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TIMING IS ALL: ELECTIONS AND THE DURATION OF UNITED STATES BUSINESS CYCLES

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ABSTRACT

Political business cycle theories predict that the occurrence and outcome of elections affect the timing of business cycle turning points. Opportunistic political business cycle theory predicts that a contraction is more likely to end soon after an election than at other times. Rational partisan political business cycle theory predicts differences in the likelihood of the end of an expansion after an election depending upon the party of newly-elected president. This paper directly tests the effect of elections on the turning points of the United States business cycle during analysis. The prediction that a contraction is more likely to end in the period before an election than in other periods is not supported by our empirical results. There is significant evidence, however, that an expansion is significantly more likely to end after the election of a Republican president but not after the election of a Democratic president in the post-World War I and post-World War II periods. This is consistent with the predictions of rational partisan political business cycle theory.

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1. Introduction

Theories of political business cycles predict that the quadrennial election cycle in the United States should affect the timing of the peaks and troughs of United States business cycles. Various political business cycles theories have different implications concerning this relationship. The opportunistic political business cycle model (Nordhaus 1975, Lindbeck 1976, Tufte 1978) suggests that presidential incumbents attempt to maximize their likelihood of re-election by engineering an expansion before an election. A further prediction of this theory is that a contractionary policy is implemented soon after an election to reverse the pre-election stimulus. These predictions imply a higher likelihood of a business cycle trough (i.e. the beginning of an expansion) in the period before an election than at other times and a higher likelihood of a business cycle peak (i.e. the end of an expansion) following an election. The alternative set of partisan political business cycle theories focus on the differences in goals across parties. The main conclusion of Hibbs (1977, 1987), which is predicated on the existence of a stable Phillips curve, is that there will be differences in inflation and unemployment rates across the tenure of Republicans and Democrats. The rational partisan theory of Alesina (1987), in which voters have rational expectations but their actions are bound by nominal wage contracts, limits the scope and duration of differences in macroeconomic outcomes across parties. Rational partisan theory predicts that downturns in the business cycle are more likely in the wake of the election of a Republican than after the election of a Democrat.

The predictions of these political business cycle theories correspond to the popular view that in politics timing is all. Previous empirical research on these theories, however,

only addresses the timing issue indirectly by focusing on the amplitude of macroeconomic variables before and after elections or across the tenure of different parties (for example, Alesina and Roubini 1992). In this paper we provide a more direct test of the temporal links between political and economic events. We use duration analysis to test whether the likelihood of the occurrence of a business cycle turning point in the United States (that is, either the end of a contraction or the end of an expansion) is significantly affected by the occurrence and the outcome of an election. Duration analysis is particularly well-suited for analyzing the temporal links between elections and the business cycle since it allows for directly testing the determinants of the length of time spent in macroeconomic expansions (which end with a business cycle peak) or contractions (which end with a business cycle trough).[1]

The main determinants of the timing of peaks and troughs that we consider in this paper are presidential elections. We test whether contractions are more likely to end before an election than at other times and whether expansions are more likely to end after an election than at other times. The prediction from opportunistic political business cycle theory that a contraction is more likely to end in the period before an election than in other periods is not supported by our empirical results for the United States. We do find significant evidence of another prediction of opportunistic political business cycle theory, namely that expansions are more likely to end soon after an election than in other periods. We further examine this latter result by testing whether the party of the newly-elected president affects the likelihood of an expansion ending in the post-election period. We find that an expansion

[1]For an overview of duration analysis see Kieffer (1988) or Lancaster (1990).

is more likely to end in the wake of the election of a Republican president than at other times. There is no evidence that the likelihood of the end of an expansion is significantly different after the election of a Democratic president than at other times. This result is consistent with the predictions of rational partisan theory.

In the next section of the paper we discuss the manner in which we use duration analysis to test for the effect of the United States' quadrennial election cycle on the turning points of its business cycle over the period 1855 to the present as well as for different sub-samples. Results follow in the third section of the paper. Concluding comments are offered in Section 4.

2. Elections and the Duration of Business Cycles

Theories of political business cycles differ in their assumptions across several dimensions.[2] One dimension concerns the nature of the economy itself. For example, the early literature, such as that by Nordhaus (1975), Lindbeck (1976) and Hibbs (1977), assumes that the economy is characterized by a stable inflation-output tradeoff, inflation is directly controlled by policy-makers, and expectations of inflation are adaptive. More recent work reflects the rational expectations critique of these assumptions. The basic assumptions of Persson and Tabellini (1990), Rogoff and Sibert (1988), Rogoff (1990) and Alesina (1987), for example, are that people are forward-looking and make decisions based upon all information available to them at the time. The link between policy and outcomes is more

[2]For a more detailed comparison of different politico-economic theories see Alesina and Roubini (1992).

tenuous under these assumptions than under the assumption of a stable Phillips curve.

The motivation of policy-makers represents another important dimension along which models of political business cycles can be categorized. Opportunistic political business cycle models, such as Nordhaus (1975), assume that the goal of all policy-makers is to be re-elected and policy is used towards this end. Incorporating forward-looking behavior into this model, as in the rational opportunistic political business cycle model of Persson and Tabellini (1990), mitigates the extent to which the economy can be moved by policy and makes the voters' goal to elect the most "competent" candidate regardless of ideology.

The goal pursued by policy-makers in partisan political business cycle models is not re-election but instead realizing ends commensurate with their ideology. In the work of Hibbs (1977, 1987), in which politicians can exploit a stable output-inflation tradeoff, this leads to differences across the tenure of left-wing and right-wing governments. The rational partisan theory of Alesina (1987) retains the assumption of policy-makers pursuing ideological motives but tempers their ability to realize their goals by modelling an economy characterized by rational wage-setters who are temporarily bound by nominal contracts. In this model, wages are set equal to expected inflation. In the period before an election, the expected inflation rate is a weighted average of the likelihood of the election of the party more sensitive to the costs of inflation (in this case, the Republicans) and the party less sensitive to inflation's costs (the Democrats). The outcome of the election determines the actual inflation rate and therefore whether real wages are unexpectedly high (due to the victory of the Republicans) and there is a contraction or whether inflation is unexpectedly low (due to the victory of the Democrats) and there is an expansion. The length of the deviation of output

from its natural rate in this model is the length of the wage contract, not, as in Hibbs' model, the entire tenure of the administration.

These theories present different testable implications concerning the temporal relationship between elections and business cycles.[3] The opportunistic political business cycle theory predicts a higher likelihood of a business cycle trough (i.e. the end of a contraction) with the coming of an election. This theory also predicts that the onset of a contraction (i.e. a business cycle peak) to offset the pre-election stimulative policy is more likely following an election than at other times. These predictions stand regardless of the party in power. Alternatively, the party in power is central to the predictions of the timing of business cycle turning points drawn from the insights of the rational partisan theory. Rational partisan theory predicts that there is a higher likelihood of a business cycle peak marking the end of an expansion after the election of a Republican president than at other times. This theory also predicts no difference in the likelihood of a peak after the election of a Democratic president as compared to other times.

The timing of business cycle turning points relative to the quadrennial United States presidential election cycle implied by these theories lends itself to an empirical investigation using duration analysis. The data used in duration analysis consist of *spells*. In our data, a spell represents the number of months in either a contraction or an expansion. The focus of

[3]These theories obviously have implications beyond the timing of turning points in the business cycle. For example, the partisan theory predicts differences across the tenure of governments with different ideologies. This implies an inflationary bias of left wing governments either by design or because of the interplay of people's expectations and the perceived goals of the government. Therefore the empirical results presented in this paper complement those which test the amplitude of various macroeconomic time series in response to political factors.

duration analysis is the *hazard function.* The hazard function at time t, h(t,x(t)), is an estimate of the probability of the completion of a spell during the time $(t, t+dt)$, given that the spell has lasted up until time t.[4] The hazard function may shift due to exogenous factors, represented by the vector x(t), which are called *covariates.*[5] In a continuous time framework the hazard function is defined as

$$h(t,x(t)) = \lim_{dt \to 0} \frac{Pr(t \le T < t+dt \mid T \ge t,\ x(t))}{dt}$$

The hazard function can be interpreted as the probability of a turning point in the short interval dt after t, conditional on the current phase of the business cycle having lasted until time t. In what follows we estimate the hazard function for the probability of a peak (trough) in the business cycle during the next month given that the economy has been in an expansion (contraction) up until the beginning of that month.

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[4] The hazard can be derived by specifying the probability distribution F(t; x(t)) = Pr (T<t | x(t)) where we define T as the length of time that economy has been in an expansion or a contraction and x(t) are exogenous factors called covariates. The corresponding density function is $f(t,x(t)) = dF(t,x(t))/dt$. The survivor function, S(t,x(t)), is the probability that T will equal or exceed t and is simply 1 - F(t,x(t)). The hazard function is then defined as h(t,x(t)) = f(t,x(t))/S(t,x(t)).

[5] The hazard function exhibits *duration dependence* if the time already spent in a spell affects the hazard. Diebold and Rudebusch (1990) and Sichel (1992) study the duration dependence of the United States business cycle.

The covariates of interest in our analysis are elections.[6] In particular, we treat the periods before elections and the period after elections as *time-varying covariates*, that is covariates that can change over the course of a spell.[7] The four specifications for the covariate used in estimating the hazards for contractions set the dummy variables equal to 1 in the 6 month, 9 month, 12 month or 24 month periods before an election. The estimates of hazards for expansions also include a dummy variable with a time frame of 6 months, 9 months, 12 months or 24 months after an election.[8] Another specification includes separate covariates for the period after the election of a Republican and for the period after the election of a Democrat. We also include a constant covariate that denotes those business

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[6]The regular quadrennial nature of United States election cycle insures that there is not a simultaneity problem whereby the spells determine the covariates. This problem may arise when studying a country with a parliamentary systems in which elections can be called at the discretion of the ruling party. Heckman and Singer (1984) discuss the problems that arise when time-varying covariates are not exogenous.

[7]It is important to use time-varying covariates rather than to simply identify those business cycles in which there was an election with a dummy variable that serves as a constant covariate because the longer the business cycle the more likely that there would be an election during it. Therefore the use of elections as constant covariates gives rise to spurious results.

[8]In an alternative specification, the first month that the post-election covariates were set equal to 1 depended upon the outcome of the election. In that specification, the first month the covariates were set to 1 was the month after an election if an incumbent was re-elected or if the newly-elected president was a member of the same party as the previous president. When the party affiliation of the newly-elected president differed from that of his predecessor this covariate was first set equal to 1 in the month following the new president's inauguration. This alternative specification is more consistent with the notion that once in power the government was able to affect the economy while the specification based only on elections and not inaugurations is more consistent with the notion that the effect of the election on the economy was due to the "news" revealed by the outcome of the election. In any case, the results using either specification were very similar.

cycles during which the United States was at war in some specifications.[9] The expected sign of this covariate is positive for contractions and negative for expansions.

The coefficients on the pre-election and post-election covariates represent the shift in the hazard during the specified period before an election or after an election, respectively. Opportunistic political business cycle theory predicts positive coefficients on the pre-election covariates in hazard estimates for contractions. This implies that contractions that have lasted until the period before an election are more likely to end at that time than at other times. This theory's prediction of a post-election downturn is consistent with positive coefficients on post-election covariates in hazard estimates for expansions. Rational partisan theory predicts that the post-election effect depends upon the party in power. A hypothesis consistent with this theory is that the coefficients on the post-election covariates which represent the period following the election of a Republican president are positive while the coefficients on the covariates that represent the period following the election of a Democratic president are not different than zero. The use of different time frames for the covariates allows for investigation of the length of the period of the political effect on the hazard. The coefficients across different specifications of time frames are directly comparable since the hazard is the estimate of the likelihood of the completion of a business cycle phase in the next month conditional on it lasting up until that month.

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[9]Alternatively we also estimated the hazards using war as a time-varying covariate and found the results on the pre-election and post-election dummies were almost identical. During the sample period (from 1854 to 1991) the United States was at war from April 1861 to April 1865 (the Civil War), April 1898 to July 1899 (the Spanish American War), April 1917 to November 1918 (World War I), December 1941 to August 1945 (World War II), June 1950 to June 1953 (the Korean War) and August 1964 (when the Gulf of Tonkin resolution was passed by Congress) to January 1973 (the Vietnam War).

There are a number of potential candidates for the functional form used to implement this analysis. The focus of attention in this study is the effect of the election covariates on the hazard rather than the estimation of the duration dependence of expansions or contractions. Therefore we estimate the *Cox proportional hazard model.* This model factors the hazard into an arbitrary and unspecified *baseline hazard* , $h_0(t)$, and a function that depends upon a vector of explanatory variables, x(t), and the associated vector of coefficients, β, as follows;

$$h(t,x(t),\beta,h_0) = h_0(t)\cdot\exp(x(t)\beta)$$

This specification meets the requirement of non-negativity of the hazard without imposing any restrictions on the coefficients β. The exponent of the coefficient on pre-election or post-election covariates can be interpreted as the shift of the hazard during the relevant period as compared to the other times.

3. Empirical Results

The key data in our empirical analysis of the link between political and economic events are the dates of turning points of the business cycle. Identifying business cycle turning points requires some judgement concerning the coherence of a number of variables. Economists at the National Bureau of Economic Research (N.B.E.R.) have produced a series which dates the peaks and troughs of United States business cycles beginning with the trough in January 1855 up until the most recent trough in March 1991. There are 31 complete business cycles over this period and therefore 31 expansions (periods from troughs to peaks)

and 31 contractions (periods from peaks to troughs). Recently Romer (1992) has questioned the N.B.E.R.'s dating of pre-World War II business cycles and has produced an alternative set of turning points for the period beginning with the peak in February 1887. We conduct separate analyses using both the N.B.E.R.'s and Romer's dating.[10] Results are provided for the full sample period as well as for a subsample beginning after World War I and a subsample beginning after World War II.[11]

Some simple statistics provide an initial view of the timing of peaks and troughs relative to presidential elections. We calculate the number of months since the last election for each of the business cycle turning points identified by the N.B.E.R. Statistics on these data by subsamples as well as by the party of the president are presented in Table 1. The average number of months between an election and a trough (i.e. the end of a contraction) is consistently larger than the average number of months between an election and a peak (i.e. the end of an expansion) across time periods and across political parties. This finding is consistent with prediction of opportunistic political business cycle that expansions tend to end soon after a presidential election and contractions tend to end before presidential elections. Rational partisan theory predicts differences across Republican and Democratic administrations. Comparing the second and third panels of Table 1 shows that peaks occur sooner, on average, after the election of a Republican than after the election of a Democrat.

[10]The months when a peak or a trough is identified is counted as the final month of the expansion or contraction, respectively. The new contraction or expansion begins in the next month.

[11]Diebold and Rudebusch (1992) provide a full list of the dates of the NBER's peaks and troughs but for the latest trough in March 1991.

Also, on average, troughs occur later in Republican administrations than in Democratic administrations. The standard deviations for all these statistics, however, are quite large relative to the averages.

Further information about the distribution of the number of months between business cycle turning points and elections is provided in the histograms in Figures 1 and 2. The histograms in Figure 1 show marked differences in the distribution of the number of months since the previous election across peaks and troughs. Confirming the results in Table 1, the mass points in the histograms of peaks occur sooner after elections than the mass points in the histograms of troughs. This pattern seems to be more pronounced with samples that cover only the later time periods. Histograms that differentiate across Republican and Democratic administrations are presented in Figure 2. These histograms indicate that approximately fifty percent of peaks during Democratic administrations occur within the first year after the election. This statistic is matched by the frequency of peaks in the first year of Republican administrations. Over three-quarters of peaks during Republican administrations occur in the first two years after the election while this proportion is below sixty percent for the first two years after the election of Democratic presidents.

While these summary statistics and histograms are suggestive, more powerful tests of political business cycle theories are provided by durations analysis.[12] The estimates of the

[12]In particular, duration analysis enables us to estimate the effect of elections on the timing of business cycles peaks and troughs holding constant the effect of other covariates (in this case, wars) and holding constant the effect of duration dependence. Diebold and Rudebusch (1990) reject the hypothesis of no duration dependence for pre-World War II expansions while Sichel (1991) rejects the hypothesis of no duration dependence for pre-World War II expansions and post-World War II contractions.

Cox Proportional Hazard models for contractions with the various pre-election periods serving as time-varying covariates are presented in Table 2. Although all the coefficients on the pre-election time period dummy variables are of the expected positive sign, there are no instances of coefficients that significantly differ from zero.[13] This is true across subsamples, across specifications (i.e. whether or not including the constant covariate for war) and across dating schemes (by economists at the N.B.E.R. and by Romer). Thus the predictions of opportunistic political business cycle theory that there is a greater likelihood of a contraction ending in the period before an election than in other periods (conditional upon its having lasted until that period) is not supported by these data.

Table 3 presents the estimates for expansions with the post-election periods serving as time-varying covariates. Opportunistic political business cycle theory predicts a higher likelihood of an expansion ending in the period immediately after an election than in other periods conditional on it having lasted until that period. This would be reflected in positive coefficients on the post-election covariates. The results presented in this table support this prediction for the post-World War I and post-World War II subsamples. The results are most significant for the covariates representing the 9-month and the 12- month periods following an election with the N.B.E.R. dating and for the covariate representing the 12-month period after an election using Romer's dating.[14] Across sample periods and across dating schemes the

[13]The constant covariate for war is significant in each case with the expected positive sign. This can be interpreted as meaning that contractions during which the United States was at war are significantly shorter than those during which the United States was not at war, holding constant the effect of elections.

[14]There are an insufficient number of observations to estimate the post-election six-month covariate in the post-World War II period.

point estimates are generally largest on the 12-month covariate. This suggests that the effect of the election on the business cycle is largest in the year following the election. The point estimates for each of the covariates representing a particular time frame increase as the sample is restricted from the full sample to the post-World War I subsample to the post-World War II subsample.

The magnitude of the differences in the hazard between the year after an election and other periods are striking. For example, using the point estimate from the post-World War I sample with the N.B.E.R. dating the likelihood of the end of an expansion, given its survival up until that time, is 4.44 (i.e. exp(1.49)) times as high in the 12 months after an election than at other times. The larger point estimates for the post -World War II period present even more striking results; the likelihood of an expansion ending within 12 months of an election is 7.54 times as high as in other periods. This suggests that this effect has become more pronounced over time.[15]

Tests of the predictions of rational partisan political business cycle theory require a specification that distinguishes between the parties in power. We use a specification that has separate time-varying covariates for the months since the election of a Republican and the months since the election of a Democrat, as discussed above. Rational partisan political theory suggests that the likelihood of the end of an expansion is higher after the election of a Republican than at other times while there is no difference in this likelihood after the election

[15]A reasonable interpretation for the cause of this difference across subsamples is that the range of policy tools available to the federal government has increased from the period before World War I to the interwar period to the post-World War II period. Also, the Federal Reserve was established in 1913 which roughly corresponds to the division between the pre-World War I and post-World War I periods.

of a Democrat than at other times. In hazard estimates of expansions this implies that the coefficients on the covariates representing the period after an election which was won by a Republican are positive while those on the covariates representing the period after an election that went to the Democratic candidate are insignificantly different from zero.

Results presented in Table 4 strongly support the hypotheses of the rational partisan theory. There are no instances of a statistically significant coefficient on the Democratic covariate. This is true for both the N.B.E.R. and Romer's dating, across subsamples and across time frames for the covariate.[16] The coefficients on the covariate representing the 12-month period after the election of a Republican, on the other hand, are significant at the 95 percent confidence level using the business cycle turning points identified by either Romer or by the N.B.E.R. in both the post-World War I and post-World War II periods. The coefficients on the covariates representing the 9-month period after the election of a Republican president are also significant at the 95 percent confidence level for the hazards using the N.B.E.R.'s dating scheme. The coefficient on the covariate representing the 24-month period after the election of a Republican is also significant in some samples.

The coefficients on the Republican covariates are larger than the corresponding coefficients on the post-election covariates that do not differentiate between the party of the president in all the post-World War I and post-World War II estimates. The estimates using the peaks and troughs identified by the N.B.E.R. suggest that an expansion is 6 times more

[16]There are insufficient observations for estimating the coefficient on the Democratic covariate in the post-World War II period. There are also insufficient observations for estimating the Republican six-month post-election covariate in Romer's dating or in the N.B.E.R.'s dating in the post-World War I or post-World War II periods.

likely to end within a year of a Republican presidential victory than at other times in the post-World War I period when controlling for wars. This estimate rises in the post-World War II period when an expansion is 14 times more likely to end within a year of the election of a Republican president than at other times. Using Romer's dating, we estimate that an expansion is 4.4 times more likely to end in the year following a Republican victory than at other times in the post-World War I era and 7.8 times more likely in the post-World War II era.

There is a consistent pattern to the significant coefficients on the post-election Republican covariates. Within a subsample (such as post-World War II) the coefficients are largest for the 12-month time frame. The 12-month time frame coefficients also have the lowest p-values. The smaller coefficients on the 24-month covariate are consistent with the rational partisan theory prediction that political business cycle effects diminish with time because of the instability of the Phillips curve. This result contrasts with the predictions of partisan political business cycle theory that assumes a stable Phillips curve. Another consistent pattern is that the size of the coefficient on the Republican covariate increases as the sample changes from the full sample to the post-World War I sample to the post-World-War II sample.[17]

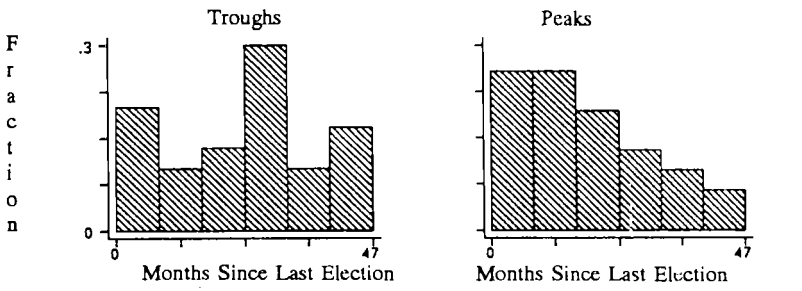
[17]The timing of business cycle turning points relative to elections presented here is consistent with research on the effect of elections on the amplitude of macroeconomic variables. Alesina (1988) finds that the effect of elections on macroeconomic variables in the United States appears no sooner than two quarters after a presidential election. He reports that the largest effect is found five to six quarters after an election. Ten quarters after an election Alesina finds no statistically significant effect of the election on the amplitude of macroeconomic variables.

4. Conclusions

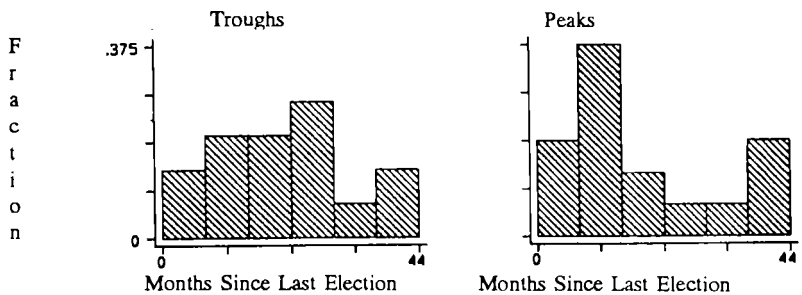
This paper tests political business cycle theories by using duration analysis. This approach provides a more direct test of the timing of business cycle turning points relative to elections than previous research which considers the amplitude of macroeconomic variables before and after presidential elections. The results presented here are consistent with the post-election downturn predicted by opportunistic political business cycle theory but not with its prediction of a pre-election recovery. The significant differences across parties found in the post-election results are consistent with rational partisan theory. An interesting finding is that these post-election results become more significant as the sample is restricted to later periods only. This is consistent with the view of greater political control of the economy in recent times as compared to earlier periods.

The results presented in this paper do not provide a complete test of the hypotheses of political business cycle theories. Other predictions, such as differences in inflation across the tenure of political parties, cannot be addressed using duration analysis. Duration analysis is well-suited, however, for examining the timing of economic events relative to political events. An understanding of this relationship is central to our understanding of the empirical relevance of political business cycle theories.

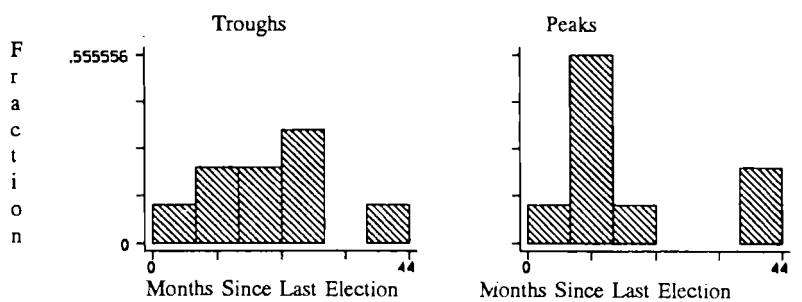
FIGURE 1
Timing of Peaks and Troughs Relative to Elections



Full Sample

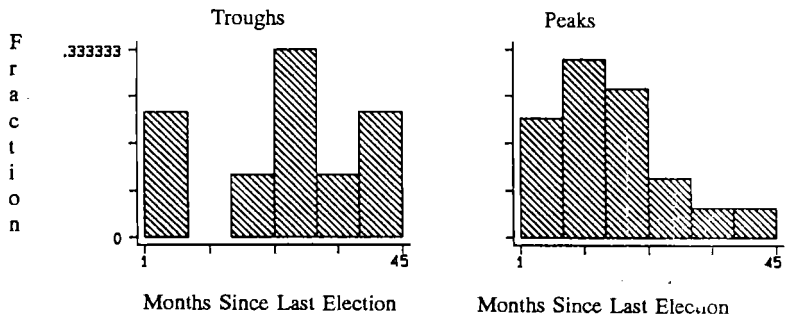


Post World War I

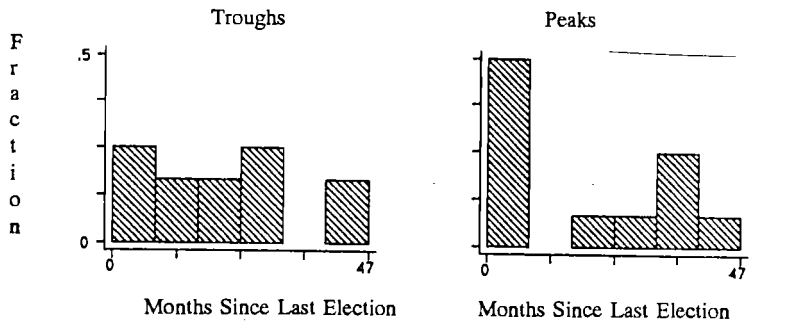


Post World War II

FIGURE 2
Timing of Peaks and Troughs Relative to Elections
By Political Party



Full Sample
Republican Presidents



Full Sample
Democratic Presidents

TABLE 1
Statistics on the Timing of Peaks and Troughs Relative to Elections

Months Since Elections

	Peaks				Troughs		
	Av'g (s.d.)	Min.	Max.	Obs.	Av'g (s.d.)	Min.	Max.	Obs.
Full Sample	18.0 (13.2)	0	47	31	23.4 (13.5)	1	45	31
Post W.W. I	17.1(13.6)	0	41	15	21.7 (12.8)	3	44	16
Post W.W. II	16.4 (14.0)	0	41	9	21.9 (11 7)	3	44	9

Republican Administrations

Months Since Elections

	Peaks				Troughs		
	Av'g (s.d.)	Min.	Max.	Obs.	Av'g (s.d.)	Min.	Max.	Obs.
Full Sample	17.2 (10.0)	5	41	19	25.7 (13.3)	1	45	19
Post W.W. I	17.2(11.1)	8	41	10	25.2 (10.6)	8	44	9
Post W.W. II	15.7 (11.8)	8	41	7	23.2 (4.8)	17	28	6

Democratic Administrations

Months Since Elections

	Peaks				Troughs		
	Av'g (s.d.)	Min.	Max.	Obs.	Av'g (s.d.)	Min.	Max.	Obs.
Full Sample	19.1 (17.6)	0	47	12	19.7 (13.6)	3	44	12
Post W.W. I	17.0(19.3)	0	38	5	17.1 (14.7)	3	44	7
Post W.W. II	19.0 (26.9)	0	38	2	19.3 (21.7)	3	44	3

TABLE 2
ESTIMATES FOR HAZARD FUNCTIONS FOR CONTRACTIONS

I. NBER Dating

1. Full Sample: 1855-1991

	Dummy Variables: Months before an Election			
Variable	6 month	9 month	12 month	24 month
Election	0.63 (0.59)	0.08 (0.51)	0.31 (0.44)	0.25 (0.40)
Election	0.78 (0.59)	0.21 (0.52)	0.51 (0.46)	0.39 (0.42)
War†	2.13* (0.65)	2.08* (0.66)	2.18* ((i.66)	2.13* (0.66)

2. Post World War I

	Dummy Variables: Months before an Election			
Variable	6 month	9 month	12 month	24 month
Election	0.92 (0.83)	0.38 (0.78)	0.52 (0.68)	0.61 (0.55)
Election	1.13 (0.86)	0.60 (0.81)	0.79 (0.72)	0.64 (0.56)
War†	1.37**(0.73)	1.34**(0.74)	1.42**(0.75)	1.27**(0.72)

II. Romer's Dating

1. Full Sample: 1887-1991

	Dummy Variables: Months before an Election			
Variable	6 month	9 month	12 month	24 month
Election	0.17 (0.63)	0.35 (0.52)	0.31 (0.49)	0.39 (0.43)
Election	0.26 (0.64)	0.47 (0.54)	0.45 (0.52)	0.38 (0.44)
War†	0.51 (0.58)	0.59 (0.59)	0.62 (0.60)	0.45 (0.57)

2. Post World War I

	Dummy Variables: Months before an Election			
Variable	6 month	9 month	12 month	24 month
Election	0.48 (0.79)	0.69 (0.68)	0.73 (0.62)	0.49 (0.59)
Election	0.67 (0.82)	0.90 (0.72)	1.01 (0.68)	0.54 (0.60)
War†	0.82 (0.71)	0.92 (0.72)	1.05 (0.75)	0.76 (0.70)

† War represents constant covariate dummy variable that identifies those business cycles which had a war occurring during them.

* Significant at 95 percent level of confidence.

TABLE 3
ESTIMATES FOR HAZARD FUNCTIONS FOR EXPANSIONS

I. NBER Dating

1. Full Sample: 1855-1991

	Dummy Variables: Months since an Election			
Variable	6 month	9 month	12 month	24 month
Election	0.16 (0.53)	0.85*(0.42)	0.94 (0.41)	0.83*(0.41)
Election	0.17 (0.52)	0.79**(0.42)	0.88*(0.41)	0.70**(0.41)
War†	-1.02*(0.47)	-0.99* (0.47)	-0.98* (0.47)	-0.91**(0.47)

2. Post World War I

	Dummy Variables: Months since an Election			
Variable	6 month	9 month	12 month	24 month
Election	0.19 (0.82)	1.24*(0.62)	1.49*(0.64)	0.84 (0.60)
Election	0.20 (0.81)	1.15**(0.62)	1.41*(0.63)	0.76 (0.61)
War†	-0.99(0.67)	-0.90 (0.67)	-0.92 (0.67)	-0.91 (0.67)

3. Post World War II

	Dummy Variables: Months since an Election			
Variable	6 month	9 month	12 month	24 month
Election	----------	1.50**(0.84)	2.02*(0.91)	0.72 (0.78)
Election	----------	1.44**(0.84)	1.98*(0.90)	0.64 (0.82)
War†	----------	-0.68 (0.86)	-0.73 (0.89)	-0.60 (0.83)

Table is continued next page

Table 3, continued

II. Romer's Dating

1. Full Sample: 1887-1991

	Dummy Variables: Months since an Election			
Variable	6 month	9 month	12 month	24 month
Election	-0.39 (0.76)	0.47 (0.49)	0.62 (0.45)	-0.05 (0.41)
Election	-0.43 (0.77)	0.42 (0.50)	0.64 (0.46)	-0.08 (0.42)
War†	-0.66 (0.51)	-0.62 (0.51)	-0.67 (0.51)	-0.65 (0.51)

2. Post World War I

	Dummy Variables: Months since an Election			
Variable	6 month	9 month	12 month	24 month
Election	-0.60 (1.06)	0.67 (0.58)	0.99**(0.55)	0.14 (0.53)
Election	-0.58 (1.06)	0.56 (0.58)	1.01**(0.55)	0.13 (0.53)
War†	-0.93 (0.65)	-0.89 (0.66)	-0.98(0.66)	-0.94 (0.65)

3. Post World War II

	Dummy Variables: Months since an Election			
Variable	6 month	9 month	12 month	24 month
Election	----------	1.35 (0.87)	1.16 (0.79)	0.60 (0.74)
Election	----------	1.26 (0.84)	1.51**(0.83)	0.65 (0.79)
War†	----------	-0.77(0.87)	-1.24 (0.92)	-0.80 (0.84)

† War represents constant covariate dummy variable that identifies those business cycles which had a war occurring during them.
Insufficient number of observations for Post-World War II 6-month dummy
* Significant at 95 percent level of confidence.
** Significant at 90 percent level of confidence.

TABLE 4
ESTIMATES FOR HAZARD FUNCTIONS FOR EXPANSIONS BY PARTY

I. NBER Dating

1. Full Sample: 1855-1991

Dummy Variables: Months since an Election, by Party

Variable	6 month	9 month	12 month	24 month
Republican	-0.73 (1.03)	0.78 (0.50)	0.96*(0.46)	1.02*(0.43)
Democrat	0.68 (0.61)	0.95**(0.56)	0.91 (0.57)	0.46 (0.56)
Republican	-0.77 (1.03)	0.64 (0.50)	0.82**(0.47)	0.80**(0.45)
Democrat	0.74 (0.61)	1.02**(0.56)	0.99**(0.57)	0.52 (0.54)
War†	-1.04*(0.47)	-1.02* (0.48)	-1.00* (0.48)	-0.84**(0.49)

2. Post World War I

Dummy Variables: Months since an Election, by Party

Variable	6 month	9 month	12 month	24 month
Republican	----------	1.54*(0.72)	1.91*(0.73)	1.45*(0.66)
Democrat	0.85 (0.94)	0.79 (0.88)	0.88 (0.90)	-0.10 (0.88)
Republican	----------	1.40*(0.73)	1.79*(0.74)	1.29**(0.69)
Democrat	0.81 (0.90)	0.80 (0.87)	0.88 (0.89)	0.01 (0.88)
War†	-1.00 (0.67)	-0.85 (0.67)	-0.85 (0.67)	-0.57 (0.71)

3. Post World War II

Dummy Variables: Months since an Election, by Party

Variable	6 month	9 month	12 month	24 month
Republican	----------	1.84*(0.95)	2.62*(1.16)	1.96**(1.15)
Republican	----------	1.81**(0.93)	2.64*(1.15)	1.97 (1.22)
War†	----------	-0.78 (0.88)	-0.90 (0.94)	0.01 (0.95)

Table is continued next page

Table 4, continued

II. Romer's Dating

1. Full Sample: 1887-1991

Dummy Variables: Months since an Election, by Party .

Variable	6 month	9 month	12 month	24 month
Republican	----------	0.45 (0.64)	0.80 (0.53)	0.08 (0.49)
Democrat	0.34 (0.80)	0.50 (0.69)	0.34 (0.69)	-0.22 (0.55)
Republican	----------	0.42 (0.64)	0.81 (0.54)	-0.02 (0.50)
Democrat	0.32 (0.81)	0.42 (0.69)	0.35 (0.70)	-0.15 (0.55)
War†	-0.65 (0.51)	-0.62 (0.51)	-0.67 (0.51)	-0.63 (0.52)

2. Post World War I

Dummy Variables: Months since an Election, by Party

Variable	6 month	9 month	12 month	24 month
Republican	----------	0.96 (0.69)	1.48*(0.63)	0.86 (0.60)
Democrat	-0.05 (1.09)	0.28 (0.86)	0.16 (0.88)	-0.95 (0.86)
Republican	----------	0.85 (0.69)	1.48*(0.62)	0.76 (0.62)
Democrat	0.10 (1.10)	0.17 (0.87)	0.17 (0.89)	-0.78 (0.85)
War†	-0.95 (0.65)	-0.89 (0.66)	-0.97 (0.67)	-0.69 (0.68)

3. Post World War II

Dummy Variables: Months since an Election, by Party

Variable	6 month	9 month	12 month	24 month
Republican	----------	1.61**(0.85)	1.88*(0.89)	1.73**(0.88)
Republican	----------	1.53**(0.82)	2.05*(0.90)	1.72** (0.90)
War†	----------	-0.71 (0.86)	-1.08 (0.88)	-0.68 (0.87)

† War represents constant covariate dummy variable that identifies those business cycles which had a war occurring during them.

* Significant at 95 percent level of confidence.
** Significant at 90 percent level of confidence.

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