



Comments on 'Alternative Models of Political Business Cycles' by W.D. Nordhaus

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Alternative Approaches to the Political Business Cycle

It is impossible to consider the ordinary course of affairs in the United States without perceiving that the desire to be re-elected is the chief aim of the President; . . . and that especially as [the election] approaches, his personal interest takes the place of his interest in the public good.

—Alexis de Tocqueville, *Democracy in America*

WHILE political economy has increasingly concentrated upon the behavior of markets, in some areas it is impossible to ignore the interaction between economic motivation and political decisions. The theory of the political business cycle, which analyzes the interaction of political and economic systems, arose from the obvious facts of life that voters care about the economy while politicians care about power.

This paper reviews the theory and evidence about interacting politico-economic systems in the theory of the political business cycle (PBC). The first section begins with an overview of different approaches to political cycles. The following two sections review some theoretical issues, with attention to the issue of the behavior of political parties and a formal examination of PBC models. The final sections assess whether the PBC models are consistent with historical evidence.

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Macroeconomics and Macropolitics

It is well, before plunging into a thicket of PBC models and data, to begin with a survey of the forest. In most macroeconomic studies, political factors are taken as exogenous. The PBC approach, by contrast, analyzes how the economy behaves when political and economic factors interact with one another.

Five sets of questions are central to PBC models.

—*Voters*. What governs voter behavior? Do economic events loom large in voting behavior? Are voters rational and well informed or irrational and poorly informed? Are voters backward-looking or forward-looking?

—*Parties*. What motivates political leaders or parties (for succinctness, I label those who seek political office as “parties”)? Are they vote-maximizing and opportunistic, or do they ideologically pursue a set of economic and social objectives as they serve a given constituency?

—*Economic structure*. What is the structure of the economy? Can parties affect economic outcomes, or is policy ineffective? What are the important instruments of policy (for example, fiscal policy, transfer payments, monetary policy), and who controls them (the president, Congress, the central bank)?

—*Shocks*. What are the shocks to politics and the economy? Are shocks external (such as from hurricanes, droughts, foreign wars, and revolutions)? Are they internal to the political process (as when one president leaves his successor a large deficit or a high inflation rate to reduce)?

—*Competence*. Do parties pursue their objectives competently (that is, efficiently), or do they bumble around, neither satisfying voters nor achieving their ideological objectives?

Studies over the past few years have explored many different approaches to these five issues. The two sets of issues that have received the most attention concern the rationality of voters and the behavior of parties.

On the first question, a central dispute in the PBC literature (as indeed in much of economics) revolves around whether voters have rational expectations about both economic policy and party platforms. Voters

are said to be *ultrarational* if they have rational expectations, possess all available information, and evaluate parties by comparing their expected future performances. If voters fall short of this standard, they are said to be *nonrational*. The sin of nonrationality comes in many forms; a fuller discussion follows in later sections.

The other major issue concerns whether parties are opportunistic or ideological. Parties are said to be *opportunistic* if they choose policies to maximize the probability of election (or reelection) without regard to past positions, the views of the party faithful, or actual economic outcomes. Parties are said to be *ideological* if they set policies to attain certain economic and social objectives and give no independent weight to gaining office or to political popularity.

In practice, many politico-economic models assume that voters do not possess all available information and are backward-looking rather than forward-looking. In addition, PBC models differ on party motivation. These issues are considered in detail later in this paper.

What follows is a survey of five main approaches of the PBC literature, focusing on the particular assumptions embodied in each and the predictions that each makes about the outcome of the political business cycle. This discussion is meant to illuminate rather than exhaust the subject, and a later section provides a formal analysis of PBC models.¹

Model 1. *Opportunistic parties, nonrational voters* (“*opportunistic cycle*”). One of the first approaches to be systematically explored combines vote-maximizing parties and nonrational voters.² In this approach, voters evaluate incumbents by examining performance retrospectively; they do not attempt to predict future performance. Moreover, incumbents choose economic policies to maximize their vote at the next election. These models analyze the choice between inflation and unemployment, where low unemployment today leads to higher inflation now and in the future.

The two main predictions of this model are, first, that parties will engage in anti-inflation policies early in the electoral cycle and stimulate the economy as elections approach, and, second, because of the retro-

1. There are several useful surveys of the general literature. One of the most balanced is Paldam (1981), which is particularly insightful in linking the economic and the political science literature.

2. See Nordhaus (1975) and MacRae (1977).

spective evaluation of voters, the political system has a short time horizon and will move to a high-inflation equilibrium.

Model 2. *Ideological parties, nonrational voters* (“ideological cycle”). A second approach, developed by Douglas Hibbs, also examines the interaction of politics with unemployment and inflation.³ In Hibbs’s approach, parties are ideologically identifiable (for example, left and right); “left-wing” parties choose high inflation and low unemployment, while “right-wing” parties choose low inflation and high unemployment. Voters choose the parties that best represent their preferences. In the ideological cycle, economic policies change when the party in power is replaced, not as it manipulates the economy in order to be reelected. Policies change as parties replace one another more than they evolve within the electoral cycle as elections approach.

Model 3. *Ultrarational voters*. One of the most influential criticisms of PBC theory derives from the approach that assumes that voters are ultrarational—that is, they have the same information as parties, are forward-looking, and suffer from no memory lapses.⁴ In such a situation, parties cannot “fool” voters by undertaking partisan manipulation of the economy. If, for example, the government were to stimulate the economy before an election—hoping that present pleasures would in the voters’ minds outweigh potential future pains—the ultrarational voters would quickly see through the manipulative policies. As a result, rational opportunistic parties—knowing that they could not fool the voters—would not attempt to manipulate the economy and would therefore not induce a political business cycle.

This approach obviously depends crucially upon the ultrarationality of voters and parties. There have been few attempts to test the hypothesis of ultrarationality in the PBC framework, although it has a number of implications that are tested in this paper.

Model 4. *Shocks external to the political system*. In the models already described, economic shocks either arise from the political system (as in model 1) or do not have explicit sources (as in models 2 and 3). An alternative approach emphasizes shocks from external events, such as from war or revolution.

For concreteness, assume that the unfavorable shock consists of a

3. See Hibbs (1977, 1982, 1987).

4. An early statement was in McCallum (1978).

purely external event, such as foul weather. In the case of opportunistic parties, the system's responses will depend upon the rationality of voters. Ultrarational voters will recognize that the incumbent party is not responsible, and the event will have no effect on the parties' popularity; moreover, the policy response to the shock will be independent of the party in power. Poorly informed voters, however, might easily misunderstand the source of the shock, blaming the incumbents and voting them out of office.

In the case of ideological parties, the response is more complicated. Rational voters will respond to an external shock by asking which party is best equipped to deal with the shock. An inflationary shock, for example, might induce voters to turn to conservative governments, while a depression might benefit left-wing parties. The shock would therefore be followed by a change of regime *and* a change in policy; by contrast with the case in the previous paragraph, the policy response would in some sense be *caused* by the shock although it was *executed* by the ideological party.

No study has attempted to separate the impact of external shocks from the role of parties. Three pieces of evidence are suggestive here. First, it appears that voters respond to external shocks much as they do to induced shocks. The response of voters to oil-shock or food-shock inflation during the 1970s was difficult to distinguish from voter response to demand-pull inflation. Second, the impact of external shocks on party popularity appears not to depend upon the party in power; voters disapprove of both conservative and liberal governments whenever either inflation or unemployment rises. Third, an examination of the regime shifts during the two oil shocks shows no automatic shift toward conservative governments. Of eleven changes of regime in major OECD countries in the period immediately following the two oil shocks, seven moved in a conservative direction, while four moved toward the left.⁵

Model 5. *Differences in competence.* In the 1988 presidential election, candidate Dukakis argued, "This election is about competence, not ideology." This remark suggests an approach in which popularity and elections respond to voters' judgment of the competence rather than the ideology of parties.

5. The regime shifts are listed in Alesina (1989, table 1). The period of the first oil shock was January 1974 through December 1975, while the period of the second oil shock was January 1978 through December 1981.

What is meant by competence? A party is competent to the extent that it manages the economy efficiently. Competence requires that parties acquire the best available information on the structure of the economy and use that information effectively. Perfect competence implies Pareto-efficient outcomes. The first four models assume that the parties are perfectly competent; the parties might act in pigheadedly ideological ways or in venal, opportunistic ways, but they do not waste resources through foolish and inefficient actions.

A promising strategy would be to allow for differences in competence among parties to motivate both voter evaluation and political behavior. One approach would focus on voter evaluation of parties. Voters might then choose between parties because of different perceived levels of competence rather than because of differing ideologies. A model incorporating differing competence has been proposed by Kenneth Rogoff and Anne Sibert, who argue that informational asymmetries can induce changes in fiscal policy that are timed to influence elections.⁶ Another approach, suggested by Charles Schultze in his comments on this paper, rests on the observation that parties operate with different “models” of reality and that the models tend to harmonize with the party policy preferences. In both cases, incompetent parties have somehow failed to use all the available information and are therefore showing symptoms of irrationality.

This brief survey only hints at the richness of the possible outcomes of these and many other approaches to PBC models. Table 1 summarizes the assumptions and some salient findings of the five approaches described above. One crucial point emerges from this survey: given the variety of institutions, party structures, sources of shocks, and degrees of rationality and competence, it is most unlikely that any clear pattern of politico-economic behavior will emerge. Moreover, like anomalies in financial markets, regularities in the political cycle are likely to be gradually eroded as political institutions evolve or as economic agents or voters learn about manipulative political behavior.

6. Rogoff and Sibert (1988) assume that governments, which differ in levels of competence, learn about their competence before the public does and are able to hide incompetence from the public until after the election. A skeptic might observe that politicians are often the last people to discover their own incompetence.

Ideological Political Parties in the PBC

Before analyzing alternative models of political business cycles, it is necessary to consider in more detail the debate in the PBC literature about the behavior of parties: are they opportunistic vote maximizers or are they ideological and issue-oriented?

Following Anthony Downs, the canonical economic model of electoral competition holds that “parties formulate policies in order to win elections, rather than win elections in order to formulate policies.”⁷ Surprisingly, the economic literature on public choice has stayed on the trail of the convergence theory of politics blazed by Hotelling and Downs. Under this theory, parties’ platforms will tend to converge to a common policy, which represents the preferences of the median voter.⁸ The “median-voter theorem” has been enormously influential in the growing public-choice literature.

Only recently has the Downsian approach of early PBC models been complemented by ideological models that take into account what a glance at political history reveals: that, at different times and in different measures, both ideology and opportunism are important motivating forces.

The compelling feature of the hypothesis of vote maximizing is that getting elected is a necessary condition for implementing one’s program. But to argue that getting elected is all that motivates politicians is akin to arguing that winning law suits is the only objective of lawyers—an argument that overlooks the fact that 90 percent of criminal cases end in plea-bargained “losses” by the defense. Parties, like lawyers, are concerned with the substantive outcomes of their ventures.

A more persuasive approach is to assume that parties are concerned both with being elected per se and with the substantive political outcomes. A natural objective function for the party is $W_k\{E[U_k(x)], p_k\}$, where W_k is the preference function of the k th party, $E[U_k(x)]$ represents the expected utility of the outcome according to the ideology of party k ,

7. Downs (1957, p. 28).

8. This section will not consider the multitude of unsettled issues of political theory, many of which are analyzed in Ordeshook (1986).

Table 1. Assumptions and Predictions for Different Political Business Cycle Models

<i>Assumptions</i>	<i>Model 1 Opportunistic cycle</i>	<i>Model 2 Ideological cycle</i>	<i>Model 3 Ultrarational voters</i>	<i>Model 4 External shocks</i>	<i>Model 5 Incompetent parties</i>
Voters	Voters nonrational: backward-looking and weight recent events more heavily.	Voters nonrational: backward-looking and weight recent events more heavily.	Voters ultrarational: make optimal forecasts on the basis of full information.	Voters either ultrarational or nonrational.	Voters either ultrarational or nonrational.
Parties	Parties opportunistic: choose policies to maximize vote or probability of election.	Parties ideological: preferences of parties concern the actual economic outcome and not per se the prospects of election.	Parties rational and either opportunistic or ideological.	Parties either ideological or opportunistic.	Parties differ in competence.
Economic structure	Parties have control over policy instruments, and policy is effective.	Parties have control over policy instruments, and policy is effective.	Parties have control over policy instruments, and policy is effective.	Parties have control over policy instruments, and policy is effective.	Parties have control over policy instruments, and policy is effective.
Source of shocks	Shocks internal to the economy from political decisions.	Source of shocks unclear.	Shocks internal or external to policy.	Shocks external to policy.	Shocks internal or external to policy.
Competence of parties	Parties competent.	Parties competent.	Parties competent.	Parties competent.	Parties vary in competence.
Predictions of model	A business cycle within the electoral cycle: austerity after elections and boom before elections.	Changes in economic policy associated with changes in regime: booms occur when left-wing governments take power and anti-inflation programs occur when right-wing governments take power.	No politically induced cycles. Popularity a random walk; with opportunistic parties, popularity and elections are invariant to state of economy.	With ultrarational voters and opportunistic parties, popularity and elections unaffected by genuinely external shocks.	Ultrarational voters evaluate parties on basis of competence; more competent parties survive longer. Voters may weight recent events more heavily if there is on-the-job learning.

U is the ideology or utility function of the party over economic outcomes, x is the economic policy and outcome, and p_k is the probability of party k being in power. When a party puts all the weight on the first term of $W\{\}$, it is purely ideological, concerned only with the substantive economic outcome. When the party puts all the weight on the second term, p_k , the preference function reduces to that of the purely opportunistic party of the Hotelling-Downs model.

It is useful to compare the results of the pure ideological model with the traditional results of Downsian vote-maximizing parties.⁹ The most important result is that, with ideological parties, a stable equilibrium may exist in which parties have different policies. The logic of this result is straightforward. Assume that there are two parties, the liberals (L) and the conservatives (C), and that each announces a policy about economic variable x . The preferences of the parties are given by the parameter α , where $x = \alpha_k$ is the preferred policy of the k th party. Assume that $\alpha_L < \alpha_m < \alpha_C$, where α_L is the preferred policy of the liberal party, α_m that of the median voter, and α_C that of the conservative party.

To see why purely ideological parties tend to diverge, assume the contrary, that both parties start out with initial platforms representing the median voter. By moving a little bit away from the center and toward its preferred position, either party can do no worse and has the prospect of gaining power to implement its policies. This shows that identical policies are not an equilibrium with purely ideological parties.

The behavior of ideological parties can be examined by simplifying the general preference function introduced above and solving numerically for the equilibria. Assume that the W function is additively separable and that the parties' utility functions are quadratic. Using the independence axiom of expected-utility theory, the preference function should be linear in the probabilities. The objective for party L can be written as

$$(1) \quad \max_{\{x_L\}} W_L\{E[U_L(x)], p_L\} = -\beta[p_L(x_L - \alpha_L)^2 + p_C(x_C - \alpha_L)^2] \\ + (1 - \beta)\eta p_L,$$

where the two terms in equation 1 represent the two arguments in $W_L\{\}$.

9. The most persuasive analysis for ideological parties has been made in pioneering work by Wittman (1977, 1983); that latter paper is the best available survey of the theory and evidence on ideological parties.

In addition, β is the relative weight on ideology; $(1 - \beta)$ is the weight on the prospect of gaining office; p_L is the probability of party L winning the election; $p_C = 1 - p_L$; x_L is the stated platform or position of party L (which is also the outcome if party L wins the election); α_L is the preferred position of party L ; and η is a scale factor that represents the value placed on winning elections by purely opportunistic parties.

I consider an election game in which parties simultaneously pick their strategies (that is, each chooses its x_k), with each party assuming that the other will not change its last position. Moreover, to avoid problems of time consistency, I assume that parties implement their promises. These assumptions lead to the following maximization by party L :

$$\frac{dW_L}{dx_L} = -2\beta(x_L - \alpha_L)p_L - \frac{\partial p_L}{\partial x_L} \{ \beta[(x_L - \alpha_L)^2 - (x_C - \alpha_L)^2] - \eta(1 - \beta) \} = 0.$$

From this equation, it is easily seen that as the party places a greater and greater weight on electoral victory (as β tends to zero), this becomes $\partial p_L / \partial x_L = 0$. This implies that, for $\beta = 0$ (pure opportunism), p_L is maximized, which is the standard Hotelling-Downs convergence result. The general case is

$$(2) \quad \frac{\partial p_L}{\partial x_L} = - \frac{2\beta(x_L - \alpha_L)p_L}{\beta[(x_L - \alpha_L)^2 - (x_C - \alpha_L)^2] - \eta(1 - \beta)}.$$

For the polar ideological party, where $\beta = 1$, the equation reduces to

$$(3) \quad \frac{\partial p_L}{\partial x_L} \frac{1}{p_L} = - \frac{2(x_L - \alpha_L)}{(x_L - \alpha_L)^2 - (x_C - \alpha_L)^2}.$$

The left-hand side of equation 3 represents the semi-elasticity of the probability of winning with respect to policy. In equilibrium, this is equated to the marginal disutility of moving away from the party's preference (in the numerator of the right-hand side) divided by the utility of the distance between the parties (in the right denominator). As long as economic policy can affect election outcomes, the left-hand side of equation 3 will be finite and positive. This implies that the denominator of the right-hand side will be nonzero, which signifies that parties have not converged.

Closing the model requires an assumption about voter behavior. The problem can be simplified by specifying that parties are symmetrical

mirror images in preferences and behavior, and that the probability of electoral victory is an unbiased quadratic function of party policies. The probability of party L winning is then given by the aggregate voting function:

$$(4) \quad p_L = 1 - p_C = \frac{1}{2} - \sigma(x_L - \alpha_m)^2 + \sigma(x_C - \alpha_m)^2; 0 \leq p_L, p_C \leq 1.$$

This equation states that the probability of party L winning equals one-half minus a coefficient σ times the squared divergence of party L from the median voter plus the same term for party C . The coefficient σ represents the sensitivity of voter behavior to the deviation of policy from the median voter. The parameter $1/2$ reflects the assumption that the voting function is unbiased. I assume that parties know the voting function.

The political equilibrium can be calculated numerically using the first-order conditions in equation 2 along with the voting function in equation 4. I have calibrated the equations by imposing symmetry on the preferences of the two parties. The major scaling parameters are determined as follows: the σ coefficient in the voting function is set so that a party that moves halfway from the median voter to its preferred position lowers its probability of election from 0.5 to 0.25. The other major coefficient is the relative weight of ideology and opportunism (the β), which varies in the experiments that follow.¹⁰

The calculations provide a mixture of comfort and surprise, but only the high points will be summarized here. Figure 1 shows a family of curves, each of which traces out the probability of victory by party L as a function of L 's policies (on the horizontal axis) for five different policies of party C . There are no surprises here: the highest curve represents the outcome with party C at C 's most preferred policy ($x_C = 0.2$), while the lowest represents the outcome with party C 's policy targeted at the median voter.

Figure 2 shows the same family of curves for the expected utility of party L when party L is purely ideological. These results are quite

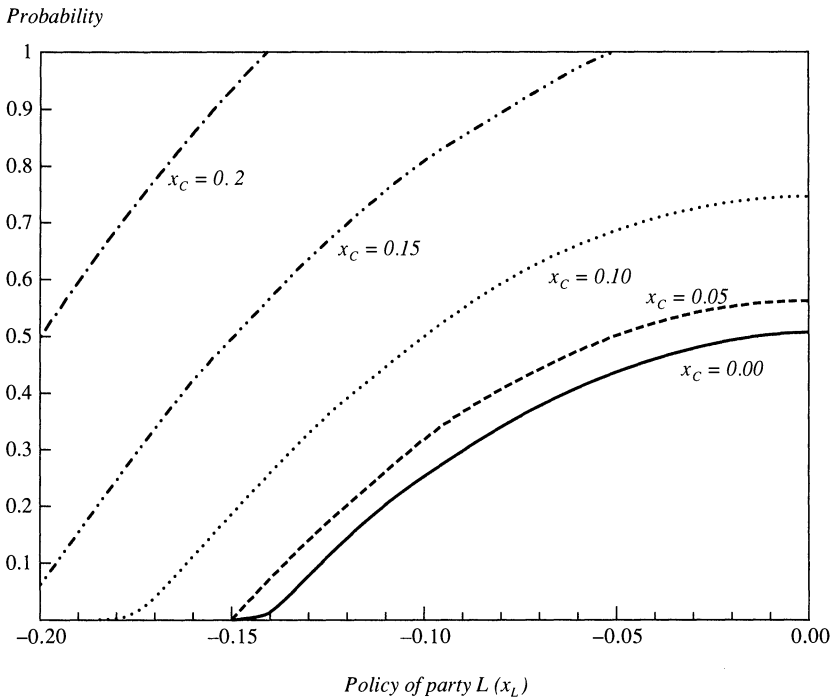
10. The exact calculated equations are the following:

$$W_L\{E[U_L(x)], p_L\} = -\beta\{p_L[x_L - (-0.2)]^2 + p_C[x_C - (-0.2)]^2\} + (1 - \beta)p_L,$$

$$W_C\{E[U_C(x)], p_C\} = -\beta\{p_L[x_L - 0.2]^2 + p_C[x_C - 0.2]^2\} + (1 - \beta)p_C,$$

$$p_L = 1 - p_C = 1/2 - 25[(x_L)^2 - (x_C)^2].$$

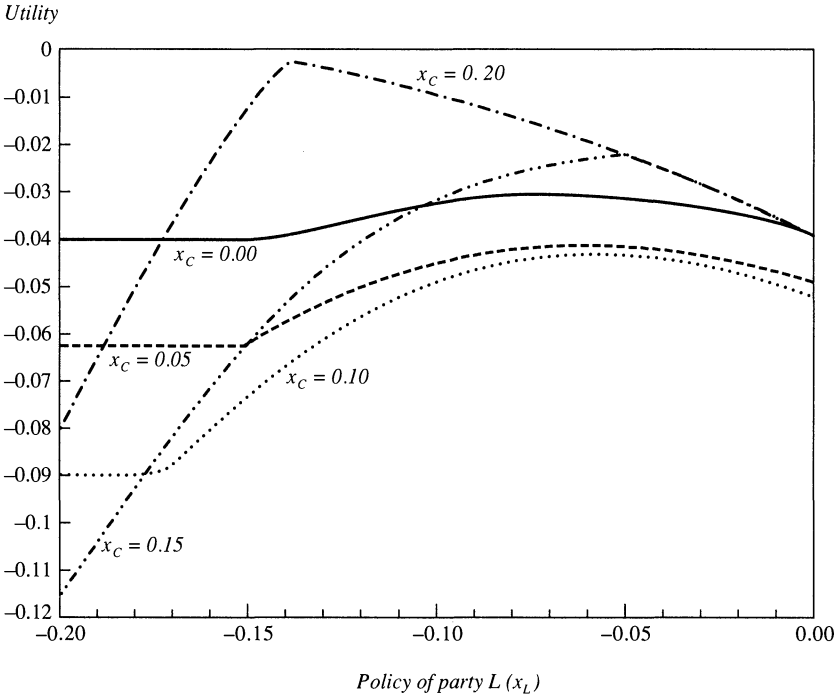
Also note that $\alpha_m = 0$, $\alpha_L = -0.2$, $\alpha_C = 0.2$, $\eta = 1$, and $\beta_L = \beta_C = \beta$.

Figure 1. Probability of Election of Party L for Five Different Values of Party C Policies^a

a. Figure depicts equation 4, the probability of electoral victory of party L as function of party L policies for five different fixed values of party C policies. The policy variable is x and runs from -0.5 to $+0.5$, with $x = 0$ for the median voter. Party L's preferred policy is for $x = -0.2$, while party C's preferred policy is for $x = +0.2$. This figure shows the manner in which party L's probability of election declines as party L's policy moves away from the median voter.

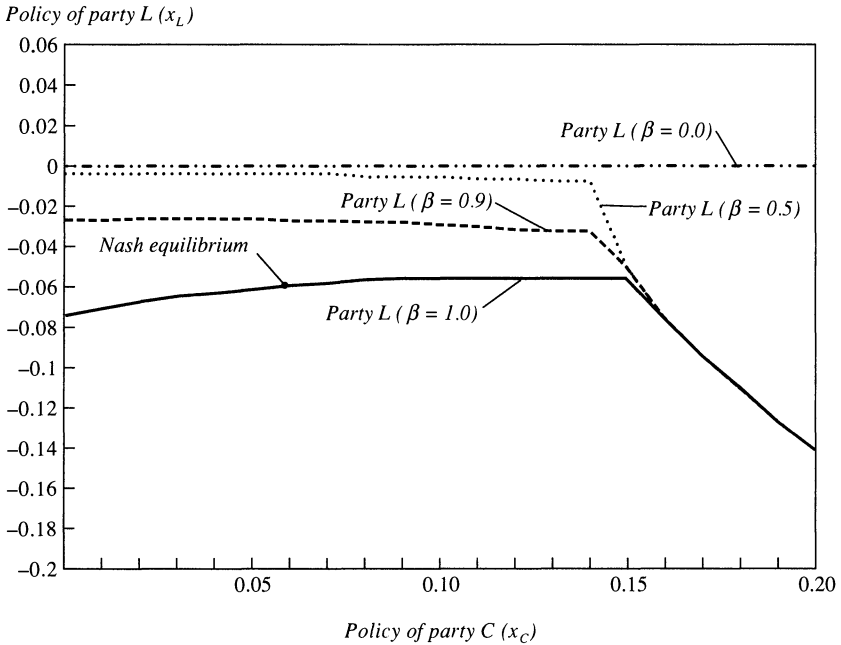
complex, for the objective function of the purely ideological party is affected by both the election probabilities and the positions of both parties. There is no simple relationship between a party's utility and its opposition's policy. Party L attains its highest utility when its opposition adopts extreme policies ($x_C = 0.2$) because this both guarantees the election to party L and also ensures an outcome favorable to party L's ideology. By contrast, the least favorable policies for party L come when party C behaves as the "reasonable opposition" and adopts a moderately right-of-center position; such a tactic gives party C a good prospect of electoral success while raising the probability of victory that is repugnant to party L.

Figure 2. Party L's Utility as a Function of Its Policy for Five Different Values of Party C's Policies^a



a. Figure shows attained value of preference function in equation 1 as function of party policies for a purely ideological party ($\beta = 0$). Each curve shows the level of preference function of party L as its policies vary but for fixed value of party C policies.

Figure 3 plots the optimal policy of party L for different party C policies and for different degrees of opportunism. The top curve shows the optimal policy of a purely opportunistic party L as a function of the policies of party C (on the horizontal axis). This calculation confirms that purely opportunistic parties set policies that represent the median voter (that is, $x_L = \alpha_m = 0$). The family of curves moves downward as ideology progressively displaces opportunism, with the bottom curve representing the reaction function of the purely ideological party. For ideological parties, the policy response to the opposition is relatively small at first. However, as the opposition turns extreme and becomes a long-shot, party L can afford to move sharply away from the center

Figure 3. Party L's Reaction Functions for Varying Ideology Parameters

a. Figure shows the reaction function of party L for varying ideological parameters ($\beta = 0.0$ through 1.0) given party C's policy. It also shows the symmetrical Nash equilibrium of purely ideological ($\beta = 1.0$) conservative and liberal parties.

toward its preferred position. Note as well that the reaction of party policies changes sign in response to changes in its opposition's policy.

It is easy to calculate the outcome where each party sets its policy assuming that the other's policy is unchanged (which yields the Nash equilibrium). For two symmetrical, purely ideological parties, the Nash equilibrium occurs with $x_L = -x_C = -0.06$, and it is stable for small changes in parameters. The equilibrium for a single party is labeled as the Nash equilibrium in figure 3.

I conclude with six general remarks about the model described here before applying it to PBC theory. The first point is that models incorporating ideology can lead to a stable equilibrium of divergent party policies. The extent of the divergence depends on the relative strength of ideology and opportunism and on the degree of voter sensitivity to issues, as well as on the extent to which parties' fundamental beliefs diverge. The political convergence found in the Hotelling-Downs model depends crucially upon parties being single-mindedly devoted to gaining office.

Second, it follows from the divergence thesis that ideological parties are not as responsive to voters' revealed preferences as are opportunistic parties. A uniform shift of θ to the left or right in the distribution of voter preferences will be reflected in a shift of exactly θ in the positions of opportunistic parties. By contrast, the reaction of ideological parties will be more limited, with the degree of reaction depending upon the strength of ideology, the shape of the voting function, and the bias in the voting function. For example, for the Nash equilibrium shown in figure 3, if the median voter moves halfway to the position of party *L*, the equilibrium positions of the parties move by only 80 percent of the preference shift.

A third point attenuates the force of the nonrepresentational result of point two. As parties become more ideological, their policies increasingly diverge from the tastes of the median voter. The overall performance of an economy will often be determined by the *average* policy—the average saving rate or investment rate. The average economic policy (that is, the weighted average of parties' policies) does not necessarily diverge from the median as parties become more ideological. In the symmetrical case shown in figures 1 through 4, the average policy of ideological parties represents exactly the position of the median voter. Indeed, with symmetrical parties and preferences, the average economic outcome will be unaffected by the degree of ideological divergence. Moreover, because the probabilities of victory shift in favor of more centrist parties, shifts in underlying preferences will be reflected in average outcomes that shift by more than the average change in party platforms. In the example described at the end of the previous paragraph, the expected value of the policy change moves by 97 percent of the shift in preferences even though each party moves substantially less.

Fourth, it is sometimes difficult to distinguish ideological from opportunistic behavior. At first blush, it might appear that a purely ideological party would cling to its principles and never compromise its policies to win office. But in fact a party may increase its expected utility by moving away from its most preferred policy. By moving toward the center, for example, party *L* lowers the probability that party *C* will win and introduce *C*'s repugnant policies. This observation is merely a formalization of the canonical justification for political compromises—that even a party's compromised policies are superior to those of its opposition.

Fifth, despite the above similarity in behavior of opportunistic and ideological parties, the two react quite differently to shifts in underlying

parameters.¹¹ To begin with, as parties become more ideological, they tend to move away from the center of the ideological spectrum. In addition, as voters become less sensitive to (or more ignorant about) issues, ideological parties tend to move away from the center, while opportunistic parties stay at the center. Another way of putting this proposition is to say that as voters become more perfectly informed about party positions, the vote function becomes more peaked and parties tend to converge. Moreover, if the vote function is biased (that is, if the intercept moves away from 1/2), this will induce changes in the behavior of ideological parties but not of opportunistic parties. Also, if voters' preferences become more dispersed (in the sense of a median-preserving spread), this will not affect opportunistic parties, but it will tend to lead to greater divergence of ideological parties.

Finally, critics of PBC theory sometimes argue that ideological parties would not engage in the manipulative policies described by the theory of opportunistic cycles. As the discussion in this section shows, such an assertion is incorrect. To the extent that purely ideological parties desire to implement their policies, they may choose to exploit voter ignorance or myopia to increase their reelection chances. Put differently, if voter behavior allows opportunistic cycles, that same behavior will allow parties to pursue ideological objectives because attainment of ideological objectives requires election as a precondition for implementing a party's program. This final point suggests, and the next section explores further, the fact that purely ideological parties will undertake behavior that looks quite opportunistic.

Formal Models of Political Cycles

In the formal analysis of political business cycles that follows, voter decisions and party choices are illustrated with the trade-off between inflation and unemployment. I pause to underline, however, that this analysis applies more broadly to all decisions that involve intertemporal trade-offs.

Innumerable government decisions involve trade-offs over time. Aside from the classic example of whether to raise unemployment now

11. This paragraph draws upon a number of observations from Wittman (1983).

in order to enjoy lower inflation in the future, similar macroeconomic decisions involve the choice between public consumption and investment, or between raising taxes today or borrowing today and raising taxes tomorrow. Countries that choose not to pay today must pay tomorrow. If they enjoy overvalued exchange rates today, they do so at the expense of taking the medicine of a harsh austerity package tomorrow. When Latin American governments decided to borrow abroad in the 1970s, they were choosing a policy that raised present wages at the expense of lower future wages.

Microeconomics offers similar examples in the savings-and-loan cover-up, in the postponement of treatment of toxic or nuclear wastes, and in decisions about environmental policy, such as the delays in control of sulfur emissions. The common theme running through all these decisions is the choice between policies that raise consumption today and those that raise consumption tomorrow. Whenever the electorate has an imperfect understanding of the nature of the trade-off, parties will be tempted to shift consumption from the future to the present as a way of increasing electoral support.

For the most part, this study limits its analysis to the trade-offs that involve the business cycle. I emphasize this issue, first, because the inflation-unemployment trade-off is well-established and relatively stable in the United States and, second, because cyclical movements have powerful effects upon political outcomes. As former British Prime Minister Harold Wilson stated, “All political history shows that the standing of the Government and its ability to hold the confidence of the electorate at a General Election depend upon the success of its economic policy.”¹²

The following analysis assumes that two parties compete for political power and that voters evaluate parties on the basis of actual or expected economic performance. I begin with the opportunistic cycle and then introduce other approaches.

Opportunistic Cycles

In the following analysis, electoral cycles have two periods, with $t = 1, 3, 5, \dots$, the first half of the cycle and $t = 2, 4, 6, \dots$, the

12. Quoted in Hibbs and Fassbender (1981, p. 31).

second half of the cycle. The economy is assumed to behave according to the natural rate hypothesis. Unemployment and inflation are inversely related in the short run but are independent in the long run; that is, there is a downward-sloping Phillips curve in the short run but a vertical Phillips curve at the natural rate of unemployment in the long run. The economic dynamics are assumed to be stationary and given by

$$(5) \quad \pi_t = \pi_{t-1} - a(u_t - u^*) + e_t,$$

where π_t is the rate of inflation, u_t is the unemployment rate, u^* is the natural rate of unemployment, and a is the stable Phillips curve coefficient.

The error term in equation 5, e_t , represents unpredictable events that affect inflation. For simplicity, I consider only “supply shocks,” that is, shocks that raise the rate of inflation for given levels of aggregate demand. These shocks include events such as the oil price increases of 1973 and 1979, the exchange rate fluctuations of the 1980s, and the frequent bad harvests. Economic policy is assumed to determine the unemployment rate without error.

Voters are assumed to have a distribution of preferences between inflation and unemployment. The aggregate voting function, which gives the probability of election by the incumbent party I , is given by

$$(6) \quad p_{I,t} = V_t[u_{t-1}, u_t, \pi_{t-1}, \pi_t] = -[u_t^2 + b \pi_t^2 + (1 + \mu)^{-1}(u_{t-1}^2 + b \pi_{t-1}^2)] + \omega.$$

The voting function applies only to even-numbered periods, $t = 0, 2, 4, \dots$, which are election years. $V_t[\]$ is the aggregate voting function relating the fraction of the vote gained by the incumbent in period t to economic conditions. The factor b is the inflation aversion of the voting function and μ is a memory factor that represents the extent to which voters forget past events. The parameter ω represents the “bias” of the voting function, that is, the extent to which voters tend to reward or penalize the incumbent party. I take the quadratic form for simplicity of the later calculations.¹³ In these equations, u and π represent deviations

13. The derivation of an aggregate voting function from individual preferences is subject to well-known difficulties. An attempt to make this linkage explicitly for macroeconomic variables is discussed in Lepper (1974). Lepper derives an aggregate voting function under the assumption that there are well-defined individual preferences about macroeconomic outcomes and that voters are satisficers who choose incumbents if their

from the optimal unemployment and inflation rates. Obviously, the probabilities lie in the range $[0, 1]$. Finally, note that this voting function is backward-looking, excluding both the distant past and expectations about the future.

An opportunistic party will maximize its expected vote total or probability of being elected. I present here the solution without the random elements and assuming that the discount factor is zero ($\mu = 0$). A straightforward maximization leads to the following equations (for even-numbered values of t):

$$(7) \quad u_t = ba \pi_t,$$

$$(8) \quad u_{t-1} = ba(\pi_t + \pi_{t-1}).$$

Together with equation 5, equations 7 and 8 describe the dynamics of the opportunistic PBC. Figure 4 shows a simulation of the inflation rates for an opportunistic cycle for both low and high initial inflation rates (with initial annual inflation rates of 0 and 16 percent) and with high and low inflation aversions.¹⁴ The properties of the cycle are clear. Opportunistic parties tend toward equilibrium (that is, long-run average) inflation and unemployment rates, but the system tends to oscillate within the election cycle. The intracycle oscillation shows high unemployment and declining inflation in the first half of the electoral period and low unemployment along with rising inflation in the second half.

It is also possible to analyze the model with random supply shocks. Assume that the shocks occur each period *after* the policies for that period have been determined. Hence, parties set policies for period t and then the shock for period t occurs. The shocks will therefore affect policies only for the second half of the electoral cycle. The algebra of shocks is straightforward and is omitted here.

Figure 5 illustrates the impact of shocks in the opportunistic model.¹⁵ For this example we have taken an identical sample of shocks and shown

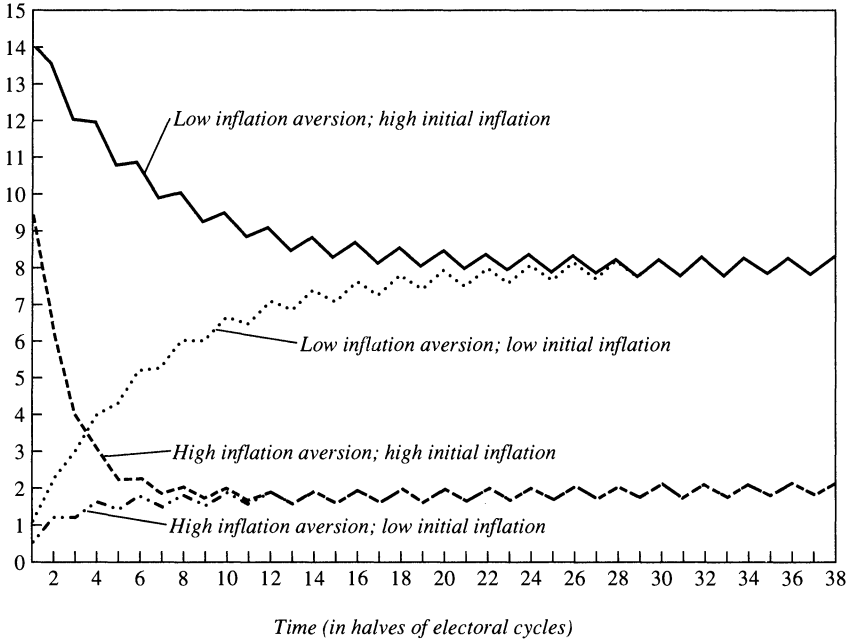
performance is above some threshold level. She shows that, in this model, normal preferences on the part of voters may aggregate into jagged iso-vote contours that do not contain concave indifference regions.

14. For this example, parameter values are $a = 0.8$, $u^* = 6$, and the optimal unemployment rate = 4. The value of inflation aversion is $b = 0.1$ for the high-inflation trajectory and $b = 0.4$ for the low-inflation trajectory.

15. For this simulation, e_t is an independent uniform random variable with a mean of 0 and a range of $(-2.5, +2.5)$.

Figure 4. Simulated Inflation Trajectories for Opportunistic Parties with Differing Inflation Aversion and Initial Conditions^a

Inflation rate (percent per year)



a. The trajectories are inflation rates for the opportunistic model. Low inflation aversion represents party L; high inflation aversion represents party C. The initial conditions are 0 percent and 16 percent inflation rates.

how it affects each of the four paths for the inflation rate. The cyclical pattern of policy shocks is somewhat masked by the shocks while the difference between degrees of inflation aversion continues to show up strongly.

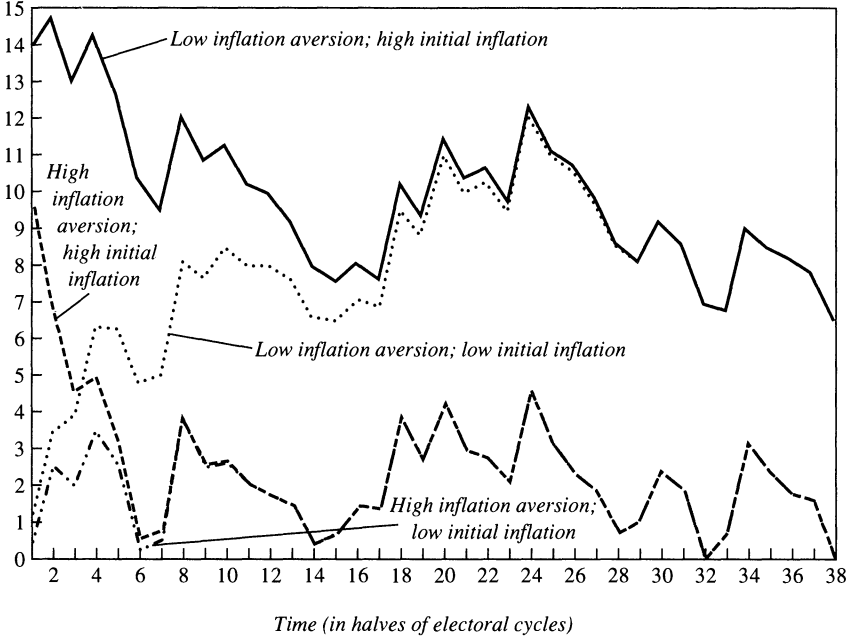
Ideological Cycles

Although opportunistic cycles have been extensively analyzed in the economic literature, until recently there has been little modeling of the ideological approach.¹⁶ What follows is one approach to the modeling of dynamic political choice when parties differ in their preferences.

16. Most economic analyses of the ideological or "partisan" approach overlook the two-way interaction between economic policies and political choices. Theoretical studies include Alesina (1987), who analyzes a two-party system as a repeated game. This model

Figure 5. Simulated Inflation Trajectories for Opportunistic Parties with Shocks and Differing Inflation Aversion and Initial Conditions^a

Inflation rate (percent per year)



a. The assumptions about parties and initial conditions are identical to those in figure 4. In this simulation, the system is subjected to random inflation shocks.

The analysis retains the earlier economic model in which the government trades off current satisfaction (low unemployment) for current and future pain (high inflation). In the spirit of the earlier analysis, the focus here is on parties that show a mixture of ideological and opportunistic behavior. The general specification of the previous section is analytically intractable, but before simplification it is important to consider the possibility of cyclical manipulation by purely ideological parties. Consider party competition of the kind analyzed in the section on ideological parties, in which two parties are purely ideological and have attained a

assumes that election outcomes are exogenous, which robs the model of any potential for explaining shifts in regimes, the interaction of politics and economics, or the evolution of party ideology. Also see Alesina and Rosenthal (1989). There are a number of empirical studies of ideological cycles—see, for example, Chappell and Keech (1988)—but most also take the probabilities of election of different parties as exogenous.

stable Nash equilibrium. Further assume that the parties have a zero discount rate whereas voters are backward-looking and ignore economic conditions beyond the election.

As I suggested earlier, even purely ideological parties will induce business cycles within the electoral period. Such cycles will improve the party's chances for reelection even though they would otherwise be undesirable to the party. More generally, as long as the electoral system tends to overdiscount the future, even purely ideological parties, aiming to enhance their chances of gaining office, will want to compromise their most preferred position by moving consumption to the period before the election.¹⁷

What follows is a simple formal model of ideological parties. As in the previous section, the preference function of the k th party is represented as

$$(9) \quad W_k\{E[U_k(x)], p_k\} = \beta[p_k U_k(x_k) + (1 - p_k)U_k(x_j)] + (1 - \beta)p_k,$$

where the variables are as already defined except that party j is the opposition party. No simple closed-form function can be used to represent party behavior, so I parameterize the problem by assuming that equation 9 reduces to the following simple quadratic function:

$$(10) \quad W_k = -[u_t^2 + b_k \pi_t^2 + (1 + \mu)^{-1} (u_{t-1}^2 + b_k \pi_{t-1}^2)].$$

Each party is assumed to maximize equation 10 subject to the economic constraint in equation 5. Equation 10 implicitly assumes that the two

17. A formal proof can be seen in the following simple example. Assume a finite horizon of θ periods in which there is a fixed stock of θ consumption goods. Time is continuous, and elections occur at points 0, 1, 2, The ideological party is assumed to have a zero discount rate ($\phi = 0$), and voters and the party have the same preference function, $u(c_t)$, over consumption, c_t . Consider the policy of a purely ideological party that sets $c_t = 1$. The voting function in this case is given by $V_T = f[g_T]$, where

$$g_T = \int_0^1 u(c_{T-\tau})e^{-\mu\tau}d\tau.$$

Starting at the constant consumption trajectory, by reallocating a small amount of consumption (Δc) from after this election to just before the next election (that is, from time $T-1+\epsilon$ to time $T-\epsilon$), the probability of election goes up by $f'(g)u'(1)[1-\exp(-\mu)]\Delta c > 0$, while the party's ideological utility changes by $u'(1)[1-1]\Delta c = 0$. Note that this reallocation does not affect future consumption and therefore leaves future elections unaffected. This example shows that differential discounting produces a political cycle even for purely ideological parties.

parties have identical inflation and unemployment targets, but that they differ in their inflation aversion. The inflation aversion of conservatives is higher than the inflation aversion of liberals (that is, $b_L < b_m < b_C$).

The parameter about which parties differ, b_k , can be interpreted as a compromise between the party's genuine inflation aversion and its desire to win. When the party is purely opportunistic, its b_k will equal that of the median voter; a purist or superideological party (one concerned only with its platform and not at all with economic outcomes) will set its b_k equal to its preferred level. An ideological party desiring to maximize its preference in equation 10 will be somewhere in between. In the solution that follows, assume that parties plan for only the current electoral period.

When parties are driven by this kind of mixture of ideology and opportunism, the solution path is easily found. Omitting the random shocks yields

$$(11) \quad u_{k,t} = b_k a \pi_{k,t},$$

$$(12) \quad u_{k,t-1} = b_k a (\pi_{k,t} + \pi_{k,t-1}),$$

along with equation 5. Note that these equations contain variables $u_k(\cdot)$ and $\pi_k(\cdot)$ as a reminder that economic policy depends upon the preferences of the parties.

Three points should be noted about the behavior of ideological parties. The first is that parties now matter for economic policy. In the pure opportunistic model, the identity of the party was irrelevant for economic policy; in the ideological model, parties affect economic outcomes as they pursue their own objectives. In the example used here, the conservative party drives the economy toward a long-run equilibrium with low inflation while the liberals steer toward a high-inflation equilibrium.

Second, depending upon the voting function and expectations, ideological parties may induce considerable instability in the sense of frequent changes of the party in power and therefore of policy changes. As the incumbent party succeeds in attaining its ideological objectives, the economic outcomes increasingly depart from the preference of a majority of the voters. If the voters compare performance with an average of recent economic experience, the pure policies of ideological parties will compare unfavorably. The voters will therefore desire to change parties and thereby effect a return toward the middle of the preference distri-

bution. Perhaps the long cycles of politics described by R. W. Emerson and A. M. Schlesinger can be explained as a reaction to the cumulative effect of ideological parties' policies shifting the policies of society too far away from the center.¹⁸

Figure 6 shows the induced cyclical behavior of a two-party system with inflation shocks, alternating between periods of liberal and conservative policies. In this example, liberals tend to win more often because their policies are closer to the median voter than are those of the conservatives. Some of the inherent regularities of figure 6 are masked by the shocks. In addition, this graph shows how the alternating policies of the two regimes better satisfy the preferences of the median voter than would the pure policies of either party alone, a point suggested earlier.

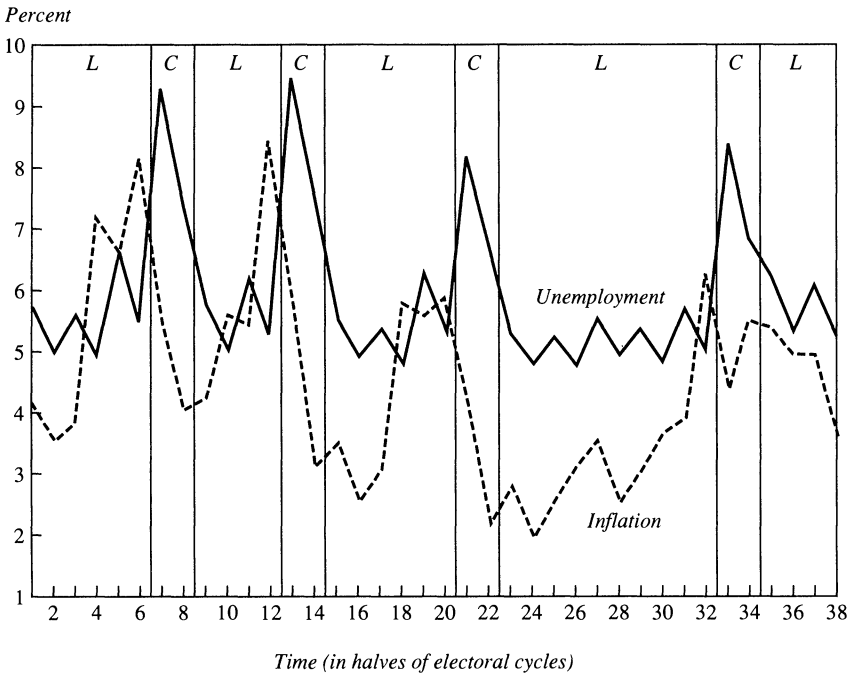
A third and somewhat surprising point is a corollary of the second: because of the discontinuity of economic policy caused by changes in the party in power in the ideological model, the economy can display "chaotic" behavior. More precisely, the economy tends to be extremely sensitive to small changes in parameters and initial conditions.

Figure 7 shows the result of four simulations in which the economic structure and the initial conditions are the same but party preferences are slightly modified.¹⁹ These small changes induce different electoral outcomes and lead to different histories. Figure 7 shows the economic outcomes and the parties in power in a simulation that tracks the interaction of an unchanging conservative party (identical to that shown in figure 6) and four slightly different liberal parties. In this simulation, liberal parties *A* through *C* tend to compromise slightly less than liberal party *D*. As a result, in the third period, the conservatives win an election against liberal party *A*, *B*, and *C*, while *D* remains in office by pursuing a slightly less liberal policy. From period 3 on, we see that the small difference in preference leads to a discontinuously more liberal policy for party *D* as compared with the conservative replacements for *A*, *B*, and *C*, and this difference has not disappeared even after a dozen election periods. Similar instabilities can surface for small changes in initial

18. See Schlesinger (1986) for an entertaining survey of the subject.

19. More precisely, in these simulations, the inflation aversion factor, b_k in equations 11 and 12, is equal to 0.47, 0.48, 0.49, and 0.50 in runs *A*, *B*, *C*, and *D*.

Figure 6. Simulated Inflation and Unemployment Rates for Ideological Parties with Shocks^a



a. This simulation shows the election outcome (L or C), unemployment, and inflation for a model with ideological parties and supply shocks.

conditions. The reason for the instability is the discontinuous nature of political choice: because winners take all, small changes in the structure or in the shocks can produce large differences in economic outcomes.

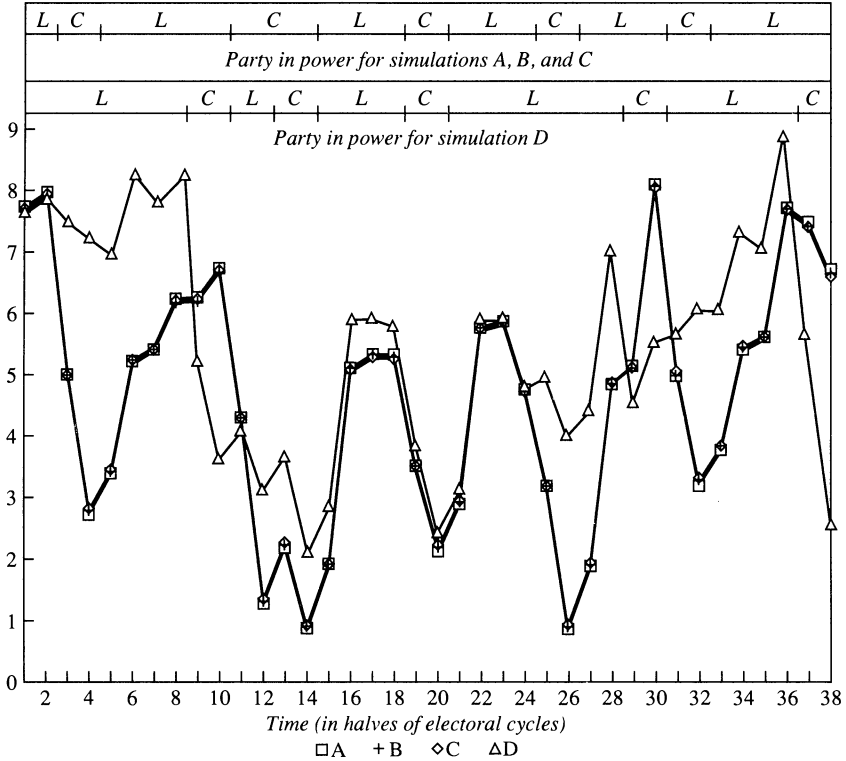
Ultrarational Voters and Parties

The most penetrating criticism of PBC models is grounded in the assumption that ultrarational voters can see through the manipulative actions of parties. Unlike the two earlier models, proponents of this view assume that voting is forward-looking rather than retrospective and that ultrarational voters both understand the structure of the economy and forecast rationally the behavior of parties.

Ultrarational voters can be modeled as follows. Voters assess the

Figure 7. Instability of Outcomes with Ideological Parties and Small Changes in Preferences^a

Inflation rate (percent per year)



a. Simulations show different trajectories for economy with identical parameters and shocks *except* for small change in preferences of parties. Differences are explained in text.

“platform” of different parties according to a forward-looking vote function of the form

$$(13) \quad V_t(u_{t+1}, u_{t+2}, \dots; \pi_{t+1}, \pi_{t+2}, \dots) = - E_t(u_{t+1}^2 + R u_{t+2}^2 + R^2 u_{t+3}^2 + \dots + b \pi_{t+1}^2 + R b \pi_{t+2}^2 + R^2 b \pi_{t+3}^2 + \dots),$$

where $E_t(\cdot)$ is the expectation at time t , $R = (1+r)^{-1}$ = a discount factor, and r the relevant discount rate. How will parties behave in the face of ultrarational voters? The simplest case is one in which voters compare their ultrarational forecast of party behavior with the optimal outcome and vote for the party whose policy is closest to the optimum. With pure opportunism or sufficient party competition, parties will then maximize the voting function in equation 13 subject to the macroeconomic structure

in equation 5. Some algebra showing the optimal policy for opportunistic parties faced by ultrarational voters is given by the following pair of equations:

$$(14) \quad u_t = ab\pi_t + Ru_{t+1},$$

$$(15) \quad \pi_t = \pi_{t-1} - a(u_t - u^*).$$

The distinction between the ultrarational solution and the earlier equations is that the policy equation is forward-looking and follows a saddle-point trajectory with a steady-state solution given by $u = u^*$ and $\pi = u^*(1 - R)/ab$. It is easily verified that this policy does not introduce any cyclical behavior of the kind displayed in opportunistic cycles.

The solution with ideological parties is more complicated because voters cannot impose their preferences upon parties. The earlier analysis of ideological parties suggests that there may be stable and divergent party policies. If the parties' and the voters' discount rates are the same, there will be no intraperiod cycle. Put differently, a party will be rewarded only for approaching the median voter's preferences and not for the presence or absence of any election-year cycles.

Tests in the next section will rely upon two properties of models with ultrarational voters. The first concerns voters' assessment of shocks. Assume for simplicity that parties are identical either because of convergence or because of opportunism; additionally, augment the ultrarational model with economic shocks as in equation 5. In this case, the optimal policies will be

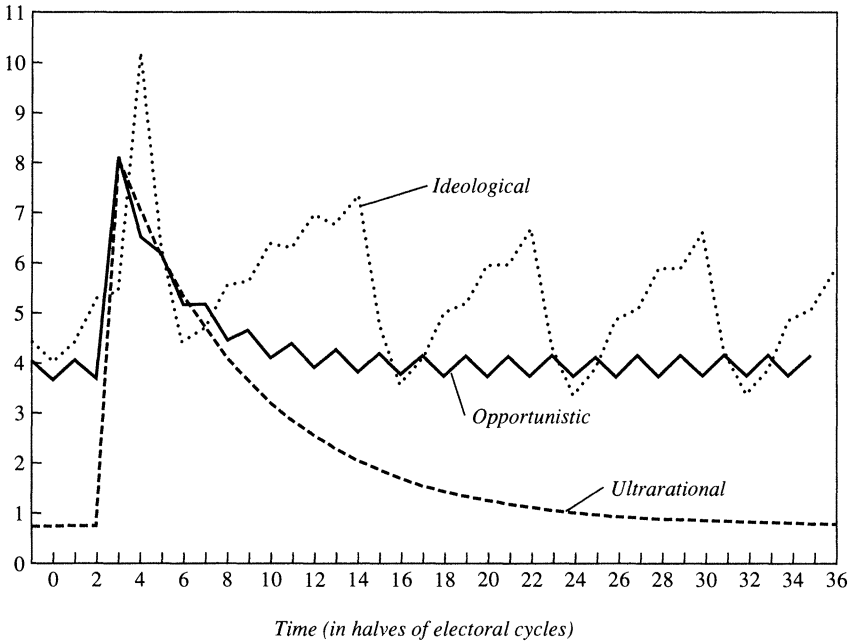
$$(16) \quad u_t = ab E_t(\pi_t) + RE_t(u_{t+1}),$$

$$(17) \quad \pi_t = \pi_{t-1} - a(u_t - u^*) + e_t,$$

where $E_t(\)$ was defined above. The response of parties will not differ in the presence of external shocks. Because of ultrarationality, voters will see through the veil of the economic shocks and will not penalize parties. Thus ultrarationality implies that there will be no effect of exogenous economic shocks on party popularity when parties are identical.

A second testable property of the model with ultrarational voters applies to a classical economy in which policymakers cannot affect unemployment or real output. In such a world, ultrarational voters would not penalize parties during periods of high unemployment or give parties high ratings during periods of low unemployment.

As a final comparison, figure 8 shows how the ultrarational, oppor-

Figure 8. Comparative Trajectories of Different Parties with Identical Initial Conditions**Inflation rate (percent per year)*

a. This figure shows the reaction of the three different kinds of parties to an inflation shock, where each regime was originally in long-run (or limit-cycle) equilibrium.

tunistic, and ideological parties react to an inflationary shock.²⁰ The ultrarational model with opportunistic parties drives inflation down in a smooth way to the low long-run equilibrium. The other two simulations show higher levels of inflation because of retrospective voting, with the ideological case showing cycles both within and across electoral periods.

Evidence on Political Business Cycles

While a vast literature on PBC models has sprung up over the past two decades, little agreement exists about which models are most applicable. Given the jumble of approaches, the purpose of this section

20. All three simulations in figure 9 have the same economic structure, with $a = 0.8$. The inflation aversion is $b = 0.2$ for both opportunistic solutions while $b = 0.1$ for the liberal party and 0.4 for the conservative party. The discount rate is 0.06 percent per period for the ultrarational solution.

is to see whether the disputes can be narrowed by an examination of the historical evidence. This section reviews in detail the two issues most central to evaluating the importance of PBC models: whether voters behave in accordance with the postulate of ultrarationality and whether parties behave opportunistically or ideologically.

Recall that voters are said to be ultrarational if they have rational expectations, possess all available information, and evaluate parties by comparing their expected future performances. Bennett McCallum relied upon the hypothesis of ultrarationality along with a classical model of the economy to present the rational-expectations critique of PBC models, which argues that “governments *cannot* . . . manufacture booms during the latter portion of their elected terms.”²¹ This line of argument dampened enthusiasm for research on political business cycles for almost a decade.

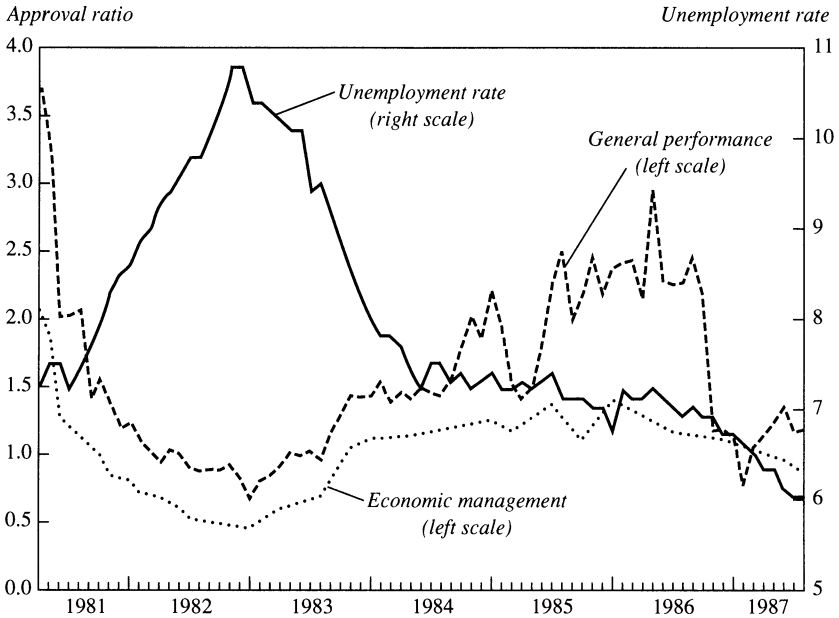
Of a number of possible approaches to assessing the rational-expectations critique of PBC models, one especially powerful test is whether voters satisfy the postulate of ultrarationality. As it turns out, voting data provide a good laboratory for examining ultrarationality, for which four different tests are examined here.

The data set used for many of the tests that follow is from Gallup polls on presidential performance. The data cover presidential popularity polls of approximately 1,000 people.²² They ask the respondents whether they approve of the president’s performance generally (“general approval”), and sometimes, but less frequently, whether they approve of the president’s management of the economy (“economic approval”). Figure 9 shows the data used for this study. Because of the bound on the arithmetic popularity, the data were transformed to obtain an approval ratio, which measures the ratio of approval to disapproval, excluding

21. McCallum (1978, p. 504), emphasis in original.

22. It is important to distinguish between *voting* functions, which measure actual electoral results, and *popularity* functions, which are generated by interviews. While the former are ultimately crucial in political choices, popularity functions have a number of significant advantages for studies of politico-economic behavior. Most important is that they are available on a monthly basis, whereas electoral results are available only every two or four years. Moreover, popularity data contain an important statistical advantage; by controlling on the identity of the government leader, which is clearly an important factor in voter attitudes, they allow a more precise determination of the impact of economic effects upon attitudes. The major shortcomings of popularity data are high volatility of the estimates and some systematic biases. Most studies indicate, however, that modern polls are relatively accurate predictors of voter behavior. See, for example, Chappell and Keech (1988).

Figure 9. Unemployment and Presidential Approval: General Performance and Economic Management, 1981–87



those with no opinion. Figure 9 also shows the unemployment rate for 1981–87.

Before proceeding with formal tests, it is worth pausing for one preliminary comment and one comparison with other studies. One of the striking features of both popularity data and election returns is the importance of economic affairs for political success. Figure 9 depicts the strong impact of the business cycle on presidential popularity; over the period 1981–87, the correlation between general and economic presidential popularity is 0.94. More evidence of the salience of economic affairs is that economic variables plus incumbency have a correlation of 0.85 with the outcome of presidential elections during 1920–88. Given the variety of ways in which government influences everyday life and the variety of priorities mentioned in polls, it is puzzling that economic events loom so large in political affairs.

In addition, it is useful to compare the results of estimates of the popularity function for the 1980s with tests for other periods and other countries. Table 2 makes such a comparison. While the data and methods

Table 2. Alternative Estimates of Impact of Economic Conditions on Government Popularity, Various Countries, Various Periods

<i>Country and period</i>	<i>Estimated coefficient</i>	
	<i>Unemployment</i>	<i>Inflation</i>
United States (1981–88)	– 8.6	– 0.1
<i>Alternative studies</i>		
United States (1953–75)	– 4.2	– 1.0
United Kingdom (1959–74)	– 6.0	– 0.7
West Germany (1951–75)	– 0.9	– 0.7

Source: Alternative studies are surveyed in Frey (1978).

of the different studies are not identical, they do show a strong tendency for government popularity to decline with increases in either inflation or unemployment. However, popularity functions for the United States during the 1980s impute a much higher relative cost to unemployment than for earlier periods or for other countries. In addition, the strong relative aversion to inflation in Germany is apparent in the popularity data.

The first of the four tests of ultrarationality directly confronts the rational-expectations critique of PBC models by testing the joint hypothesis of ultrarational voters and a new classical structure of the economy. In the previous section, I showed that rational opportunistic parties in a new classical economy could not and would not manipulate real economic activity over the electoral cycle. Any changes in unemployment and output would be exogenous. Since parties can do nothing to affect unemployment or output in a new classical world, party popularity and election results should be unaffected by cycles in the “real economy,” that is, by changes in unemployment or output. Since policy can still affect inflation, inflation must be excluded from the test.

The results of the first test, shown in table 3, decisively reject the hypothesis of no impact of the real economy upon presidential approval.²³ For each of the four regressions, the probability that the data were generated by chance under the null hypothesis lies below the lower limit (0.001) of my *F*-test table. This completely independent test of the

23. Earlier studies—see, for example, Fair (1978)—have found rate of change of real income or unemployment to have greater explanatory power than levels. Although no exhaustive analysis was undertaken for this study, popularity appears to respond largely to the level of unemployment rather than to the change.

Table 3. Tests of Relation between Voter Approval and the Real Economy, February 1981–December 1987^a

Dependent variable ^b	Constant	Independent variable		Summary statistic		
		Unemployment rate	Industrial production ^c	R ²	F ^d	P ^e
General approval	3.7 (0.4)	-0.27 (0.05)	. . .	0.30	33.3 (1, 77)	0.00
General approval	22.9 (9.7)	-0.48 (0.11)	-3.68 (1.86)	0.34	19.3 (2, 154)	0.00
Economic approval	2.9 (0.4)	-0.23 (0.05)	. . .	0.45	22.6 (1, 29)	0.00
Economic approval	22.1 (6.6)	-0.43 (0.08)	-3.71 (1.30)	0.58	18.5 (2, 154)	0.00

a. The real economy refers to the variables of unemployment rate and industrial production, which, in the classical model, are unaffected by macroeconomic policies and should therefore have no impact on voter approval if the voter is ultrarational. Numbers in parentheses are standard errors unless otherwise noted.

b. Approval is expressed as the ratio of percent of respondents approving to those disapproving of either the general or economic performance of the president.

c. Industrial production enters equation as natural logs.

d. Numbers in parentheses are degrees of freedom in numerator and denominator of *F*-test.

e. The *F*-test probability that approval is not related to the real economy.

rational-expectations approach leaves little statistical doubt of the irrel-
evancy of that theory in the minds of the voters.

The second test involves the folk wisdom in political analysis that newly elected candidates enjoy a “honeymoon” after they enter office, with high early levels of popularity tending to erode after a few months as reality deflates the electorate’s unrealistically high initial expectations. A repeated tendency of voters to overvalue the policies of new incumbents is a clear violation of ultrarationality. After a couple of political marriages have gone sour, voters should remember their past disillusionment and discount the temporary postelection euphoria. Surely their own past sentiments are in the information set of ultrarational voters, so the existence of honeymoon effects is a strong test of ultrarationality.

For a formal test, I examined the popularity data for the eight postwar presidents. The hypothesis was that popularity moved according to the following process:

$$(18) \quad P_t = P_t^* + H_t,$$

where P_t^* is “fundamental” presidential popularity in month t (where t is months after the inauguration), and H_t is the amount of the honeymoon effect that has survived t periods. I assume that P_t^* is a martingale, while the honeymoon effect moves according to the process:

$$(19) \quad H_t = H_0 \exp[-\delta t + \epsilon_t],$$

where H_0 is the initial honeymoon effect, δ is the decay rate of the honeymoon effect (per month), and ϵ_t is an error term incorporating miscellaneous factors.

To estimate equations 18 and 19, take the shortcut of calculating H_t by subtracting the “fundamental popularity” from equation 18, where fundamental popularity is calculated as the average popularity for the entire term of office after the first year of the presidency. Taking logarithms of equation 19 produces the final equation:

$$(20) \quad h_t = h_0 - \delta t + \epsilon_t,$$

where h_t is the logarithm of H_t .

Figure 10 shows a plot of presidential popularity before being transformed to obtain the estimated equation. Table 4 displays the estimated coefficients of equation 20. Each equation is highly significant, and each of the 16 coefficients has the predicted sign and is significant at the one-tail, 5-percent confidence level. The results indicate the presence of powerful honeymoon effects, with popularity initially boosted by a factor of about *eight* (which is the antilog of the h_0 coefficient of 2). Except for the Ford collapse after the Nixon pardon, the decay rates tend to cluster around 20 percent per month. Under this specification, the honeymoon effect disappears after about 10 months (that is, $2 - 0.2T = \text{zero}$ for $T = 10$ months).

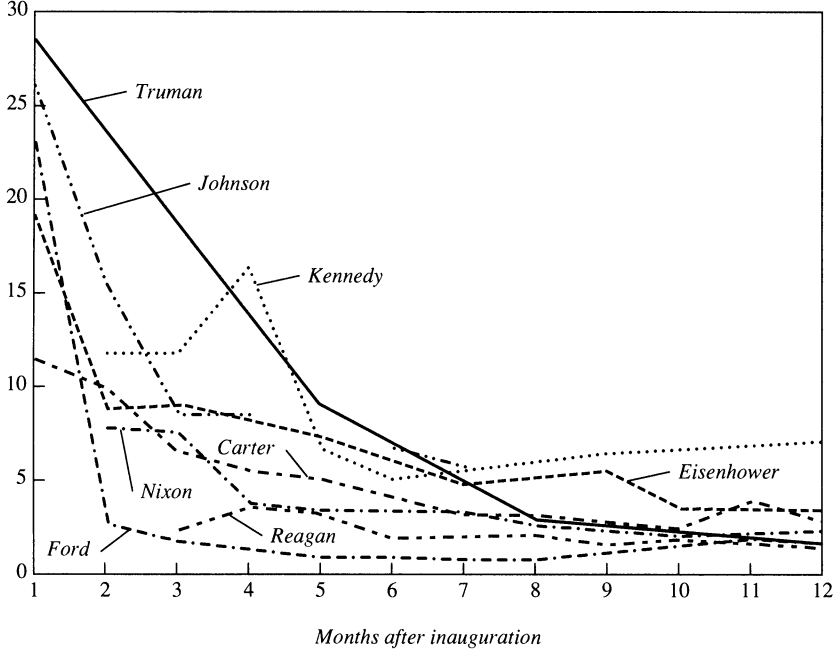
The initial honeymoon effect is larger for vice-presidents who succeed presidents after death or political dismemberment, and these high initial effects decay at higher-than-average rates. The initial honeymoon effects appear to decline over time, but the decay rates show no trend. In addition, the decay rates are close to those estimated as the rates of amnesia for economic events (see the fourth test below).

The formal test concludes that the honeymoon effect is a decisive violation of ultrarationality, for it implies that trends in voter approval in the early part of the electoral period are predictable. In less formal terms, to paraphrase Samuel Johnson, postelection euphoria, like marriage, is the triumph of hope over experience.²⁴ It is difficult to imagine an unbiased and efficient method of processing political information and

24. What about remarriages? Three of the four presidents who won a second term enjoyed a “second honeymoon”—Reagan being the exception—although the boost to popularity at the beginning of the second term was markedly smaller than that at the first.

Figure 10. Honeymoon Effect: Decay of Approval Ratio for Eight Postwar Presidents, First Year in Office

General approval ratio



choosing among candidates that would induce such consistently large and predictable swings in voter attitudes.

A third and weaker test of ultrarationality applies to any stable politico-economic structure and examines whether popularity is a random walk. Under any stable structure, the evaluation of parties by ultrarational voters should not be forecastable. Tests of this hypothesis are shown in table 5. When prior information about economic conditions is included (information that is prior to the last poll taken before the current one and therefore should rationally be incorporated into the lagged dependent variable), a statistically significant degree of serial dependence is detected. The statistical significance may be overstated, however, because sampling error in measuring the approval ratio may induce serial dependence where none exists.

A final test concerns the memory of voters in their evaluation of parties. This line of reasoning begins with the observation that, in addition to predictable short honeymoons and frequent divorces, voters

Table 4. Honeymoon Effect in Presidential Popularity^a

<i>President</i>	<i>Initial honeymoon effect</i>	<i>Decay rate</i>
	(h_0)	(δ)
Truman	4.42 (13.4)	0.43 (10.8)
Eisenhower	2.34 (8.6)	0.25 (4.1)
Kennedy	2.34 (5.9)	0.17 (2.3)
Johnson	2.74 (14.9)	0.19 (5.5)
Nixon	2.11 (10.0)	0.22 (6.7)
Ford	2.66 (5.5)	1.60 (6.1)
Carter	1.98 (11.9)	0.20 (8.0)
Reagan	1.74 (3.4)	0.39 (4.9)

a. Results obtained from equation 20 of text. The initial honeymoon effect and the dependent variable, the honeymoon effect after t periods, enter as natural logs. Numbers in parentheses are t -statistics.

appear to have extremely short memories of the past infidelities of politicians; that is, the lag distribution of popularity on economic variables turns out to be extremely short. In Ray Fair's work, for example, voters tend to respond to GNP growth over the past two quarters.²⁵ Estimates of the "amnesia" factor by Gebhard Kirshgaessner find the decay rate is on the order of 20 percent to 25 percent per month.²⁶

Before concluding that voters are highly irrational in their memories of past events, however, consider the possibility that voters are forward-looking rather than backward-looking.²⁷ Voters might say: "Why fret

25. Fair (1978).

26. Kirshgaessner (1985, p. 254).

27. More precisely, let the popularity function take the form $A(L)P_t = B + C(L)x_t$, where P_t is the popularity ratio, x_t is the set of outcomes or economic indicators, A , B , and C are vectors of coefficients, and L represents a lead and lag operator. Solving this equation for P yields $P_t = A(L)^{-1}[B + C(L)x_t]$. For future values of economic variables, assume that the optimal forecast of x_t is $x_t = D(L)x_t$. The observed popularity function will then be $P_t = A(L)^{-1}[B + C(L)[D(L)x_t]]$. Note that the lag structure on x_t is a complicated function of both the popularity function parameters and the optimal forecast of x_t ; no simple conclusion about the rationality or myopia of voters' behavior is possible without further information about the expectations concerning x_t .

Table 5. *F*-tests for Random Walk of Approval^a

Included independent variables	General approval		Economic approval	
	<i>F</i> -test	Probability ^b	<i>F</i> -test	Probability ^b
Lagged dependent variable	1.11 (1, 72)	0.16	2.01 (1, 32)	0.05
Lagged dependent variable and prior information on				
Unemployment	3.37 (2, 138)	0.01	... ^c	... ^c
Inflation	2.76 (2, 138)	0.05	... ^c	... ^c
Industrial production	4.22 (2, 138)	0.03	... ^c	... ^c
Unemployment and industrial production	2.68 (3, 204)	0.02	... ^c ... ^c	... ^c ... ^c
Unemployment, inflation, and industrial production	2.68 (4, 268)	0.015	... ^c	... ^c

a. The dependent variable is change in general or economic approval. Numbers in parentheses are degrees of freedom in numerator and denominator of *F*-test.

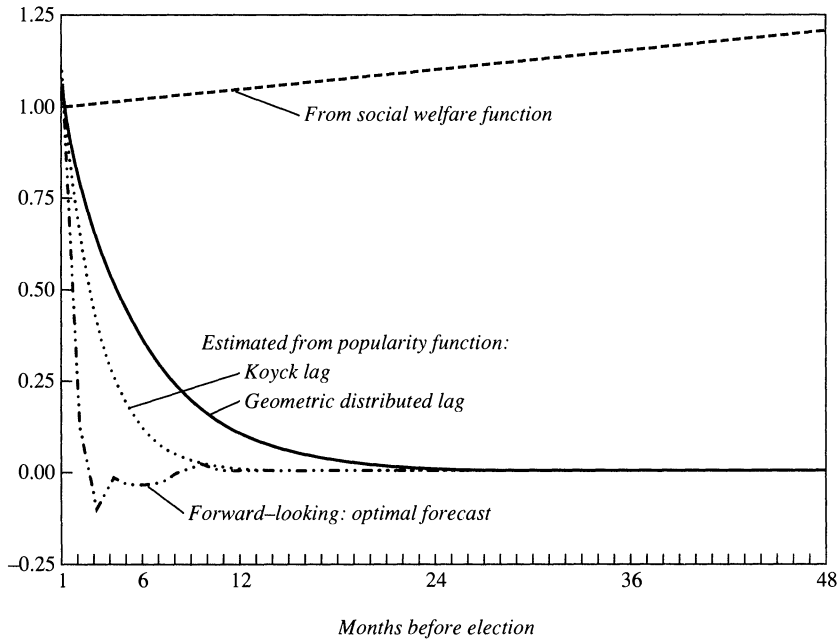
b. *F*-test probability that approval follows a random walk.

c. Insufficient observations.

about yesterday's recession? What we really care about is the future, and our approval represents a reasonable bet on the future. There's no point in beating the dead horses of the past." If voter evaluations are forward-looking forecasts, then the weights on past events may simply reflect the optimal weights to be used for future forecasts. As an example, say that voters care only about inflation and assume that inflation is a random walk. In this case, voters would rationally include only current inflation in their evaluation function.

Figure 11 shows four alternative ways of viewing the importance of past unemployment rates in a political context. At the top are "social welfare weights," weights that a planner might use in maximizing social welfare over time, equal to the real discount rate on goods and services. Because the figure measures time looking backward, the weights increase with the time lag to reflect a positive real interest rate. The middle pair of curves are the weights on unemployment from two estimates of the

Figure 11. Memory of Unemployment Past: Economic, Optimal Forecast, and Estimated^a Weight on lagged unemployment rate



a. The lag distributions are estimated impacts of unemployment upon presidential popularity over the period 1981–87. The four distributions correspond to different assumptions about expectations.

popularity function. One is from a Koyck distributed lag of popularity on the unemployment rate; the other uses a maximum-likelihood estimator of the geometric decay rate in a nonlinear equation relating popularity to the unemployment rate.²⁸ The bottom curve shows the optimal forecast of unemployment from an autoregressive equation of the unemployment rate.²⁹

The issue raised by the different lag structures in figure 11 is whether the weights on unemployment from the popularity function are consistent

28. More precisely, let popularity be $P_t = \alpha[u_t + ku_{t-1} + k^2u_{t-2} + k^3u_{t-3} + \dots] +$ other factors. The decay factor k can be estimated either by maximum likelihood or by using the Koyck transformation and estimating $P_t = \alpha u_t + kP_{t-1} +$ other factors.

29. The optimal forecast is estimated over the period 1950–87 and is $U = 0.092 + 1.091 U_{-1} + 0.120 U_{-2} - 0.103 U_{-3} - 0.018 U_{-4} - 0.045 U_{-5} - 0.047 U_{-6} - 0.032 U_{-7} - 0.010 U_{-8} + 0.010 U_{-9} + 0.016 U_{-10}$, where U is the total unemployment rate. The R^2 is 0.986 and the standard error of the estimate is 0.203.

with voter ultrarationality. There is a strong suggestion that voters do not evaluate parties using a forward-looking forecast of future economic events: the actual reaction of popularity to economic events is far different from the optimal forward-looking forecast. On the other hand, the reaction has far too much amnesia to represent a sensible retrospective evaluation of past events. The two possible interpretations, between which these data cannot distinguish, are that popularity is a mixture of forward-looking and retrospective evaluations or that voters' memories of past events decay much more rapidly than normal economic discounting would prescribe. Whatever the interpretation, the results are inconsistent with the hypothesis of ultrarationality.

There are many other possible tests of ultrarationality in voter behavior, but the general conclusion from this and other studies is that the assumption of ultrarationality cannot withstand a confrontation with behavioral evidence. A little reflection, however, suggests that the ultrarational model of the voter is highly implausible at the outset. A forward-looking, ultrarational voter would systematically collect data on the voting records, platforms, policy pronouncements, and speeches of all the candidates, to which would be added the volumes of expert opinions, econometric forecasts, scholarly monographs, and public-interest group ratings. Using this information to project the outcomes over the indefinite future, the voter would then vote for the party or office seeker with the highest utility score.

In reality, such a decision process has severe shortcomings. It is costly to gather and process all the relevant information; the information may be difficult for many inexperienced or illiterate voters to understand; and the platforms may be so vague, misleading, and internally inconsistent as to yield little information about future policies and economic conditions.³⁰ If we add to this welter of confusion the infinitesimal probability of an individual's vote changing a national election outcome, we can only conclude that homo economicus would gather no information and cast no vote.

30. One of the functions of political parties is to provide continuity and establish reputations, thereby allowing voters to make choices on the basis of past behavior and performance. New parties (or "outsiders") might be forced to rely upon pronouncements and platforms more than established parties or candidates. An example of the role of reputation was the formation of the U. S. Republican party out of the ashes of the Whig party, of which McPherson writes: "Because the Republican party was new, its platform was more important than usual in American politics." McPherson (1988, p. 155).

But individuals *do* vote, especially those with higher opportunity costs of their time, so the ultrarational perspective must be replaced with a more realistic one. Voters might choose to economize on their time by gathering only readily available information, such as spot TV advertisements. Given the uninformative quality of many campaign promises, people might look at past performance and personal character as the most reliable indicator of future policies and behavior. In light of their rudimentary understanding of the intricacies of legal, political, and economic structures, voters might be generally unable to distinguish policy shocks from external shocks and simply hold the incumbent government responsible for whatever events transpired.³¹ In short, in a world where voting has little economic value to the individual and reliable forecasts about the future are costly to obtain, retrospective evaluation of the performance of incumbents on the bases of simple and easily understood indexes (such as unemployment, GNP growth, or inflation) might be a reasonable way for many voters to make political decisions.³²

Ideological and Opportunistic Parties

A review of research on the controversy over whether parties are principled or opportunistic shows that arguments about ideology have often been wide of the mark.

The evidence on opportunistic cycles comes from a wide variety of studies. Perhaps the most persuasive is that of Edward Tufte, who examined in great detail a wide variety of sources and concluded:

The timing of elections influences the rate of unemployment and growth in real disposable income, the short-term management of inflation and unemployment, the flow of transfer payments, the undertaking of expansionary or contractive economic policies, and the time perspective of economic policy-making. . . . [E]conomic life vibrates with the rhythms of politics.³³

This conclusion was reinforced by the study of Bruno Frey and Friedrich Schneider, which showed that presidential popularity responds

31. In Paldam's survey of voting behavior and popularity functions (1981), he finds strong evidence for the "responsibility hypothesis," which states that voters hold the government responsible for economic and social outcomes.

32. A similar line of reasoning is presented in Kramer (1971).

33. Tufte (1978, p. 137).

significantly to macroeconomic conditions and that government fiscal policy responds to both reelection proximity and the government's ideology.³⁴ Kevin Maloney and Michael Smirlock find "evidence of an attempt to use policy instruments to guide economic activity into a politically optimal cyclical pattern. . . ."³⁵

The pattern holds for countries other than the United States. Frey and Schneider find that both opportunistic and ideological variables are significant determinants of government fiscal policy in the United Kingdom as well, although election proximity dominates the ideological variables when closely contested elections draw near. Manfred Keil examines British data and finds strong evidence for opportunistic cycles in the unemployment rate, in government expenditures, and in monetary policy.³⁶ Yoram Ben-Porath demonstrates the existence of impressive cycles within electoral periods for the second through the seventh Knesset in Israel.³⁷

Beginning with the germinal work of Hibbs, numerous studies have found evidence of ideological or "partisan" business cycles.³⁸ Hibbs's studies show a systematic tendency, particularly for European class-based parties, to pursue macroeconomic policies broadly consistent with the economic interests and preferences of their constituencies.

In a more recent study, Alberto Alesina analyzes the relative importance of the electoral cycle and regime shifts in macroeconomic performance in 12 countries since World War II.³⁹ He concludes that left-wing governments typically begin their regimes by lowering unemployment rather than raising it, which is consistent with the ideological rather than the opportunistic approach, a point made earlier by Alesina and Jeffrey Sachs.⁴⁰ It should be remarked, however, that the tests are often sensitive to the exact form of the hypothesis to be tested. By Alesina's test, the opportunistic PBC fails utterly for the United States (see his table 6). On

34. Frey and Schneider (1978a).

35. Maloney and Smirlock (1981, p. 389). Similar conclusions are found in Laney and Willett (1983) and in several chapters of Willett (1989).

36. Keil (1988).

37. Ben-Porath (1975).

38. See especially Hibbs (1977).

39. Alesina (1989).

40. Alesina and Sachs (1987).

Table 6. Tests of the Effect of Opportunistic vs. Ideological Parties on Growth in Federal Transfer Payments^a

<i>Sample period</i>	<i>Opportunistic variable^b</i>		<i>Ideological variable^c</i>	
	<i>Coefficient</i>	<i>p-value</i>	<i>Coefficient</i>	<i>p-value</i>
1951:1–1988:1	0.0043 (1.40)	0.16	0.0095 (1.27)	0.20
1951:1–1988:1 ^d (Nixon years excluded)	0.0027 (0.89)	0.37	0.0094 (1.34)	0.18
1969:1–1974:2	0.0161 (1.45)	0.16

a. The dependent variable is the rate of growth of federal transfer payments divided by the CPI, corrected for the cycle to remove the impact of the business cycle on automatic transfers. Numbers in parentheses are *t*-statistics.

b. The opportunistic variable takes the values of -1 for the first year, 0 for the next two years, and $+1$ for the fourth year.

c. The ideological variable takes the value of Truman = 1.0 , Eisenhower = 0.3 , Kennedy = 0.8 , Johnson = 1.0 , Nixon = 0.5 , Ford = 0.3 , Carter = 0.5 , and Reagan = 0.0 .

d. Sample period excludes 1969:1–1974:2.

the other hand, the opportunistic model should apply with greatest force to presidential *reelections*—the only opportunity that parties have to advance their own popularity by economic policy. During the past three decades, there were but two observations (1969–72 and 1981–84), and they both exhibited the bust-and-boom cycle predicted by the opportunistic model.

On reflecting upon the debate about party motivation, one is led to conclude that it is a mistake to propound a unique and monocausal “correct” model to explain the behavior of such a complex system. Political cycles reflect a wide variety of party behavior—ideological or opportunistic or both or neither—depending upon the electoral regime and individual personalities. Political power bestows room for substantial discretion by leaders and thus for diverse patterns of behavior. Unlike competitive firms, individual parties and leaders have ample room to be venal or farsighted, partisan or patriotic.

A second point, which has already been made, is that the ideological model is sometimes misspecified. Purely ideological parties will find it advantageous to move toward the center so that they can survive long enough to implement their policies.

Another issue concerns potential conflicts within parties. If parties look beyond the next election, they may move toward what I have

described as the ultrarational solution. Incumbents will then feel a tension between what is good for themselves and what is good for the party. By undertaking short-run maximizing strategies, an incumbent may improve his own reelection chances at the expense of future candidates of his party. Indeed, Morris Fiorina sees this as a possible interpretation of the 1972 Nixon campaign:

A party could find itself trading off its long-term positive image and its committed adherents for an ephemeral and certain vote gain. . . . Richard Nixon's 1972 presidential campaign is perhaps a case in point. [Perhaps] the PBC chickens eventually came home to roost . . . for Nixon's Republican Party in 1974.⁴¹

This example suggests a different kind of political cycle depending upon the strength of loyalty of incumbents or candidates to their party.

A final difficulty with ideological models is the identification problem that arises in empirical studies: how do you tell the dancer from the dance? More precisely, the opportunistic model predicts changes in economic variables within a given electoral period, whereas the ideological model predicts changes conditional on regime changes. But it is exactly in cases where parties are ideological—that is, where voters know with confidence what parties stand for—that the regime change is likely to reflect a change in voter priorities and that the parties may be a handmaiden rather than a master of political change.

This observation may help explain why Republican presidents often begin their tenure with a recession while Democrats start by expanding the economy. To illustrate, consider the ideological model in which party *L* has low inflation aversion while party *C* has high inflation aversion, and further assume that there are random exogenous shocks to inflation or unemployment. A large contractionary shock will lead to the election of party *L*, which will lower unemployment; a large inflationary shock will lead to the election of party *C*, which will contract the economy. In fact, the same pattern of policy response would occur even if the parties had identical preferences and were nonideological. The major difference introduced by ideology is that parties specialize in different policies. Just as you go to dentists to get your teeth drilled, you go to conservatives to root out inflation. The pattern will follow the predictions of the ideological model even though the causal mechanism is external shocks.

41. Fiorina (1981, p. 99).

Do Political Cycles Exist?

Having reviewed the major controversies, I conclude with the central question. Do political business cycles exist, or are they but a statistical illusion like the decolletages or head-and-shoulders that chartists see in the stock market? In this section I review the evidence on fiscal policy, monetary policy, and the behavior of economic aggregates.

Fiscal Policy

Because fiscal policy is under political control and directly affects voter well-being, the setting of fiscal policy is the first place to look for telltale signs of political behavior.

Although the U.S. record has been surveyed in a number of studies and memoirs, only one indelible mark of a political business cycle has been found—the 1972 election.⁴² Herbert Stein, chairman of Nixon’s Council of Economic Advisers during the reelection campaign, wrote that economic policy during this period, and particularly the price-wage controls, were adopted because the administration felt it “could not enter the active period of the 1972 election with an economic policy that was not working and that did not utilize all measures that might make it work.”⁴³ Edward Tufte presents a long catalogue of measures taken by the Nixon administration to enhance its election prospects.⁴⁴

By contrast, the 1960 and 1980 elections were marked by presidential decisions to ignore the political business cycle and refrain from economic stimulation. Eisenhower was informed that a downturn just before the election was possible, but he was reluctant to act unless a major recession was threatening. Nixon later attributed his 1960 defeat in part to the weak economic performance (and studies of Ray Fair and others tend to corroborate his view).⁴⁵ During 1980, faced with double-digit inflation

42. Particularly useful are Stein (1978 and 1984); Tufte (1978); and Okun (1970). One missing element is a careful review of the 1984 reelection campaign.

43. Stein (1978, p. 156).

44. A not-so-subtle example came with the social security benefit checks of October 1972. These arrived shortly before election day with a note announcing a 20 percent benefit increase that was “signed into law by President Richard Nixon.” Tufte (1978, p. 32).

45. Fair (1978).

and the widespread perception that inflation was the nation's premier economic problem, Carter chose a stance of fiscal and monetary restraint along with an incomes policy. Ironically, Carter's self-denial was doubly beneficial to Reagan: the 1980 Reagan victory was produced by the high misery index in 1980, while Carter's austerity program reduced inflation and set the stage for the rapid expansion that guaranteed the Reagan reelection in 1984.

Other elections pose greater ambiguities. In 1964 and 1984, incumbents enjoyed rapid, noninflationary growth. In neither case, however, is there solid evidence that economic policy was consciously designed to produce a politically advantageous growth path. On the other hand, the Johnson and Reagan administrations were surely aware of the political perils of recession and were delighted to ride the election-year boom.

To go beyond the selective memory of memoirs, I present some formal evidence on the cyclical pattern of both taxes and transfers. According to the opportunistic PBC, taxes should be raised at the beginning of the electoral period, while benefits should be raised close to election day. The movement of the social security tax rate during the 1960s and 1970s does closely conform to this prediction. During 1965–77 taxes were increased in the year after elections for four straight biennial elections and were not increased in the year before elections for four straight elections. This pattern, it should be noted, occurred primarily during the Nixon years.

A test of the role of systematic political factors in transfer payments for both the opportunistic and ideological models is provided in table 6. For the estimates reported in this table, I have constructed a series on the growth of inflation-corrected federal personal transfer payments. I then estimate the impact of an ideological variable (going from 0 for conservative to 1 for liberal administrations) along with an electoral cycle variable (that takes the value of -1 after elections and 1 before elections).

The results indicate that both variables have the correct sign but explain only a small fraction of the movement in transfers. In addition, the results are sensitive to the sample period: if the Nixon years are excluded, the ideological variable changes little but the opportunistic variable drops markedly. Although the opportunistic variable is more significant than the ideological variable, both variables make but a small contribution to explaining the growth of transfer payments.

Monetary Policy

Another interesting set of studies investigates the behavior of the Federal Reserve. Although nominally independent, the Federal Reserve can be induced to accede to executive branch policies directly by appointments and indirectly by political persuasion. A recent study of monetary policy by Donald Kettl finds that, notwithstanding its vaunted independence, the Federal Reserve has conformed to a considerable degree to presidential policy. His account of the postwar history finds one election (1972) in which the Federal Reserve succumbed to political pressure for an easy monetary policy, but it also finds at least two elections (1956 and 1980) in which the Federal Reserve incurred the displeasure of incumbent presidents.⁴⁶

Studies by Nathaniel Beck and by Henry Chappell and William Keech find little evidence that the Federal Reserve helped reelect the incumbents but substantial evidence of “bending with the political winds,” that is, of adopting the economic goals of the incumbent president.⁴⁷ A contrary finding is that of Kevin Grier, who finds evidence of a four-year electoral cycle having an influence on monetary policy.⁴⁸

An alternative approach to investigating the role of monetary policy over the electoral cycle is to examine changes in the Federal Reserve discount rate, a highly visible and direct policy instrument. Changes in the discount rate often assume a symbolic role, as in December 1965 or October 1979, when the Federal Reserve changed the discount rate to signal a sharp change in policy.

To search for political influences, I divided the electoral cycle from 1946 through 1988 into five periods: the month after the election, the next 41 months, and three subperiods in the six months before the presidential election. According to table 7, which charts the changes in the discount rate during this period, there does not appear to be an *active* election bias of the Federal Reserve in favor of either incumbents or a particular party. The number of discount rate increases and decreases before or after elections is roughly equal. The hypothesis of incumbent or party bias on the part of the Federal Reserve in changing the discount rate can be rejected.

46. See Kettl (1986, pp. 121–29).

47. Beck (1984); Chappell and Keech (1988).

48. Grier (1987).

Table 7. Monetary Policy and the Electoral Cycle^a

Electoral period	Discount rate changes													
	Month after election		Next 41 months				Months before election				Month before election			
	Increase	Decrease	Increase	Decrease	Increase	Decrease	Increase	Decrease	Increase	Decrease	Increase	Decrease	Increase	Decrease
Roosevelt IV-Truman I	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Truman II	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Eisenhower I	0	0	6	2	0	0	1	0	0	0	0	0	0	0
Eisenhower II	0	0	6	3	0	1	0	0	1	0	0	0	0	0
Kennedy-Johnson I	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Johnson II	1	0	4	1	0	0	0	0	0	0	1	0	0	0
Nixon I	0	0	3	7	0	0	0	0	0	0	0	0	0	0
Nixon II-Ford	0	0	8	6	0	0	0	0	0	0	0	0	0	0
Carter	0	1	14	0	0	3	1	0	0	0	0	0	0	0
Reagan I	1	0	3	9	0	0	0	0	0	0	0	0	0	0
Reagan II	0	1	1	6	0	0	1	0	0	1	0	0	0	0
Total changes	2	2	48	34	0	4	4	4	2	4	2	0	0	0

Source: Federal Reserve *Bulletin*, various issues.

a. Data refer to changes in the discount rate of the Federal Reserve Bank of New York.

On the other hand, these data clearly demonstrate a foxhole mentality: the Federal Reserve keeps its head down near election day. A review of the record finds the astounding fact that, since the Federal Reserve opened its doors in 1914, the discount rate has never been changed in the month before a presidential election. The data clearly indicate a tendency to postpone discount rate changes—both up and down—until after the election. A formal analysis-of-variance test of the probability that no changes in the discount rate occur the month before the presidential election and that at least four occur the month after, assuming that the probability of a change is binomial and equal in every month, indicates that the threshold probability of such a pattern is only 7 percent.

To sum up, there is little evidence that the Federal Reserve supports the electoral prospects of incumbents, although it tends to move in the general direction of presidential policy. It also tends to keep out of the cross fire when presidential campaigns are being waged.

Behavior of Aggregates

The real proof of the pudding is in relating ultimate macroeconomic variables like output, inflation, and unemployment to political behavior.

A simple modification of a test originally proposed by McCallum fits the unemployment rate to both opportunistic and ideological variables and allows for inflation shocks. This equation includes a variable for a president's ideology (*Liblab*), ranging from 0 for most conservative to 1 for most liberal.⁴⁹ In addition, it includes an opportunistic variable (*Elcyc*) that is explained in table 6. Finally, to incorporate the impact of inflation shocks, linear and quadratic terms in the rate of inflation of the GNP deflator (π) are added. The estimated equation, including an autoregressive error, $\rho(1)$, is

$$[U_t - U_t^*] = \text{constant} + 0.44 \text{Elcyc} - 0.30 \text{Liblab} \quad (2.0) \quad (0.8)$$

$$+ 0.87 \pi_{t-1} + 0.10 \pi_{t-1}^2 + 0.88 \rho(1), \quad (2.7) \quad (3.8)$$

$$R^2 = 0.94; \text{SEE} = 0.35,$$

49. The ideological variable is described in table 6.

with t -statistics in parentheses. The opportunistic variable is both larger and more significant than the ideological variable, and inflation is extremely important. Figure 12 shows the forecast and actual value for unemployment for the equation without the autoregressive error over the period 1954–88. The predicted series tracks the actual rate reasonably well and captures all the major turning points. According to this equation, major forecast errors occur in 1982, when the Volcker-Reagan recession was deeper than the theory predicted, and in 1967–68, when a forecast cycle did not occur. But for the rest of the period, the model performs remarkably well.

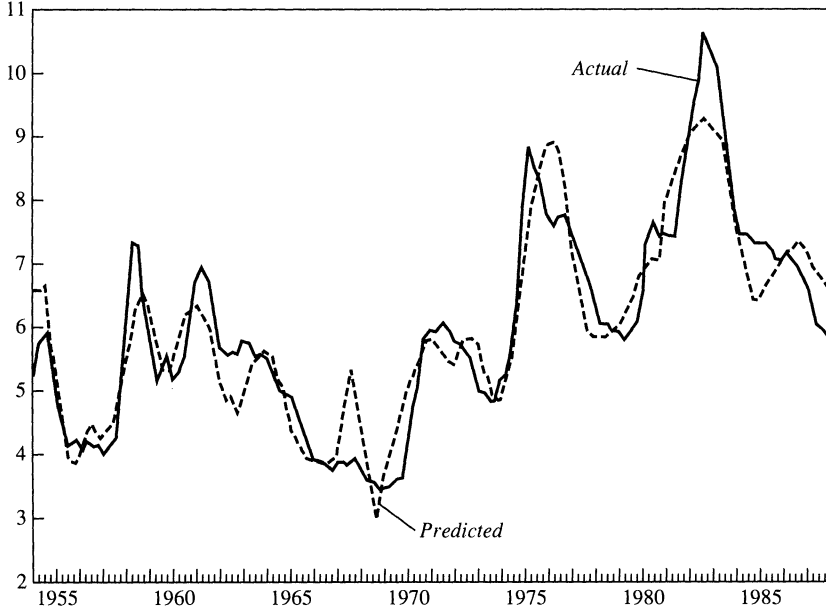
A Self-Correcting Mechanism?

A review of the evidence finds a rich array of possible linkages between macroeconomics and politics and a wide variety of cycles in different times and places. Depending upon the country, the period of time, and the analyst, virtually every PBC species described in table 1 appears to have been identified.

On reflection, it is not surprising to see a variety of cycles. Politics, after all, is constantly evolving. An obviously manipulative economic policy, for example, will elicit political reforms that ultimately control it. In reaction to the manipulative 1972 Nixon reelection campaign, Congress took steps to impede future attempts to manipulate the economy for partisan purposes. The 1974 Budget Act imposed a rigid timetable on fiscal policy, established the Congressional Budget Office to provide independent economic advice, and removed executive authority to rescind or impound appropriations. Similarly, in the wake of criticism of the Federal Reserve's expansionary policies in 1972, Congress pulled the Federal Reserve closer to the legislative orbit by requiring regular reporting and setting of monetary targets in 1975 and by establishing a framework for monetary policy in the Humphrey-Hawkins Act of 1977. Similarly, reforms of the social security system incorporated automatic cost-of-living escalation in 1972 so as to remove the necessity for periodic benefit adjustment. Finally, presidential authority to impose wage-and-price controls, which had allowed the Nixon administration to slow inflation without a recession in 1971, lapsed, and Congress refused to renew it in 1977. By the end of the 1970s, then, it would prove difficult for an administration to undertake wholesale manipulation of economic policy like that of the early 1970s.

Figure 12. Actual and Predicted Unemployment Rate for Combined Opportunistic-Ideological Model, 1954–88^a

Unemployment rate



a. Predicted uses ideological variable, opportunistic variable, lagged inflation, and inflation squared (see text).

The lesson to be drawn from this history is not that the political business cycle is dead—any more than the business cycle itself is dead. The primordial political forces that originally produced political cycles are as vigorous as ever. Hence, like any evolving creature, the political business cycle is likely to emerge in the future in unexpected shapes and with unanticipated dynamics.

Comments and Discussion

Alberto Alesina: The goal of William Nordhaus's paper is twofold: first, to review some of the existing theoretical models of political business cycles and propose ways of integrating some of them, and, second, to review the available empirical evidence and perform several new tests to evaluate these different models empirically.

Nordhaus emphasizes that no simple monocausal model can capture the complex reality of political business cycles, and I completely agree. However, it is fair to say that the paper pushes two main conclusions: voters are not rational and should not be modeled as such, and partisan effects are of secondary importance relative to opportunistic behavior.

These two elements, naive voters and the opportunistic behavior of parties, are the basic ingredients of Nordhaus's groundbreaking piece in 1975. I would like to offer a different perspective. In particular I would argue that, for both theoretical and empirical reasons, models based on the notion of rationality should not be dismissed. I also disagree with the emphasis put on opportunistic behavior relative to partisan behavior, and I would suggest a different way to integrate the two. I shall try to summarize my argument in four points.

First, Nordhaus makes a distinction between models with *ultrarational* voters and those with *subrational* voters. Ultrarational voters not only are rational in the usual sense of the word as used by economists, but have the same information as the parties; thus, in particular, they know as much as the parties do about the parties' preferences and about the state of the economy. *Subrational* voters are all the rest. A much more illuminating distinction would be between voters' *rationality*, possibly without full information, and *subrationality*. Voters are likely to be misinformed and may have little incentive to gather information,

but that does not mean that they do not act rationally based upon the information they have. In other words, voters are probably not ultrarational as defined in this paper. But an important question is the following: should we model them as rational but not perfectly informed agents or as naive agents, acting according to simple rules of thumb, who can be easily manipulated by politicians? Since the paper does not focus on this distinction, it does not answer this question.

In fact, some interesting theoretical developments in this area have been based precisely upon this assumption of rational but imperfectly informed voters. These models not only are interesting theoretically but, as I will argue later, have had some success empirically. In fact, the literature on “rational political economics” has flourished in recent years. I would have devoted more space in this paper to an assessment of its contributions.

My second point is that two rational business cycle models have been recently proposed, one with opportunistic parties, the other with partisan parties. The former, developed by Kenneth Rogoff and Anne Sibert, is based on the assumption that voters are imperfectly informed about the competence of politicians.¹ In trying to look as competent as possible, politicians engage in activities that resemble some of the predictions of the original Nordhaus model. However, there are some interesting differences: in Rogoff and Sibert’s model, political business cycles should be much more short-lived than in Nordhaus’s model; they should be concentrated on certain policy instruments such as transfers, taxes, or monetary policy, but not necessarily appear in four-year unemployment or GNP cycles. Rogoff’s political business cycles are *not* supposed to occur in every election, while the model with nonrational voters predicts much more regular four-year cycles on inflation and unemployment and a much more regular and evident manipulation of policy instruments.

For the case of partisan parties I have proposed a model based upon the Fischer wage contracting model.² In this model voters and economic agents are rational except that they do not have enough information to predict with certainty the electoral outcome. The uncertainty about future partisan policies generates expectation uncertainty about eco-

1. See Rogoff (1987); Rogoff and Sibert (1988).

2. Alesina (1987).

nommic variables that can generate business fluctuations. The difference between this model and the partisan model by Hibbs that is reviewed in Nordhaus's paper is that partisan effects on real variables are short-lived and that they disappear once expectations adjust to a new policy regime. This model thus implies transitory partisan effects.

As I have argued at length elsewhere, these models have enjoyed considerably more empirical success than their predecessors.³

Third, Nordhaus presents convincing evidence to show that voters are not ultrarational. I readily agree. But, again, they may not be so naive and easily manipulated. On the contrary, in the aggregate they may be voting as rationally as they can, given the information that is available. I do not think that the evidence presented sheds light on this question.

For instance, the first piece of evidence is that voters are retrospective in their evaluation of the incumbent: that is, they judge how well the incumbent is doing based upon the current and lagged performance of the economy. This behavior can be easily predicted in a model with rational but imperfectly informed voters. Several models with this implication have in fact been recently developed.⁴

Second, Nordhaus argues that the existence of a honeymoon effect is inconsistent with ultrarationality. This is not necessarily so. Consider a model with unknown and stochastic "competence" along the lines of those proposed by Rogoff and Sibert. In that model voters choose what they think (with limited information) is the most competent candidate. At the time of the election they think that they have made the best rational choice. Afterwards the "true" level of competency is learned.

More generally, I think that it is very difficult to answer directly the question of whether voters are plain naive or just imperfectly informed. Perhaps a more constructive way to address this question is to look at whether rational models are a better guide to interpret the empirical evidence than the nonrational models. This leads me to the fourth and last point, the empirical evidence on political business cycles.

The original political business cycle model of Nordhaus and followers has implications for both policy instruments (monetary and fiscal policy) and outcomes (output and unemployment).

3. Alesina (1988).

4. For instance, Cukiermann and Meltzer (1986); Alesina and Cukiermann (1987); Rogoff and Sibert (1988).

In the paper, Nordhaus, in accordance with the literature, finds some evidence of electoral manipulation of monetary and fiscal policy instruments. I consider this evidence quite suggestive and interesting. It implies that this kind of manipulation occurs occasionally, but not always, and that it is not often easy to pin down. There exist some obvious cases of manipulation, such as the 1972 election and perhaps a few others, but in general the significance of the statistical results in the literature depends upon the sample period, even though clearly something is there in one form or another. Perhaps the evidence on transfers and taxes is the strongest.

My question is then the following: if voters are so naive and the parties are so opportunistic, shouldn't we observe a much more pronounced electoral manipulation of policy instruments, particularly of those under the direct control of the incumbent? I think that the answer is that if the manipulation became excessive, the *New York Times* would start writing about it and that it would become counterproductive for the incumbent. Also, the opposition party might use all its available means of propaganda to damage the image of the incumbent. There is a limit to what can be done. In any case, these are exactly the basic arguments underlying the rational models, which in fact would predict more limited and less regular manipulation of policy instruments.

A further implication of the rational approach to macropolitical economics is that the relationship between policy instruments and outcomes is not as predictable and close as in the prerational literature based on a fully exploitable Phillips curve. My view of the literature on the subject is that the evidence of an opportunistic cycle on output and unemployment is very weak for both the United States and OECD democracies. Rejections of the opportunistic business cycle model are presented not only in the work of mine to which Nordhaus refers, but also in work by Hibbs, McCallum, and Golden and Poterba for the United States and Paldam for OECD democracies.⁵ On the contrary, the evidence of partisan behavior is much more encouraging for the theory.

Consider table 1. All the postwar Republican administrations, with the exception of the second Reagan administration, started with a recession. The average rate of growth in the first half of Republican administrations (1.4 percent) has been much lower than the sample

5. See Hibbs (1987); McCallum (1978); Golden and Poterba (1980); Paldam (1978).

Table 1. Rate of Growth of Real GNP
Percent

Administration	Year			
	First	Second	Third	Fourth
<i>Democrats</i>				
Truman	0.0	8.5	10.3	3.9
Kennedy/Johnson	2.6	5.3	4.1	5.3
Johnson	5.8	5.8	2.9	4.1
Carter	4.7	5.3	2.5	-0.2 ^a
Average	3.3	6.2	5.0	3.3
<i>Republicans</i>				
Eisenhower I	4.0	-1.3	5.6	2.1
Eisenhower II	1.7	-0.8	5.8	2.2
Nixon	2.4	-0.3	2.8	5.0
Nixon/Ford	5.2	-0.5	-1.3 ^a	4.9
Reagan I	1.9	-2.5	3.6	6.4
Reagan II	3.4	2.8	3.4	4.6
Average	3.1	-0.4	3.3	4.2

Source: *Economic Report of the President, 1989*, and *Survey of Current Business*, November 1989, table 1-6.
a. Oil shocks.

average. The second halves of Republican and Democratic administrations (3.7 percent and 4.1 percent, respectively) have been quite similar and close to average while the first halves of the few Democratic administrations (4.8 percent) exhibit a rate of growth higher than average. There are three ways of looking at this table. One is to say that the economic cycle has nothing to do with elections. The second is that the opportunistic cycle is the most important mechanism at work but it appears to be working only with Republic administrations. The third is that there are systematic partisan effects, but that they are concentrated at the beginning of new administrations and they disappear because of a short-run Phillips curve. I have argued elsewhere in favor of the third hypothesis.⁶ Let us now consider unemployment. Nordhaus refers to a paper by McCallum in which he runs regressions like the following one on quarterly data (sample: 1969:1-1987:4):

$$\hat{u}_t = 0.04 + 1.71 \hat{u}_{t-1} - 0.97 \hat{u}_{t-2} + 0.19 \hat{u}_{t-3} \\ (1.17) \quad (21.51) \quad (-6.90) \quad (2.41) \\ - 0.01 Elcyc, \\ (-1.26)$$

$$R^2 = 0.95,$$

6. Alesina (1988).

where \hat{u}_t is the difference between official unemployment and Gordon's natural rate of unemployment. (Obviously McCallum had a different sample since his was a 1978 paper.) *Elcyc* is a dummy capturing the opportunistic cycle: it assumes the value of zero in the first half of each administration and increases linearly in the second halves. Numbers in parentheses are *t*-statistics: the electoral dummy has the correct sign and is borderline significant.

However, suppose that you allow for short-run partisan effects after the election (as implied by a partisan theory with rational expectations) by running the following regressions:

$$\begin{aligned} \hat{u}_t = & 0.00 + 1.63 \hat{u}_{t-1} - 0.88 \hat{u}_{t-2} + 0.20 \hat{u}_{t-3} \\ & (0.07) \quad (20.16) \quad (-6.41) \quad (2.54) \\ & - 0.03 \text{DD1}_{t-1} + 0.06 \text{RR1}_{t-1} - 0.006 \text{Elcyc}, \\ & (-1.27) \quad (2.35) \quad (-0.44) \\ & R^2 = 0.97. \end{aligned}$$

The dummies DD1 and RR1 assume values different from zero only in the first half of Democratic and Republican administrations; they capture the idea of a "partisan shock" starting one quarter after an election.⁷ Temporary partisan effects are fairly significant, while the opportunistic dummy is insignificant.

If one considers only the U.S. evidence, the degrees of freedom are very scarce. Evidence from other countries, however, verifies that the pattern displayed in the table is not the exception but, if anything, the rule: these short-run partisan effects are not uncommon. Three recent papers have made this point, using different techniques and data sets.⁸

This international evidence shows, I believe, that one of the most common patterns of politico-economic cycles is as follows. When conservative governments are elected, they tend to take care of inflation, particularly if they have inherited a high inflation rate. After an early recession or slowdown, the economy recovers, often with a relatively low inflation. In accordance with the opportunistic model, these governments do not do anything before the next election to "rock the boat." When left-wing governments are elected, they try to expand because they care more about unemployment, and this is their mandate from the electorate. They succeed for some time in promoting higher than average

7. These dummies are the same ones I used in Alesina (1988).

8. Alt (1985); Paldam (1989); Alesina (1989).

growth. Then they often run into an inflation problem and face a Phillips curve becoming steeper and steeper because expectations adjust. As the next election approaches, the economy is returning to some kind of average growth, and inflation is relatively high. At this point, in order to please the electorate and be reelected, left-wing governments may have to fight inflation, which has become the number one cause of concern. Opportunistic behavior for left-wing governments may actually be the opposite of that prescribed by the traditional model. Examples of this kind of behavior of the left include the Carter administration, the first government under the French socialists (1981–86), and the German social democrats in the late seventies and early eighties. The most obvious examples on the right are the first administration of President Reagan and the first government of Mrs. Thatcher.

In summary, I believe that the empirical evidence on the politico-economic cycle broadly viewed suggests two conclusions. The first is that temporary partisan effects on output and unemployment are more common than the opportunistic cycle allows. Second, opportunistic manipulation of policy instruments is sometimes but not always observed. Both these observations are consistent with the implication of recent rational politico-economic models.

In any case, despite these disagreements on some aspects of the paper, I greatly enjoyed it and completely agree with its premise that political cycles of various kinds exist and are here to stay. I am very pleased that William Nordhaus has chosen to return to a field that he opened fifteen years ago.

Charles L. Schultze: I liked this paper. I think its particular strength lies in the way Nordhaus combines ideological and opportunistic behavior of the two political parties. Nordhaus identifies and nicely models *two* different ways in which parties or candidates may modify ideological preferences to fit voter preferences. First, his equations allow some weight for the traditional role of sheer opportunism—the desire to wield power. But, second, since parties have to gain power to see their goals realized, even the purely ideological aspects of their welfare maximizing are contaminated with calculations of voter preference. Nordhaus also provides us, in his table 1, with a highly useful taxonomy to help sort out and understand the relevant components of alternative models of political

business cycles. And, finally, I thought he did a convincing job in disposing of the notion that voters are ultrarational.

I want to do several things in this comment. First, to add a few more pounds of empirical flesh to the body of the Nordhaus paper. Second, to supplement Nordhaus's two components of party behavior—ideology and opportunism—with a third component—namely, systematic differences in the economic models used by the two parties.

Let me start with the data in my own table 1, which has some similarity to Alberto Alesina's table. On the surface, at least, table 1 provides striking evidence for the influence of both political ideology and opportunism in the business cycle.

The first column shows the change in the GNP gap—the gap between actual GNP and potential GNP—in the first eight quarters of every presidential term since 1948. The first two years of the first term of Republican administrations are always accompanied by large reductions in GNP relative to its potential. And in two out of three cases, the first two years of the *second* term of Republican administrations have the same characteristic. (The first two years of Reagan's second term provide the only exception.)

In the first two years of every term of a Democratic administration (whether first or second), the reverse occurs; GNP expands sharply relative to potential. Parties thus appear to be highly ideological in their first two years in office. This insight, of course, is not new and was, for example, a central feature of the recent Alesina-Sachs model of the political business cycle.

The fifth column shows the behavior of the GNP gap in the second eight quarters of presidential terms. The last two years of *both* terms of administrations of *both* political parties are usually characterized either by strong economic expansion or, in the case of Kennedy-Johnson, 1966–68, by the maintenance of an already high level of activity. There are three exceptions. In the second two years of Eisenhower's second term the GNP gap, already negative, fell further (the aborted recovery of 1959). This observation is the real outlier. The last two years of Nixon-Ford, 1974–76, and Carter, 1978–79, in which the GNP gap declined, can be explained by the effects of the two oil shocks. There is, then, only one real anomaly, the last two years of Eisenhower's second term.

In short, with one major exception, and subject to the effect of exogenous shocks, during the two years before elections the economy

Table 1. Background Data on the Political Cycle^a
Percent except where noted

Administration	First two years of term				Second two years of term			
	Initial conditions				Initial conditions			
	Change in GNP gap ^b	GNP gap ^c	Inflation rate ^d	Prior acceleration of inflation ^e	Change in GNP gap ^b	GNP gap ^c	Inflation rate ^d	Prior acceleration of inflation ^e
Eisenhower I	-6.3	4.7	4.8	4.0	2.3	-1.5	1.5	2.3
Eisenhower II	-2.2	0.7	4.3	2.1	-2.4	-1.5	2.0	-0.8
Nixon	-5.7	4.2	5.4	1.4	4.0	-1.5	3.9	-1.8
Nixon/Ford	-6.0	2.5	5.3	0.2	0.2	-3.4	12.8	3.7
Reagan I	-5.6	-3.6	10.7	2.3	5.4	-9.2	4.7	-3.9
Reagan II	0.2	-3.8	3.2	-0.9	2.6	-3.6	3.4	0.5
				<i>Republicans</i>				
Truman II	2.1	0.7	2.6	-6.8	2.0	2.7	7.8	7.8
Kennedy/Johnson	2.0	-3.9	0.6	-0.7	2.1	-1.9	2.5	1.2
Johnson	4.2	0.3	1.8	-0.3	-0.3	4.5	4.1	1.1
Carter	4.6	-3.2	6.5	-1.9	-5.0	1.4	8.0	1.9
				<i>Democrats</i>				

Sources: GNP gap calculation based on Congressional Budget Office adaptation of Robert Gordon's measure of potential GNP, extrapolated back to 1948 from Clark (1979), and interpolated quarterly by the author. GNP price deflator from Department of Commerce.

a. Cycle is two-year period beginning 1948:4, 1950:4, and so forth.

b. Shows the percentage point movement of the gap toward a positive or negative gap. Period measures the initial gap of a given two-year period to the initial gap of the following two-year period.

c. The difference of actual real GNP and potential GNP, expressed as a percent of potential GNP.

d. Measures the percent change in the initial GNP price deflator from the deflator two quarters earlier.

e. Measures the percent change in initial inflation (as defined above) from inflation four quarters earlier.

behaved in a way that was consistent with opportunistic behavior by the parties, acting on the assumption that voters care mainly about recent events.

Things are, in fact, not that simple. Look closely at the initial conditions facing each new administration in its first term—the second, third, and fourth columns of the table. Every new Republican administration entered office following a recent acceleration of inflation, and, with one exception, in an economy operating above its potential. (The exception was Reagan's first term, in 1981; but even though GNP was then well below potential, inflation was running at 11 percent and had been accelerating sharply.) However opportunistic they might be, Democratic administrations had, by the end of their second terms, pushed the economy well into the accelerating inflation zone, which not only hurt them politically but put their Republican successors in the catbird seat in terms of having a good reason to pursue the Republican ideological preference for suppressing inflation: there was, in fact, a substantial inflation to suppress.¹

All incoming Democratic administrations faced the opposite problem; they inherited an economy operating well below potential, with high unemployment and an inflation rate that had recently been decelerating. Their Republican predecessors had, by the end of their second terms, left the economy with substantial unemployment, probably well above their own ideological preferences, even before adjusting for election-year opportunism. The only exception was at the end of Ronald Reagan's second term, by which time traditional Republican ideology had been replaced by Reaganomics.

In Nordhaus's model it is hard to explain these results. It is possible, as I noted, to explain the deterioration of GNP in the pre-election period under Nixon-Ford in 1976 and Carter in 1980 by the oil shocks. But otherwise it is not possible to explain the electorally unfavorable state of the economy at the end of each party's eight-year tenure—high inflation with Democrats, high unemployment with the Republicans—by exogenous shocks. Even parties that were highly ideological, giving

1. The inflation measure is the GNP deflator. In the last year of the Truman administration the GNP deflator accelerated sharply, as shown in the table. But this may reflect a measurement problem since the CPI did not accelerate significantly. On the other hand, the GNP gap was sharply positive.

little weight to raw opportunism, would presumably have relaxed their ideological goals as the election approached in order to stay in power and pursue their ideological preferences in subsequent years.

These results can, I think, be explained by adding to Nordhaus's elements of ideology and opportunism a third element that plays a very large role in economic policymaking, but that is usually absent from economists' modeling of political and policy games. Adherents of the two macroeconomic "ideologies" seem to believe in two different models of the economy, each of which minimizes the economic costs of achieving their own particular preferences, for low unemployment in one case and low inflation in the other. Hence, both parties when in power are subject to making systematic "mistakes."

Most economic studies of political and economic games assume that the actors all share a common economic model and differ only in their preference functions. But for a long time I have been struck by how much debate about macroeconomic policy tends to revolve around differences in models rather than overt differences in preferences. James Tobin and Henry Wallich not only had different objective functions in unemployment and inflation space, but also had different coefficients in their augmented Phillips curves. And in the world of political discourse and policymaking, differences in ideological preferences and economic models get all mixed up together. In the postwar period, most liberal politicians have not only been expansionists, they have also believed in a benign Phillips curve with a relatively shallow slope and a very slow or perhaps nonexistent shift toward the vertical. Conservatives (of the pre-Reagan-Kemp stripe) have tended to believe in just the opposite: a steep short-run slope to the Phillips curve and a relatively quick shift to the vertical. The politicians of each party more than half-convinced themselves that they could have their cake and eat it too. And so, each party, when in power, started out by assuming it would not have to give up much by way of worse unemployment or inflation to get better inflation or unemployment. Some learning occurred while in power, but once out of power the earlier reliance on the preferred Phillips curve, pandering to ideological preferences, reasserted itself. It is because their models were excessively optimistic that parties in power often pursued policies that opportunism, combined with a "true" understanding of the trade-offs, would have counseled them to moderate. A major part of the story of the PBC thus lies in "mistakes."

Table 2. Explanatory Elements in the Political Business Cycle^a

<i>Independent variable</i>	<i>Equation 1 coefficient</i>	<i>Equation 2 coefficient</i>
Dummy Rfirst ^b	-2.4 (-1.8)	-1.8 (-1.6)
Dummy Dfirst ^b	3.4 (2.5)	3.7 (3.2)
Dummy last ^c	1.9 (1.7)	2.9 (2.9)
Dummy oil ^d	-3.3 (-1.9)	-3.5 (-2.4)
Dummy Eisen 2/2 ^e	. . .	-5.2 (-2.7)
Gap ₋₁ ^f	-0.3 (-2.2)	-0.3 (-2.7)
DPGNP ₋₁ ^g	-0.2 (-1.1)	-0.3 (-1.9)
<i>Summary statistic</i>		
\bar{R}^2	0.70	0.80
Standard error	2.2	1.8

a. Dependent variable is the two-year percentage point change in GNP gap beginning in the fourth quarter of each even-numbered year. Numbers in parentheses are *t*-statistics.

b. Represents the first two years of Republican and Democratic administrations, respectively.

c. A constant representing the expansionary policy of the last two years of an administration, typically followed by Republicans and Democrats alike.

d. Represents the oil shocks in 1973-74 and 1979-80.

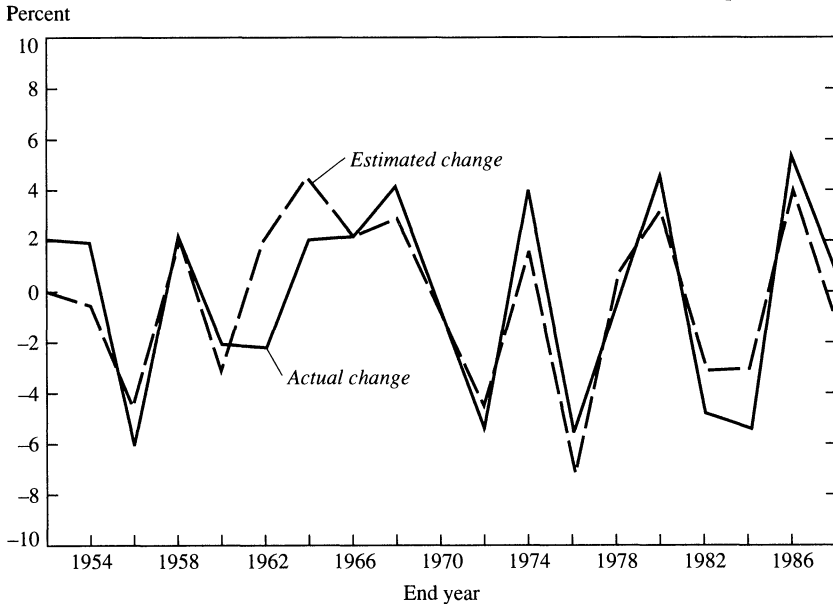
e. Represents the last two years of Eisenhower's second term in office.

f. Level of GNP gap at end of prior period.

g. Two-quarter annual rate of inflation at end of prior period.

Table 2 and figure 1 represent an effort to show how potent are the combined forces of ideology, opportunism, and initial conditions in explaining two-year swings in GNP over the past 40 years.

The dependent variable in the equation in table 2 is the change in the GNP gap over two-year intervals starting in the fourth quarter of every even-numbered year: each presidential term contains two observations. The equation reported in the table has some similarity with several of the equations reported in the recent Alesina-Sachs article, but there are some important differences. The first difference is that, for a given set of initial conditions, Republican administrations in the first two years of their term pursued restrictive economic policies (the dummy variable for Republican first terms, *Rfirst*, has a negative coefficient), while Democrats pursued expansionary policies (the dummy for Democrats, *Dfirst*, is positive). Second, contrary to Alesina's findings, both parties

Figure 1. Election Cycles: Actual and Estimated Two-Year Change in GNP Gap

Source: Potential GNP based on author's calculations using data from Congressional Budget Office for 1956–88 and Clark (1979).

tended to pursue expansionary policies in their last two years; the constant in the equation (which I call *Dummy last*) has a positive coefficient. Third, the two oil shocks in 1973–74 and 1979–80 directly and indirectly exerted strong negative effects; the coefficient on the oil dummy is strongly negative.

Initial conditions are specified as the level of the GNP gap and the two-quarter inflation rate at the end of the prior period. The lower the level of GNP relative to potential and the lower the inflation rate, the larger the subsequent growth of GNP, regardless of party. But, as indicated by the coefficients on the *political* dummies, initial conditions and oil shocks are not alone sufficient to explain subsequent movements—party ideology and opportunism both play roles.

As noted earlier, the last two years of Eisenhower's second term present a distinct anomaly. When this particular period is excluded, as it is in equation 2, the size and significance of the opportunism dummy, *Dummy last*, increases substantially, and the equation generally improves greatly.

This brings me to my final comment. Evidence from economic outcomes does appear to support the hypothesis of a political business cycle responding to an interaction of the three elements of ideology, opportunism, and excessively optimistic economic models. And yet it is hard to identify a correspondingly strong political timetable in the instruments of monetary and fiscal policy that would presumably have to be used to implement ideological and opportunistic political goals. Before 1979 the Federal Reserve tended to accommodate the proclivities of the administration, always reserving the right to lean just a bit against the wind. But Nordhaus shows that the timing of discount rate changes does not fit a political model, except that the Federal Reserve kept its head down in the month before elections. And not because I am enamored of its usefulness, but in lieu of anything better, I played with entering the real money supply growth with varying lags in my equation and got nowhere. Similarly an informal but careful inspection of the data led me to conclude that changes in the high-employment federal budget deficit do not fit easily into what would be predicted from the business cycle. And aside from the timing of social security tax changes—which in any event were not manipulated for macroeconomic reasons—Nordhaus's own empirical efforts and his survey of the literature show little evidence of a systematic political component in fiscal policy. There is a puzzle: data on outcomes show a strong political component; data on policy inputs do not.

If I had more time, I would argue that the combination of Reaganomics and the acquisition by the Volcker Federal Reserve of much greater political independence may have broken the postwar mold of political business cycles. The political cycle is not what it used to be. But I do not have that time.

General Discussion

Daniel Mitchell recommended including additional features of voter behavior in economic models of the political business cycle. One is that voters act to insure themselves when they split tickets and elect, for example, a Republican president and a Democratic Congress, as they did in the last election. Another is the high and growing rate of abstention from voting, which is probably a rational realization that one vote among

the millions does not matter. William Poole observed that another complication for economic modeling of the political business cycle arises in countries with a parliamentary system in which the prime minister can choose when to call the election.

Christopher Sims thought it important to explain how there can be large aggregate demand effects at the start of a presidential administration despite the apparent absence of systematic movements in the use of the direct tools of aggregate demand policy. He suggested that a party's ideology might lead it to undertake certain microeconomic actions that redistribute income and that have temporary macroeconomic side effects. Charles Holt noted that the relationship between a party's ideology and its actions may be complex, reflecting competing concerns. He mentioned Stephen Magee's finding that periods during which there are many Republicans in the House of Representatives coincide with enactment of restrictive trade legislation, in apparent contradiction to the Republican free-trade ideology. However, the Republican party is also committed to anti-inflationary policies that generate unemployment. The trade restrictions can thus be seen as a politically necessary attempt to avoid losing jobs to foreigners at a time when unemployment is already a hot political issue.

There was considerable discussion of the evidence that the economy seems to go into recession during a Republican administration and into a boom during a Democratic administration. Robert Gordon reported that this finding applied only to relatively recent history. Using the NBER chronology to count the 24 administrations elected between 1856 and 1952, he found that a NBER recession began within the first two years in 9 of 14 Republican administrations and in 7 of 10 Democratic administrations, indicating a slightly higher incidence of recessions for the Democrats. William Poole noted that parties' economic policies change over time. The Republicans, for example, were once the party known for imposing fiscal responsibility by raising taxes. Parties also find new ways to take advantage of voters' incomplete information. Nixon's price controls were one such innovation and were politically successful at the time but would not be now. William Nordhaus agreed that party policy changes over time and that it should not be surprising that parties' policies during the nineteenth century differ from their current policies. Steven Durlauf found the statistical evidence for the existence of a PBC unconvincing. Although political variables alone

seem to predict unemployment, when lagged inflation is included in the same equation, the importance of the political variables becomes unclear.

Nordhaus thought that the table in Alesina's discussion posed a puzzle to proponents of ideological parties because the second halves of administrations look much alike. Parties thus seem to act according to ideology at first, but then revert to more opportunistic behavior. Alesina replied that the parties could remain ideological throughout their administrations, while economic performance converged in the second halves because the parties lost their ability to affect output once the private sector adjusted to the ideological regime.

The discussion turned to the mechanism through which the political business cycle operates. Durlauf reported that he has found an eight-year cycle in tax rates, which corresponds roughly to changes in political administrations. Nancy Teeters thought that public expenditure had often been used to promote favorable election results for the incumbent president. Such expenditures should be evident in the budgets of federal agencies such as the Army Corps of Engineers, the Bureau of Reclamation, and the Department of Housing and Urban Development. As to timing, the politically important action is approval of the funding, while the actual expenditure can show up some time after the election.

David Romer objected to the classification of two terms of the same president as two separate observations. Usually, presidents get reelected easily. The recessions that follow Republicans' initial election wins can be explained as the result of their ideological conviction to bring inflation down and keep it down. On this reasoning, it is a puzzle why a Republican president who gets reelected should be expected to create another recession. Mitchell reflected that one implication of PBC theory may be that there should be no limit on the number of terms for which a president may be elected. That a president has to worry about reelection constrains him on how much he can manipulate the economy.

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