Examining Tufte's Political Business Cycle under an Adaptive Expectations Framework

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Given that the executive branch's party desires reelection and that the economy is an important variable in the eyes of the electorate, to what extent has the president and his party been able to exert influence over economic variables in the months preceding an election? Much of the existing literature suggests that there may be an important cyclical pattern between the four-year election cycle and economic variables such as real GDP growth and real disposable income. Using data from the Council of Economic Advisors and the Presidential Elections dataset, this paper finds moderate evidence for the existence of a political business cycle as it applies to GDP growth rates and real disposable income. Subsequent analysis reveals that during elections with significantly high and low GDP growth rates, election results can be perfectly predicted based on the theoretical model.

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Abstract

Given that the executive branch's party desires reelection and that the economy is an important variable in the eyes of the electorate, to what extent has the president and his party been able to exert influence over economic variables in the months preceding an election? Much of the existing literature suggests that there may be an important cyclical pattern between the four-year election cycle and economic variables such as real GDP growth and real disposable income. Using data from the Council of Economic Advisors and the Presidential Elections dataset, this paper finds moderate evidence for the existence of a political business cycle as it applies to GDP growth rates and real disposable income. Subsequent analysis reveals that during elections with significantly high and low GDP growth rates, election results can be perfectly predicted based on the theoretical model.

A Government is not supported a hundredth part so much by the constant, uniform, quiet prosperity of the country as by those damned spurts which Pitt used to have just in the nick of time.

-Brougham, 1814

I. Introduction:

Since Tufte's (1978) original publication on the economic origins of election cycles, the public choice literature on the political business cycle has argued that self-interested incumbent politicians and their parties can manipulate the state of the macroeconomy for political gains. The literature supposes that a pattern emerges within a politician's party's term in office where there is "relative austerity in early years" followed by a "potlatch right before the [proceeding] election" (Nordhaus, 1975). These cycles can be understood to exist on top of the naturally occurring business cycle as politicians attempt to artificially bolster the economy above its

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natural point right before the electorate goes to the polls. These positive deviations from the business cycle, if properly timed, have been shown to influence voter behavior.

The relationship between the state of the economy and the point within the election period has been hypothesized most strongly for the United States presidency. Perhaps better than any other politician, the president has the unique ability to influence outcomes in the macroeconomy through his use of executive order and congressional and possibly Federal Reserve influence. Furthermore, studies have shown that the president is the most likely person to be praised when the economy is in an upturn and the most likely to bear the political brunt of the electoral backlash when the economy underperforms. One can then see why an incumbent administration, while operating under the limiting economic and political constraints, might try and manipulate the short-run course of the national economy in order to improve the party's standing in the upcoming elections.

While voters can certainly appreciate a growing economy at any time during the election cycle, political business cycles (PBCs) can be problematic if they distort the true state of the economy from the eyes of the voters. When the electorate sees that its income is increasing and unemployment is falling, they may not consider the possibility that these are short-term positive shocks and that the tradeoffs for these distortionary endeavors will inevitably increase taxes and price levels in the long run.

This paper explores the existence of electoral-economic cycles as they apply to recent US presidential elections. It tests the hypothesis that the probability of an incumbent or an incumbent's party's reelection is significantly influenced by movements in macroeconomic variables which can, at least in the short run, be influenced by the executive administration. It defines a series of motivations that might compel an incumbent government to manipulate

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economic variables in hopes of securing reelection. Looking at US presidential election cycles since 1948, this paper finds moderate evidence for political business cycles, especially as they are tied to real GDP growth rates and per capita real disposable income. In an appendix, the paper goes on to examine case studies where real GDP growth rates were especially high or low, and finds that when the economy is doing exceptionally well, voters reelect the incumbent party. When the growth rates are unusually low, however, the incumbent party has always been defeated, regardless of the relative importance of other campaign issues.

This article proceeds as follows: Section II reviews literature related to the electoral implications of macroeconomic variable movement under an uncertainty framework. Section III explores the theoretical model for this study and draws hypotheses for empirical results. Sections IV and V discuss the data, the research design, and the empirical model. Section VI reports on the results of the study. Finally, Section VII concludes the paper by drawing policy implications, acknowledging the limits of the study, and suggesting avenues for future research.

II. Review of the Literature

Arguments made for political business cycles were initially anecdotal in nature (Nordhaus, 1975); however, in recent decades, with the advent of strong Keynesianism in the election periods after World War II, researchers have sought to identify specific trends in the macroeconomy centered around the US presidential election cycle.

The core argument upon which the study of political business cycles rests was first laid out by Edward R. Tufte in his seminal work *Political Control of the Economy* (1978), in which he conducts one of the first empirical analyses of PBCs in the United States. Throughout his work, Tufte made three important contributions to the study of PBCs. First, he demonstrated through historical research that American incumbent presidents did consider economic policy

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and the electoral calendar when making fiscal policy decisions. More importantly, however, the

work revealed systematic movements in US transfer policies in accordance with the timing of

elections, with the majority of the upswings occurring in October and November of the election

years. Accompanying the policy movement were subsequent upticks in Tufte's chief economic

variable: real disposable income (RDI). Consider Figure 1, which details the quarterly change in

RDI and government transfer payments surrounding Nixon's 1972 reelection:

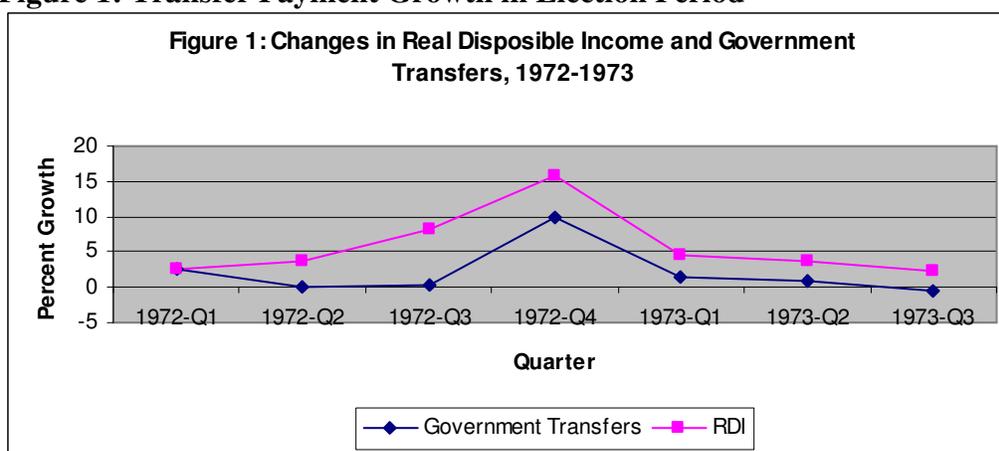**Figure 1: Transfer Payment Growth in Election Period**

Figure 1 shows the quarterly path of RDI per capita between 1972 and 1973, with its

ever-accelerating climb to the fourth quarter of 1972 followed by post-election decay. The

exquisite political precision of this economic course is atypical of the exactness of other political

business cycles and must have partly been attributable to sheer luck. However, one cannot

discount that much of the pre-election economic acceleration had to have been the result of

deliberate planning and mobilization of policy instruments to produce such significant changes in

government transfer payments.

Finally Tufte was able to show evidence of cyclical movement in other economic

indicators such as growth, unemployment, and inflation. He hypothesized that these variables are

more difficult to control inside an administrative framework because they are so tied to real

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economic conditions. For example: The high unemployment during the Reagan years is partly attributable to the large influx of women into the labor force. Because the economy was not automatically prepared to absorb these new labor force participants, unemployment numbers were inflated for a time as labor market adjusted to make room for new labor. As a result of outside influences such as these, policy makers must be content to tweak certain economic indicators around the edges.

Beyond Tufte, major works by Lewis-Beck (1988) and Nadeau and Lewis-Beck (2001) support the opportunistic model. Lewis-Beck (1988) extends Tufte's model to a few of the major developed Western-European powers, including Germany, Italy, France, Spain, and the United Kingdom. The results essentially mirror those of Tufte: evidence is varied, but fairly supportive of the existence of economic policy cycles and of growth in nominal indicators (such as RDI), though the evidence is similarly marginal in trending economic indicators to these countries' electoral calendars.

A more recent article authored by Nadeau and Lewis-Beck (2001) focuses on the specific indicators which influence the probability that an incumbent will be reelected. They point out correctly that individual voters use information in different ways; in accounting for the state of the economy, some will focus more on growth rates while others will be more concerned with inflation or unemployment. That being said, politicians cannot simply optimize one of these economic indicators. It becomes necessary during an election cycle for the incumbent party to keep all economic indicators in good standing with the electorate. The problem is confounded when we recognize that many of these variables, among them inflation and unemployment, are naturally negatively related. Democrats may choose to focus on unemployment rates, whereas Republican might prefer to run political business cycles by keeping inflation in check. Readers

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can then appreciate that such policy measures must be intricately woven in order to operate effectively.

Berlemann and Markwardt (2006) extend this analysis to include forward looking expectations, explaining that voters will incorporate speculative expectations into their assessment of macroeconomic indicators, helping to explain why, even in a prospective expectations model, incumbent politicians who preside over a strong economy are more likely to be reelected for another term.

In addition to being forward looking, the new model commonly accepted by election researchers (Berlemann and Markwardt, 2006) is also heavily discounted in favor of those months closest to the election. The old Tufte model had given equal weight to the entire period leading up to the election, and therefore gave too little weight to the time-specific events that occur directly before the election. Consider Figure 2, where w indicates the weight of policy in time t and t terminates on Election Day:

Figure 2: Discounting Fiscal Policies before Election Periods
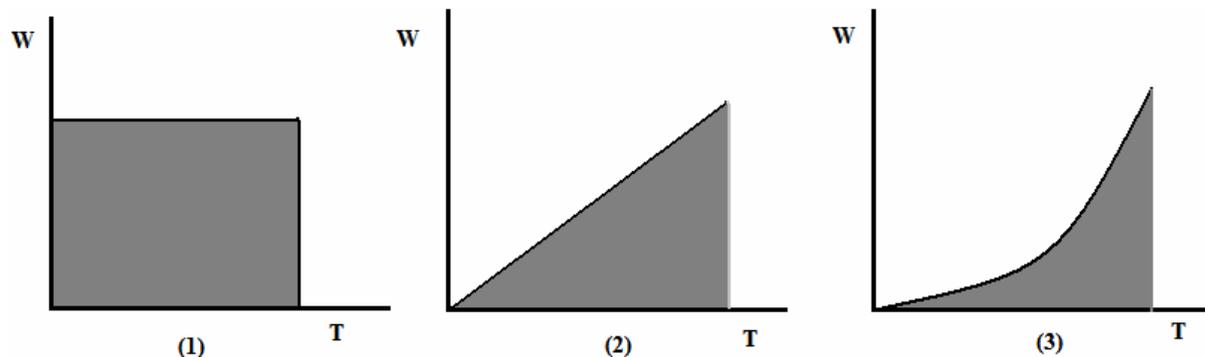
One can easily see that the old Tufte model (1) is not compatible with prospective voting theory. By averaging out positive changes and understating electorally motivated economic movements, this model reasons that every period during an incumbent's or incumbent's party's tenure is equally important when voters are evaluating his economic record.

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On the other hand, Models 2 and 3 suggest that more weight must be given to events that are closer to the election than those occurring earlier in the pre-election period. A retrospective model can accomplish this by generating a "ramp-up" effect on the election indicator as the time away from the indicator shrinks. In essence, the weight a voter gives to a given economic outcome increases as the time to an election nears. Specifically, in model 2, the weight a voter grants a given outcome steadily climbs at a constant rate as the election draws nearer.

Conversely, the model on the far right tries to amplify the effects of timed policies which deliver economic boosts a few months before an election. In this model voter myopia is designed to capture the effects of timed economic upswings rather than slower macro-improvements by focusing almost exclusive weight on a time period that is nearest to the election.

According to Filburn (2006), the basic underlying theory associated with political business cycles is simple and its basic premises have remained intact since Tufte (1978). The theoretical foundation of the PBC argument rests upon two realities and three necessarily stated assumptions. Taken together, the realities (which are generally accepted at face value) and the assumptions establish incentive and opportunity for incumbent politicians to engage in electioneering in the form of producing electoral economic cycles:

Reality 1 (R1): Incumbent politicians desire reelection, both in terms of themselves and, to a lesser degree, their party.

Reality 2 (R2): Incumbents control policies which can affect perceived or actual economic outcomes.

Assumption 1(A1): Voters favor positive economic activity—high growth, low inflation and unemployment, increasing wealth, and low taxes—when retrospectively evaluating the performance of an incumbent presidential candidate.

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Assumption 2 (A2): Voters tend to put more weight on economic outcomes that are near the election compared to economic outcomes that occur early in the election cycle.

Assumption 3 (A3): Economic performance plays a significant role in the voters' decision to reward or punish an incumbent politician at the ballot box.

All of these assumptions have been regularly supported throughout the literature as "economic voting" has become a major presumption throughout the developed, democratic world. Taken together, these points create a clear incentive structure for incumbent electioneering: Incumbent politicians desire reelection (R1) and require electoral support to achieve that end. The support is dependent (to some extent) upon real economic outcomes (A3) which can be manipulated by those same incumbents (R2). Furthermore, the specific economic movements (A1) and timing (A2) suggest that election years should produce economic upswings where increased growth and wages, as well as lower inflation, unemployment, and taxes are anticipated. (Filburn, 2006)

III. Theoretical Model

One of the most common frameworks used to explain the existence of political business cycles is the macroeconomic model of aggregate supply (AS) and aggregate demand (AD). Traditionally this model has been used to relate the price level with the level of output, and for this purpose it suits us well. The AD curve relates the aggregate quantity of output demanded to the price level, and the AS curve relates the quantity of output supplied to the price level.

From a political economist's perspective, policy makers' attempts to manipulate the short run state of the economy has two potential outcomes: The first can be observed in the classical Lucas framework, where increased government spending is anticipated by the voters, who then incorporate it into their own expectations. See Figure 3. The AD curve shifts right from AD to

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AD1, but there is an immediate response in aggregate supply, which shifts left from AS to AS1 and instantaneously returns the model to full employment, long run equilibrium. This occurs because people anticipate the shift in AD and have inflationary expectations. These voters are not likely to be influenced by short-term economic boosts in the economy in the months before an election because they recognize the incumbent's actions as self-interested and distortionary. Prices quickly adjust from P to P1 at a constant output. The economic impact of a targeted PBC will simply be increased price levels. Furthermore, because the outcomes of political manipulations are fully and correctly anticipated, attempts by politicians to manipulate the economy will have little effect on voter behavior. Only where there are incorrect anticipations can there be movements in real economic performance as a result of government manipulation of aggregate demand.

Figure 3: AS-AD under rational expectations
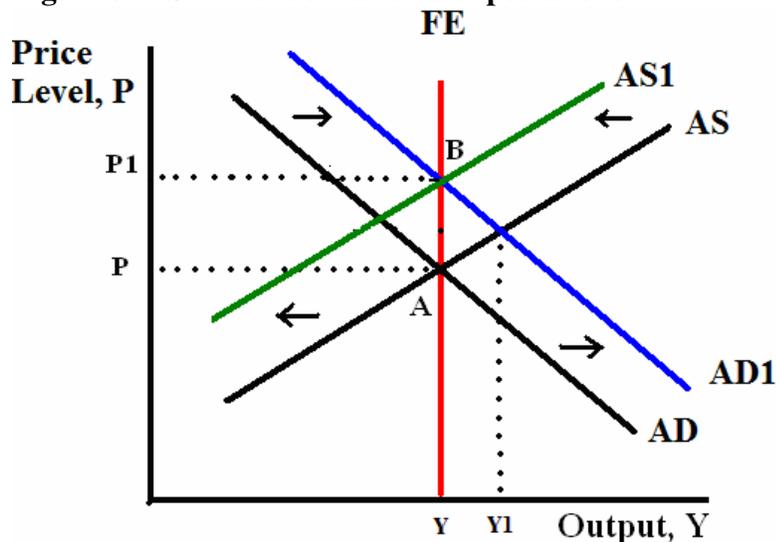
An alternative explanation which is more prevalent in PBC research circles involves the Keynesian assumption of adaptive expectations. In this framework, people base their expectations only on past economic performance and slowly adjust their expectations when past

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performance changes. Voters can be swayed by pre-election fiscal policies, even if those policies

will have long-term costs after the election. Consider Figure 4:

Figure 4: AS-AD under adaptive expectations, short-run
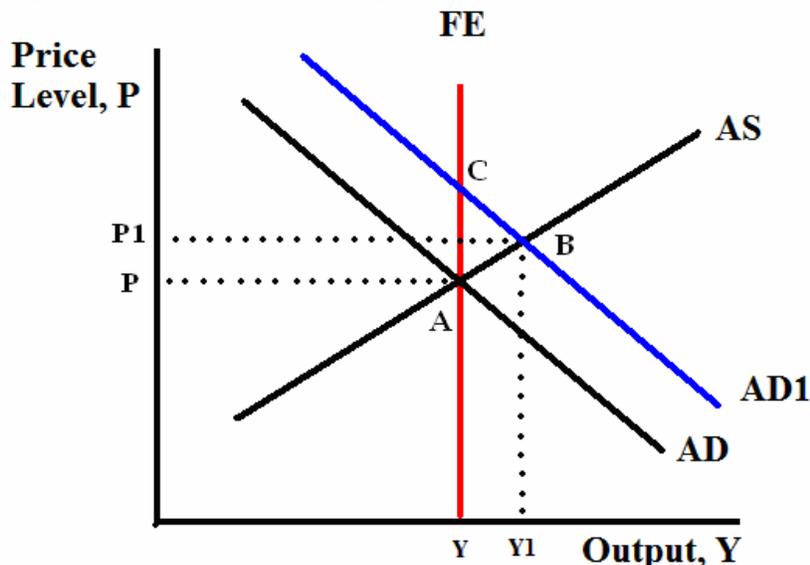
In the months before the general election, the sitting government can try to alter the short

term state of the economy by shocking AD to the right. This can be done through increased

government spending, additional transfers to the electorate to increase real disposable income, or

by encouraging the Federal Reserve to lower interest rates. Because these changes are

unanticipated, from a Keynesian perspective the impact of these policies will be felt by

individuals in the economy for a certain period of time. Managed well, incumbent politicians

could conceivably alter the short run state of the economy, with economic indicators reaching

their maximums close to Election Day. In terms of Figure 3, aggregate demand shifts from AD to

AD1 and output shifts up to Y1. The price level also increases slightly from P to P1.

However, in the Keynesian model, the benefits of fiscal policy cannot be felt in the long

run. Eventually, the AS curve will shift left again as wages and other input factor prices adjust

upward, bringing the economy back to its long run equilibrium, but at a higher equilibrium price

level.

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The cyclical nature of political business cycle phenomenon can then be interpreted through the Keynesian lens. See Figure 5: The economy grows in the period before the election, peaking as time approaches the Election Day. Post election, the reelected government, which is now insulated for another four years, can constrain the economy in the first two years of their term in office by raising taxes, reducing government expenditures, and allowing for higher interest rates. They might do this to combat the inflation which is the inevitable result of pre-election fiscal and monetary stimulus. The other possibility is that they could simply wait for the natural adjustment back to long-run equilibrium as prices rise and production falls. Either way, production falls for a period after the election.

Figure 5: The Political Business Cycle
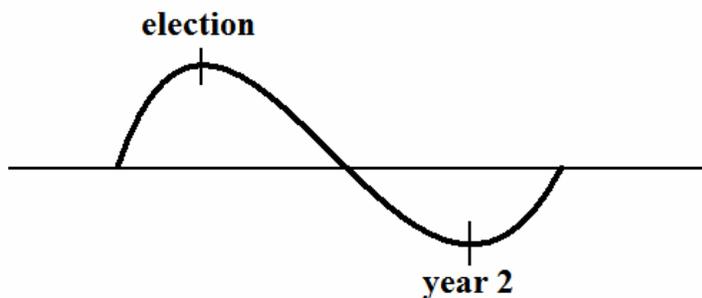
Furthermore, it is important to understand the relationship between the political business cycle and the economic business cycle. Whereas it might be possible to isolate the variables influencing electoral cycles, from a practical perspective, the electorate is mostly concerned with the impact fiscal policy has on the traditional business cycles. In evaluating the state of the economy before heading to the polls, the adaptive voter superimposes the political business cycle on top of the economic naturally occurring cycle, and his evaluation focuses on the additive influence of the PBC and the amount by which it can distort the real economy. Consider Figure 6:

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Figure 6: The Distortionary Effect of the Political Business Cycles
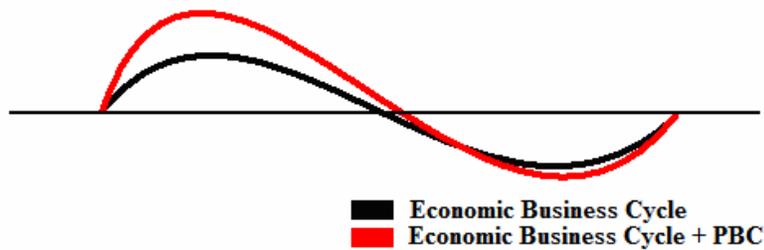
The dark black line represents the economic business cycle, whereas the gray line shows the perceived state of the economy when political forces are acting. The effect of the PBC can thus be understood as the deviation from the economic cycle. This simple model operates under the strong and most times unrealistic assumptions that the business cycle period is concurrent with the election cycles and these two cycles are naturally procyclical. In reality, the real business cycle's period is independent of PBCs and the true state of the economy in the months before an election could be anything from growth to recession. In the case of a recession, the government would still have a strong incentive to operationalize a PBC as they tried to minimize the negative impact of an economic slump.

Under Keynesian assumptions of adaptive expectations, this research moves forward with the following hypotheses:

1) The probability for incumbents' reelection increases when economic performance indicator variables are optimized

2) Variables for economic growth, real disposable income growth, and government transfer payment growth are positively related to incumbent performance at the polls.

3) Unemployment is negatively related to incumbent performance at the polls.

IV. Data

The macroeconomic data used in this study are obtained from the Economic Indicators database, published by the Council of Economic Advisors and cover the time period starting with

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the presidential election year of 1948 and going through the most recent presidential election in 2008 (CEA 2008). This time period was chosen because presidents during this period have all, to some extent, incorporated a Keynesian, interventionist economic strategy into their administrations. I have chosen not to include the Great Depression and the World War II periods because government intervention in the economy was so large that researchers have found that results substantially overestimate the significance of certain macroeconomic indicators (Filburn, 2006; Nadeau and Lewis-Beck, 2001). Prior to this time, most politicians did not believe that the government should involve itself in the country's major economic affairs. In that case, political business cycle analysis would be irrelevant before the advent of Keynesianism.

Two dependent variables have been defined for this paper: One, a dichotomous dummy variable for reelection of the incumbent or the incumbent's party was obtained from the Presidential Elections: 1789-2004 dataset. Elections were coded (1) when the incumbent or his party was reelected and (0) if there was a shift in executive control after the election. Regressions using this dependent variable capture the probability that an incumbent's party will be reelected, given changes in the independent variables.

The second dependent variable, margin of victory, examines the numerical space between the two major parties' candidates on Election Day, where the opposing party's vote percentage is subtracted from the incumbent party's vote percentage. These data were also obtained from the Presidential Elections dataset. The margin of victory is the difference between the incumbent's voting percentage and the opposing party's voting percentage. This variable will allow the study to examine the extent to which major upticks or downturns in the economy affect voter sentiment.

This paper defines four major independent variables: real GDP growth, real disposable income, unemployment, and government transfer payments. As previously mentioned, growth has been well-established in the literature as an indicator of economic health. In this case, growth is measured at each quarter, and is then expressed as an annual rate. What this means is that, if the quarterly real GDP growth rate were g, then the annual rate would be $((1+g)^4-1)*100$. Therefore a 1% growth rate during a quarter translates into a $[((1+0.01)^4-1)*100] = 4.06\%$ annual growth rate percentage for that quarter.

Real disposable income was cited by Tufte as the key economic variable in predicting election outcomes, and so it makes sense to study it with the extended data. It is measured as the change in real disposable income for every quarter, and is then expressed as an annual rate.

The third independent variable, unemployment, has been studied before with mixed results. It is included here as the percentage of the labor force that is unemployed and it is measured as the average of every quarter in the election cycle.

Finally this paper tracks changes in government transfer payments across election cycles. Theoretically, incumbent parties should increase these kinds of government expenditures in the months preceding an election in order to increase the real disposable income of voters. This variable is also measured for every quarter, and it is then expressed as an annual rate.

Table 1 below details the individual variables, their definitions, and the expected coefficient signs:

Table 1: Data Definitions

Variable	Definition	Expected Sign
Dependent		
REELECT	Dichotomous dummy variable, 1 if president or in-party is re-elected, 0 if they are not	N/A
MAR_VICTORY	Difference between incumbent's voting percentage and the opposing party's voting percentage.	N/A
Explanatory		
GROWTH	Average growth rate of real GDP for every quarter of an election cycle, expressed as an annual rate	(+)
RDI	Percent change in real disposable income for every quarter of an election cycle, expressed as an annual rate	(+)
UNEMPLOYMENT	Percent of the labor force that is unemployed	(-)
TRANSFERS	Percent change in government transfer payments for every quarter of an election cycle, expressed as an annual rate	(+)

I expect the signs for the growth, real disposable income, and transfer payment variable to all be positive. Large growth or increases in per capita consumer welfare should increase the probability that individuals will view the incumbent president and/or party favorably. In a Keynesian model of adaptive expectations they should then be more willing to vote to re-elect the president and/or party for another term.

V. Methodology

This paper attempts to examine the impact of macroeconomic indicator variables on election outcomes. Specifically, this study will consider the research problem through three distinct avenues: The first uses descriptive analysis to track the movement of economic indicators around the election cycle and show evidence that there is some evidence of a political business cycle. When a political business cycle has been effectively generated (that is, when macroeconomic indicators optimize in quarters near the election), incumbent politicians should have an increased chance of being reelected.

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The second step involves a series of regressions to determine the statistical significance of the indicators in predicting reelection outcomes. The first set of regressions is estimated using a probit model, with the dependent variable predicting the probability that the incumbent will be reelected. The second set of regressions is estimated using Ordinary Least Squares (OLS), with the dependent variable considering the margin of victory (or defeat) of the incumbent politician or party. By using both modes of analysis, this paper can capture probability predictions and can also pick up the effects of economic changes on the margin of victory variable.

It is important to remember that this study predicts results for a limited number of US presidential elections. Between 1948 and 2008, voters have only gone to the polls to elect a president sixteen times. As a result, this paper suffers from a considerable degrees of freedom problem, and readers should take care to acknowledge this shortcoming when reading through the statistical results. It is more difficult to find statistical significance when a smaller number of cases are being reviewed.

Finally this paper includes an appendix which examines a number of important election case studies. The elections included in this paper were chosen for close examination because their real GDP growth rates one month prior to the election were at least one standard deviation above or below the sixteen case average. Given the small number of cases in this study and the predicted tendency for the two major political parties to try to manipulate the economy in different ways, the case studies enrich the analysis by providing insight into specific government policies that helped to shape election outcomes.

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VI. Results and Discussion

A. Descriptives:

Running initial descriptive calculations helps to paint a broad image of what is going on in the data. In Table 2 I have presented the descriptive statistics for each variable used. Note that I am using data for only 16 presidential election cycles. The small number of individual election cases creates a significant degrees of freedom problem, and as a consequence, regressions using multiple independent variables cannot be run responsibly. In an attempt to partially alleviate this problem, data for the economic indicators were collected in quarterly terms, and the election variables were coded for their respective years. This meant, for example, that every quarter between 1992 and 1996 was coded as 'reelect' for the dependent variable.

Table 2: Descriptive Statistics

Variable	Mean	Standard Deviation
Dependent		
REELECT	0.533	0.516
MAR_VICTORY	0.054	0.038
Explanatory		
GROWTH	3.399	2.332
UNEMPLOYMENT	5.562	1.504
RDI	3.408	4.310
TRANSFERS	1.463	7.618
N=240		

Recall from the theory section of this paper that political business cycles are hypothesized to occur over a four-year period, beginning with fiscal bolstering in the two years preceding the presidential election, followed by a downturn in the two years after the president is inaugurated. Table 3 reports the descriptive states for both the two years preceding the election and the two years following the election. Theoretically, the GROWTH, RDI, and TRANSFER variable indicators should be larger as parties run for reelection, while UNEMPLOYMENT

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should be lower. To test this hypothesis I ran a series of two-sample, 1-tailed t-tests to compare the values of the indicators before and after the presidential election.

Table 3: Comparison of Means Before and After Presidential Elections

Variable	μ 2 years before	μ 2 years after	Mean Difference	T-Test
GROWTH	3.65*	2.93*	0.72	1.4437*
RDI	3.79*	3.01*	0.78	1.4373*
UNEMPLOYMENT	5.51	5.63	-0.12	0.6343
TRANSFERS	1.21	1.73	-0.52	0.5404
N=240				

* indicates significance at the $\alpha=0.10$ level

The results of these difference of means tests were mixed. The GROWTH and RDI variables prove to be significantly larger in the pre-election period, indicating that there may be some pre-election fiscal bolstering for these indicators. This makes sense, as previous literature predicts that rational individuals will vote retrospectively, looking at their financial situation when deciding whether to reelect the in-party. Policymakers, aware of this general trend, would therefore have an incentive to stimulate the economy as voters make their reelect or oust decisions.

The differences in mean UNEMPLOYMENT between the before and after election periods did not prove to be significant. Though the test's inability to reach the significance level does not support the hypothesized relationship between unemployment and the political business cycle, unemployment is still larger in the post-election period.

B. Regressions:

A probit regression looks at the relationship between probability of party reelection to the executive office and economic indicators. The data used in this model include all election year quarters since 1948, namely all quarters for the three years prior to the election year.

Table 4 shows the results of the probit regression predicting the probability of reelection for incumbent parties. Because preliminary results showed that economic outcomes outside of

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the year before the election were not significant, the models explores the relationship between election results and economic indicator variables in the three quarters leading up to the presidential election. For example: Q1RGDP is an interaction term between the average value of RGDP in the presidential election year and a dummy for that period in the hypothesized political business cycle. The Q3 variables should have the largest effects because they are measured right before voters cast their ballots. The comparison group for each variable is the indicators that do not satisfy the dummy variable's timing requirement.

Table 4: Probit Regression Predicting the Probability of Party Reelection

Variables	
Constant	-0.0994
Explanatory Variables	
Q1RGDP	0.0996
Q2RGDP	0.1047*
Q3RDGP	0.2337*
Q1RDI	0.0134
Q2RDI	0.0872*
Q3RDI	0.2114*
Q1U	0.0123
Q2U	0.0088
Q3U	0.0163
Q1TRANS	-0.0002
Q2TRANS	0.0341
Q3TRANS	0.1148*
Pseudo R^2	0.0506
N=240	

* indicates significance at the α=0.10 level

As can be seen, the real GDP growth coefficient is positive across all indicators and significant in the two quarters immediately leading up to the election. Moreover, the coefficients for the real disposable income growth variables are also positive and significant in the months before voters go to the polls.

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Unemployment has proven to not have a significant impact on reelection probabilities. While this is initially a counterintuitive result, given the limited number of election cycles, it would be easy for a large shift in the American workforce to sway the results. For example: The 1980s saw a huge influx of women and immigrants into the labor force. Because the market was not initially able to absorb them, unemployment numbers were deceptively high. The unemployment figures at the time said little about the health of the overall economy (Reagan's reelection in 1984 occurred at a time when the real GDP growth rate exceeded 5.5%, but unemployment peaked at 7.5% right before the election) as it made a transition that eventually put more people to work than ever before. One can then see how real disposable income and real GDP growth rates may be more closely tied with consumer sentiment. Additionally, government transfer payments are a significant determinant of reelection only in the quarter immediately prior to the election.

Overall these are encouraging results, indicating that positive economic activity that helps consumers reflects in voters' willingness to reelect an incumbent or a member of his party. Furthermore, and perhaps more interestingly, these results suggest a significant myopia for voter sentiment. The fact that the real GDP growth, real disposable income growth, and transfer payment growth variables become significant and magnitudinally larger closer to elections suggests that, at the margin, voters respond strongly to economic conditions closest to the election. They would, for example, be quick to forgive a downturn in GDP growth rates that happened a year before if that same variable had positive indicators in the six months closest to the election. Conversely, a president who had high economic numbers during three years of his term might not be able to get away with bad economic numbers if they came in the year leading

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up to the general election day. These results suggest that voters are heavily myopic when they go to the polls, and they have little memory outside of their most recent economic situation.

The OLS regression run for Table 5 regresses the margin of victory variable against the independent macroeconomic indicators. The results of this regression are distinct from those reported in Table 4 in that they examine the extent to which voters respond to economic conditions, rather than just measuring whether or not the incumbent or a member of his party is elected for another term. The adjusted r-squared values for this regression suggest that this specification does a somewhat better job of explaining the impact of macroeconomic variables on election outcomes.

Table 5: OLS Regression Predicting the Margin of Victory for the Incumbent Party

Variables	
Constant	0.0138
Explanatory Variables	
Q1RGDP	0.006
Q2RGDP	0.143*
Q3RDGP	0.248*
Q1RDI	0.007
Q2RDI	0.111*
Q3RDI	0.323*
Q1U	-0.004
Q2U	-0.067
Q3U	-0.140*
Q1TRANS	0.003
Q2TRANS	0.006
Q3TRANS	0.134*
Adjusted-R^2	0.114
N=240	

* indicates significance at the $\alpha=0.10$ level

The RGDP and RDI variables continue to be significant in the quarters right before the general election. Additionally, the magnitude of the coefficients is larger as the election draws closer, indicating again that voters are somewhat myopic about a president's record and they tend to heavily discount past economic activity when making their election calculus. Transfer

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payments are also significant in the OLS regression, and it is clear that this variable has the greatest effect during the third quarter.

The fact that the unemployment variable assumes significance in this regression is a departure from the results of the probit model in Table 6. However, because this OLS regression picks up on subtleties within the election results themselves, there is more variation in the data from which to draw statistical significance.

The appendix of this paper explores four election case studies. The first two elections reported occurred at times when the real GDP growth rate was especially low, and the incumbent party's candidates both lost their election bids. Alternatively, the latter two case studies consider what happens when real GDP growth rates are high. While the opposing party brings many other issues into the election, the incumbent party still carries the election by a considerable popular margin when the economy is doing well in both cases.

VII. Conclusions

This paper attempts to extend the analysis of Tufte's political business cycle into the present using recent American presidential elections data between 1948 and 2008. It pays particular attention to large-scale economic indicators and the way those variables can affect political outcomes for the executive branch. Regressions are run using two measures of electoral success: an incumbent party's reelection dummy and a variable that examines the margin of victory between the incumbent party and the opposing major political party. Furthermore, case studies help illustrate specific incumbent government policies for key elections. Results show that there is a strong relationship between the state of the economy and election outcomes. This suggests that politicians have a strong incentive to manipulate the economy to increase the probability that they (or a member of their party) will be reelected. However, the case studies

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show that administrations take different paths when it comes to trying to run a political business cycle. Additionally, voters are retrospective but heavily myopic when they are making their voting decisions. They discount more distant economic activity during the sitting president's term in favor of evaluating the most recent economic conditions. Tufte mentions Nixon as a primary example. By extending the timeline through the 1980s and into the present, the appendix of this paper suggests that Ronald Reagan and George W. Bush may have tried to strengthen the economy in anticipation of the national election.

The theory surrounding political business cycles is difficult to prove empirically, especially as the cycle relates to specific policy measures. Politicians on different sides of the aisle are inclined to bolster the economy by focusing on different segments of society and different macroeconomic indicators (the tradeoff between growth and unemployment being one example). However, it is interesting to note that for many politicians, the presence of an upcoming election gives presidents the incentive to increase government spending to temporarily push the economy past its natural growth rate.

The analysis in this paper examines large scale economic indicators like real RGDP growth rates and unemployment to lay the groundwork for a preliminary understanding of political business cycles, how they work, and whether they affect voting outcomes. Having found evidence of a political business cycle in the sixteen case sample, it would be reasonable for future researchers to track specific government policies in time with the presidential election to see if a pattern emerges between the election and specific government spending programs. One research technique might be to divide the cases between Republican and Democratic incumbent administrations to see if substantial differences exist between the two groups in terms of which policy measures are more often advanced and funded.

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Similarly, the variables observed in this study may be too broad to fully capture the impact of economic outcomes on incumbents' political performance. Future research might be well served to examine specific government policies that are not subject to automatic fluctuations (such as the transfer payment growth variable included in this paper). In order to increase the sample size, and also extend the scope of this paper, it might also prove useful to explore data from other developed countries with electoral systems similar to that of the United States to determine if like systems experience similar electoral-economic cycles.

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Appendix

The case studies for this section were selected by averaging the RGDP growth rates during the last month before the general election for the sixteen election cycles, and then calculating the standard deviation. The following four cases are the only ones that have RGDP growth rates during that period that fell at least one standard deviation above or below the calculated average. Case studies 1 and 2 will focus on situations where the RGDP growth rates were notably low; studies 3 and 4 provide examples of administrations that increased government spending (and therefore the RGDP growth rate) rapidly right before the November election. Note the fact that in the first two case studies, when RGDP growth rates are at their population low for this paper, both incumbent parties lost their bids for reelection. For the last two case studies, both incumbent candidates won by considerable margins.

Case Study 1: Nixon v. Kennedy (1960)

The first two case studies examine instances where the incumbent party was unable to secure reelection, at least in part this paper argues, because they were unwilling or unable to run effective political business cycles.

The US Presidential election of 1960 marked the end of Dwight Eisenhower's two terms in the White House. Eisenhower's Vice President, Richard Nixon, was now running as the incumbent candidate against Senator John F. Kennedy from Massachusetts. The electoral vote was the closest in any presidential campaign dating back to 1916, and Kennedy ultimately defeated the incumbent party's candidate by one of the smallest margins of victory (in popular vote terms) in history. (Gallup, 1972)

Central to the political campaign that season was the issue of keeping up with the Soviet Union both economically and militarily. This would require a strong financial and economic

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environment for both the government and the voters, and it appears that the electorate may have taken the state of the economy into account when heading to the polls that November.

Based on the results observed in the regressions above, it makes sense to analyze the economic situation in the last quarters before the election. The first quarter of the year was admittedly a strong one, and it boasted a real GDP annual growth rate of 9.2%. However, in the three subsequent quarters growth dropped dramatically, falling to -1.99% in the second quarter and up to only 0.62% in the third quarter immediately preceding the election. (May, 1990)

Adlai Stevenson once described the "liberal hour" as that time before presidential elections when "even the most obsolete Republicans become momentarily reconciled to the machine age" (May, 1990), indicating that even those politicians who were normally fiscally conservative would engage in expansionary economic policies to enhance their or their party's chances at reelection. Eisenhower's refusal to stimulate the economy before the 1960 presidential election potentially speaks volumes about the political business cycle and Tufte's assumption that all US presidents in post-World War II times have had an incentive to create one that favors reelection.

Looking at actual and full employment budget figures, May (1990) observes that fiscal policy became contractionary in 1959 and 1960. The actual federal budget went from a deficit of $10.3 billion in 1958 to a surplus of $3.4 billion in 1960. She estimates that Eisenhower's fiscal policy depressed estimated real GDP by $9.4 billion in 1960. Additionally, monetary policy was contractionary during this time. Bach (1971) observes that monetary authorities at the Federal Reserve by and large shared the White House's contractionary view.

Eisenhower's actions as the sitting president at the time of the 1960 election did little to enhance the probability that a Republican successor would follow him into the White House. In

fact, many have argued that he did a great deal to jeopardize Nixon's chances. The end of the Eisenhower presidency provides a compelling example of Tufte's political business cycle hypothesis. According to May (1990), economists have generally been satisfied with the explanation that Eisenhower's fiscal conservatism was unusually fixed, though this case study also points to the possibility that there may be different incentives involved when a sitting president is not running for reelection.

Case Study 2: McCain v. Obama (2008)

The most recent presidential election provides an example far different from the previous one. While the 1960 and the 2008 election are similar in that both had retiring presidents and slacking economic indicators, George W. Bush departed markedly from Eisenhower in that he made sincere and massive last minute attempts to boost the economy before November. However, these efforts were too little, too late, and the incumbent party was defeated with a margin of victory for Obama and the Democrats of more than seven percentage points.

Polls taken in the last few months of the presidential campaign revealed that the economy was the top concern for voters. In the fall of 2008, many news sources were reporting to the public that the economy was suffering from the worst economic downturn since the Great Depression. During this time McCain's election prospects fell sharply as he made comments suggesting that "the fundamentals of the economy are strong."

One month before the election, McCain left the campaign trail to return to Washington to craft a $700 billion bailout package for the troubled financial industry. This piece of legislation, championed by both a conservative sitting president and the man his party had chosen to follow him in office, can be viewed as a primary example of political manipulation of the economy in order to secure reelection. The bailout money, if injected quickly into the economy, would, under

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a Keynesian framework, increase aggregate demand, increase employment, and increase real GDP, at least for a time. Although the stimulus would eventually be injected into the economy, the passage of the bill alone was not helpful to the Republican incumbent because, at the time of the election, most of the bill's measures had yet to be implemented. The measure ultimately fell short of the major unstated objective (reelection of the sitting president's party), and it emphasizes the importance of trying to run these political business cycles when the economy is suffering.

Ultimately, however, the poor state of the economy cost McCain and his party the election. Having already determined that the final financial quarter before an election is especially important, it is no surprise that McCain lost, given that the real GDP growth rate at the time of his election was -0.52%. (Schnur, 2008)

Case Study 3: Nixon v. McGovern (1972)

The following two case studies look at elections where the incumbent president was able to secure reelection for himself, in part this paper argues, because of expansionary fiscal policies in the months before the general election.

Nixon's 1972 campaign against McGovern epitomizes the political business cycle on the national stage. It inspired both Nordhaus's and Tufte's early theoretical model of political business cycles on which most empirical tests today are still based. Nixon's efforts awarded him a substantial victory: He received electoral votes from 49 of the 50 states, and had a margin of victory between himself and McGovern of more than 23 percentage points.

It generally seems to be the case that, when the economy is functioning well, it is not brought up as an issue of serious concern in presidential elections. This case is no exception. McGovern preferred to run a campaign criticizing the government for not having done enough to

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guarantee a minimum wage for full-time employed workers. People were more willing to focus on abstract issues of human dignity when their pocketbooks were safe.

This did not keep Nixon from trying to boost the state of the economy before the November election. Congress passed a bill that granted Social Security recipients a 20% increase in their benefits (checks were sent out October 1, about one month before the election), and the seasonality of contributions to the federal payroll tax for social security left many individuals with a higher real disposable income in the months leading up to Election Day. Growth in veterans' benefits also increased substantially in the last quarter before the election, a growth rate triple the average in the last ten years. These last minute fiscal adjustments demonstrate that the government anticipates voters' myopia. By acting late in the campaign, the incumbent and his party were able to assure that voters would be at their economic best when they entered the voting booth. (Tufte, 1978)

Readers should be careful, however, in placing too much emphasis on the Nixon case. Beyond the state of the economy, Nixon also ran his campaign during Vietnam, and some fear politics likely contributed to his overwhelming support. Furthermore, it is worth mentioning that post-1972, most transfer dollars were not discretionary; most of the money became automatically tied to specific economic indicators, such as unemployment figures.

Case Study 4: Reagan v. Mondale (1984)

The final case examined in this paper looks at the reelection of incumbent president Ronald Reagan against challenger Walter Mondale. Reagan was helped by a strong economic recovery from the deep recession of 1981-1982 and he carried 49 of the 50 states, becoming only the second president in history to do so after Nixon's 1972 reelection. In the national popular vote, Reagan received 58.8% of the popular vote, compared to Mondale's 40.6%, for a margin of

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victory of over 18 percentage points. Note again that these two case studies were chosen because their economies boasted the largest real GDP growth rates in the sample. There seems to be a clear positive correlation between expansive economic activity and the margin of victory.

At the time of his reelection, President Reagan's economy had made a strong recovery and had an average real GDP growth rate of 5.6% in 1984. During his first administration, Reagan had ushered in an era of "Reaganomics," the tenets of which sought to reduce increases in government spending, tax rates, and regulations. Furthermore, the Republican administration looked to the Federal Reserve to control the money supply and reduce inflation. During Reagan's first administration, income tax rates on the top personal tax bracket dropped 50% and the increase in the number of jobs was able to keep pace with population growth.

Though a Republican and a fiscal conservative in theory, there were elements of Reagan's fiscals policies which looked very Keynesian and could have contributed to a political business cycle around the time of his reelection. In an effort to end the Cold War, Reagan's administration increased government expenditure for defense spending. This caused large budget deficits, an expansion of the US trade deficit, and it also contributed to the Savings and Loan crisis. However, in the short run, this spending increased employment and expanded growth. It is unclear whether Reagan intentionally ran a timed political business cycle; however, his expansionary policies in 1984 probably contributed to a national sentiment that the economy and the country as a whole were healthy. This may have contributed to Reagan's landslide victory. (Nadeau and Lewis-Beck, 2001)

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