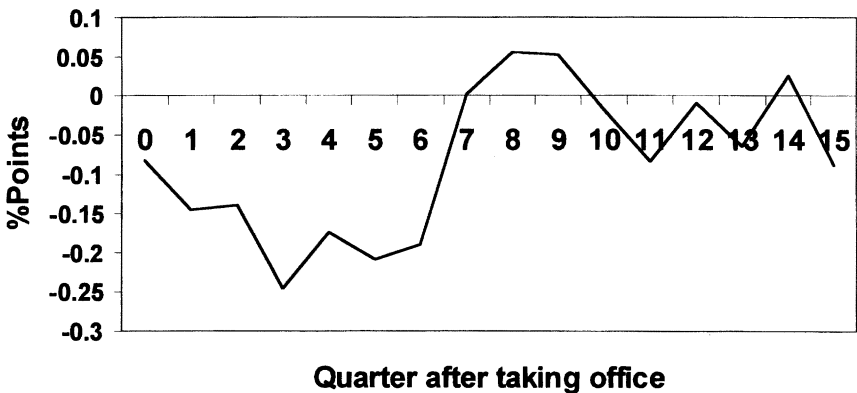


Figure 8 RATIO OF NET TRANSFERS TO GNP, 1979–1998



fiscal manipulation before the most recent elections (although he argues that it hurt rather than helped the incumbents). Krueger and Turan (1993) argue that pre-electoral fiscal manipulation was common in Turkey in the period 1950–1980. Pre-electoral fiscal manipulation is common in Latin America, the increase in the quasifiscal deficit in Mexico before the 1994 elections being but one of many examples. [Gonzalez (1999b) shows the existence of an electoral cycle in government spending in Mexico over the period 1958–1997 in both presidential and congressional elections.] Several studies have found significant pre-electoral increases in public spending in India before elections.

Cross-country studies yield similar results. Ames (1987) presents a

panel study of 17 Latin American countries in which he shows that over the period 1947–1982, government expenditures increased by 6.3% in the pre-election year and decreased by 7.6% in the year after the election. Block (2000) presents evidence of a political business cycle in both fiscal and monetary policy in a cross section of 44 sub-Saharan African countries. Schuknecht (1996) is probably the first comprehensive study of the political business cycle in 35 developing countries over the period 1970–1992. He argues that there should be more room for manipulation in developing countries, as checks and balances are weaker and the incumbent has more power over monetary and fiscal policy. He argues that in developing countries expenditure policies (such as distribution of free or subsidized goods or employment generation via public works programs) are probably more effective than tax cuts in affecting voter behavior. He uses a political dummy which is positive in the year of elections, negative in the year after, and zero otherwise in fiscal deficit and output autoregressions such as (4) and finds a clear, significant effect of elections on the fiscal balance, but no significant effect on output.

Gonzalez (1999a) and Shi and Svensson (2000) extend the Rogoff (1990) model of political budget cycles to study the effect of the degree of democracy on the magnitude of fiscal cycles. Gonzalez considers the fiscal model set out in a subsequent section (but without a monetary sector), including two further variables: the cost of removing a policymaker from office (the *degree of democracy*), and *transparency*, meaning the probability that voters learn the incumbent's competence costlessly, that is, independent of signaling. She finds that with a high enough cost of removing officeholders, incumbents will not be removed from office and will follow their full-information optimal policy. An electoral budget cycle emerges only if removing a politician from office is not too costly. Transparency also has intuitive effects: the higher the degree of transparency, the smaller the amount of distortion away from the first best in the political budget cycle. Interestingly, when there is a positive correlation between the degree of democracy and transparency, political budget cycles arise only where both measures are at intermediate levels. Shi and Svensson include a similar measure of transparency in a Rogoff political-budget-cycle model, but where government spending is chosen before the government learns its competence, so that no signaling occurs. (See their footnote 9.)

Gonzalez (1999b) considers the relation between the level of democracy and the strength of the political cycle in a sample of 43 countries over the period 1950–1997 and finds that the cycle is strongest in countries with intermediate levels of democracy. Shi and Svensson (2000) consider regressions such as (4) for a sample of 123 developed and devel-

oping countries over the period 1975–1995 and similarly include an index of democracy. They also find that a fiscal political business cycle is especially strong in developing countries.

8. *An Initial Summing Up*

The argument presented so far is twofold. First, both empirically and theoretically, a monetary-based PBC model—either of manipulation of aggregate economic activity via monetary surprises before an election, or of partisan effects after an election—is less than fully convincing. Second, there appears to be a strong role for fiscal policy in many countries, including the United States in certain time periods. This suggests basing PBC models on fiscal rather than monetary policy. Conceptually, this solves some basic problems for which monetary PBC models have been criticized. Fiscal policy has real effects on economic activity even if anticipated. Moreover, it can affect voting behavior even if there are no aggregate effects. Since monetary policy is not the driving force, one need not assume that the incumbent controls monetary policy.

However, basing a PBC model, or at least an opportunistic PBC model, on manipulation of fiscal policy raises two key questions. First, *how can the monetary effects that are observed be made consistent with a PBC driven by fiscal policy?* This question has at least two aspects: first, on a conceptual level, what is the role of an independent central bank in a fiscal induced PBC, and, on an empirical level, how can we reconcile the cycle in monetary aggregates that often does appear before an election? Second, *why do rational voters respond to pre-electoral manipulation?* We consider these questions in turn.

The key to the monetary effects is that, as Woolley (1984) and Beck (1987) have argued, an independent central bank may be willing to accommodate the executive branch's pressures for monetary policy during election years in order to prevent sharp movements in interest rates. They do so in order to avoid any appearance of interfering politically in the election process. Woolley, who has studied the political relation between the U.S. president and the Federal Reserve more than anyone else, puts it as follows (1984, p. 127):

Sherman Maisel wrote that "Federal Reserve policy has always been to avoid, if possible, taking any major monetary actions as elections approach." This conclusion was echoed in several interviews with Federal Reserve officials. As Governor Partee put it, "if you were to ask a central banker about what he would want to see in a period prior to an election, he would say he wanted to

have stability." Stability in interest rates and the money supply would presumably keep the central bank from being dragged into partisan politics.

The Fed is not so much interested in pushing the re-election of the incumbent as in simply "lying low" during the election so as not to be subsequently criticized.¹⁴

The role of monetary policy in a political cycle is more probably passive rather than active, accommodating fiscal stimuli that opportunistic policymakers may employ to affect election outcomes. This distinction follows Beck (1987), who, as pointed out above, argued that there is a political cycle in the money supply in the United States, but no cycle in monetary instruments, such as reserves or the federal funds rate. The reason is that the Federal Reserve accommodates fiscal policy in an election year, so that there is a passive political monetary cycle caused by a political cycle in fiscal instruments, but the Fed does not actively induce a political cycle.¹⁵

Why do voters respond to pre-electoral manipulation if they are rational? The basic argument, first formalized by Rogoff (1990) and Rogoff and Sibert (1988), is that the enactment of policies that appear to be opportunistically short-sighted and the influence they have on voters may be due to a *signaling* effect: voters have imperfect information about relevant characteristics of potential policymakers, and what appear to be gimmicks have an effect because they are taken to provide relevant information about candidates for office. Specifically, a government signals its "type" by taking actions that worsen the budget situation with the notion that only someone who is very competent would put himself in that situation.

One criticism that has been raised of this approach is that it is the most competent who distort the economy, a result seen as unrealistic. A better

14. Both Beck and Woolley argue that the easy monetary stance of the Fed under Arthur Burns in the 1972 presidential election was due to something more complicated than giving Nixon the expansionary monetary policy he wanted to ensure his re-election. It must be seen against the backdrop of wage-price controls instituted the previous year. In October 1971, as part of Phase II, the White House asked Congress for the authority to control interest rates and corporate dividends, but to forgo use of the authority for the time being. This led to the formation of the Committee on Interest and Dividends (CID), of which Burns was chairman, responsible for monitoring interest rates. Burns was dead set against interest-rate controls, but aware of the political pressure for their imposition. He was therefore especially concerned about letting interest rates rise during 1972, and, according to Woolley, communicated to the FOMC his concerns about the political pressures for administrative controls that rising interest rates would induce. See Woolley (1984, Chapter 8).

15. Beck argues that this accommodation is why the monetary cycle that both he and Grier (1989) find peaks in the election quarter itself, when the monetary expansion shouldn't affect outcomes.

way to view this approach, in my opinion, is that a more “competent” policymaker can expand government spending or reduce taxes and still not induce the distortion that a less “competent” policymaker would induce.

9. *The Active-Fiscal, Passive-Monetary Model*

We now present a model of the PBC illustrating the approach suggested in the previous section. The fiscal side of the model follows Rogoff’s (1990) model of political budget cycles, with an incumbent using fiscal policy to help his re-election prospects. Monetary policy is controlled by a separate monetary authority, which may nonetheless accommodate fiscal expansion. On a conceptual level the model differs from existing models in that political cycles reflect not a single authority that controls all macroeconomic policy, but elected officials who influence fiscal policy and an independent monetary authority that controls monetary policy. The political cycle reflects the interaction of these separate forces.

9.1 VOTERS

Voters are heterogeneous in two dimensions. First, the utility of every voter depends on aggregate economic variables, with this effect given by a loss function such as (2). Voters differ in the relative weight they assign to output fluctuations, the coefficient α in equation (2), but have the same targets for x and π . Second, the utility of a subset of voters is affected by some government-provided public goods, which are controlled by the incumbent president, and all such voters place the same utility value on public goods. (These play the role of targeted transfers to specific constituencies.) Since the incumbent does not control macroeconomic aggregates on his own (in fact, they are more influenced by the monetary authority), only those voters who receive public goods will have a preference over candidates.¹⁶

The implicit assumption of heterogeneous voters is made to highlight three issues crucial to a fiscal model of the PBC and to PBC models in general. First, heterogeneity of the population means that we cannot think of a policymaker as maximizing the utility of a “representative” agent. This insight formed the basis of partisan models and is more general. As I argue in Drazen (2000a), heterogeneity of interests is the

16. This structure is a much simplified version of the Dixit–Londregan (1996) model of targeted transfers in which voters differ in the relative weights they put on transfers and policy preferences, with those most susceptible to transfers being targeted by opportunistic politicians.

central concept of political economy.¹⁷ Second, transfers can be targeted to specific groups, so that there can be a significant effect on voting as a result of fiscal manipulation without there necessarily being an effect on aggregate economic activity. Third, whether any fiscal electoral cycle has aggregate effects will depend, among other things, on the possible size of politically motivated fiscal expenditures relative to the economy as a whole. (It will also depend on the strength of the monetary authority relative to elected politicians.)

More specifically, there are two government-produced goods: g , a public consumption good (measured in per voter terms), and k , a public investment good. In any period, the utility of a voter i who is affected by public-good provision may be written:

$$U^i(x_t, \pi_t, g_t, k_t) = - \left(\alpha_i \frac{(x_t - \bar{x})^2}{2} + \frac{(\pi_t - \bar{\pi})^2}{2} \right) + g_t + v(k_t), \quad (10)$$

where $\bar{x} \geq 0$, $\bar{\pi} \geq 0$, and $v(\cdot)$ is an increasing concave function satisfying the Inada conditions. A voter of type i who is not affected by public goods has a utility function only containing the first expression on the right-hand side of (10). There are two periods, so that the expected utility of voter i over his horizon is

$$E(\Omega^i) = E_t \left(\sum_{t=1}^2 \beta^{t-1} U^i(\cdot) \right), \quad (11)$$

where $\beta < 1$ is the voter's discount rate.¹⁸

9.2 AGGREGATE SUPPLY OF AND DEMAND FOR GOODS

The aggregate output gap x_t and inflation π_t are related by an aggregate supply relation as in (1), but with a stochastic element:

$$x_t = \pi_t - E_t \pi_{t+1} + s_t, \quad (12)$$

where s_t is a supply shock described by $s_t = \rho s_{t-1} + \hat{s}_t$, with $0 \leq \rho \leq 1$, and where \hat{s}_t is an i.i.d. mean-zero random variable. Note the difference in

17. In Rogoff's (1990) paper, the key conflict of interest is between a voter who maximizes his utility and a politician who cares about social welfare but has the additional objective of staying in office. See equation (17) below.

18. As in Rogoff (1990), there may also be a nonpecuniary, leader-specific shock. Its role here would be to ensure that in a pooling equilibrium in which policy gives no information about competence, an incumbent is *not* elected with certainty. This is important for some of the proofs of equilibrium, but suppressed here.

the expected inflation term from (1), where it is expected future inflation, rather than current inflation, that enters. This change is to make the monetary side of the model consistent with recent work on interest-rate rules, as in Clarida, Gali, and Gertler (1999). This change is of crucial importance in how one interprets the Phillips curve (see Clarida, Gali, and Gertler, 1999), but has no qualitative effect on our basic argument about the interaction of the fiscal and monetary authorities. It is assumed that prices are sticky in the short run, which allows monetary policy to have short-run effects.

Output consists of public goods determined by the incumbent politician (as explained below) and all other goods; as shorthand, we term *nonpolitical* goods those that the politician cannot determine directly. The supply of public consumption goods is given by

$$g_t = \epsilon - k_{t+1}, \tag{13}$$

where ϵ is the *competence* of the President currently in office. A more competent leader is a better economic manager, able to increase a country's level of output. Competence is a given characteristic of a leader, which in this two-period setup is equivalent to the first-order moving-average structure assumed by Rogoff. Leaders are of two types: high competence (ϵ^H) and low competence ($\epsilon^L < \epsilon^H$). Competence ϵ is not observed by the voters; in the absence of any information, they assign a probability $0 < \gamma < 1$ to a leader being of high competence, where $\bar{\epsilon} = \gamma\epsilon^H + (1 - \gamma)\epsilon^L$.

The public-goods constraint is written in this way to highlight the fact that for public capital to be purchased in period $t+1$, funds must be allocated in period t .¹⁹ Hence, though the decision on public investment is made at t , it only enters aggregate demand in $t+1$. Moreover, though k_{t+1} is chosen in period t , it is only observed in period $t+1$.

Following the monetary-policy literature, we assume that demand for nonpolitical goods (relative to potential output) is a decreasing function of the ex ante real interest rate with a stochastic term z_t that is, it is $X(i_t - E_t\pi_{t+1}) + z_t$. We may then write the output gap as a function of the interest rate (the "IS curve"):

$$x_t = X(i_t - E_t\pi_{t+1}) + k_{t-1} + g_t + z_t - \epsilon. \tag{14}$$

In deriving the monetary authority's interest-rate rule, we will consider a linear version of (14):

19. Multiplying k_{t+1} by one plus the real interest rate to represent the cost of carry does not change the basic results, but makes the calculations more difficult.

$$x_t = -\varphi(i_t - E_t \pi_{t+1}) + \eta_t, \quad (15)$$

where $\varphi > 0$ and $\eta_t = k_{t-1} + g_t + z_t - \epsilon$.

9.3 THE PRESIDENT AND FISCAL POLICY

It is assumed that the incumbent president controls the determination of public (that is, political) goods g and k . The president cares about the social welfare of all voters. Given the form of the utility function (10) and the fact that voters don't hold the president directly accountable for macroeconomic performance, the single-period voter welfare measure he maximizes is the sum of (negative) macroeconomic loss over all voters plus $g + v(k)$ multiplied by the fraction of voters who are affected by public-good supply. This objective may be written as

$$U^V(\cdot) = -\left(\bar{\alpha} \frac{(x_t - \bar{x})^2}{2} + \frac{(\pi_t - \tilde{\pi})^2}{2}\right) + n[g_t + v(k_t)], \quad (16)$$

where $\bar{\alpha}$ is the average value of α^i over the electorate and $0 < n < 1$ is the fraction of voters affected by provision of political goods.

The incumbent has two additional arguments in his objective function. First, as in Rogoff, he attaches a value to being in office per se, which we denote by Θ . Second, he may try to influence the central bank's choice of monetary policy; specifically, consistent with the discussion in the previous section, an incumbent may press the monetary authority to keep interest rates low in an election year, which he may value for re-election purposes or to satisfy important constituencies. Here, the second is modeled loosely by assuming that voters value economic activity more highly than the monetary authority [see equation (18) below], which is therefore important to the incumbent in an election year. However, applying pressure has a cost independent of its effect on interest rates or other observable variables. This cost may reflect the psychic costs to the executive of tension with the monetary authority or, more likely, the cost of reduced cooperation from the monetary authority in the future. The cost depends on the whole nature of the interaction between the monetary authority and the elected president, including the ability of the monetary authority to withstand such pressures. For now, we simply write the cost of such pressure as ζ , where ζ is increasing in the amount of pressure applied.

An incumbent's expected utility may then be written

$$\Omega^P = E\Omega^V + \sum_{t=1}^2 \beta^{t-1} q_t (\Theta - \zeta), \quad (17)$$

where q_t is the probability of being in office in period t , and Ω^V is obtained from U^V in (16) via (11). For an incumbent, $q_1 = 1$; q_2 will be derived below. Equation (17) makes clear that since an incumbent places a value on being in office, he will be opportunistic and try to manipulate the economy to improve his re-election chances, but there are limits on how far he is willing to go.

In our model manipulation takes two forms. First, and most importantly, there is direct manipulation via fiscal policy (choice of g), where concern for social welfare puts a limit on the degree of manipulation. Second, he may put pressure on the central bank to lower interest rates, but there are costs of doing so, as summarized by ζ . For simplicity, it is assumed that the incumbent knows that fiscal policy affects interest rates but does not know exactly how the monetary authority will respond and therefore does not take into account the effect of g on interest rates in choosing his preferred value. This assumption, which simplifies the mathematical analysis, seems realistic and has no substantive effect on the nature of the results.

9.4 ELECTORAL STRUCTURE

The electoral structure is as follows. For simplicity, there are only two periods, with an election at the end of the first period. In the first period the incumbent observes ϵ and chooses g_1 and k_2 . Voters observe g_1 and i_1 (but not ϵ or k_2) and use these observations to form an inference about competence. Based on their beliefs about competence, they then vote whether to retain the incumbent or replace him with a challenger of unknown competence, so that the expected competence of the challenger is $\bar{\epsilon}$. More specifically, the voters choose to retain the incumbent if expected utility under the incumbent is higher than expected utility under the challenger.²⁰ In the second period, the elected president chooses his first-best policy, as there is no election.

9.5 THE MONETARY AUTHORITY

We assume that the central bank's objective function can be represented by the loss function (2) (which also represents the loss that individuals

20. An alternative assumption is that the incumbent chooses g_1 before ϵ is observed, so there is no signaling of type. Suppose that output, which is observed by voters before an election, is the sum of competence ϵ and a random shock, both unobserved. Hence, when a high level of output is observed, optimal inference would lead voters to raise the probability that the incumbent is of high competence, and therefore make them more likely to vote to re-elect him. Incumbents, knowing this, are induced to increase government expenditures before an election. One would therefore obtain a pre-electoral fiscal cycle, with all competence types raising spending before an election and voters voting on the basis of good economic times, but without signaling.

assign to aggregate fluctuations) but that the coefficient on output deviations or the target levels for the output gap and inflation need not be the same as the public's. Specifically, let the central bank's single-period loss function be

$$\mathcal{L}_t^{\text{CB}} = \sigma \frac{(x_t - \bar{x})^2}{2} + \frac{(\pi_t - \tilde{\pi})^2}{2}, \quad (18)$$

where $\sigma < \bar{\alpha}$, that is, the monetary authority assigns a greater cost to inflation fluctuations than the "average" voter, as well as possibly having lower targets for output and inflation. Though there is considerable research aimed at deriving the central bank's objective from the utility function of the representative agent, the whole concept of a policymaker maximizing the utility of a representative agent misses the essence of political-economy models. Furthermore, using a loss function such as (18) follows both the PBC literature and the literature on monetary policy rules [see, for example, Clarida, Gali, and Gertler (1999) and the discussion therein], making it easier to compare results from those literatures.

The monetary authority chooses x_t and π_t to minimize its loss function subject to the aggregate supply relation (12) and the shocks s_t and η_t . (See the appendix for a derivation of optimal policy as well as the interest-rate rule.) By maximizing (18) subject to (12), and using (15) to derive the nominal interest rate, one obtains the monetary authority's optimal interest-rate rule:

$$i_t = \left(1 + \frac{1}{\rho\sigma\varphi}\right) E_t \pi_{t+1} + \frac{1}{\varphi} \eta_t, \quad (19)$$

where $E_t \pi_{t+1} = \rho s_t$ and it is assumed that this rule will be followed in the future. This rule gives the first-best response to supply shocks s_t and demand shocks η_t .²¹ We consider below how pressure from the executive may force the monetary authority to follow a different rule implying a smaller interest-rate response to shocks.

To close the monetary sector, the money-supply growth rate consistent with the interest-rate target is given by the money-market equilibrium condition (the *LM curve*) when the price level is sticky in the short run. In the absence of money demand shocks, we obtain a simple relation between money growth and interest rates, namely,

21. As Clarida, Gali, and Gertler (2000) point out, this rule is consistent with the Taylor rule when lagged inflation or a linear combination of lagged inflation and the output gap is sufficient to forecast future inflation. It is also consistent with inflation targeting.

$$\mu_t = M(i_t, x_t) \tag{20}$$

where, given x_t , the money growth rate will be an increasing function of the interest rate. We assume that the money-supply growth rate is contemporaneously unobserved by voters. This prevents them from using interest rates and monetary growth rates together to infer the competence of the president.

9.6 EQUILIBRIUM FISCAL AND MONETARY POLICY UNDER FULL INFORMATION

We begin with the benchmark full-information equilibrium, where voters can observe ϵ before voting. If ϵ is observed, pre-electoral fiscal policy can have no effect on the election outcome. Taking q_2 as given in (17), the incumbent's decision problem over g_t and k_t becomes equivalent to maximizing the voters' utility U^V . Using the simplifying assumption that the president does not take into account the effect of g on interest rates in choosing his preferred value, one obtains a first-order condition:

$$\beta v'(k) \geq 1, \tag{21}$$

with equality if $\epsilon \geq (v')^{-1}(1/\beta)$. If ϵ is sufficiently large, then both public goods are supplied and (21) holds as an equality. We assume that ϵ^L (and hence ϵ^H) is high enough that this is the case. First-best government investment and consumption are then

$$k^* = (v')^{(-1)}(1/\beta), \quad g^*(\epsilon) = \epsilon^j - k^*, \tag{22}$$

for $j = L, H$. This is the policy always chosen in the second period (when there is no election), and it is the policy chosen in the first period under full information. Clearly, g^* is increasing in ϵ , so that voter utility is increasing in ϵ as well.

To find monetary policy in a nonelection year (or under full information), we assume that the monetary authority knows (22), that is, that it knows that there is no electoral manipulation in a nonelection year. Combining (22) with (19) and (20), one finds that the interest rate and money growth rate will be the same under low- and high-competence policymakers in nonelection years, depending only on aggregate demand and supply shocks.

9.7 FISCAL POLICY UNDER ASYMMETRIC INFORMATION

We now consider the incumbent politician's decision problem when his competence is not observed. In this sort of signaling problem, there is gen-

erally a multiplicity of equilibria, both separating and pooling. We consider only pure strategies, and assume that voters are sufficiently sophisticated that they rule out incumbents following dominated strategies. This leaves only one separating equilibrium, on which we focus.²² (Of course, the welfare the low-competence type gets in a pooling equilibrium will be important in deriving the separating equilibrium.) We show that in a separating equilibrium, the low-competence type chooses his full-information, first-best solution, while the high-competence type signals his type by choosing public consumption g higher than the full-information optimum (at the expense of low public investment, which is contemporaneously unobserved). The effect on interest rates depends on the choice of g_t , which is perceived by the central bank as a demand shock, and on the pressure the president is able to put on the monetary authority. High pre-electoral government consumption combined with effective pressure on the monetary authority will be seen in high money growth rates, even though it has no causative effect on the pre-electoral expansion.

Under asymmetric information, voters' beliefs about competence are a function of the observed fiscal policy. (The level of interest rates will give no additional information, given the unobservability of the money growth rate.) We represent these beliefs as $\hat{\gamma}(g)$, which is the probability a voter assigns to the incumbent being of high competence, given the observation of fiscal policy. These beliefs in turn determine the probability that an incumbent is re-elected. Given Equation (19), interest rates are determined by g and the incumbent's type as given above, so that we may write the incumbent's expected utility as a function of his chosen policy and his type as $\Omega^p(g, \hat{\gamma}(g), \epsilon)$.

To derive the equilibrium, we work backwards. In the second period, both competence types choose the fiscal policy according to (22), with government consumption g being higher under a high-competence than a low-competence type. Given the first-best fiscal solution, the central bank can meet both of its monetary targets. Voters will therefore always re-elect an incumbent they believe to be of high competence [$q_2(\hat{\gamma} = 1) = 1$] and vote to remove an incumbent they believe to be of low competence [$q_2(\hat{\gamma} = 0) = 0$]. When there is no information about the competence of the incumbent (for example, in a pooling equilibrium where both types chose the same policy), so that the incumbent is assumed to be of average competence γ , it is assumed that the probability that he is re-elected is positive, but less than one [$0 < q_2(\hat{\gamma} = \gamma) < 1$], for the reasons discussed in footnote 18 above.

22. In this sort of model, pooling equilibria are generally ruled out by the Cho-Kreps "intuitive" criterion. See the discussion in Rogoff (1990).

In the first period in a separating equilibrium, a low-competence type chooses his full-information optimum, since he gains nothing from choosing a distortionary public-expenditure combination that yields less utility but still allows voters to deduce his type. A high-competence type must therefore choose a policy that the low-competence type chooses not to mimic. More specifically, denote the policy of the high-competence type in a separating equilibrium by g^H , with an associated nominal interest rate. In order for the low-competence type not to mimic the high-competence type, he must receive lower utility from mimicking the high-competence type than from revealing himself. (In the case of equal utility, we assume that the low-competence type chooses to reveal himself.) We thus require in a separating equilibrium that

$$\Omega^P(g^H, \hat{\gamma}(g^H) = \gamma; \epsilon^L) \leq \Omega^P(g^*(\epsilon^L), 0; \epsilon^L). \quad (23)$$

That is, in a separating equilibrium, g^H (and the associated interest rate) is such that a low-competence incumbent would rather choose the full-information solution and be revealed (and hence defeated for sure) than choose to mimic the spending level g^H with the implied low level of public investment. In such a pooling equilibrium the low-competence type must put enough pressure on the central bank to hit the interest rate i^H that the high-competence type achieves, which is possible if the monetary authority chooses a high enough (unobserved) money growth rate. That is, the high-competence type must choose a high enough level of g^H that the low-competence type chooses not to mimic.

One possibility is that the high-competence type's full-information level of expenditure, namely $g^*(\epsilon^H)$, satisfies (23). That is, the high-competence type can separate himself by choosing his first-best point, because it is such that the low-competence will not find it optimal to adopt it. This would be the case, for example if the value Θ of being in office were low. In that case the distortion that a low-competence incumbent would have to undertake to match the high-competence type's nondistortionary solution would not justify the (low) value of winning reelection. Another case in which $g^*(\epsilon^H)$ would be a separating equilibrium is where the difference between ϵ^H and ϵ^L is very large, since it would be too costly for the low-competence type to adopt the high-competence type's first-best policy.

When $g^*(\epsilon^H)$ does not satisfy (23), then the high-competence type must choose a point which gives him less utility than $g^*(\epsilon^H)$ in order to separate himself. Since the cost to the high-competence type of signaling his type is higher for higher g^H relative to g^* , he will choose the lowest level of g^H consistent with separation. (That is, he will choose an undominated

strategy.) This value is given by the value of g^H that satisfies (23) with equality.

A further condition for a separating equilibrium is that g^H must give the high-competence type utility no lower than the full-information expenditure level $g^*(\epsilon^H)$ gives him, that is,

$$\Omega^P(g^H, 1; \epsilon^H) \geq \Omega^P(g^*(\epsilon^H), \hat{\gamma}(g^*(\epsilon^H))) = \gamma; \epsilon^H. \quad (24)$$

A separating equilibrium must satisfy both (23) and (24). One may show that since $\epsilon^H > \epsilon^L$ and $v(\cdot)$ is concave, a separating equilibrium exists. (See Drazen, 2000b.) In such an equilibrium, the low-competence type chooses $g^*(\epsilon^L)$, his full-information first-best level of expenditure, while a high-competence type chooses a level of expenditure g^H just high enough that the low-competence type does not find it optimal to adopt that policy instead of his first-best policy.

More realistically, there will be many different competence types, with all but the least competent choosing a level of expenditure above his first-best optimum to signal his competence level. [See Rogoff and Sibert (1988) for the derivation of this type of equilibrium with a continuum of competence types.] Hence, some degree of pre-electoral manipulation of fiscal policy will be the rule rather than the exception.

We may then summarize the characteristics of the political fiscal cycle. Before an election, a high level of spending signals an high-competence incumbent, so that a high level of spending leads the incumbent to be re-elected by rational voters. This high level of spending may be either nondistortionary [if $g^*(\epsilon^H)$ satisfies (23)] or distortionary (if it does not). When the optimal signal is distortionary, the central bank will partially accommodate high government spending to restrain the impact of fiscal expansion on interest rates. Hence, money growth will rise before an election, not to affect economic activity directly, but in response to expansionary fiscal policy.

9.8 MONETARY POLICY IN AN ELECTION PERIOD

In a nonelection period all competence types choose fiscal policy according to (22), so the demand stimulus is independent of competence; and, as was argued above, the monetary authority's preferred monetary policy, as determined by (19), is independent of competence as well. Moreover, there is no reason for a politician to put pressure on the monetary authority for electoral purposes. In contrast, neither of these conditions need hold in an electoral period.

As argued in the previous section, in an election period, the high-competence type (all but the lowest-competence type in a model of

many types) will choose to signal, and this may require choosing a level of public consumption g_1 above the first-best optimum. If there are many competence types with two adjoining types having values of ϵ not far from one another, then signaling will almost certainly require increasing g_1 above the level given in (22).

How will the monetary authority react? In the absence of any knowledge of the president's competence, an increase in g in an election period is seen simply as a demand shock η_t , which the monetary authority would want to offset by increasing the nominal interest rate according to (19). However, when the "average" voter prefers higher and less variable output than the monetary authority, an incumbent president gains votes by limiting the increase in the interest rate, implying that the equilibrium output gap is below what the monetary authority prefers. Note that this is true even if the president shares the monetary authority's preferences over aggregate variables in (18), as long as the voters have different preferences.

To make this precise, one has to specify how much pressure the president puts on the monetary authority and how this is translated into limitations on interest rate. There are several ways of modeling this. For simplicity, suppose that the intervention takes the form of inducing the monetary authority to reduce proportionally the response to demand shocks (which means accommodating the fiscal stimulus of the incumbent, among other things), that is, to choose the interest rate in the election period according to

$$i_t = \left(1 + \frac{1}{\rho\sigma\varphi}\right) E_t \pi_{t+1} + (1 - w) \frac{1}{\varphi} \eta_t, \tag{25}$$

for $0 \leq w \leq 1$ chosen by the incumbent president.²³ The higher w is, the greater is the incumbent's cost ζ . An incumbent will choose w optimally depending on the nature of the cost of pressure relative to the weight he puts on voters' welfare Ω^V . Interest-rate intervention will limit the increase in interest rates in response to fiscal shocks and hence increase output above what the monetary authority prefers, which is preferred by the voters. The aggregate effect of this will depend on the size of the fiscal stimulus. If it is targeted to a narrow group of voters (that is, if n , the fraction of voters who are affected by higher g , is small) or if the size

23. From the monetary authority's optimization problem, it is clear that even with intervention, conditions (A2) and (A3) in the appendix still hold. Since the monetary authority expects to be allowed to follow the first-best rule in period 2, (25) gives the response of interest rates to shocks when the monetary authority knows that its reaction is limited in the way it is.

of the fiscal stimulus is small relative to the economy, there will be little or no aggregate effect. If it is large, as in some of the developed-country cases discussed in Section 8, there may be a large aggregate effect.

The effect on money growth rates is obvious. The more pressure the incumbent puts on the monetary authority to keep interest rates from rising, the higher must be money growth relative to the monetary authorities' first-best. In the case of $w = 1$, interest rates don't rise at all in response to a fiscal stimulus, so that the money growth rate must increase before the election. Of course, this depends on the existence of a fiscal stimulus. In its absence, there is no higher-than-average pressure on interest rates and hence no need for a monetary accommodation of the politically induced fiscal stimulus. The possibility of accommodation in response to pressure, its implications for monetary policy, and its connection with the fiscal stimulus contain the essence of the AFPM model of the PBC.

10. A Look at the Data and Some Concluding Comments

We now take a quick look at the data to show that they are broadly consistent with the model. A clear difference between a money-based PBC model and the AFPM model is that in the former, monetary effects are the driving force of the political-economic cycle, while in the latter they are induced effects, due to the monetary authority wanting to offset fiscal effects that would otherwise drive up interest rates. Hence, money growth in a money-driven PBC model should be expansionary and drive down interest rates, while in the AFPM model it should be associated with stable or even slightly rising interest rates. Put another way, the monetary expansion in a money-driven model should be reflected in changes in the instruments of monetary policy in an expansionary direction, while in the AFPM world, we should see an expansion only in broad monetary aggregates, not in instruments of policy. This type of argument was first put forward by Beck (1987), as discussed in Section 8 above. He found that the opportunistic monetary growth cycle from 1960 to about 1980 was characterized by this distinction, and in regressions such as (4) he found no political effects on the fed funds rate to match the M1 political cycle. This distinction is summarized by the difference between the money growth over a president's term in Figures 4 and 5 and by the federal funds rate shown in Figure 6, where there is no clear political effect.²⁴

24. In fact, in the post-1979 period, the fed funds rate actually rises in the quarter before the election.

A second broad prediction of the AFPM model is that monetary growth before an election should reflect fiscal impulses. Note that one is *not* testing whether fiscal manipulation or voters' responses are rational, but whether there is a causal connection between the fiscal and the monetary cycle. As reported in Section 6, both Keech and Pak (1989) and Alesina (1988) found an electoral cycle for transfers between 1961 and the late 1970s or early 1980s, which has since disappeared. The strongest evidence for an M1-growth-rate electoral cycle is over the same period, while there is no such cycle after 1980.

Of course, correlation is not causation. A stronger test is to show whether when an electoral monetary cycle exists, it can be explained by the fiscal cycle, as opposed to simply a political dummy. Beck (1987) performs such a test and argues that fiscal variables can in fact explain the 1960–1978 electoral cycle in M1 growth rates. In Drazen (2000b), I present regression results that show a money growth cycle over this time period (but the absence of a federal-funds-rate cycle) and an electoral cycle in both net transfers to GNP and the ratio of the fiscal surplus to GNP over the same period.²⁵ Moreover, when the ratio of the fiscal surplus to GNP is included as an explanatory variable in the money growth regressions, the political dummy to capture electoral effects loses much of its significance.

A broader question is whether there is significant evidence of an opportunistic PBC in the aggregate data for the United States. On the whole, the evidence is not strong for effects on many macroeconomic aggregates. A key point of the AFPM model is that there can be a significant electoral cycle in policy instruments—significant in that it affects voting—without there being clear aggregate implications. “Traces” of monetary effects that are observed may be simply an attempt by the central bank to aim for an *absence* of aggregate effects that can be attributed to monetary policy! Of course, if the fiscal manipulation is large, as is the case in some developing countries, we should expect to see large aggregate effects.

Though the empirical findings are only suggestive at this point, they should, at the very least, induce us to rethink our approach to PBCs. This paper was in part survey and in part new research induced by considering what we have learned from twenty-five years of research on PBCs. The survey was meant to convey a very clear message: monetary

25. One interesting result in this regard is that in the 1960–1978 sample, there appears to be a significant positive effect on money growth in the election quarter itself, which is too late if monetary policy is meant to increase economic activity before the election. On the other hand, if monetary policy is counteracting the effects of fiscal policy on interest rates, the timing is not puzzling.

surprises are an unconvincing driving force for political cycles, either opportunistic or partisan; research should concentrate on fiscal policy as the driving force, especially for opportunistic cycles. Political monetary cycles are more likely the effect of accommodation of fiscal impulses, that is, monetary policy is passive while fiscal policy is active in trying to affect election outcomes.

Appendix. Derivation of Interest-Rate Rules²⁶

The monetary authority minimizes a loss function

$$\sigma \frac{x_t^2}{2} + \frac{\pi_t^2}{2} + F_t, \quad (\text{A1})$$

where F_t represents future expected loss from inflation and output, subject to (12). This yields an optimal relation between x_t and π_t of the form

$$x_t = -\frac{1}{\sigma} \pi_t. \quad (\text{A2})$$

Combining this condition with the aggregate supply curve (12) and imposing rational expectations yields x_t and π_t as functions of the supply shock s_t , namely,

$$x_t = hs_t, \quad \pi_t = -\sigma hs_t, \quad (\text{A3})$$

where $E_t \pi_{t+1} = \rho s_t$ and $h = [1 + \sigma(1 - \rho)]^{-1}$. The optimal interest-rate rule then follows from substituting the desired value of x_t into the linearized aggregate demand relation (15) to obtain the nominal interest rate consistent with the output target, which is equation (19).

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Comment

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1. Introduction

The purpose of Allan Drazen's fine paper is twofold: (1) to assess the literature on political business cycles, and (2) to provide a new model that combines monetary and fiscal policies as driving forces of opportunistic cycles. I will focus, as a discussant is supposed to do, on the points of disagreement.

Let me begin by noting that one should not expect that every election will create the same predictable pattern of policy choices. Some governments may use monetary instruments to achieve partisan or opportunist goals, others may use the fiscal instruments. Initial conditions may matter as well: in certain cases showing fiscal restraint may be a political plus, while fiscal expansions in election years may be punished. For instance Alesina, Perotti, and Tavares (1998) show that voters in OECD countries do not always reward governments that are fiscally expansionary. Alesina (2000) discusses the complex political economy of the current U.S. budget surplus. Spending more or taxing less in election years is only one of many aspects of the politics of fiscal policy. Drazen writes that "the reliance on monetary policy as the driving force of cycles is inconsistent with the evidence on the important role of fiscal policy." Why? I do not understand why it has to be one or the other. This fiscal-vs.-monetary "horse race" is a bit distracting from the main issues in this literature, namely whether voters behave rationally, whether opportunistic behavior is important (and in which countries and in which political systems), whether partisan motivations were and are still strong, which electoral systems are more or less prone to create cycles, what influence the degree of central-bank independence can have, what are the different issues arising in developed and developing countries, etc.

2. Review of the Literature

2.1 THE OPPORTUNISTIC CYCLE AND RATIONAL VOTERS

A striking feature of the opportunistic cycle of growth and unemployment is that while there is ample evidence that the state of the economy (especially GDP growth) affects electoral results, there is no evidence that in terms of growth and unemployment the economy does better than average in election years. This is clearly true for the United States and also for other OECD countries. Is this a puzzle? Not quite. The rational versions of the opportunistic model provide models consistent with these observations. Since this is a point that Drazen does not develop much, it is worth explaining. I will sketch the approach developed in Alesina and Rosenthal (1995). Consider an output equation

$$x_t = \pi_t - \pi_t^e + \eta_t + \epsilon_t, \quad (1)$$

where x is a measure of economic activity, π is inflation, and π^e is rationally expected inflation. The shock ϵ is a random noise that represent *luck*, and η represents government *competence* in managing the economy and evolves, for instance, with a MA(1) structure:

$$\eta_t = u_{t-1} + u_t, \quad (2)$$

where u is an i.i.d. shock. Higher competence means that output is higher for given inflation rate. Suppose that at the moment of the election that takes place at the end of period t the public observes x_t , π_t , and π_t^e but cannot distinguish between luck and competence. That is, the public observes the sum $\eta_t + \epsilon_t$ but not its components. Note that some form of persistence in competence is necessary; otherwise forward-looking voters would not care about the current state of the economy. Rational voters prefer to re-elect competent governments; therefore they will use observations on x_t (thus on $\eta_t + \epsilon_t$) as a noisy signal of competence. In this model the policymaker cannot engage in strategic manipulations of the economy using monetary or fiscal instruments (which would affect inflation); thus the rate of growth (or unemployment) in election years is not different from average. Nevertheless, the higher x_t is, the more likely it is that the incumbent will be elected. Thus the state of the economy affects electoral results, but opportunistic cycles à la Nordhaus are not present. This simple approach thus reconciles two features of the empirical evidence. Note that Wolfers (1999) has found considerable evidence of sophisticated voting behavior exactly in the

sense that voters try to distinguish competence from luck. Alesina and Rosenthal (1995), on the other hand, find inconclusive results on voters' rationality in a competence-type model. In particular, American voters seem too sensitive to the rate of growth in election years.

In this version of the model there is no scope for manipulation, but Persson and Tabellini (1990) apply Rogoff's (1990) model of competence and, by assuming asymmetric information on the observation of inflation and output, show that even with rational voters one can have pre-electoral manipulations of inflation and growth. So one of the questions that Drazen raises in his Section 8 (summing up), namely, how rationality of voters can be consistent with opportunistic cycles, has received one answer already. Alesina and Rosenthal (1995) merge this model of retrospective voting with a partisan approach, so that the electorate votes on two grounds: competence and "ideology."

In summary: it should be clear that one can have retrospective voting based on competence without opportunistic manipulations. I am not saying that the latter do not occur, but it should be clear that retrospective voting and active manipulations do not necessarily go hand in hand. While I made this point using an inflation-output framework, the same applies in a fiscal-competence example.

2.2 OPPORTUNISTIC MONETARY AND FISCAL POLICY

Rational behavior of voters, plus the inherent difficulty in timing and controlling the business cycle, may restrict opportunistic behavior of policymakers with respect to instruments like monetary and fiscal policy. Drazen reviews carefully much empirical research on fiscal cycles both in OECD countries and in developing ones. My view of this empirical evidence is that in OECD countries there are several examples of fiscal relaxation in election years, in some cases accompanied by monetary relaxation. However, the evidence is not overly strong, and it should not be. If a policymaker went too far in the direction of election-oriented fiscal policy, the public would punish him because the electorate can be fooled only up to a point. Shi and Svensson (2000) in fact provide some interesting evidence that fiscal cycles may be more prevalent in countries where the voters have less access to a free press and other mechanisms to monitor the policymaker. Alesina, Perotti, and Tavares (1998) do not find that the timing of fiscal adjustments is particularly influenced by the timing of elections in OECD countries. In summary, opportunistic fiscal cycles are there in some countries and in some elections. As implied by rational models à la Rogoff (1990) and Rogoff and Sibert (1988), these cycles cannot be too large and predictable. I also agree that, as a vast literature on lobbying shows, favors to certain groups may be critical for

electoral victory, even though these favors may not show up as large fluctuations of macro variables.

2.3 PARTISAN MODELS

The traditional partisan model due to Hibbs is based on an exploitable Phillips curve where left-wing and right-wing governments can choose permanently different levels of unemployment, growth, and inflation. In my work, started in the late eighties, I embodied partisan parties in models with rational expectations and consistent with a fairly standard neo-Keynesian model of the economy with wage contracts à la Fischer (1977). The idea was that if elections cannot be predicted, the future course of aggregate demand policy cannot be predicted. Thus electoral uncertainty is associated with policy uncertainty that leads to partisan cycles which are short-lived in real economic activity but may be longer-lived in inflation. I am probably not an impartial reader of the literature, but I find the partisan effects on growth and unemployment predicted by this model to be by far the strongest of all the regularities uncovered by the literature on political business cycles, in the United States in particular and in OECD countries more generally. As for the latter, the evidence is stronger in OECD countries with two-party (or two-bloc) systems. This last point reinforces the theory, since multiparty systems normally led by large centrist coalitions (as in Italy until recently) do not conform to the setup of the theory. For instance, Alesina, Roubini, and Cohen (1997) calculate that the difference between the rates of growth of GDP from the beginning of a left-wing government and of a right-wing government in a sample of 19 OECD countries reaches 2.2% about 6 quarters after a change of government (sample, 1960 to 1993). The same figure for the United States is larger, about 3.5%.¹ These partisan differences disappear about two years after an election.

Drazen raises several criticisms of this model that lead him to emphasize even in the abstract of his paper that “models based on monetary surprises . . . are unconvincing explanations of . . . partisan cycles.” The first conceptual objection is that wage contracts could be adjusted ex ante to incorporate the electoral uncertainty, either by being contingent on the election result or by being signed after the election. This is an important issue that to some extent applies to all nominal-contract models. One could give the battery of standard answers to why agents may lock themselves in nominal contracts, such as menu-cost arguments.² More interesting is the direct evidence on this point raised by Garfinkel

1. See Alesina, Roubini, and Cohen (1997, p. 152).

2. See Alesina and Rosenthal (1995) for an extensive discussion of this point.

and Glazer (1994). As Drazen notes, these authors show that a fraction of wage contracts to be signed in election years are adjusted to be signed after the election. I find this very strong evidence in favor of the electoral uncertainty model. Note that Glazer and Garfinkel find that some, but not all, contracts are adjusted. Thus, according to these results, the agents recognize the role of electoral uncertainty but can protect themselves only partially. This seems to me one of the strongest direct confirmations of the theory. If these authors had found that nobody readjusts contracts, a critic of the rational-partisan theory would have said that the latter is irrelevant, since nobody cares about electoral uncertainty. If all contracts were readjusted, the same critic would say that the rational-partisan theory cannot work. The only result fully compatible with the rational-partisan theory is the one found by Garfinkel and Glazer (1994).

A second objection concerns direct tests of the role of electoral uncertainty. Chapter 5 of Alesina, Roubini, and Cohen (1997), which is based on the PhD thesis of Cohen (1993), is fully devoted to direct tests of the electoral uncertainty. Based on pre-electoral polls, Cohen calculates the *ex ante* probability of a Democratic or Republican victory for every post-war election. Note that *ex post* landslides may not always coincide with pre-electoral sentiments, especially if evaluated several months before an election, the timing relevant for a wage-contract (or a nominal-price rigidity) model. While some election outcomes may be very clear the day before, they were not six months ahead. For instance, the 1980 election was much more uncertain *ex ante* than the Reagan victory may indicate. The current election at this date (July 2000) is very unpredictable. By October 2000 it may appear as a sure bet, and 20 years from now we may just remember a landslide victory. These considerations suggest that impressions about electoral uncertainty *ex post* may be misleading.

Cohen discusses two types of evidence. One considers the expected inflation implied by the term structure of interest rates. This measure of expected inflation seems to be related to the *ex ante* anticipation of who is going to win the next election, in a way consistent with the partisan theory. The second set of tests relates electoral uncertainty to the size of fluctuations of growth, again with positive results for the theory. I am not arguing that the issue is settled by these results, but I am surprised that Drazen did not find it necessary to discuss these tests in more detail, given his serious objections to the theory on this point. He simply says, relative to the second test, that the computation is complicated and is not consistent with his (Drazen's) assessment of the data. As a test he mentions one election in the sixties. If this issue "requires further research" as Drazen writes (and I agree), then I do not understand how Drazen can be so sure that on this point the theory is flawed.

A third objection is that the pattern of inflation is not consistent with the partisan theory, because if, say, a Republican administration inherits a high inflation rate from the past, it may take a couple of years to reduce it. For example, according to this view the first Reagan administration in 1981–1984 would be a pro-inflation administration, since inflation was still high in 1981 and 1982. I find this the least convincing of Drazen's criticisms. Any model with some persistence in inflation would deliver this result.

Fourth, Drazen disagrees with the inflation-augmented Phillips curve, but if I understand correctly, his equation (12) is of the same family. It seems to me that a partisan structure which uses his equation (12) would also imply that electoral uncertainty is relevant.

Finally, it is true, as Drazen emphasizes, that the evidence on policy instruments is weaker for the partisan theory than the evidence on growth and unemployment. My reading of these results is that different administrations in the United States or governments of other countries may use different combinations of policies to achieve their goals, and by looking at one or the other one may find weaker results. For instance, suppose that one looks at monetary policy and some governments use fiscal policy as their main policy instrument. Evidence of partisan monetary policy may be weak not because partisan motivations are weak but because of difficulties in isolating one specific policy instrument. For instance, Perotti and Kontopoulos (1999) find evidence of partisan fiscal policy in OECD countries, while Alesina, Roubini, and Cohen (1997) find evidence of partisan monetary policy.

3. *The AFPM Model*

In the final part of the paper Drazen extends Rogoff's (1990) and Rogoff and Sibert's (1988) model of fiscal policy in order to incorporate a monetary accommodation. This is a Rogoff-type model with a monetary policy equation containing an exogenous parameter that captures the degree of pressure of the fiscal authority. There is some connection here with the literature on monetary–fiscal policy games originating from the unpleasant monetarist arithmetic by Sargent and Wallace. This connection would be worth exploring. Let me raise a few points:

1. A key assumption is that the money-supply growth rate is unobserved contemporaneously by the voters. Otherwise the voters could infer the competence of the incumbent and the model would not deliver interesting results. Some sort of asymmetric information is crucial to deliver opportunistic manipulations with rational voters. I

find Rogoff's assumption that the asymmetric information is about the composition of the budget more convincing than the one that the voters cannot figure out if the central bank is accommodating or not. More generally, assumptions about asymmetry of information seem to have a higher status than assumptions about imperfect nominal contracting. I see this simply as a matter of taste.

2. A key element of this model is the amount of pressure that the president puts on the central bank for accommodation. It seems to me that the obvious (and perhaps the only) way to test this model is to check whether this accommodation occurs more or less in countries with different levels of central-bank independence. This would be an interesting exercise.
3. A somewhat unfair criticism of the model would be to ask why the government would want to have an independent central bank at all here. But there are reasons outside the model why central-bank independence may be desirable. Perhaps one might try to bring in this point more directly, also in reference to empirical testing, as of my previous point. Also, an endogenous determination of the optimal degree of central-bank independence would provide a more solid derivation of the central bank's objective function, which in this version of the model is fairly arbitrary.

I am not quite sure what to make of the empirical evidence discussed in the last section of the paper. The author refers to another paper by him on more formal empirical tests on the United States. Based upon my previous work, I find it hard to believe that one can find strong evidence of large opportunistic cycles based on either monetary or fiscal policy in this country, because information circulation and central-bank independence are relatively high. In fact, one may argue that lack of strong evidence on the United States would be in favor of the spirit of the model. My sense is that in order to find evidence for the AFPM model, or of any other model of opportunistic cycles, I would look at other countries besides the United States and make cross-country comparisons.

In summary, I found things to like in this paper and things to disagree with. Three concluding points: First, my main general point of disagreement is with the attempt to emphasize a somewhat misleading contrast between those who argue that monetary policy is the driving force and those who argue that fiscal policy is. Second, I find the AFPM model a reasonable and interesting extension of Rogoff's work. I look forward to seeing it tested in cross-country data sets. Third, Drazen finds unconvincing both opportunistic and partisan models based on inflation surprises, but he did not offer an alternative and more convincing partisan model.

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*Comment*¹

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1. Introduction

Allan Drazen achieves two objectives in his paper. First, he provides a brief but critical survey of the political-business-cycle (PBC) literature, managing to cover both the theoretical and empirical results on opportunistic and partisan models. This summary draws on material from his excellent new book (Drazen, 2000). Second, he develops a new model of the PBC, one that draws on the earlier work by Ken Rogoff and others focusing on fiscal policy as the source of politically driven macro effects.

1. Any opinions expressed are not necessarily those of the Federal Reserve Bank of San Francisco or the Federal Reserve System. I would like to thank Alina Carare for research assistance.

The model differs from earlier approaches in incorporating the notion of a passive Fed, trying to “keep its head down” during election years.

In achieving these two objectives, he has made me rethink the role of electoral factors in affecting monetary policy; I was left unconvinced that, at least from the perspective of U.S. macroeconomics and monetary economics, opportunistic PBCs with aggregate effects are of major importance.

2. *What Are the Basic “Facts”?*

To assess both the survey Drazen presents and the new model he develops, one needs to examine the basic “facts” the PBC literature has tried to explain. I will focus my attention on the United States, both because that is the country I know best, and because Drazen’s discussion of the empirical evidence on PBCs draws primarily on findings from the United States. This focus has its drawbacks. The relevance of PBC models appears to be much greater in other countries, and Drazen does provide some discussion of the international evidence.

3. *The Survey of the Previous Literature*

Drazen organizes his survey round the distinction between monetary opportunistic and partisan models. As he stresses, the active manipulation of monetary policy for macro ends plays a critical role in both approaches. As he also stresses, the notion that the president is able to manipulate monetary policy to achieve his desired outcome is simply not plausible as a description of the relationship between the president and the Fed. This leads him to reject the standard opportunistic and partisan models that have relied on monetary surprises as the key transmission channel through which political factors influence the macroeconomy.

I agree with this assessment, at least as it applies to the United States. The evidence for strong political effects operating through monetary policy just isn’t there. In part, this is because they are only one among many sources of macroeconomic fluctuations. Given the few elections and business cycles since 1960 (the period that is the focus of much of this literature), it would be hard to discern political effects using time-series econometrics. And the existing empirical work in this area has generally failed to deal with the important issue of simultaneity. Did the 1960 and 1990 recessions bring victory to Kennedy and Clinton, or did Kennedy and Clinton bring us the postrecession (and postelection) expansions?

In one of the most careful attempts to deal with the problem of simultaneity, Faust and Irons (1999) conclude the economic effects on election

outcomes are more likely than election effects on the economy. According to Faust and Irons,

There is, at best, weak and fragile evidence in favor of important presidential-cycle effects in US macroeconomic data. The strongest evidence seems to come from the first half of Republican administrations: recessions have followed the election of Republicans and macroeconomic factors alone may not account for this fact. There is little evidence, however, that the causal explanations of any political effects on the economy operates through changes in monetary policy. Thus, we find little support for the view that empirical monetary models should include political variables. (p. 84)

While causality cannot be reliably assessed in nonexperimental data, we cannot reject the view that the data show only causality from the economy to party and not the other way around. (p. 85)

Two points are worth noting. First, the evidence from Faust and Irons relates to aggregate variables, so it is consistent with either opportunistic or partisan manipulation of fiscal instruments that have distributional consequences but not aggregate effects. In fact, the current presidential election provides numerous examples of the incumbent-party candidate announcing spending programs that seem intended to reward specific constituents rather than to have any macroeconomic effects.

Second, the results are also consistent with isolated incidences in which fiscal manipulations might have had aggregate effects. The 1972 presidential election comes to mind as an example, and as Drazen mentions, it is not surprising that the PBC literature really starts in the mid-1970s with the work of Nordhaus and Hibbs. The Nixon–McGovern contest provided the key observation in the United States that motivated work designed to understand how elections might create incentives that distort policy and thereby the macroeconomy.

What I take from Faust and Irons's work is that there are no compelling facts against which to judge PBC models. If we focus on the post-1960 period as Drazen does in this paper, I am just not convinced there is anything at the aggregate level that needs to be explained via political models. Furthermore, Drazen's survey of the empirical evidence suggests that what electoral effects may have been present in the 1960s and 1970s have disappeared in the post-1980 period. The Volcker tenure really did represent a monetary policy regime shift. This doesn't mean there aren't electoral effects on government spending decisions. But evidence that spending fluctuates isn't necessarily evidence that this is a source of business-cycle behavior.

Let me contrast this with the time-inconsistency literature in monetary policy. There were at least two important puzzles facing monetary political economists in the late 1970s. First, why were many countries experiencing high inflation even though everyone seemed to agree that inflation was bad, most agreed that there were no permanent gains from higher average inflation, and we all knew how inflation could be reduced? And second, why did governments so often fail to carry through their announced intentions to reduce inflation?² These were real puzzles that needed understanding.

In contrast, one almost gets the sense that, when applied to the United States, PBC literature is theory in search of an application. There are many intellectually appealing game-theoretic models, but what puzzle are these models trying to address? What are the empirical regularities they need to explain?

4. *The AFPM Model*

Given the weaknesses he identifies in the basic opportunistic and partisan models, Drazen's proposed alternative is the active-fiscal, passive-monetary (AFPM) model. This model combines a signaling model with a specification of monetary policy that differs significantly from that used in previous work.

The basic intuition is borrowed from the budget-cycle model of Rogoff (1990). Elected officials differ in their ability to provide public goods. Their competence, however, is not observed directly by voters. During the runup to an election, a competent incumbent may distort the provision of public goods in an attempt to signal her competency. Allan combines this with a model of passive monetary policy. The monetary authority wants to stabilize output and inflation, but the target levels for output and inflation in the monetary authority's loss function differ from those of the public (and the politicians). If a competent fiscal authority tries to signal to voters by increasing government consumption, the monetary authority is forced to boost interest rates to offset the fiscal effect on output. By itself, this would imply we should observe political cycles in the policy instruments of both the fiscal and monetary authorities but no cycle in output. If the monetary authority implements policy through control of a nominal interest rate, then prior to an election, nominal rates should rise and money growth should fall.

To generate outcomes more in line with the empirical evidence, Drazen makes two further assumptions. First, the public has a higher

2. There are similar puzzles on the fiscal side. Persson and Tabellini (2000) summarize these, but they are not related to business-cycle issues.

output target than the monetary authority. This implies that the incumbent politician can gain votes by lobbying the monetary authority to limit interest-rate increases and to allow output to expand. And second, such lobbying is assumed to be costly to the politician—this serves to limit the extent of the pressure brought to bear on the monetary authority. Together, these two assumptions imply that a competent incumbent boosts fiscal spending to signal competence and pressures the monetary authority so that interest rates are not raised sufficiently to completely offset the aggregate impact of the fiscal spending. As a consequence, prior to an election, fiscal spending, interest rates, output, and money growth should all rise, but only if the incumbent is competent (at least in the separating equilibrium).

4.1 THE IMPLICIT VIEW OF MONETARY POLICY

One aspect of the AFPM model that is a real improvement on many of the earlier PBC models is its recognition that the institutional structure in many countries separates responsibility for monetary policy from the direct control of elected officials. This is certainly the case in the United States. The president can bring pressure to bear on the Fed—witness the role played by the White House in 1972 that John Woolley (1995) has documented—but this is far from having actual control over monetary policy.

In the AFPM model, the monetary authority has its own agenda, but its ability to achieve its own goals is compromised by the stance of fiscal policy. The fiscal authority can lobby the monetary authority, but doing so is costly (the exact nature of this cost is not specified). If the high-competence type wishes to signal to voters by increasing the provision of government consumption goods, it must also lobby the monetary authority to expand money growth, thereby limiting the interest-rate effects of the increased government spending.

I think this gets at the right relationship between the fiscal and monetary authorities, at least in the United States and in other countries with relatively independent central banks. Recognizing the institutional structure within which policy decisions are made is important. Institutional characteristics, such as central-bank independence, do seem to matter. Much of the PBC literature has ignored the role of institutions other than in the timing of elections; this made it poorly framed for addressing many interesting issues about how institutional structure affects economic outcomes. It would be interesting to use the AFPM model to explore the implications of the degree of central-bank independence for opportunistic cycles, much as Alesina and Gatti (1995) and Waller and Walsh (1996) have done for partisan models.

In the general literature on discretionary monetary policy that builds on the work of Kydland and Prescott (1977) and Barro and Gordon (1983), a positive inflation bias is generated under discretion because the central bank has an output objective that is too high relative to the economy's natural rate of output. In contrast, the AFPM model assumes the central bank has an output target that is lower than that of the public. The fiscal authority, because he must face elections, shares the public's output target. It would be interesting to explore whether the AFPM specification is consistent with a positive average rate of inflation. Many recent authors have suggested the inflationary bias of discretionary monetary policy can be eliminated if the central bank simply uses the natural rate of output as its output target. This is essentially what the central bank does in the AFPM model, yet policy is still distorted (potentially) in the face of political pressures.

While the separation of the monetary and fiscal authorities is a nice feature of the AFPM model, other aspects of monetary policy in the model seem incomplete. For example, why do the output and inflation preferences of the monetary authority differ from those of the public? The utility of voters does not enter into the monetary authority's objective function. Perhaps it doesn't because the monetary authority is unelected.³ But even for the unelected Fed, there is evidence that Fed policy does reflect the changing concerns of the public (Tootell, 1999).

The view of monetary policy adopted in the AFPM model can be contrasted with the trend in the monetary-policy literature. There, the literature has moved progressively away from ad hoc loss functions, basing policy evaluation on the utility of the representative agent in a general equilibrium framework. In the AFPM model, the monetary authority cares about output and inflation, but neither is connected in any way to the welfare of the public.

4.2 IS THE AFPM MODEL PLAUSIBLE?

Drazen provides "a quick look at the data" to assess whether the AFPM model appears consistent with the basic PBC facts discussed in the survey part of his paper. The key to distinguishing the AFPM model from a standard PBC model based on the direct manipulation of monetary policy lies in the correlation between interest rates and the cycle. Under either an opportunistic or a partisan model, expansionary monetary policy lowers interest rates—this is the key transmission mechanism through which political influences on monetary policy induce an economic expansion. In contrast, when monetary policy simply reacts passively in the face of a

3. Which raises a different question in political economy—why isn't the Fed chair elected?

fiscally induced expansion, interest rates rise or remain unchanged. They do not fall.

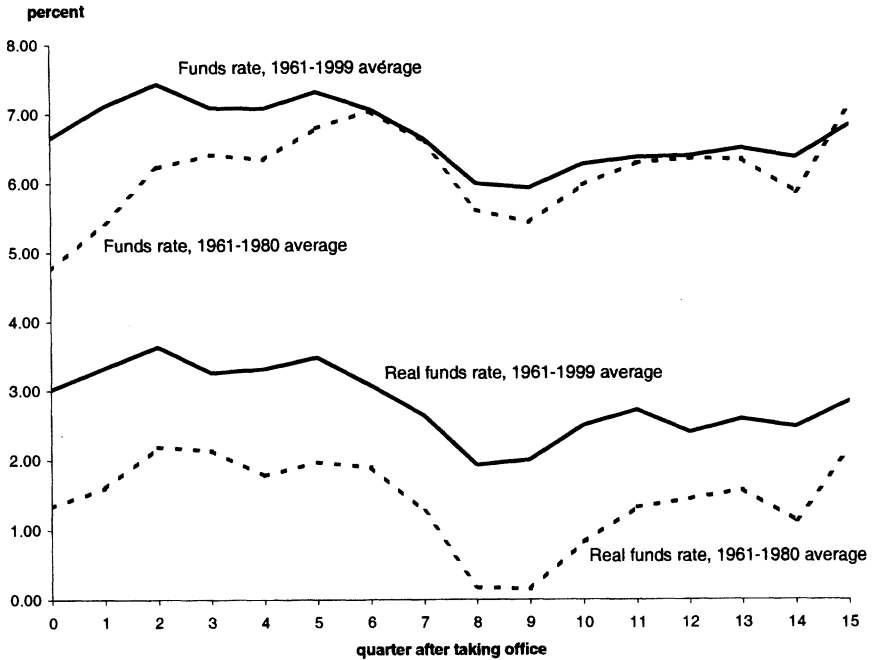
Figures 4–6 of Drazen’s paper present the basic evidence for passive monetary policy in the United States. Figures 4 and 5 show M1 growth rates by quarter of presidential terms for 1960–1979 and 1979–1998. Figure 6 shows the funds rate by quarter of presidential terms for 1959–1998. To my eyes, there does not appear to be much evidence that either M1 or the funds rate is related to the electoral cycle. However, Drazen concludes from his review of the existing empirical literature that there is a pre-election increase in money growth rates from 1960 to 1980, and this forms one of the observations that the AFPM model is designed to account for. Figure 4 does show some increase in money growth in the last two quarters prior to an election, but it also shows a similar increase about seven quarters prior to an election. Given the lags in the impact of monetary policy actions on the macroeconomy, this timing seems more consistent with a traditional opportunistic model in which money growth increases early enough to generate a boom during the election year.

More interesting is the evidence on the funds rate, as this has been the instrument used to implement monetary policy over most of the last few decades. Figure 6 reveals that the funds rate is unrelated to the election cycle over the 1959–1998 period. Under the AFPM model, this would be consistent with a very strong political influence on the Fed. Recall that the basic idea is that the Fed will want to boost interest rates to offset the expansionary impact of the fiscal signaling. The president is assumed to pressure the Fed to limit the rate increases. The evidence seems to suggest presidents succeed completely. But this would mean output should rise prior to elections, a prediction that Drazen concludes does not hold (his Regularity 2). Of course, the alternative interpretation is that the fiscal manipulations are too small to have macro impacts, and therefore there is no need for the Fed to adjust its policy instrument. This hypothesis, however, cannot account for the rise in money growth prior to elections.

In measuring the impact of monetary policy on the economy, it is the real interest rate that should be relevant. Figure 1 shows, by quarter of presidential terms, the average nominal and real funds rate. Averages are shown for the 1961–1980 and 1961–1999 periods.⁴ Looking at the real funds rate is appropriate because average inflation (and therefore the average funds rate) differed significantly over this time period. The time

4. The first quarter of a term is taken to be quarter 1 of the year following an election. So, for example, Carter’s terms runs from 1977:1 to 1980:4.

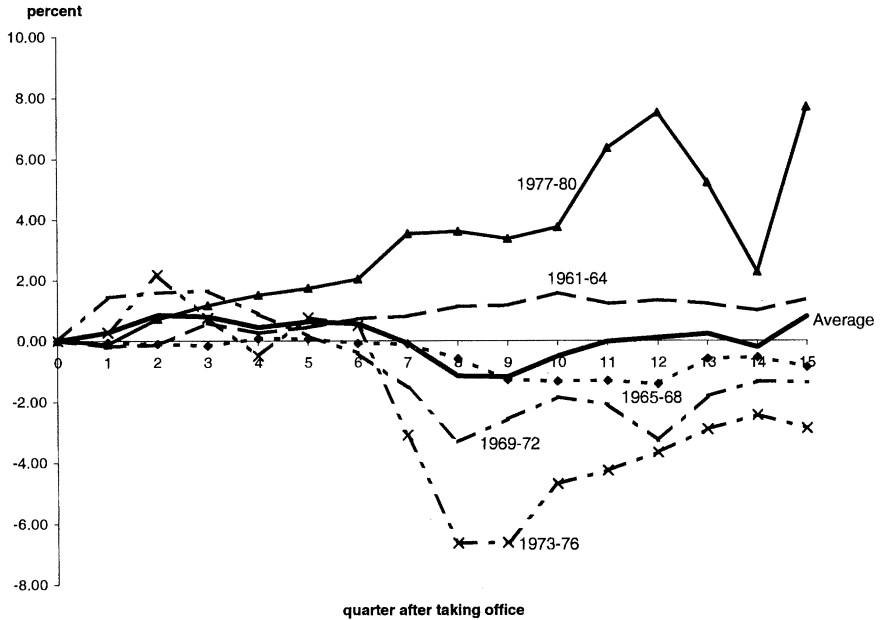
Figure 1 AVERAGE FUNDS RATE AND ELECTIONS



series on the real funds rate appears to be most consistent with a pre-election manipulation of policy. On average, the real funds rate starts to fall a little more than two years prior to an election. Again, given that the lags of monetary policy are on the order of 18 to 24 months, this timing is consistent with a traditional opportunistic political business cycle.

Recall, however, that the 1961–1980 period contains only five presidential elections, so the average behavior might easily be driven by a single presidential term. To investigate this possibility, Figure 2 shows the behavior of the real funds rate over each presidential term. As the figure shows, the average in the previous figure reflects a wide range of experience across the individual presidential term. Two aspects are of particular note. The decline in the average real funds rate two years prior to an election that was suggestive of pre-election monetary expansions is almost entirely due to the 1973–1976 Nixon–Ford administration. What this really reflects is the Fed’s countercyclical response to the 1975 recession. That leaves only Nixon’s first term (1969–1972) as providing evi-

Figure 2 REAL FUNDS RATE BY PRESIDENTIAL TERM



dence of a political impact on Fed policy related to elections. I interpret this to mean the evidence for a traditional opportunistic monetary policy that was suggested in Figure 1 is largely spurious.

Is there evidence that expansionary fiscal policy, combined with political pressures, led the Fed to reduce rates immediately prior to an election? The most dramatic swing in rates occurred in 1980 when Jimmy Carter was running for re-election. The real funds rate, which reached record highs as the Fed under Paul Volcker moved to fight inflation, suddenly plummeted in early 1980. This episode was associated with the short-lived credit controls that the White House pressured the Fed to implement. So this could be taken as evidence in support of the AFPM model, but the mechanism is somewhat different than that implied by the basic theory. And note that the credit controls were removed well before the 1980 election.

5. What Is the Benchmark for Measuring a Passive Policy?

As I indicated earlier, the relevance of PBC models is likely to be much greater in countries other than the United States, so it would be interest-

ing to focus on a larger sample of countries. I think the empirical analysis could also be strengthened if a clearer benchmark were established against which to measure political influences on monetary policy. This lack of a benchmark is a problem with much of the empirical work in the PBC literature, so this comment applies both to Drazen's work on the opportunistic model and to the existing work on partisan models.

In general terms, we can write the funds rate i as a function of macroeconomic variables y and political variables x :

$$i = F(y(x,z),x),$$

where the macroeconomic variables may be affected directly by x as well as by other, exogenous variables z . We know that the funds rate responds to economic conditions, usually summarized in terms of the unemployment rate and the rate of inflation, so these would be part of y . How should we measure the impact of political variables on monetary policy? Do we want to measure the partial derivatives of F with respect to x ? Or should we measure the total differential, taking into account the effects of x on i operating through y ?

Most regression work on PBCs tends to focus on estimating what corresponds to the partial derivative of F with respect to x . That is, in most regressions, a list of potential y -variables are also included. The list is often short, consisting of lagged unemployment rate, for example, as well as own lags of the funds rate. But if electoral factors affect unemployment, as in the standard opportunistic model, this would indirectly lead to a monetary policy reaction—a reaction one would also presumably want to label as “passive.”

The empirical evidence in Alesina, Roubini, and Cohen (1997) displays similar shortcomings. In testing for postelection partisan effects on interest rates (see their Table 4.9, p. 99), they regress nominal interest rates on own lags and a dummy for the party holding the presidency. Finding that interest rates are higher under Democratic administrations, they interpret this as evidence of greater expansionary policies and higher inflation under Democratic presidents. But is this the right interpretation? If unemployment is higher under Republicans, as the partisan model implies, then the lower interest rates under Republicans might reflect the normal Fed reaction to unemployment. Regressing i on political dummies alone will correctly measure the total effect (i.e., the total differential of F) only if the other omitted factors, the things in z , are uncorrelated with political factors. But if politics responds to the economy, this won't be the case.

My general conclusion is that to investigate political effects on mone-

tary policy, we need a benchmark—what would monetary policy have been in the absence of electoral influences?

6. Summary

Let me briefly summarize my reactions to the two components of Drazen's paper. The survey provides an excellent assessment of the literature. The AFPM model is an attractive model in that it recognizes that monetary policy in most countries is not simply the tool of the fiscal authority. By taking account explicitly of the separation of monetary and fiscal policy, the model can provide a framework for investigating how changes that affect the central bank's incentives might affect the political business cycle.

The evidence that the AFPM model applies to the United States is weak, however. I don't find this surprising. There is evidence that some fiscal instruments (transfers being the prime candidate) are manipulated for election effects. The problem for the AFPM model is that there is little evidence that this fiscal activism has any macro effect, and if it doesn't affect the macro economy, it cannot account for an induced reaction by a passive monetary authority.

Econometric time-series analysis can, at times, be a powerful tool for testing hypotheses suggested by economic theory. However, the contributions of econometrics to our understanding of political influences on U.S. economic policy may be limited. We have only 9 elections (soon to be 10) if we restrict attention to the post-1960 period. Combined with the fact that most economic fluctuations are at best loosely connected to elections, the lack of degrees of freedom is daunting.

So how can we test political theories? Here, I think the tools of the historian are more enlightening than econometrics. John Woolley, for example, has explored in great depth the influence the Nixon White House brought to bear on Arthur Burns in 1972, and he does so not with econometrics but by reading the diaries of H. R. Haldeman, Nixon's chief of staff. Further case studies might be the most informative means for exposing the "facts" that political business cycle theories will then need to explain.

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Discussion

Responding to the discussants, Allan Drazen agreed that the empirical literature on the political business cycle remains somewhat unsettled. However, defending his view that research should concentrate on fiscal policy manipulation rather than monetary surprises, Drazen cited the work of Faust and Irons as support for the position that partisan effects exist but are not due to monetary policy, as well as Maria Gonzalez's evidence for fiscal cycles in developing countries. He argued that we need something other than the Phillips curve—other than monetary policy—to make progress in this area. Drazen agreed with discussant Carl Walsh that his AFPM model is rudimentary at this stage, but he argued that it opens new directions for research, including attention to comparative institutions. He suggested also that less ad hoc loss functions could be adopted without losing the general flavor of the model's results.

Michael Klein observed that one should be careful in cross-country studies that include countries where elections can be called, as the election dates may be affected by economic conditions. Ken Rogoff praised work by Gonzalez and others that examine cross-sectional data; he noted the interesting prediction of Gonzalez's work that political budget cycles will be largest in middle-income countries with intermediate levels of democracy. Richard Portes claimed that in Europe there is evidence that economic cycles are becoming synchronized though election timing is not. Drazen replied that evidence does exist for political fiscal cycles,

though perhaps these are stronger in middle-income countries (as Gonzalez suggests) than in Europe or the United States.

Rick Mishkin noted that an important issue is now to set up central banks so that they are able to resist government pressure not to raise interest rates when they know they need to do so to keep inflation under control. He gave the example of Paul Volcker's targeting of monetary aggregates, which he interpreted as a smokescreen that allowed Volcker to raise interest rates as needed to subdue inflation. More recently, central banks have adopted inflation targeting in part to deflect pressure for short-run accommodation and to permit them to focus on long-run issues. Drazen replied that his focus was on the nature of short-run pressure on the central bank; were central banks being asked to actively stimulate the economy for electoral purposes, or only to accommodate fiscal policy to prevent swings in the interest rate? On the other hand, he argued that his approach, which recognizes the separation of fiscal and monetary policy-making, provides a framework for discussing optimal policy institutions. For example, if we conclude that fiscal policy is most prone to political pressure, we may then want to look for remedies that deal most directly with that problem.

Ben Bernanke found it odd that the competent policymaker is the one who creates the distortion in the fiscal signaling model. He pointed out that one might question the assumption that both types of policymakers put the same weight on social welfare. He asked how we would know that someone who overspent is not putting a lower weight on social welfare and a higher weight on being in office, rather than demonstrating competence. Ken Rogoff noted that this issue is an artifact of the model with two types which does not apply when there is a continuum of types, as in Rogoff and Sibert's original paper. Drazen replied that his idea is that the competent policymaker is more able to economize on low-visibility or routine spending, and is thus more able to introduce spending initiatives that attract votes. Carl Walsh agreed with the thrust of Bernanke's remark by saying that a lot of political signaling seems to be about policymakers' preferences, rather than their competence; for example, a candidate's promises are often designed to reveal which interest groups he is likely to favor and wants to attract.

Olivier Blanchard distinguished two empirical questions. The first is how much of movements in fiscal policy can be attributed to political reasons; the second is whether these induced movements in fiscal policy are of any consequence at the macroeconomic level. He thought there was some evidence for political effects on fiscal choices but that politically induced fiscal decisions seem too small to explain macroeconomic fluctuations. Drazen agreed that there are two separate questions but

suggested that the effects of politically induced fiscal changes on macroeconomic variables remain an open question.

Daron Acemoglu said the opportunistic model does not sit as comfortably with fiscal policy as with monetary policy. He noted that fiscal policy actions such as appropriations are easily observable, even before the direct effects are seen. Alesina disagreed, suggesting that fiscal policy is the area where we have more uncertainty and asymmetry of information. For example, we know more or less whether the Fed has moved or not, but it's realistic to assume that voters do not understand the intricacies of budget projections and legislation. He thought that this difference lends some support to the fiscal model. Acemoglu suggested that, because of the two-term limitation of U.S. presidents, the model would imply testable differences between the first and second terms of a given president.

