

Loss Aversion, Presidential Responsibility, and Midterm Congressional Elections¹

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Abstract

I explore a behavioral model of political participation, first introduced by Quattrone and Tversky [1988], based on the primitives of prospect theory, as defined by Kahneman and Tversky [1979]. The model offers an alternative explanation for why the President's party tends to lose seats in midterm congressional elections. The model is examined empirically and compared against competing explanations for the "midterm phenomenon".

1 Introduction

This paper presents a individual-level, behavioral model of voting. The theory assumes that voters are *loss averse* [Kahneman and Tversky [1979]] and that voters attribute the effects of government policy to the sitting president's party. By incorporating loss aversion, the theory complements Quattrone and Tversky's behavioral theory of political participation [Quattrone and Tversky [1988]]. By examining turnout within an individual-level, purposive framework, the theory owes a great deal to the seminal work of Riker and Ordeshook [1968].

This paper's theory is motivated by a large body of work in social psychology as well as the previous work of political science scholars. By integrating a behavioral theory of decision-making, prospect theory, into an otherwise traditional model of vote choice, this paper takes a step toward providing a rigorous descriptive theory of political action. The theory offers an *individual-level* explanation, based on participation (*i.e.*, turnout), for why the President's party has tended to receive fewer votes in midterm congressional elections than the opposition party. The theory's predictions are tested using data from the United States, as well as comparing it against the predictions of alternative explanations for the midterm effect. Finally, while the principal empirical focus of the current paper is the midterm effect, the theory is general in the sense that if the theory is valid, it applies not only to turnout, but to all forms of political participation.

The remainder of the paper is structured as follows. I first describe the midterm effect and five widely cited explanations for it. In Section 3, I describe Kah-

neman and Tversky's prospect theory, focusing principally on the loss aversion component. In Section 4, loss aversion and a simple "presidential responsibility" heuristic are combined to generate predictions regarding who turns out to vote and the effect this selection effect has on midterm election results. The theory's predictions and those of competing theories are tested in Section 5. Finally, Section 6 offers concluding thoughts and ideas regarding some possibilities for future research.

2 The Midterm effect

The midterm phenomenon is one of the most striking empirical regularities in United States elections. Put succinctly, the President's party has historically lost seats in the House of Representatives in all but 4 midterm elections since the civil war.¹ Many scholars have attempted to explain this regularity. The most widely cited explanations include the "surge and decline" hypothesis (Angus Campbell [1960]; James Campbell [1991], [1997]), the referendum hypothesis (Tufte [1975]), negative voting (Kernell [1977]), a "presidential penalty" (Erikson [1988]), and electoral balancing (Erikson [1988], Alesina and Rosenthal [1989], [1995], [1996]). These theories have been tested primarily with aggregate political and economic data.²

A common thread links these five explanations. In general, both political the-

¹The exceptions are 1934, 1962, 1998, and 2002. In 1934 and 2002, the President's party actually gained seats.

²There are a few exceptions to this, including Scheve and Tomz [1999] and Levitt [1994].

orists and empirical scholars explain the president's party's midterm losses by implicitly or explicitly asserting that midterm and presidential elections are different (in terms of voters' behaviors, perceptions, information, ideologies, partisanship, or some combination of all of these factors). Indeed, this paper's theory predicts that midterm elections are different in a systematic way. By incorporating prospect theory into a theory of political participation, the theory presented in this paper predicts that voters who perceive themselves as facing potential losses will be more motivated to turn out and vote. Supposing that individuals attribute the effect of government policies to the policies of the current administration, the special nature of midterm elections becomes apparent. Whereas in presidential elections at least two competing platforms are somewhat salient to the average voter (one from each major party candidate), in midterm elections often the only national platform is essentially the record of the sitting administration, making voters' comparisons quite easy – either the previous two years have improved a voter's well-being or it has not. The theory presented here predicts that voters in the latter case will be more likely to turn out and vote. Furthermore, if they attribute their plight to the policies of the president, they will often vote against the president's party's members, leading to a bias (in terms of both seats and vote share) against the president's party in midterm elections.

There are two key individual-level components of this paper's explanation of the midterm effect, each of which is in accordance with at least one of the explanations described above. These two components are:

1. When considering their turnout and vote choices in midterm elections, vot-

ers attribute the effects of government policies to the actions of the current *Presidential* administration, and

2. Potential voters are loss averse.

Components 1 and 2 are independent in the sense that each can be empirically falsified individually, and in the sense that the two components do not imply one another, allowing either one to be removed from the overall theory if unsupported by the evidence.

3 Prospect Theory

Kahneman and Tversky [1979] formulated a general theory of individual choice in which individuals are purposeful maximizers, as is generally assumed in modern economic and political science models, but their perceptions of outcomes and probabilities may differ from the normative assumptions generally imposed in neoclassical models of decision-making. The first point of departure from the standard microeconomic model is the allowance for *reference level dependent preferences*, which characterize the attractiveness of some objective outcome by comparing it to some reference level of well-being. (In practical terms, this reference level is often (but not always) assumed to be the decision-maker's current well-being. I do not impose this assumption in this paper.) Within a theory of reference level dependent preferences, outcomes are differentially valued according to whether they represent a *gain* or a *loss*). The second difference between the prospect theory of choice and the neoclassical economic theory is the effect

of probabilities in the calculation of expected utility.³ The nonlinear weighting aspect of prospect theory is not used in this paper, however. Instead, the model presented here relies on the differential sensitivity of subjective (*i.e.*, perceived) payoffs to gains and losses. Given the assumption that losses are weighted more heavily than gains in determining an individual's subjective payoffs, this differential sensitivity is often referred to simply as *loss aversion*.

The implications of prospect theory for economic decision-making have been studied in detail by Richard Thaler (see the many articles in Thaler [1991], some of which are cited separately in this paper). One of these implications is what is known as the “endowment effect,” which describes people's general willingness to pay much less to obtain a good than the amount they are willing to accept to give up the same good. This effect has been demonstrated repeatedly in a number of contexts (for a review of this literature, see Kahneman, Knetsch, and Thaler [1991]). The endowment effect is effectively a special case of the “status quo bias” (Samuelson and Zeckhauser [1988]), which describes the tendency of individuals to choose the “default” option or leave a situation unchanged, even if other alternatives are chosen when there is no pre-existing status quo. Following similar logic, Quattrone and Tversky [1988] argue that loss aversion is consistent with the well established electoral advantage enjoyed by incumbents in U.S. congressional elections.

³Whereas the traditional assumption is that the weight assigned to the utility of each outcome is simply equal to the subjective probability of that outcome occurring, prospect theory instead assumes that individuals respond to subjective probabilities in a nonlinear fashion. In particular, individuals overweight small probability events and under-weight moderate and high probability events [Tversky and Kahneman [1986]].

The main goal of this paper is to illustrate that prospect theory brings to political science a parsimonious framework in which the midterm effect in United States congressional elections can be explained as arising from the turnout decisions of voters, rather than from the vote choices of those who do turnout. This explanation is based on the supposition that voters evaluate a vote for a member of the president's party as a vote for the continuation of the government's policies. The effect of these policies on a given voter is assumed to be compared to the voter's well-being at the previous election. I describe the logic behind this explanation in the next section.

4 Loss Aversion, Presidential Responsibility, and the Midterm Effect

This section outlines how prospect theory can be applied to understand why the U.S. President's party tends to lose seats in midterm elections. One of the premises of prospect theory is that the loss averse utility function is the lens through which individuals calculate the expected benefit of different actions. In the case of potential voters in a 2 party election (or at least an election with no serious third party candidates), there are essentially two possible actions – (1) vote for the preferred major party or (2) abstain. The voter's choice problem essentially reduces to a binary choice – show up, vote for your preferred candidate, and incur the cost of participating, or abstain.

I now describe a simple model of turnout and voting with loss averse voters. In

the discussion of the model, I distinguish between two terms: *utility* and *payoff*. A voter's utility from a policy represents the well-being of the voter resulting from the implementation of that policy. The payoff from an action represents the motivation to choose that action. The difference between utility and payoffs in this model implies that this model of behavior is not consequentialistic [Hammond, [1985]]: an individual may evaluate a potential action or choice in a manner that differs from the individual's preferences over the outcomes resulting from that action or choice.

The starting point of the model is that the President's party ultimately receives credit or blame for governmental policies – and the outcomes from governmental policies are compared to what is essentially an individual-specific reference level. This reference level may depend upon any number of factors – an individual's notion of “good government”, past personal or national economic outcomes, positions on specific issues, etc. The reference level is best conceived of as being reduced to a summary threshold. This threshold is essentially the individual's criterion for judging whether things are going well or poorly.

The precept of loss aversion is that individuals who feel that the policies of the government have led to outcomes exceeding their reference level are less motivated to vote in midterm elections than voters who view the current government's policies as being responsible for outcomes falling below their reference level. As stated in the introduction, the basis for this supposition is that the President's party is special in midterm elections insofar as it implicitly presents a national platform in the form of the current Administration's performance. On the other hand, both

parties offer national platforms in Presidential election years, making the role of an individual's reference level more complicated. Asymmetry between presidential and midterm elections plays a role in the referendum style of explanations for the midterm effect.⁴ In midterm elections, it is easier for voters to construct credible images of the policy of the party controlling the president than it is for them to aggregate the possibly quite disparate platforms of the opposition party's various candidates for congressional office.

4.1 A Model of Turnout with Loss Averse Voters

The primitives of the model are a set of n voters, N , two parties, labeled 1 and 2, where party 1 controls the Presidency. For simplicity, the platform of party 2 is assumed to be represent the reference point for each voter. That is, the utility that the voter would obtain from party 2's policies is assumed to be the reference level against which the President's party's policies are compared. Each voter can choose to abstain, vote for party 1, or vote for party 2. These choices by a voter i are denoted by $a_i = 0$, $a_i = 1$, and $a_i = 2$, respectively.

Each voter is characterized by a two-dimensional type, the first dimensional of which, c_i , represents his or her cost of voting. This cost may be negative in order to account for nonnegligible positive rates of turnout. I assume that, for each voter i , c_i is independently and identically distributed according to a cumulative density function F . The second dimension of voter i 's type, z_i , represents voter

⁴Similarly, this asymmetry is also inherent in the balancing explanations offered by Erikson and Alesina and Rosenthal.

i 's utility resulting from the policies of party 1 *minus* his or her utility resulting the policies of party 2. In other words, the utility resulting from the policies of party 2 are assumed to represent the reference level, $u(q)$, as described above. I assume that, for each voter i , z_i is independently and identically distributed according to a cumulative density function, G . Thus, each voter perceives the policy utility difference between a victory by party 1 and a victory by party 2 as being equal to z_i . The subjective (*i.e.*, perceived) payoff from z_i is denoted by $v(z_i)$. Given the definition of z_i as the payoff from voting, the next definition states what it means for v to represent a loss averse subjective payoff function.

Definition 1 *The subjective payoff function v is loss averse if, for all $z > 0$, the following condition is satisfied:*

$$v(z) < |v(-z)|.$$

In words, the definition of a loss averse subjective payoff function states that v is more sensitive to prospective losses than it is to prospective gains.

Finally, I assume that the pivot probability of any voter i is equal to p and that p is perceived to be independent of which party a voter votes for.⁵

The subjective payoff from turning out to vote for party 1 is

$$w(a_i = 1, c_i, z_i, p) = \pi(p)v(z_i) - c_i,$$

⁵This condition can be arbitrarily approximated by assuming that $F(0) > 0$ and n is large. For discussion of this see, for example, Myerson and Weber [1993] or McKelvey and Patty [2003].

while the payoff from turning out to vote for party 2 is simply

$$w(a_i = 2, c_i, z_i, p) = \pi(p)v(0) - c_i. \quad (4.1)$$

Equation 4.1 represents an assumption that the platform of the opposition party is perceived to be equal to the reference level. Given the fact that v is a monotonically increasing function, the decision of for whom to vote, conditional upon not abstaining, is quite simple: vote for party 1 if $z_i > 0$ and party 2 if $z_i < 0$.⁶ The payoff perceived to follow from a victory by voter i 's most preferred party is equal to $|v(z_i)|$.

Given type (c_i, z_i) the difference in expected payoffs between turning out to vote for the most preferred candidate and abstaining is

$$W(c_i, z_i, p) = \pi(p)|v(z_i)| - c_i. \quad (4.2)$$

A subjective expected payoff maximizing voter i should vote in the election if $W_i = W(c_i, z_i, p) > 0$. Supposing that all voters maximize their expected payoffs as defined in Equation 4.2, the expected turnout is equal to

$$T(p) = \int_{-M}^M \left[\int_{-\infty}^{\pi(p)|v(z)|} F(ds) \right] g(z) dz,$$

⁶The case of $z_i = 0$ is irrelevant for the analysis due to the assumption that G is assumed to be continuously differentiable.

which reduces to

$$T(p) = \int_{-M}^M F(\pi(p)|v(z)|) g(z) dz.$$

Of more interest is the expected turnout for each party, T_1 and T_2 ,⁷

$$\begin{aligned} T_1(p) &= \int_0^M F(\pi(p)v(z)) g(z) dz \\ T_2(p) &= \int_{-M}^0 F(\pi(p)|v(z)|) g(z) dz \end{aligned}$$

These expressions tell us nothing without imposing some assumptions on F and G .

I now assume that G is continuously differentiable, with first derivative g . I also assume that the support of G is bounded above and below, such that there exists a finite number M such that $G(t) = 0$ for all $t < -M$ and $G(t) = 1$ for all $t > M$. One interesting case is when G is symmetric about zero and a positive fraction of the voters have small, but positive costs of voting. Imposing these assumptions, the following result holds, which is proved in the appendix:⁸

Proposition 1 *Fix $p \in (0, 1)$, suppose that F and G are each strictly increasing on the interval $[0, \gamma)$, that $g(s) = g(-s)$ for all s , and that v is a loss averse subjective payoff function. Then $T_2(p) > T_1(p)$: party 2's expected vote is strictly greater than party 1's expected vote.*

⁷Of course, $T = T_1 + T_2$.

⁸The conditions of Proposition 1 can be relaxed somewhat; for example, it is straightforward to show that G does not need to be exactly symmetric for party 2's expected vote to exceed party 1's.

To compare, note that if one assumes a “classical” subjective payoff function v (i.e., that $v(z) = z$), then the same prediction does not hold. In particular, the expected votes for the two parties are identical, as stated in the following proposition.

Proposition 2 *Fix $p \in (0, 1)$, suppose that F and G are each strictly increasing on the interval $[0, \gamma)$, that $g(s) = g(-s)$ for all s , and that subjective payoffs are equal to the policy payoffs: $v(z) = z$. Then $T_2(p) = T_1(p)$: party 2’s expected vote and party 1’s expected vote are equal.*

4.2 Predictions

The first implication of loss aversion for voting is that people who view their vote as a possible means by which they can avoid future losses will be more likely to exert the effort required to turn out and vote than they would be for a similarly-sized potential gain. The theory in this paper explicitly construes the continuation of the current administration’s party’s policies as what the voters view as a “loss” or “gain.” Voter who do not approve of the sitting President’s policies are facing a future loss (relative to their individual reference level), whereas voters who support the sitting President’s policies are facing a future “gain” (again, relative to their reference level). Simply put, this is an assumption of the theory. This assumption is made for two reasons: first, to suppose the opposite framing of future policy gains – to suppose that the President’s supporters view a loss of seats for his party as a “loss” – would lead to a prediction of a midterm “surge,” which is

obviously contradicted by the data. Secondly, the basis of prospect theory is *future* utility and is based explicitly on outcomes (Kahneman and Tversky [1979]).⁹

The basic premise of the theory, again, is that a voter who perceives the administration's current policies as a loss relative to his or her reference level is more likely to turn out to vote against this loss than it is that the same individual would turn out to vote in favor of policies resulting in a gain of the same size.¹⁰

Prediction 1 *Voters who believe that they will be made worse off as a result of the proposed policies in an election are more likely to turn out and vote than voters who believe that they will benefit from the proposed policies.*

In other words, the prospect theory of voting predicts that voters who vote are more likely to be voting against a potential loss than for a potential gain, *ceteris paribus*. I now apply this logic, along with the assumption of a presidential responsibility heuristic, to offer an alternative explanation for the midterm effect.

Prediction 1 states that people who show up to vote are more than likely viewing themselves as facing a potential loss, meaning that electoral outcomes when there are two viable candidates depend on which party is blamed by the voters. If voters view their vote as instrumental in determining whether the current poli-

⁹This is related to perhaps the biggest debate among the scholars working on prospect theory and reference level-dependent choice in general: where does an individual's reference level come from? This paper takes the position that, at least in electoral politics, the reference level is *not* the current Presidential administration. Rather, the current Presidential administration's policies are compared to an individual's reference level that has been formed presumably through years of political socialization, thought, and participation (or, perhaps, lack thereof). I thank a reviewer for helping clarify my thinking regarding this thorny issue.

¹⁰To see this, note that, for a given pivot probability of voting p and a given change in individual utility z , the set of c such that $c < \pi(p)|v(-z)|$ is strictly larger than the set of c such that $c < \pi(p)v(z)$.

cies will remain in place in the near future, Prediction 1 implies that the voters who turn out to vote are likely to vote against the party that is viewed as responsible for recent public policy outcomes. Therefore, in order to operationalize the model, one must make an assumption about how voters assign responsibility for policy determination. A popular viewpoint is that the average voter, faced with the complex task of attributing blame to a particular politician or party's policies, "muddles through" the problem.¹¹ That is, voters adopt stylized rules, or *heuristics*, in order to simplify their inference and decision problems. In this case, the question voters must try to answer is, "who's setting policy?"

As mentioned above, this paper considers the implications of a very simple heuristic: voters consider the President and his party responsible for the effect of the Federal government's policies. I refer to this as the "presidential responsibility heuristic."¹² This supposition is similar to the approaches taken by other authors, including Tufte [1975] and Kernell [1977]. As noted earlier, the assumption of the presidential responsibility heuristic is independent of the assumption that voters choose their actions in accordance with prospect theory. For example, voters might attribute government policy outcomes to the actions of the president's administration and party but not be loss averse. Similarly, loss averse voters may use

¹¹For an excellent treatment of how voters attempt to solve this problem in U.S. Presidential races, see Popkin [1991], especially pp. 72-114.

¹²Discussions of attribution processes and some of the implications for electoral politics are contained in Quattrone and Tversky [1984] and Patty and Weber [2001]. Patty and Weber discuss a "voter bias" in which individuals give more credit or blame to leaders for observed outcomes than is warranted. This bias, which is related to the well-known fundamental attribution error and correspondence bias (see, for example, Ross, Amabile, and Steinmetz [1977] and Ross and Nisbett [1991]), is consistent with the presidential responsibility heuristic. The authors demonstrate the bias in an experimental setting.

sophisticated rules for assigning credit or blame for various government policies to different individuals and/or political parties.

Joining the presidential responsibility heuristic and the fact that voters who turn out to vote are most likely to view the current government performance as a loss relative to their reference level of well-being, the theory offers the following prediction of a type of midterm effect.

Prediction 2 *If voters are loss averse and judge the President's party's performance against a reference level, then the President's party will receive fewer votes in midterm elections than the opposition party.*

It is useful to note the conditions underlying Prediction 2. The underlying logic is that loss-averse voters who compare the policies of the President's party against *any* reference level will be more likely to turn out and vote if the comparison is unfavorable to the President's party. The prediction thus requires loss aversion and the comparison by voters of the President's party's policies against their individual-specific reference levels. The President's party's performance is the only unambiguously national platform in all midterm elections. Thus, it is reasonable to suppose that a loss averse voter will compare the Administration's performance against his or her reference level.

In the next section, I test Prediction 2 and contrast the performance of this paper's theory with the performance of both the referendum explanation and the surge and decline explanation.

5 Empirical Analysis

In this section, I test Prediction 2 with aggregate data as well as attempt to discriminate between several competing explanations for the midterm effect. The dependent variable in the analysis is the net number of votes cast for the President's party's candidates in each election between 1868 and 1990, inclusive. Each party was coded as either the "in" party (if it held the presidency during a midterm election or won the presidency in a presidential election) or the "out" party. At-large elections were excluded as well as those Congressional races in which one of the two major parties did not run a candidate.¹³

A Comment on Methodology. Before continuing to the analysis, I will offer a brief discussion of the data employed in this paper. As noted by an anonymous reviewer, the theory presented in this paper provides an explicit individual-level explanation of the midterm effect. Accordingly, the theory should be tested with survey data in addition to aggregate data. The theory has recently been tested at the individual level in a separate paper (Patty [2004]). In addition, though, I believe that there are at least two justifications for testing the theory with aggregate-level data. First, the aggregate data is much more extensive. In temporal terms, the midterm effect is a regularity extending back to 1870, but the appropriate survey

¹³This data is drawn from ICPSR study 7757. This data runs through 1990, explaining the upper date cutoff. I start the analysis in 1868 as both parties have consistently fielded congressional candidates on a national scale since then. Elections before, during, and immediately following the Civil War are complicated due to changes in the identity of the Republican party.

data is available only for the elections since 1980.¹⁴ Second, there is a potential problem with individual-level data – the theory in this paper predicts that the midterm effect is driven by differential participation in the political process. Since survey response is a voluntary choice, this opens the door for a potentially serious selection effect. Nevertheless, in examining the American National Election Studies data for 1980-1998, Patty finds significant support for the theory presented here.

5.1 Testing the Theory with Aggregate Data

First, I simply examine how many votes the President’s party tends to receive in US House elections, across all races. According to Prediction 2, the President’s party should receive fewer *total* votes than the out party in midterm elections. Table 1 displays the average difference between the total House votes received by the President’s party and the total House votes received by the opposition party, in both presidential and midterm election years. In other words, Table 1 contains the average total margins of House votes for the President’s party in Presidential and midterm elections years.

	Obs	Mean ⁺	Std. Err. ⁺	95% Conf. Interval ⁺
Pres. Elections	31	2867158	1229089	(357024.3, 5377292)
Midterm Elections	31	-843540.5	876255.2	(-2633092, 946011.3)

⁺Millions of net votes.

Table 1: Net Votes for Presidential Party: Summary Statistics

¹⁴The appropriate individual-level data, as argued in Patty [2004], are the respondents’ ideological placements of themselves and the two major parties. These placements are available in the American National Election Studies data for all election since 1980.

In the 31 midterm elections between 1868 and 1990, the average margin for the President's party in House was negative, while the average margin for the President's party was positive in Presidential election years.¹⁵ This simple analysis offers initial support for Prediction 2.

Note that Prediction 2 differs from the already well-established midterm effect. The midterm effect is nearly universally measured in terms of seats lost in the U.S. House of Representatives. Seats might be lost by the President's party even if the President's party wins the "popular vote" in midterm House elections. First, the loss of seats is relative to the performance in the preceding Presidential election and, second, the final allocation of seats depends upon not only total votes, but also the congressional district-by-congressional district performances of the two parties.

It should be clarified that the surge and decline explanation for the midterm effect does not predict a disadvantage for the President's party in midterm elections, *per se*. Rather, the President's party's performance *declines* in midterm elections as the nonpartisan (and often generally less active) voters who voted for the President in the previous election fail to turn out and support the President's party's House candidates in the midterm election. In general, this implies a return of midterm election returns to something close to the normal vote (Converse, [1966]). In contrast, the theory offered in this paper predicts that the President's party does poorly in midterm elections in absolute terms. In other words,

¹⁵The 95% confidence intervals for average net votes for the President's party in the two election types overlap, but not by much – the lower bound for the Presidential election years is just over 350,000 votes, whereas the upper bound for midterm election years is just under 950,000 votes.

while the surge and decline explanation predicts that the size of the midterm effect will depend on the size of the surge in the preceding presidential election (e.g., [1991]), the prospect theory explanation implies that the size of the midterm effect is based on voters' perceptions of the ideological positions of the two parties (and, of course, the ideological preferences and reference levels of the voters themselves). Again, the simplest (and in some sense strongest) prediction of the theory is that the President's party will *lose* the midterm elections, *ceteris paribus*. The results above support this prediction.

Campbell [1991] finds support for the surge and decline explanation, while controlling for the effects of the New Deal partisan realignment as well as the percentage of the two-party congressional vote received by the Democratic Party in the preceding election.¹⁶ Consistent with Prediction 2, Campbell's results indicate a large and significant negative effect of midterm elections on the congressional vote share for the President's party.

One potential problem with using Campbell's empirical analysis to test this paper's theory is that the analysis of aggregate national congressional vote in Campbell [1991] is conducted in terms of the interelection *change* in the Democratic share of the two-party vote, rather than in absolute terms. A similar regression analysis that is more compatible with this paper's theory is conducted by allowing the President's party's share of the two-party national congressional

¹⁶Campbell's analysis is replicated in terms of change in Democratic congressional seat shares as well. I do not examine seat shares in this paper because the theory is based on the decisions of individual voters – focusing on seat changes at best introduces measurement issues and at worst obfuscates the theory's primitives.

vote depend on the President's share of the two-party Presidential vote (in the preceding election for midterm elections, and in the concurrent Presidential election in Presidential elections), whether the election was a midterm election, and a "New Deal" indicator variable for the 1932 and 1934 elections.¹⁷ Throughout this analysis, proportions of two-party votes (both congressional and presidential) were adjusted down by 0.5, so as to yield coefficients predicting relative success or failure. Finally, I include the interaction of midterm elections and share of the two-party Presidential vote.

According to this paper's theory of political participation, the coefficient of the interaction term and/or the coefficient of midterm elections should be significant. The results of the regression are reported in Table 2.¹⁸ Each of the coefficients is significant at the 5% level. This is not surprising, as the analysis is in many ways a replication of that performed by Campbell. However, consider the sizes of the coefficients – the estimates are consistent with a surge (congressional success correlates well with presidential success in presidential election years), but show no evidence of a decline. Instead, the coefficients for net presidential vote share and the interaction of midterm elections with net presidential vote share are opposite in sign and almost identical in absolute size. As mentioned above, midterm elections return to the normal vote (Converse, [1966]).

¹⁷Given the recoding of the dependent variable as the Presidential party's vote share, I do not include the partisan realignment indicator variable used by Campbell [1991].

¹⁸Table 2 reports OLS estimates, though there is evidence of autocorrelation of the residuals (the Durbin-Watson statistic is 1.33). To deal with this issue, I ran a generalized least squares (Prais-Winsten) regression. This approach corrects for first-order autocorrelation and results in a Durbin-Watson statistic of 1.88. The results - both in terms of significance and values of the coefficients are virtually unchanged and therefore are not reported.

Table 2: Analysis of Presidential Party's Share of Two-Party National Congressional Vote: Surge and Decline

Variable	Coefficient (Std. Err.)
Presidential Vote Share	0.694** (0.125)
Midterm * Presidential Vote Share	-0.685** (0.177)
Midterm	0.337** (0.102)
New Deal	0.096* (0.040)
Intercept	-0.355** (0.095)

$N = 62, R^2 = 0.475, F_{(4,57)} = 12.897$

*: $p < 0.05$. **: $p < 0.01$.

In order to further compare the theories, the predicted values of net congressional vote share received by the president's party (computed from the regression results reported in Table 2) are compared across midterm and presidential elections. The results of this are reported in Table 3.

	Obs	Mean	Std. Err.	95% Conf. Interval
Pres. Elections	31	.0393956	.0107799	(.0173801, .0614111)
Midterm Elections	31	-.013756	.0031229	(-.0201337, -.0073782)

Table 3: Predicted Net Vote Share for Presidential Party: Summary Statistics

Even when the surge and decline explanation is accounted for, the model still predicts a negative impact of midterm elections on the success of the President's party in congressional elections. According to the surge and decline explanation,

this is due to the absence of presidential “coattails”, whereas the loss aversion explanation suggests that the voters who support the president’s party are less likely to be motivated to vote than those who oppose the administration’s policies in midterm elections. Finally, it should be noted that the inclusion of presidential coattails as an explanation for swings in electoral fortunes begs the question at some level. It is seemingly uncontroversial that such coattails exist empirically, and for intuitive reasons. The theory presented here offers an individual-level explanation for the observation of outcomes consistent with presidential coattails and/or surge and decline.

In particular, the existence of presidential coattails (*i.e.*, a positive correlation between presidential success and congressional success in presidential election years) is consistent with the theory of loss aversion and presidential responsibility presented in this paper. Since any given voter’s motivation to vote is dependent upon which party’s platform is used as a point of comparison, the party that is most successful at establishing itself as the reference level

5.2 Referendum Explanations

In addition to the surge and decline explanation, Tufte has forwarded the “referendum hypothesis” to explain the midterm effect. Generally this explanation is operationalized by allowing the President’s party’s performance in midterm congressional election to depend upon national economic indicators, such as unemploy-

ment, gross domestic product (GDP), and/or inflation.¹⁹ Indeed, as pointed out by Campbell [1987], the surge and decline hypothesis was, at least for a time, supplanted by the referendum hypothesis as the accepted explanation for the midterm effect.

In order to discriminate between the theory presented in this paper and referendum hypotheses (at least those depending upon the national economic situation), I include measures of the national economic health of the United States and test the theory offered in this paper against the “referendum” explanations, which predict that poor performance by the administration is punished by the electorate in midterm elections. In particular, I include the annual rate of inflation, the annual rate of growth in GDP, and the average interest rate for short-term (3 to 6 month) commercial debt as indicators of the economic well-being of the nation.²⁰ The results are presented in Table 4. The coefficients for the inflation and GDP growth variables have the “right” signs (negative and positive, respectively) but neither is significant at conventional levels.²¹ Interestingly, the effect of interest rates is significant and has the expected sign (negative).²² In addition, the coefficient for the midterm indicator variable is statistically significant at the 1% level of signifi-

¹⁹For example, Kramer [1971] posits that congressional elections are driven by national income, inflation, and unemployment.

²⁰The inflation and per capita GDP growth rate data were drawn from Johnston and Williamson [2003]. The interest rate data were drawn from Economic History Services [2003].

²¹This may be due to the fact that both variables are potentially subject to more severe measurement error issues in earlier years. Gross domestic product and inflation data were not systematically collected in the United States until the early 1930s. Regressions using just the modern data (not reported) yield qualitatively similar results, although with less statistical power.

²²The exclusion of interest rates from the regression does not affect the significance of inflation. Though the two are theoretically closely related, their empirical correlation is quite weak ($r=0.0775$, $p=0.24$).

cance.

This analysis supports the theory presented here – the President’s party is inherently disadvantaged in midterm elections, even after controlling for potentially confounding effects. For example, midterm elections are moderately and negatively correlated with the growth rate of per capita GDP.²³

Table 4: Analysis of Presidential Party’s Net National Congressional Vote: Referendum Explanations

Variable	Coefficient (Std. Err.)
Midterm Election	-3.64** (1.36)
Inflation	-18.02 (14.38)
GDP Growth	4.64 (12.81)
Interest Rate	-0.983** (0.267)
Intercept	7.83** (0.162)

$N = 62, R^2 = 0.31, F_{(4,57)} = 6.50$

*: $p < 0.05$. **: $p < 0.01$.

Short term interest rates are an interesting and, to my knowledge, previously unnoticed, correlate with the midterm effect. While most voters can not borrow at the interest rate for short-term commercial debt, this rate is in general correlated

²³As with the OLS regression reported in Table 2, this analysis was also conducted using the Prais-Winsten GLS method, as the Durbin-Watson statistic for the OLS regression in Table 4 is 1.06. The results of this analysis are once again essentially the same as those reported in Table 4 (though the residuals then yield a Durbin-Watson statistic of 1.84), and therefore are not reported here.

with local retail interest rates and, perhaps more importantly, fairly accurately describes financial markets throughout the nation. Given the ease with which money can be transferred between debt markets, low commercial interest rates in New York generally indicate “easy money” throughout the country and, hence, may be more indicative of voters’ individual perceptions of the economic situation. Alternatively, voters might perceive interest rates and the general monetary environment (*i.e.*, whether loans are easy or difficult to obtain) as being more directly under the control of the administration than gross domestic product or inflation. Both production and pricing decisions are more directly controlled by private individuals and firms than by the Federal government.

In addition to GDP growth, inflation, and interest rates, I examined the effect of presidential approval ratings and the national rate of unemployment on the net vote for the President’s party. Due to limitations in the data (presidential approval numbers only go back to 1949, and consistent unemployment rate data only go back to 1929), the results (not reported) do not achieve traditional levels of statistical significance.

5.3 Appraisal of the Theory’s Performance

The theory presented in this paper essentially states that voter participation is different in midterm and presidential elections. The evidence presented in this section supports this contention. In addition, the penalty suffered by the president’s party remains significant – in both substantive and statistical terms – even when either of the surge and decline or referendum explanations are included in the

analysis.

However, as opposed to the surge and decline explanation, the difference in participation between midterm and presidential elections is not solely a function of differences in the informational stimuli provided by the two types of elections. (The difference in stimuli is key, perhaps, to explaining the dropoff in overall rates of participation in midterm elections.) Rather, midterm elections offer a clear reference point for voters' comparisons of their well-beings vis a vis the two parties' policy positions. This reference point engenders an aggregate effect in terms of the evaluations of the president's party's policies among the voters who show up at the polls. This effect is not necessarily detected in presidential elections due to the two parties' presidential candidates representing two highly salient reference levels.

Considering the referendum explanations, the estimated effects of economic growth and inflation are insignificant. While interest rates appear to affect the president's party's performance in a negative fashion, the type of election remains the largest determinant of electoral success for the administration's party.

The theory and results presented here offer a more explicit formalization and justification of Erikson's "presidential penalty" explanation for the midterm effect. Erikson states that voters in midterm elections are predisposed to vote against the president's party. In midterm elections, "the national electorate chooses as if it chooses to give less votes than it otherwise would to the presidential party, *simply because it is the party in power.*"(Erikson, [1988], p.1023, italics added) This explanation is entirely compatible with the loss aversion explanation offered in this

paper. The theory presented here, however, is more appealing insofar as it is based on a theory of individual behavior. Accordingly, if correct, the theory should stand on its own when tested in other settings (such as, for example, at the state level). Additionally, in Erikson's explanation, the source of the "penalty" is based in the voting behavior of midterm electorates. The loss aversion explanation points to the composition of the midterm electorates as the cause of the Presidential party's midterm misfortunes. In short, while Erikson's explanation ignores the issue of turnout, the theory presented here suggests that the root cause of the "presidential penalty" *is* turnout.

6 Discussion, Conclusions, and Extensions

In this section, I first discuss how the theory presented here is related to other explanations for the midterm effect. The relationships between the explanations can be quite subtle, especially given the various interpretations of the different explanations that have been forwarded by numerous authors. Following that discussion, I offer concluding remarks and suggestions for future work.

6.1 Discussion

The prospect theory explanation for the midterm effect is not equivalent to the theory that midterm elections are treated as a referendum on the president's performance [Tufte, [1975], [1978]; Born, [1986], among others]. This theory predicts a selected sample of voters will turn out to vote in midterm elections – systemat-

ically different from the sample of voters who turn out in presidential elections. While evaluations of the president's performance may be correlated with electoral outcomes, the model presented here is sensitive to the distribution of evaluations within the electorate. For example, many eligible voters may have a favorable impression of the president's performance and yet not show up to vote. Furthermore, while the term "presidential responsibility" is used in this paper, the theory and the predictions it generates are compatible with a broader attribution process through which voters do not necessarily report attributing credit or blame specifically to the President's performance. Instead, the attribution process may operate at the party level, as supported by the findings of Cover [Cover, [1986]]. In other words, while I have motivated this model with a highly simplified and stylized heuristic, the inferences of voters are undoubtedly generated by a more complex process. Insofar as this process tends to attribute outcomes more frequently with the president's party than the opposition, the predictions of the model presented here remain unchanged.²⁴ On a related note, this paper's theory is consistent with a less severe (or even reversed) midterm effect when voters do not perceive themselves as facing potential losses. For example, when the economy is performing well (as in 1998, for example), one might expect that fewer voters will view a continuation of the government's policies as likely to result in a loss, whereas when negative shocks occur between a presidential election and the following midterm election, one might expect that the average voter is more likely to view a continu-

²⁴It seems plausible that if voter attribution process attributes government policy to one party or the other, the most natural candidate is the party controlling the presidency.

ation of government policies as likely to involve a loss, relative to some reference level.

It should be noted that this paper's explanation for the midterm effect does not predict that individuals who vote in midterm elections differ in demographic characteristics, economic interests, party membership, or ideology, for example, from individuals who vote in presidential elections except inasmuch as these characteristics are correlated with voters' evaluations of the government's current policies. This distinguishes the theory presented here from the surge and decline explanation as well as the electoral surprise explanation. Two important components of the surge and decline theory are defections by party members in Presidential elections and the behavior of independent voters in all elections. Similarly, the electoral surprise explanation rests upon dynamic switching by ideologically moderate voters.²⁵ According to the prospect theory explanation of the midterm effect, the only difference between the midterm and presidential electorates is in that voters in midterm electorates are more likely to evaluate current governmental policies as a loss relative to their individual reference levels.

Regarding electoral strategy, this model predicts that it is in the interests of each party to blame not only bad policy outcomes on its opponent: it may actually be in the interests of either party to claim as little credit as possible for government policy in general. For example, suppose that the Democrats successfully argue that the Republicans are responsible for the entirety of the government's

²⁵In addition, turnout is not an element of the electoral surprise explanation [Alesina and Rosenthal [1996]].

current policies. According to this paper's theory, such a strategy might simultaneously increase the Republican party's approval ratings and decrease their electoral success. This logic is consistent, for example, with election-year claims by incumbents that the other party's membership acted in such a way as to effectively block the incumbents' attempts at changing government policy (blaming their own ineffectiveness on "gridlock" or "Washington politics," for example). In this framework, such a claim may be more than just an excuse; it may also represent an attempt to change how the voters' attribute blame or credit for the effects of government policies. Since voters who turn out to vote are essentially more likely to be in a mood to blame, this strategy has the potential to yield an electoral advantage if successful.

The linkages between the theory of loss aversion and the theory of "negative voting" (Kernell [1977]) are quite clear. Both predict that dissatisfied voters will be more likely to vote than other voters.²⁶ As with the connections between this paper's theory and Erikson's presidential penalty explanation, this paper offers a broader and more explicit treatment of individual behavior that is generally consistent with Kernell's discussion of negative voting. The advantages to a more explicit formulation of the negative voting intuition include the possibility of modeling races with more than two candidates and a better understanding of the "moving parts". For example, while loss aversion necessarily implies something equivalent to a reference-level, the assumption of reference level dependent preferences does not necessarily entail the assumption of loss aversion. In addition,

²⁶See, for example, Kernell [1977], p. 52.

the application of prospect theory to voter behavior is independent of the presidential responsibility heuristic (or any model of voter attribution, for that matter). Understanding and exploring these parts individually is essential to constructing a descriptively realistic model of political participation.

6.2 Conclusions and Extensions

In summary, this paper offers an individual-level, behavioral explanation for the midterm effect in U.S. congressional elections. Loss aversion, as formalized by Kahneman and Tversky [1979], coupled with an attribution of government policy to the policy choices of the sitting President and his party, generates a prediction of the midterm effect through higher rates of participation by voters who perceive themselves as having been made worse off as a result of government policies. This paper represents one of many potential applications of prospect theory to political science. The study of revolutions, campaign contributions, and lobbying are further examples of political phenomena that might be better understood within a decision-theoretic framework incorporating prospect theory.

The prospect theory of individual choice should be incorporated into a strategic model of interaction and applied to models of political interaction. For example, the implications of the prospect theory of turnout for electoral strategy. Jacobson [1987] cites evidence in Caldeira, Patterson, and Markko [1985] and Gilliam, Jr. [1985] that U.S. congressional incumbents are less likely to be reelected in high turnout elections. This result is consistent with the prospect theory of voting, particularly if the incumbent's platform becomes the focus of voters' attentions. High

levels of turnout will often be the result from unfavorable comparisons between voters' reference levels and the perceived effects of the incumbent's platform.

Finally, there remain many issues with regard to the actual dynamics of campaign strategy – how can candidates use frames strategically, once they realize the effect such frames have on voter mobilization, for example? By the inclusion of prospect theory into a model of political participation, the potential exists for a theory of “spin”. Along these lines, the reference level, or status quo, that parameterizes the prospect theory of voting represents the most important free parameter in the model. Future research in voting behavior should consider plausible theories of how voters set their reference levels, with an eye towards generating empirically falsifiable hypotheses.

A Proof of Proposition 1

Proof: By the symmetry of g , we can carry out a change of variables as follows:
follows:

$$\begin{aligned} T_2(p) &= \int_{-M}^0 F(\pi(p) |v(z)|)g(z)dz \\ &= \int_0^M F(\pi(p) |v(-z)|)g(z)dz. \end{aligned}$$

$$\begin{aligned}
T_2(p) - T_1(p) &= \int_0^M F(\pi(p)|v(-z)|) g(z) dz - \int_0^M F(\pi(p)v(z)) g(z) dz \\
&= \int_0^M [F(\pi(p)|v(-z)|) - F(\pi(p)v(z))] g(z) dz
\end{aligned}$$

For any $z \geq 0$, $|v(-z)| \geq v(z)$, with the inequality being strict for all $z \neq 0$. Thus, $\pi(p)|v(-z)| > \pi(p)v(z)$ for all $z > 0$. Since F is a cumulative distribution function and therefore weakly increasing, it follows that, for all $z > 0$,

$$F(\pi(p)|v(-z)|) - F(\pi(p)v(z)) \geq 0. \quad (\text{A.1})$$

By hypothesis, F is strictly increasing on $[0, \gamma)$. This implies that $F(\pi(p)|v(-z)|) - F(\pi(p)v(z)) > 0$ for all $z \in [0, \gamma)$. Furthermore, G is strictly increasing on $[0, \gamma)$, implying that

$$\int_0^\gamma [F(\pi(p)|v(-z)|) - F(\pi(p)v(z))] g(z) dz > 0.$$

Since Inequality A.1 and $g(z) \geq 0$ each obtain for all $z > 0$, we can conclude that $T_2(p) - T_1(p) > 0$ or, equivalently, $T_2(p) > T_1(p)$, as was to be shown. ■

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