The Political Business Cycle After 25 Years

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ABSTRACT: Research on the political business cycle since the mid-1970s is surveyed and assessed. We argue that models based on monetary surprises as the driving force are unconvincing explanations of either opportunistic or partisan cycles. Research should concentrate on fiscal policy as the driving force, with monetary effects being the result of accommodation of fiscal impulses. We present a model political business cycle model that combines active fiscal policy and passive monetary policy (which we term the AFPM model), which addresses a number of objections to earlier models.

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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]

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 a incumbent's competence, with expansionary policy before an election taken as an indicator of high competence, as in the pioneering work of Rogoff (1990), Rogoff and Sibert (1988), and in papers that followed. A partisan post-electoral cycle was argued to be consistent with rational expectations in the

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[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 political business cycle; 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 political business cycle.

[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 political business cycle with a quote from 1814, "A Government is not supported a hundredth part so much by the constant, uniform, quiet prosperity of the country as by those damned spurts which Pitt used to have just in the nick of time."

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 political business cycle, 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 dat 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 U.S., 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 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 between 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 policymaking structure in those models. Moreover, it is crucial to the nature of the electoral cycle which depend 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 political business cycle.

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), as well as empirical results supporting the importance of fiscal influences in political business cycles in a wide range of countries. In section 8, two central questions related to a fiscal-based PBC model are posed and answers are presented to motivate the AFPM model presented in section 9 that combines election-influenced fiscal policy with accommodating monetary policy. In section 10, I take a look at the data for the U.S. consistent with the AFPM model and present concluing comments.

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[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.

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 lead 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 political business cycle. 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, an equation 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 was 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 there being a boom just before an election and a recession afterwards.

The structure of the economy is summarized by a non-stochastic, expectations-adjusted Phillips curve, yielding an inflation-unemployment tradeoff:

$$x_t = \pi_t - \pi_t^e \ , \qquad \textbf{(1)}$$

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]

[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

The objective of the policymaker is to maximize his probability of re-election, where 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:

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

where $\tilde{\pi}$ is the electorate's target rate of inflation, $\tilde{x}$ 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:

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

yielding the number of votes N_t as a function of voters's well-being, where $\mathrm{N}'(\cdot) < 0$,. The exogenous length of time between elections is T+1 periods, $0 < \delta < 1$ is the factor with which voter's 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

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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.

possibility of an incumbent losing the election.

To close the model one must specify the formation of expectations. Crucial to the main results of the Nordhaus model is some form of adaptive expectations. A standard formulation of adaptive inflation expectations, for example:

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

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 tradeoff 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 on 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 $_{\pi}$ 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 which 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. 233-36.)

2.2 *Conceptual Critique*

There are three general conceptual criticisms of the basic Nordhaus model as a tool for explaining a political. First, it assumes that the President controls monetary policy, an assumption that is inconsistent with independence of the Federal Reserve. Although some observers argue that decisions on monetary policy in the U.S. 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 post-election 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 political business cycle 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:

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

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 auto-regressive 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 (1990), 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 U.S. 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

[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).

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 do appear to have an important effect on votes for president. Specifically, a one percent increase in the growth rate increases the incumbent's vote total by about one percent. (Further evidence suggests it may be the growth of real per capita GNP in the second and third quarters of the election year, but data limitations prevent him 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, though the best 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 his is that voters 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 U.S. 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 U.S. 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:

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[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) but rather on the basis of national economic performance (sociotropic 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.

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 U.S. 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 in the U.S. 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 rates (seasonally adjusted) by quarter of the president's term in the US from 1948 to 1998 illustrates the point.[9]

[PUT FIGURE 1 ABOUT HERE]

Similarly, no evidence was found in developed economies outside the U.S. for a Nordhaus style PBC for unemployment or economic growth (Paldam [1979], Lewis-Beck [1988]). Alesina, Roubini, and Cohen (1997) reject an opportunistic cycle in real activity for a sample of 18 OECD countries over the period 1960-93.[10]

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

REGULARITY 2: There is no significant pre-electoral increase in aggregate economic

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[9] A plot of median growth rates, or of other measures of aggregate economic activity for the U.S. would tell a similar story.

[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 being 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 includes both of these possibilities.

activity prior to elections in either the U.S. or the OECD countries.

3.3 *Inflation*

The post-electoral 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 as 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 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 ten percent 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 GNP and unemployment.

The evidence for the U.S. is less clear. In similar tests to those described above, Alesina, Roubini, and Cohen (1997) reject the existence of a post-electoral 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 post-electoral 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 1978 versus 1979 to 1998 by quarter of the President's term. (A graph for 1948-78 looks very similar to 1960-78, but the latter is used for better comparability with later figures.)

[PLACE FIGURE 2 AND 3 ABOUT HERE]

To summarize:

REGULARITY 3: In many OECD countries there is a clear post-electoral increase in inflation. In the U.S., there is evidence of such a post-electoral increase in inflation prior to

1979, but no evidence thereafter.

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 U.S., 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 is weak in the post-war 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 sub-period 1960-80. 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 1960-80 and 1979-98.

[PUT FIGURES 4 AND 5 ABOUT HERE]

Interestingly, Beck finds no similar cycle in monetary instruments, such as reserves or the Federal Fund rate, a point made clear in Figure 6, giving mean Fed 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.

[PUT FIGURE 6 ABOUT HERE]

We summarize this as:

REGULARITY 4: There is evidence of a pre-electoral increase in money growth rates in many countries. In the U.S., there is a pre-electoral effect from 1960 to 1980, but none thereafter. There is no evidence for the U.S. of an electoral cycle in the Federal Funds rate.

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 versus unemployment.

4.1 *The Basic Hibb's Model*

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

$$\mathcal{L}_t^j = \alpha^j \frac{(x_t - \tilde{x}^j)^2}{2} + \frac{(\pi_t - \tilde{\pi}^j)^2}{2}, \qquad \textbf{(5)}$$

for party j, where $\tilde{\pi}^j$ is party j's target rate of inflation, $\tilde{x}^j$ 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 economic activity target 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:

$$\begin{aligned} \tilde{x}^L &\geq \tilde{x}^R \\ \alpha^L &\geq \alpha^R \\ \tilde{\pi}^L &\geq \tilde{\pi}^R \end{aligned} \quad . \qquad \textbf{(6)}$$

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 slower inflation expectations adjust to actual inflation, the longer will be the partisan effect.

A basic criticism of the original Hibbs model is the same critique 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 there is an election every other

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

period, say at *t*, *t*+2, *t*+4, *et cetera*. 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:

$$\Lambda_t^j = \alpha^j \frac{(x_t - \tilde{x}^j)^2}{2} + \frac{(\pi_t - \tilde{\pi}^j)^2}{2} + \beta\left[\alpha^j \frac{(U_{t+1} - \tilde{U}^j)^2}{2} + \frac{(\pi_{t+1} - \tilde{\pi}^j)^2}{2}\right] \qquad \textbf{(7)}$$

for party *j*, where $\tilde{\pi}^j$ and $\tilde{x}^j$ are the partisan targets, α^j 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 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:

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

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 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), retaining 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:

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

where q^L is the probability that the left-wing party will in 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_t^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 left-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

[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.

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, old contracts should be timed to expire and new contract signing 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 an presidential election year, there is a clear tendency to move 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 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 post-electoral 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 $q^L = ½$. Hibbs (1992), among others, has argued that this prediction is not consistent with the empirical evidence for the U.S. 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 post-war 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 percent per year, the highest figure of any Democratic administration.

[13] The Garfinkel and Glazer 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.

In contrast, considering postwar Republican victories through Reagan's first election, Nixon's victory in 1968 was the closest and lest 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 of (4) and find that the coefficient on the surprise variable is significantly positive, meaning that larger Democratic (Republican) surprises imply higher (lower) post election real growth rates. The construction of the variable is complicated, so that it is not easy to see why the regression results and simple case study results do not agree. The relation of pre-electoral uncertainty and post-electoral 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 political business cycles. 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 what is 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 U.S., 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 between Democratic and Republican administrations sharply

diverge starting about the third quarter after the election, the growth rates in Democratic and Republican administrations sharply diverge. 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 than 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 U.S. to confirm this, using auto-regressive 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 administration 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 half 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 1960-93, also finding support for the rational partisan model and lack of support for both the Hibbs and Nordhaus models in terms of political cycles in economic activity.

Faust and Irons (1999) find similar partisan differences in both output growth and unemployment which is 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 U.S., 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 by both Alesina, Roubini, and Cohen (1997) and by Faust and Irons (1999). Hence, the basic inflation data for the U.S. are 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 is 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 U.S. are far less favorable to partisan models, paralleling the non-parametric 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 co-authors, Sheffrin (1989) finds the empirical evidence in favor of the rational partisan theory to be weak for both the United States and other countries to be weak. For example, he argues that economic fluctuations following Republican presidential victories in the U.S. are generally inconsistent with the rational partisan theory, post-electoral 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 political business cycle. 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 political business cycle just does 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 a 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 political business cycles 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 argue that it has 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 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 1980 in Figure 7 and 1979-98 in Figure 8.

[PUT FIGURES 7 AND 8 ABOUT HERE]

This evidence on fiscal policy suggests a last regularity for the U.S. 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 U.S., this appears strongest prior to 1980.

7. Fiscal Cycles in Developing Countries

Before considering the implications of these regularities for the U.S. 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 1952-73, 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 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 quasi-fiscal 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 1970-92. 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 are probably more effective than tax cuts to affect voter behavior, such as distribution of free or subsidized goods or employment generation via public works programs. 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 the previous 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 voter's 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 lower 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 transparency, political budget cycles arise only at intermediate levels of democracy, 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 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 1950-97 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 developing countries over the period 1975-95 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 two-fold. First, both empirically and theoretically, a monetary-based PBC model, either for manipulating aggregate economic activity via monetary surprises before an election or for explaining partisan effects after an election be election surprises inducing inflation surprises, is less than fully convincing. Second, there appears to e a strong role for fiscal policy in many countries and in the U.S. over certain time periods. This suggests basing PBC models on fiscal rather than monetary policy. Conceptually, this solves some basic problems on 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 an 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

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 "laying 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 Fund 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]

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[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 the monetary authority 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

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 his 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 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 (AFPM) Model

We now present a model of the political business cycle 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

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outcomes.

government-provided public goods, which are controlled by the incumbent president, where 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 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:

$$U^i(x_t, \pi_t, g_t, k_t) = -\left[\alpha_i \frac{(x_t - \tilde{x})^2}{2} + \frac{(\pi_t - \tilde{\pi})^2}{2}\right] + g_t + v(k_t) , \qquad \textbf{(10)}$$

where $\tilde{x} \geq 0$, $\tilde{\pi} \geq 0$, and $v(\,)$ is an increasing concave function satisfying the Inada conditions. A

[16] This structure is a much simplified version of the Dixit and 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.

[17] In Rogoff's (1990) paper, the key conflict of interests 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).

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 expected utility of voter *i* over his horizon is

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

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:

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

where s_t is a supply shock described by $s_t = \rho s_{t-1} + \hat{s}_t$, where $0 \leq \rho \leq 1$ and where $\hat{s}_t$ is an i.i.d. mean-zero random variable. Note the difference in 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, where, as short-hand, we term "non-political" goods those that the politician cannot determine directly. The supply of public consumption goods is given by:

$$g_t = \epsilon - k_{t+1} \,, \qquad \textbf{(13)}$$

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[18] As in Rogoff (1990), there may also be a non-pecuniary, 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. See Drazen (2000b).

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 set-up is equivalent to the first-order moving average structure assumed by Rogoff. Leader's 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 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 "non-political" 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 $X(i_t - \mathrm{E}_t\pi_{t+1}) + z_t$. We may then write the output gap as a function of the interest rate (the "IS curve):

$$x_t = X(i_t - \mathrm{E}_t\pi_{t+1}) + k_{t-1} + g_t + z_t - \epsilon \ . \qquad \textbf{(14)}$$

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

$$x_t = -\phi(i_t - \mathrm{E}_t\pi_{t+1}) + \eta_t \ , \qquad \textbf{(15)}$$

where $\phi > 0$ 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 determination of public (*i.e.*, "political") goods g and k. The president cares about 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 number of voters

[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.

who are affected by public good supply. This objective may be written :

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

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 higher economic activity 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 may reflect the psychic costs to the executive of tension with the monetary authority or, more likely, the cost in terms of less cooperation from the monetary authority in the future. They depend 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:

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

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 how far he is willing to go. 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 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:

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[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 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.

$$\mathcal{L}_t^{CB} = \sigma \frac{x_t^2}{2} + \frac{\pi_t^2}{2}, \qquad \textbf{(18)}$$

where $\sigma < \bar{\alpha}$, that is, the monetary authority assigns a greater cost to inflation fluctuations than the "average" voter, as well as possible have lower targets for output and inflation. Though it 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. This is found 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:

$$i_t = (1 + \frac{1}{\rho\sigma\phi})E_t\pi_{t+1} + \frac{1}{\phi}\eta_t \qquad \textbf{(19)}$$

where $E_t\pi_{t+1} = \rho s_t$ and where 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 less of an 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

[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.

relation between money growth and interest rates, namely:

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

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 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:

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

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:

$$k^* = (v')^{(-1)}[1/\beta] \qquad g^*(\epsilon^j) = \epsilon^j - k^* \ , \qquad \textbf{(22)}$$

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 non election 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 non-election 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 non-election 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 generally 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 private 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 high competence, given the observation of fiscal policy. These beliefs in turn determine the probability that an incumbent is re-elected. Since interest rates are fully determined by g and the incumbent's type as given above, 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. Voter's 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

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

incumbent whom they believe is low competence ($q_2(\hat{\gamma} = 0) = 0$). When there is no information about the competence of 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 17.

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 i^H. 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:

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

That is, in a separating equilibrium, g^H (and the associated value i^H) are such that a low competence incumbent prefers to choose the full information solution and be revealed (and hence defeated for sure) than to choose to mimic the spending level g^H with the implied low level of public investment. In such a pooling equilibrium the low competence 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 non-distortionary solution would not justify the (low) value of winning re-election. 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 the higher is 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 give the high competence type utility no lower than the full information expenditure level $g^*(\epsilon^H)$ gives him, that is:

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

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 non-distortionary (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 non-election period all competence types choose the 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, where 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 apart from one another, then signaling will almost definitely 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 be 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 specific, one has to specify how much pressure the president puts on the monetary authority and precisely 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 proportionally reduce 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:

$$i_t = (1 + \frac{1}{\rho\sigma\phi})\mathrm{E}_t\pi_{t+1} + (1 - w)\frac{1}{\phi}\eta_t \ , \qquad \textbf{(25)}$$

for $0 \le w \le 1$ chosen by the incumbent president.[23] The higher is *w*, 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 effected by higher *g* is small) or if the size 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 itself. 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 active fiscal passive monetary (AFMP) model of the political business cycle.

10. A Look at the Data and Some Concluding Comments

We now take a quick look at the data to show that it is 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, a money growth in a money-driven PBC model should

[23] From the monetary authority's optimization problem, it is clear that even with intervention, conditions (A2) and (A3) in the appendix still holds. 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.

be expansionary and drive down interest rates, while money expansion in the AFPM model 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, but 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 in the from 1960 to about 1980 was characterized by this distinction, and in regressions such as (4), 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 the Fed Funds rate shown in Figure 6, where there is no clear no political effect.[24]

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 1970's or early 1980's, which has since disappeared. The strongest evidence for a 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 1960-78 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 Fed 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

[24] In fact, in the post-1979 period, the Fed Funds rate actually rises in the quarter before the election.

[25] One interesting result in this regard is that in the 1960-78 sample, there appears to be a significant positive effect on money growth in the election quarter itself, which is too late if

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 U.S. 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 about our approach to political business cycles. 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 political business cycles. The survey was meant to convey a very clear message: monetary 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, are passive while fiscal policy is active in trying to affect election outcomes.

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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..

APPENDIX

Derivation of Interest Rate Rules (following Clarida, Gali and Gertler [1999])

The monetary authority minimizes a loss function:

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

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:

$$x_t = -\frac{1}{\sigma}\pi_t \ . \qquad \textbf{(A2)}$$

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:

$$x_t = h s_t \qquad \pi_t = -\sigma h s_t \qquad \textbf{(A3)}$$

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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Figure

Figure 1: Mean GNP Growth Rate
1948-1998

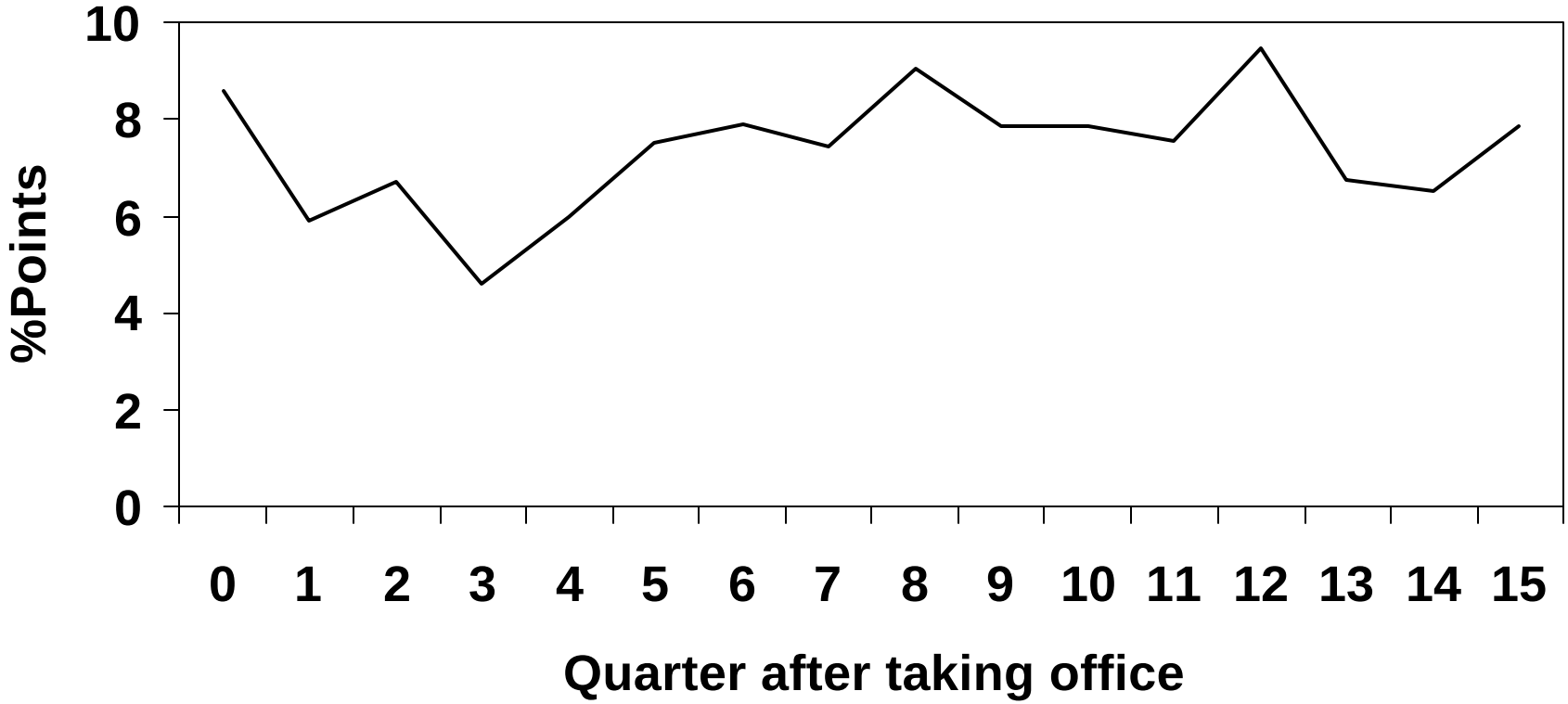

Figure 2: Mean Inflation Rate (CPI)
1960-1979

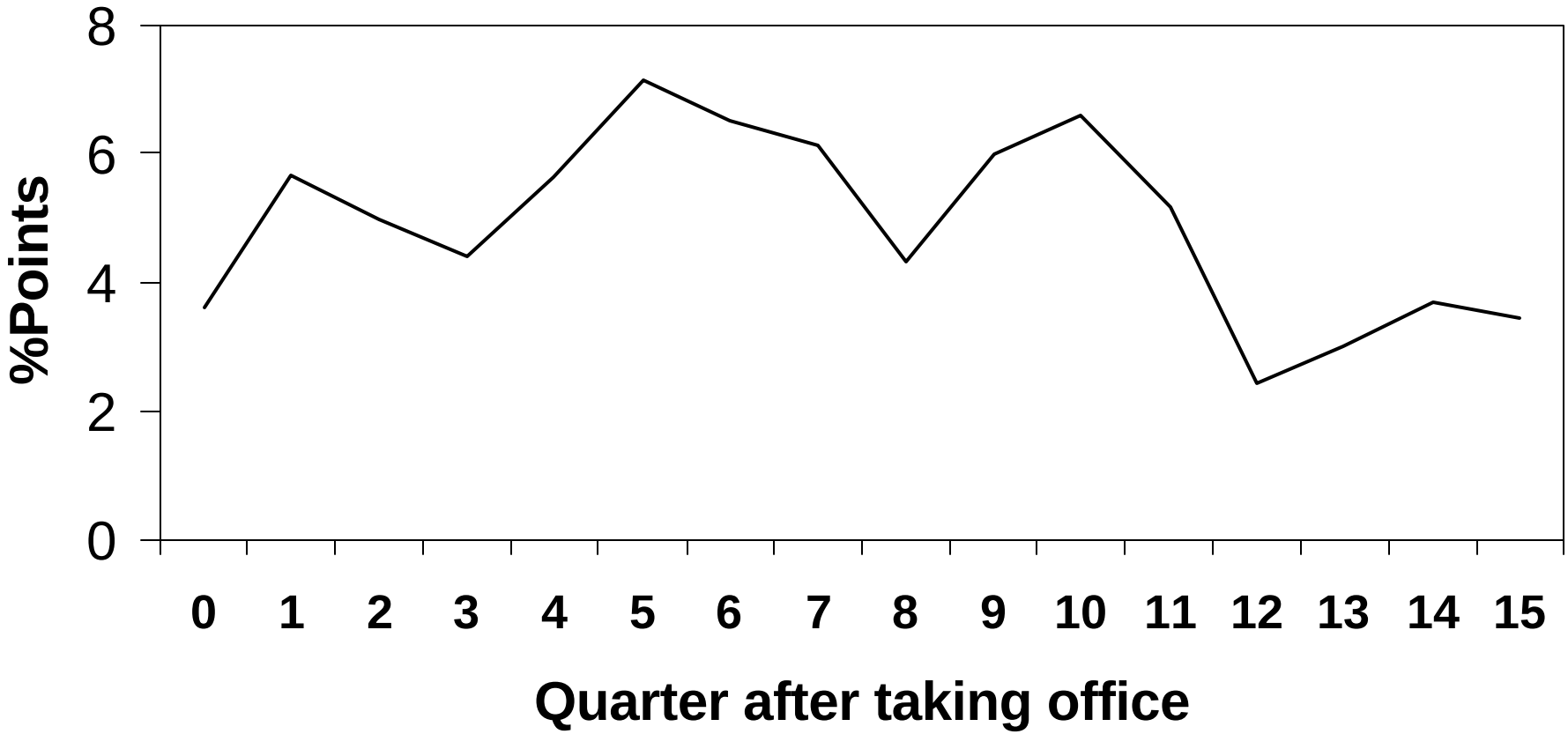

Figure 3: Mean Inflation Rate (CPI)

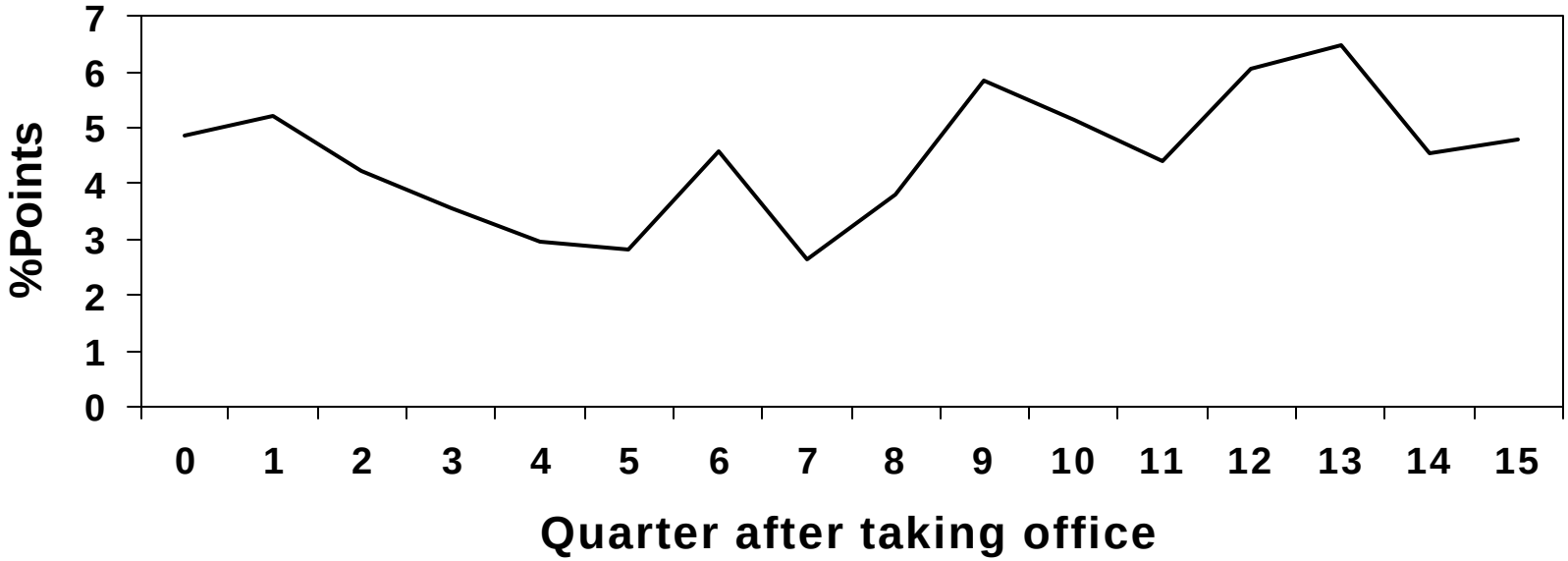

Figure 4: Mean M1Growth Rate
1960-1979

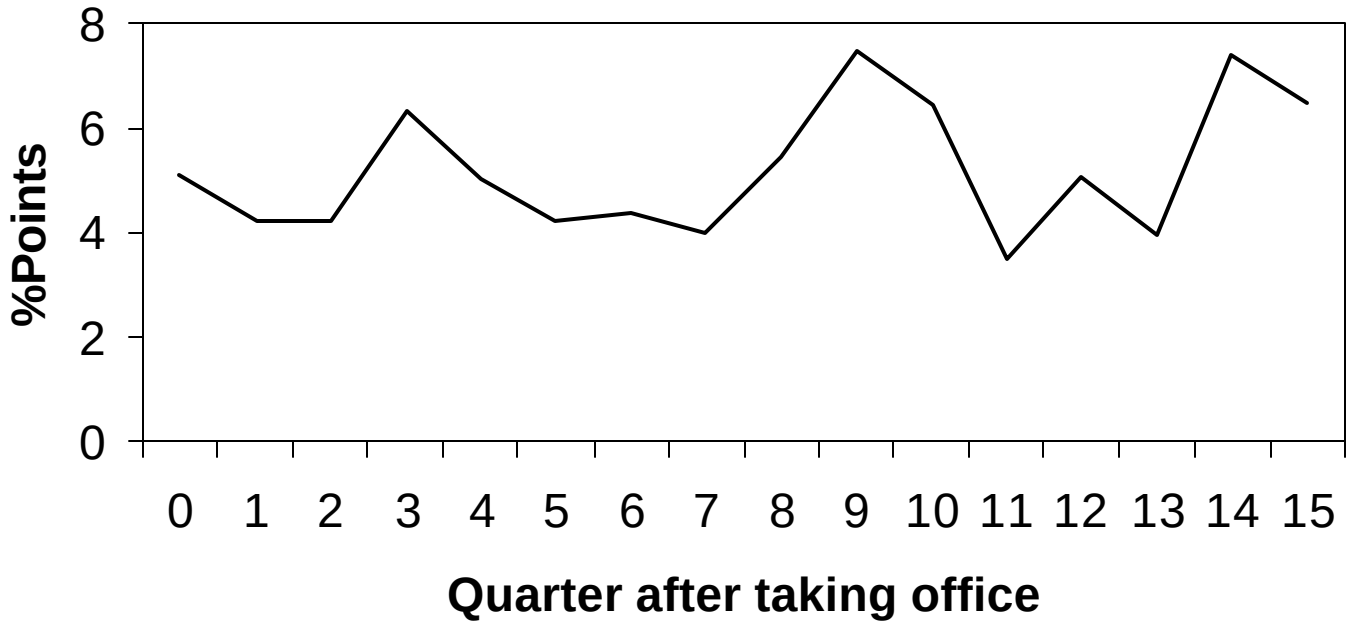

Figure 5: Mean M1 Growth Rate
1979-1998

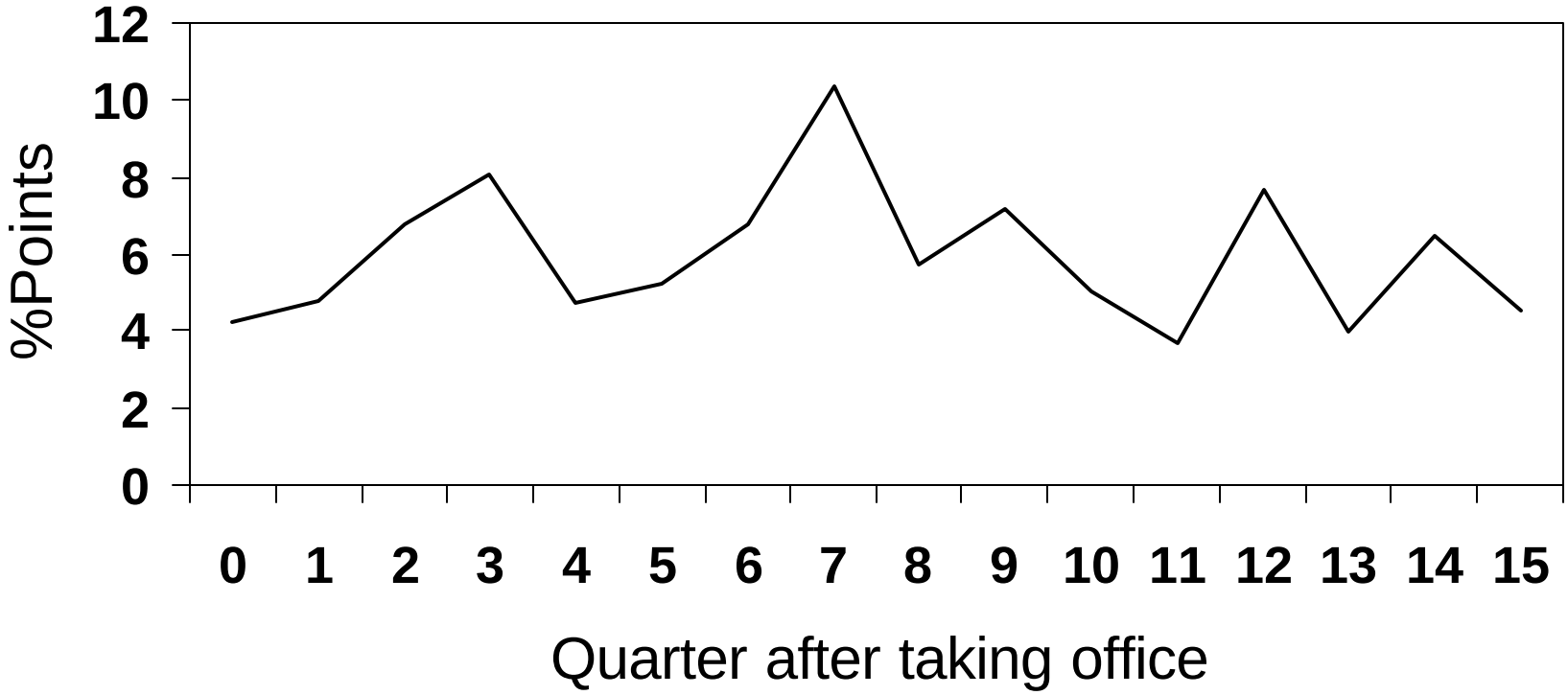

Figure 6: Mean Federal Funds Rate

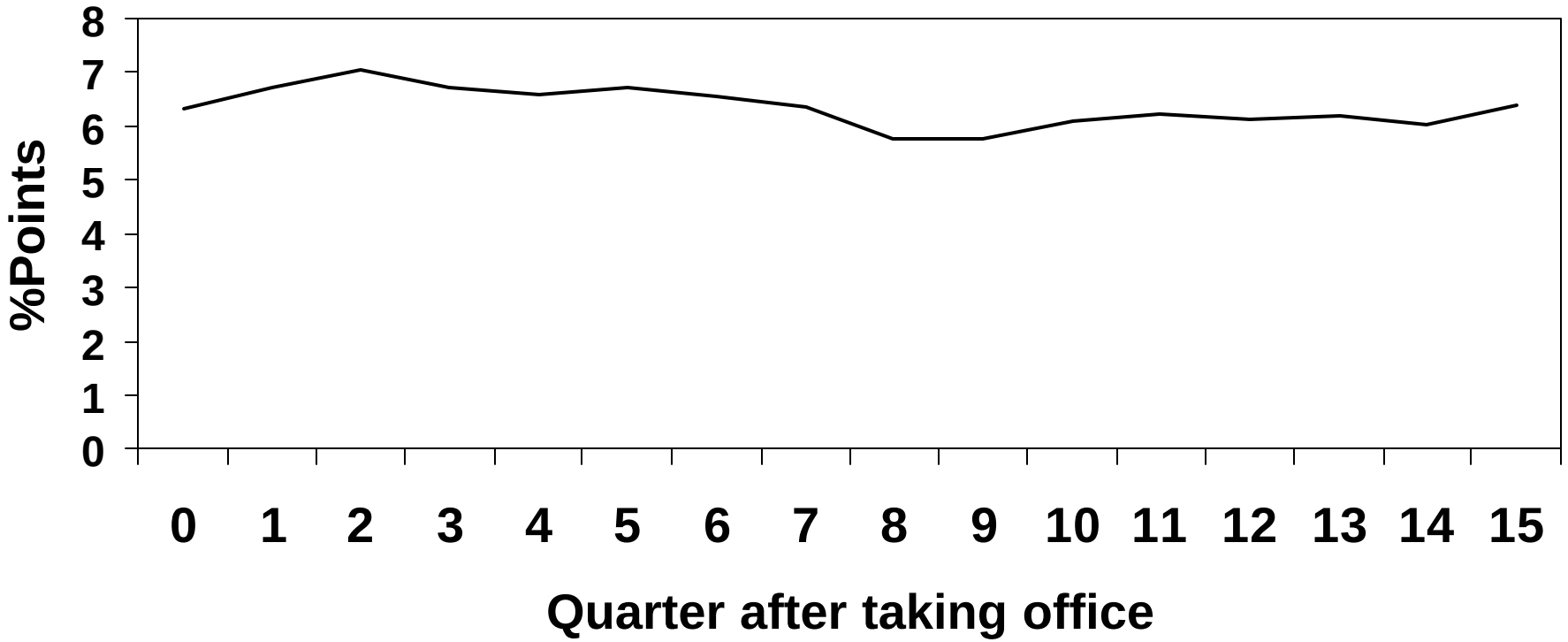

Figure 7: Ratio of Net Transfers to GNP

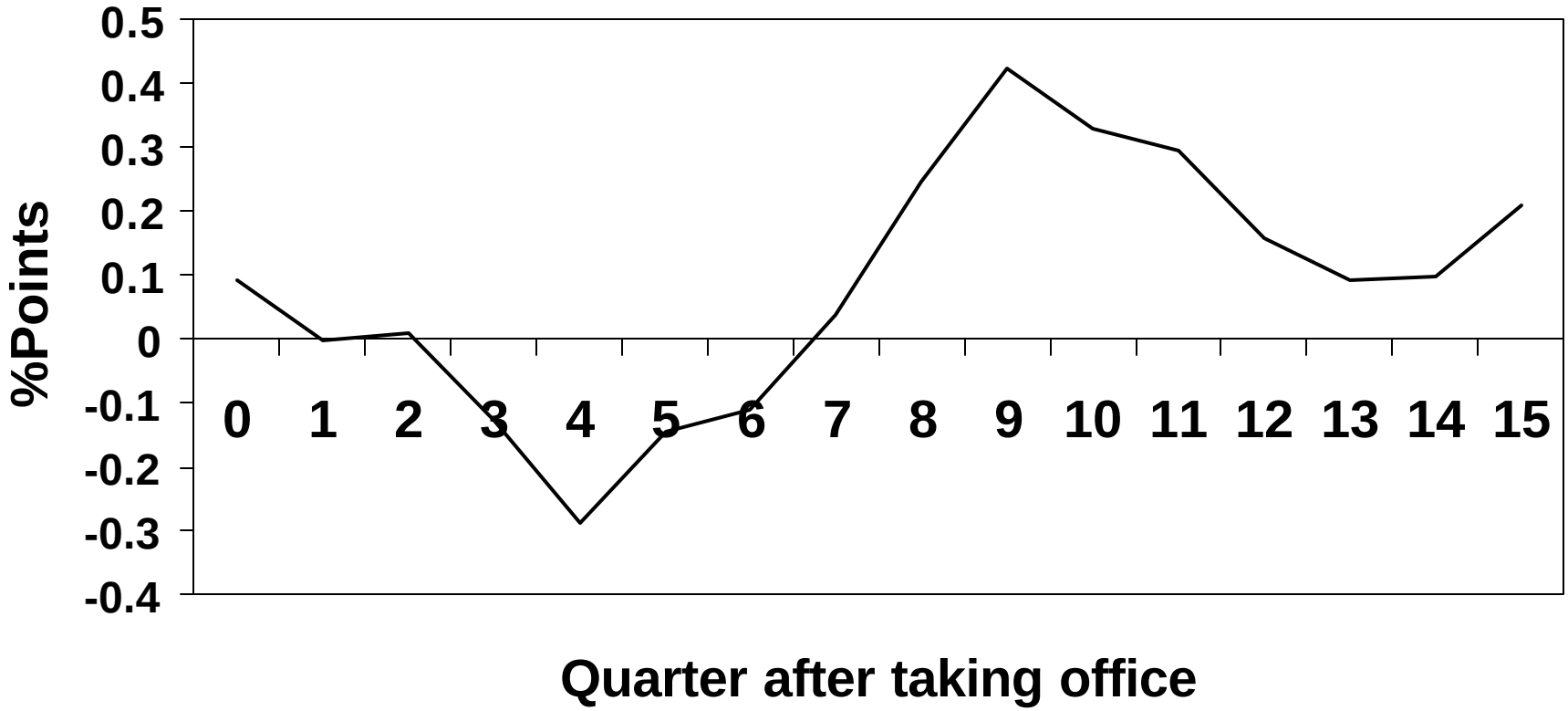

Figure 8: Ratio of Net Transfers to GNP