

Explaining Midterm Election Outcomes: A New Theory and an Overview of Existing Explanations

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Abstract

This paper describes a theory of political participation based on *loss aversion* and derives its predictions for midterm Congressional elections. In addition, the paper discusses the five most prominent explanations for the *midterm effect*, an empirical regularity of US Congressional elections in which the president's party tends to perform poorly.

Note: Incomplete Version.

1 The Loss Aversion Theory

Let X denote a one-dimensional policy space, representing the liberal-conservative ideological dimension of American politics.¹ There are two political parties, d and r , each associated with a policy position in X , x_d and x_r , respectively. We assume that these positions are not equal ($x_r \neq x_d$) and treat them as exogenously fixed. Public policy is chosen by a unicameral legislature (referred to simply as “Congress”) and a unitary president. For simplicity, we assume that the legislature is strictly majoritarian, with the party that controls a majority of the seats in the legislature determining the revealed preferences of that body. The final policy outcome is a convex combination of the positions of the party holding the presidency and the party controlling Congress. In particular, denoting the final policy outcome by $y \in X$, the platform of the president's party by x_P , and the platform of the party controlling Congress by x_C ,

$$y = \alpha x_C + (1 - \alpha)x_P$$

¹Aside from the intuitive appeal of this construct, its usefulness as a prediction tool with regard to legislative behavior in the United States is examined in great detail in Poole and Rosenthal [1997].

for some exogenously fixed value $\alpha \in (0, 1)$. Thus, in this model, the most extreme policy outcomes result from unified control – i.e., when one party controls both the presidency and Congress – whereas divided control of the two branches leads to more moderate policies. The parameter α measures the importance of Congress in the determination of public policy (in other words, it is analogous to the legislative branch’s bargaining strength). Equivalently, this parameter also measures the practical importance (in terms of public policy) of midterm elections relative to presidential ones.

1.1 Voters

The finite set of potential voters is denoted by N . Each citizen i possesses an ideal public policy, $p_i \in X$, and the following policy utility function $u : X \times X \rightarrow \mathbf{R}$:

$$u(y, p_i) = -|y - p_i|.$$

In other words, citizens are assumed to have preferences over policy that are linearly decreasing in terms of the distance between the implemented policy outcome and their ideal policy.² If individual i chooses to turnout and vote, he or she pays a net cost of c_i , which is expressed in the same units as the policy utility function. The final utility received by voter i , conditional upon turning out to vote, is then $u(y, p_i) - c_i$. The final utility received by the voter conditional upon abstaining is simply $u(y, p_i)$. We do not assume that c_i is positive. A negative value of c_i implies that voter i enjoys a net “consumption” benefit from the act of voting itself. We assume that c_i is privately observed and distributed according to a continuously differentiable cumulative distribution function F , with probability density function f . Furthermore, we assume for simplicity that the distribution of c_i possesses positive support everywhere. In other words, c_i might take any value.³

Each voter i is characterized by a reference-level of public policy utility, r_i . Essentially, this represents the minimally acceptable public policy – it is useful to think of any public policy x for which $u(x, p_i) < r_i$ as being viewed as “unacceptable” by voter i , whereas any public policy x for which $u(x, p_i) \geq r_i$ is at least satisfactory.⁴

²Little, if any, of the analysis conducted in the paper relies upon the assumption of linearity. It is made only to simplify the exposition of the theory.

³This assumption is made only to make the presentation of the results clearer. Otherwise, the results would depend in uninteresting ways upon the distribution of the (unobservable) private costs of participation. The only binding requirement for our model is that, with positive probability, some individuals will possess “sufficiently small” costs of voting (e.g., zero).

⁴As the term “satisfactory” suggests, an alternative interpretation of the theory might involve the “satisficing”

Given a reference-level r_i , the payoff from voting for a policy outcome x is denoted by $v(u(x, p), u(r_i))$. The function $v : \mathbf{R}^2 \rightarrow \mathbf{R}$ is assumed to be a continuous function that is twice continuously differentiable in both of its arguments except possibly at $u(x) = u(r_i)$. Furthermore, v is also assumed to satisfy the following conditions:

1. **Normalized.** Without loss of generality, $v(z, z) = 0$ for all $z \in \mathbf{R}$.
2. **Monotonicity.** The payoff of voting for a policy outcome is an increasing function of the utility received from that outcome. Formally, for all $z \in \mathbf{R}$, $\frac{\partial v(k, z)}{\partial k} > 0$ for all $k \neq z$.
3. **Loss Aversion.** Policy gains are less valuable than similarly-sized policy losses. Formally, for all $z \in \mathbf{R}$ and $\delta > 0$, $v(z + \delta, z) < v(z - \delta, z)$.
4. **Diminishing Effect of Losses and Gains.** The marginal effect of increasing gains and the marginal effect of increasing losses are both decreasing functions. Formally, for all $z \in \mathbf{R}$, $\frac{\partial^2 v(k, z)}{\partial k^2} < 0$ for $k > z$ and $\frac{\partial^2 v(k, z)}{\partial k^2} > 0$ for $k < z$.

This payoff function is consistent with the characteristics of the “S-shaped” payoff function formalized in *prospect theory* by Kahneman and Tversky [1979].⁵ In addition, it shares similarities (especially with regard to predicted behavior) to the theory of *satisficing*, as developed by Simon [1957]. The mapping of utility into payoffs is pictured in Figure 1. The payoff $v(u(x, p_i), r_i)$ is the subjective reward received by voter i from casting a ballot that would result in a policy outcome of x . Voter i ’s cost of voting is denoted by c_i .⁶ In our theory, voters are assumed to ignore the behavior of other voters. They are assumed to believe (irrationally) that abstention will result in the least preferred feasible public policy being implemented following the election. Accordingly, we assume that voters are behaving in a very conservative fashion – in game theory terms, they are “maxminners” with respect to the choice to turnout or abstain, basing their behavior on a belief that the worst will occur if they abstain. Even with such beliefs, voter i will still abstain if the cost of voting, c_i , is large enough.

We assume that voters are naive in two relatively intuitive ways. First, they assume that they are pivotal and calculate the utility difference between ballots accordingly. In addition, each voter believes that if he or she abstains, the *worst* feasible public policy outcome will result. (In this setting, the worst feasible outcome results from unified control by the voter’s

model of decision making (Simon [1957]).

⁵For an important (and, as far as we are aware, the seminal) application of prospect theory to political science, see Quattrone and Tversky [1988].

⁶This cost might be negative, representing a nonpolicy-based benefit from voting.

least preferred party.) The assumptions that voters are naive and sincere jointly imply that voter i 's subjective payoff of voting from for policy outcome x is equal to

$$w(x, p_i, r_i, c_i) = v(u(x, p_i), r_i) - c_i, \quad (1)$$

while, denoting the set of feasible public policy outcomes by Y , the subjective payoff from abstaining is assumed to be equal to

$$w(0, p_i, r_i, c_i) = v(\min_{y \in Y} [u(y, p_i)], r_i). \quad (2)$$

The theory of voter behavior is based on maximization of the perceived payoff, w , rather than the traditional policy utility function, u . This assumption is key to the theory precisely because the individual's policy payoff function, v , is assumed to distort the utility function – in particular, perceived payoffs are subject to *loss aversion* – voters are assumed to be more strongly compelled to avoid losses than achieve similarly-sized gains, relative to the voter's reference-level, r_i . Thus, as elucidated in Propositions 1 and 2 below, the theory predicts that individuals will turn out to cast a ballot if their most preferred ballot, when evaluated through Equation 1, leads to a payoff that exceeds the evaluation of Equation 2. Formally, the theory predicts that voter i will turn out and vote if

$$W(p_i, r_i, c_i, Y) = v(\max_{y \in Y} [u(y, p_i)], r_i) - v(\min_{y \in Y} [u(y, p_i)], r_i) - c_i \quad (3)$$

is nonnegative.⁷ Equation 3 makes clear that the individual turnout decision depends on the set of feasible public policy outcomes that can follow an election (Y), the voter's reference level (r_i), his or her ideal policy (p_i), and the cost of voting (c_i).

Electoral Setting: Elections. There are two types of elections, presidential and midterm. In presidential elections, voters cast a ballot for both Congress and the presidency, whereas in midterm elections, voters choose only which party to vote for in Congress. Accordingly, the set of feasible policy outcomes, Y , in a midterm election consists of two elements, whereas it consists of four elements in a presidential election.

⁷It suffices for our purposes to presume that individuals who are indifferent about turning out to vote do so. This is only a technical consideration, given our assumption that the cumulative distribution function of c_i is continuously differentiable; in such an environment, individual indifference about turning out “almost never” occurs (*i.e.*, the event is assigned zero Lebesgue measure).

Electoral Setting: Voter Types. For simplicity, we assume that there are three types of voters, referred to as liberals (L), moderates (M), and conservatives (C), with ideal policies denoted respectively by p_L, p_M , and p_C .⁸ As suggested by the labels, the ideal points are ordered: $p_L < p_M < p_C$. We denote the proportion of voters who are liberal (*i.e.*, have ideal policy equal to p_L) by ϕ_L , the proportion who are moderate by ϕ_M , and the proportion who are conservative by $\phi_C = 1 - \phi_L - \phi_M$. As stated above, we assume that in each election, for each voter i , the cost of voting, c_i , is privately observed and drawn from a distribution governed by a continuously differentiable cumulative distribution function F with full support on $\mathbf{R}$. We assume that F is independent of the type of election and the voter's ideal policy, p_i .

For the purposes of exposition, we will use the following functional form for v :

$$v(u(x, p_i), r_i) = \begin{cases} r_i^2 - u(x, p_i)^2 & \text{if } u(x, p_i) \geq r_i \\ -\sqrt{r_i - u(x, p_i)} & \text{if } u(x, p_i) \leq r_i \end{cases} \quad (4)$$

As shown in Figure 1, this function possesses a “kink” at $u(x, p_i) = r_i$. This kink is the crux of the loss aversion embodied in v . We now normalize the model so that $x_d = 0$ and $x_r = 1$. We also assume that $p_L = x_d = 0$, $p_M = 1/2$, and $p_C = x_r = 1$. We assume that, for all individuals i , r_i is interior in the following sense:

$$r_i \leq -\alpha.$$

Practically, this assumption implies that (non-moderate) individuals do not view the loss of control of the Congress by their party as a “loss” so long as the president belongs to their party. In many ways, this assumption is *the* substantive content of the theory's explanation of the midterm effect in US Congressional elections. Intuitively, this assumption is less restrictive for lower values of α – *i.e.*, for situations where the Congress is less important in the determination of public policy.

Using the above assumptions, the theory's predictions can be derived. The theory offers predictions about both individual behavior and aggregate election outcomes. We tackle these in order below.

Individual-Level Predictions. The theory make several predictions about individual-level behavior. These are amenable to testing using, for example, United States National Election Studies data. (This is done for all elections since 1980 in Patty [2004].) The predictions of the

⁸More types could be accommodated, but would merely complicate the statement of the theory's predictions.

theory are stated below as propositions.

Turnout in Presidential Elections. The first proposition is simply a statement of when liberal and conservative citizens (*i.e.*, those citizens i with $p_i \in \{p_L, p_C\}$) will turn out to cast a ballot in a presidential election. The subsequent proposition deals with the more complicated case of turnout by moderate voters.

Proposition 1 *A liberal or conservative individual will turn out to cast a ballot in a presidential election if*

$$c_i \leq r_i^2 + \sqrt{r_i + 1}.$$

Proof: Substituting the functional form of v from Equation 4 into Equation 3, it follows that

$$W(p_i, r_i, c_i, Y) \geq 0 \Leftrightarrow r^2 - (-\sqrt{r_i - (-1)}) - c_i \geq 0. \quad (5)$$

The right-hand inequality in Equation 5 reduces to

$$r_i^2 + \sqrt{r_i + 1} - c_i \geq 0.$$

From this, the proposition then follows immediately. ■

Proposition 2 *A moderate individual (i.e., an individual with $p_i = p_M$) will turn out to cast a ballot in a presidential election if*

$$r_i \leq -1/2 \quad \& \quad c_i \leq \alpha - \alpha^2 \quad (6)$$

$$-1/2 < r_i \leq \min[1/2 - \alpha, \alpha - 1/2] \quad \& \quad c_i \leq r_i^2 + \sqrt{r_i + 1/2} + \alpha - \alpha^2 - 1/4 \quad (7)$$

$$r_i > \min[1/2 - \alpha, \alpha - 1/2] \quad \& \quad c_i \leq \sqrt{r_i + 1/2} - \sqrt{r_i + (1/2 - \alpha)} \quad (8)$$

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Proof: As stated in the proposition, there are three cases to consider: (I) when r_i is very low relative to α , (II) intermediate values of r_i , and (III) high values of r_i . We consider the cases in order below. First, however, note that the symmetry of the model yields two facts. First, for a moderate voter, the minimum feasible policy utility is independent of which party wins unified control of the two branches:

$$\min_{y \in Y} u(y, p_M) = -1/2$$

Second, the maximum feasible policy utility is also independent of which party controls which branch, so long as the control is divided between the two parties:

$$\max_{y \in Y} u(y, p_M) = \min[\alpha - 1/2, 1/2 - \alpha].$$

Case I. Low values of r_i – specifically when $r_i \leq -1/2$ – imply that moderate voters consider *all* of the feasible policy outcomes following from a presidential election to be above their reservation value (*i.e.*, $\min_{y \in Y} u(y, p_M) = -1/2 \geq r_i$). The evaluation of W (from Equation 3) in this case leads to

$$W(p_i, r_i, c_i, Y) \geq 0 \Leftrightarrow r_i^2 - (\alpha - 1/2)^2 - r_i^2 - 1/2^2 - c_i \geq 0, \quad (9)$$

the right side of which reduces to

$$\alpha - \alpha^2 \geq c_i, \quad (10)$$

which leads to Equation 6 of the Proposition.

Case II. Intermediate values of r_i (*i.e.*, $r_i \in (-1/2, \min[1/2 - \alpha, \alpha - 1/2]]$) imply that moderate voters consider the policies resulting from divided control of government to be above their reference level. In this case, an analysis analogous to that conducted for Case I leads to

$$W(p_i, r_i, c_i, Y) \geq 0 \Leftrightarrow r_i^2 - (\alpha - 1/2)^2 + \sqrt{r_i + 1/2} - c_i \geq 0, \quad (11)$$

the right side of which reduces to

$$r_i^2 + \sqrt{r_i + 1/2} + \alpha - \alpha^2 - 1/4 \geq c_i, \quad (12)$$

which leads to Equation 7 of the Proposition.

Case III. For high values of r_i ($r_i > \min[1/2 - \alpha, \alpha - 1/2]$) moderate voters consider *all* feasible governmental outcomes to be below their reference level. In this case, an analysis analogous to that conducted for Cases I and II leads to

$$W(p_i, r_i, c_i, Y) \geq 0 \Leftrightarrow \sqrt{r_i + \alpha - 1/2} + \sqrt{r_i + 1/2} - c_i \geq 0, \quad (13)$$

the right side of which leads immediately to

$$\sqrt{r_i + \alpha - 1/2} + \sqrt{r_i + 1/2} \geq c_i, \quad (14)$$

which leads to Equation 8 of the Proposition. ■

It is not central to the paper’s theory, but we believe that Case II in the proof above (*i.e.*, the case stated in Equation 7 of Proposition 2) is the most attractive one from a real-world viewpoint – the other two cases imply that no loss aversion is revealed in the turnout behavior of moderate voters.

The next proposition states that, *ceteris paribus*, liberal and conservative voters will both exhibit higher rates of turnout than moderate voters in presidential elections. The proof is simple⁹ and omitted.

Proposition 3 *In presidential elections, liberal and conservative voters (i.e., those with ideal points $p_i \in \{p_L, p_C\}$) will be more likely to turnout than moderate voters (i.e., those with ideal point $p_i = p_M$).*

Turnout in Midterm Elections. Midterm elections differ from presidential ones because the *post election* control of the presidency is not in question. Thus, the set of feasible outcomes Y contains only two policies – that resulting from unified control by the president’s party and that resulting from divided control between the current president’s party and the opposition party. The difference in the set of feasible outcomes following midterm and presidential elections leads to a difference in the theory’s predictions about individual incentives to turnout. Furthermore, these differences depend on the ideology (*i.e.*, ideal policy) of the individual in question. The next two propositions deal with when liberal and conservative individuals will participate in midterm elections. There are two substantively different cases: partisans who favor the president’s party and those who favor the opposition party.

Proposition 4 *If the Republican (Democratic) party controls the presidency, a conservative (liberal) individual will turn out to cast a ballot in a midterm election if*

$$c_i \leq \alpha^2.$$

Proposition 5 *If the Republican (Democratic) party controls the presidency, a liberal (conservative) individual will turn out to cast a ballot in a midterm election if*

$$c_i \leq \sqrt{r_i + 1} - \sqrt{r_i + 1 - \alpha}.$$

⁹Simply note that the cutoff values in Proposition 1 strictly exceed those in all three cases of Proposition 2 and apply the assumption that the distribution of c_i possesses full support.

The next proposition deals with the behavior of moderate voters in midterm elections. The symmetry imposed on the model (in particular, that all moderate voters are indifferent between the two party platforms) leads to a prediction that turnout by moderate voters will be invariant to the type of election. This weakness¹⁰ can be overcome by positing a richer framework in terms of heterogeneity of moderate voters' ideal points. For the sake of simplicity, we do not do so here.

Proposition 6 *A moderate individual (i.e., an individual with $p_i = p_M$) will turn out to cast a ballot in a midterm election if*

$$r_i \leq -1/2 \quad \& \quad c_i \leq \alpha - \alpha^2 \quad (15)$$

$$-1/2 < r_i \leq \min[1/2 - \alpha, \alpha - 1/2] \quad \& \quad c_i \leq r_i^2 + \sqrt{r_i + 1/2} + \alpha - \alpha^2 - 1/4 \quad (16)$$

$$r_i > \min[1/2 - \alpha, \alpha - 1/2] \quad \& \quad c_i \leq \sqrt{r_i + 1/2} - \sqrt{r_i + (1/2 - \alpha)} \quad (17)$$

Proposition 7 *In midterm elections, a partisan voter who favors the platform of the party controlling the president are less likely to turnout than a partisan voter who favors the opposition party's platform.*

Aggregate-Level Predictions. With the individual-level predictions made, the theory allows us to make two important predictions about aggregate outcomes in midterm elections as well. Our main prediction is that, after controlling for the proportion of each voter type (i.e., ϕ_L, ϕ_M, ϕ_C), the opposition party will, in expectation, receive more votes than the president's party in midterm congressional elections. In essence, this prediction follows directly from Propositions 4 and 5.

Proposition 8 *Suppose that the presidency is controlled by the Republicans (party r).¹¹ The likelihood that a liberal voter turns out to vote is greater than the probability that a conservative voter will turnout to vote. Depending on the exact values of α and r , the likelihood that a moderate voter will turnout may exceed, be exceeded by, or fall between these two probabilities.*

¹⁰This is a weakness because of the established fact that turnout declines across all voter ideologies in midterm elections.

¹¹The Democratic case is symmetric.

Proposition 9 *Suppose that the presidency is controlled by the Republicans (party r)¹² and that moderate voters, conditional upon turning out, are equally likely to vote for either party, then there exists $\delta > 0$ such that $\phi_C - \phi_L < \delta$ implies that the expected vote share for the president’s party in a midterm election is strictly less than the expected vote share for the opposition party’s candidates.*

As will be seen in the next section, Proposition 9 is the principal “new” prediction of this paper’s theory when contrasted with the existing explanations for the midterm effect. Supposing that the electorate is sufficiently close to “evenly split” (in terms of voter preferences and the behavior of moderate voters), the theory predicts that the president’s party will *lose* midterm elections in terms of the expected total number of votes cast for the two major parties’ candidate in midterm Congressional elections.

1.2 A Brief Discussion of Pivot Probabilities

The presentation of the theory does not mention the probability that a given voter’s vote will affect the policy outcome. This *pivot probability* has been the focus of decades of controversy in the study of turnout (for example, Downs [1957], Riker and Ordeshook [1968], Aldrich [1993], Green and Shapiro [1994]). It is important to focus attention on two different implications of pivot probabilities: incentives for strategic voting and the possible irrationality of voting at all. First, with regard to strategic voting, pivot probabilities are important in determining when it is best to vote for a less preferred candidate in search of a more preferred policy outcome. In the case of midterm elections this is unimportant given our one-shot analysis of elections. Each voter is faced with a simple binary choice between the Democratic and Republican parties. Only if there were three viable candidates in the congressional race would we then need to worry about strategic voting in midterm elections.

As for the rationality of turning out at all, when one refers to Figure 2, the question reduces to whether the pivot probability for a Democrat differs substantially from that for a Republican voter. Denoting the probability of a Democratic voter being pivotal by δ_d , and the corresponding probability for a Republican voter by δ_r , a rational Democratic voter i as illustrated in Figure 2 should turn out only if $c_i \leq \delta_d c_d$ and a rational Republican voter j should turn out only if $c_j \leq \delta_r c_r$. Of course, empirically, these probabilities are typically infinitesimal. However, the argument here does hinges on “all things being constant” across partisans of the two major parties in terms of the costs of voting. It is not our concern why the absolute level of

¹²The Democratic case is symmetric.

turnout is high or low – the model is consistent with any baseline level of turnout. What the theory *does* speak to is the comparative statics of turnout with respect to the type of elections and an individual voter’s policy preferences. For this purpose, we note that what concerns us is the difference between δ_d and δ_r and claim that it is fair to treat the difference between these two pivot probabilities as zero.¹³ Furthermore, what is important for the purposes of the theory’s predictions is not necessarily the true difference between these pivot probabilities, but the difference between δ_d and δ_r as perceived by a Democratic and Republican voter, respectively. In other words, an individual’s perception of his or her pivot probability depends upon the partisanship of the president, excluding it from the analysis should have no systematic effect on our results. Therefore, given the lack of readily available (and interpersonally comparable) objective or subjective estimates of pivot probabilities, it seems reasonable to assume that at least *a priori*, voters’ perceptions of their pivot probabilities are all equal.

2 Other Explanations for the Midterm Effect

As mentioned previously, there have been several attempts to explain the midterm effect. In this section, we contrast five of these explanations with the theory offered in this paper so that the validity of each may be tested with both aggregate and individual-level data. The five explanations examined in this section can be broadly grouped into two groups. The first group, containing three of the five explanations, is linked by the singularity of their purpose. Put simply, this group of explanations, which includes the surge and decline explanation, the presidential penalty, and the negative voting model, are essentially designed to explain aggregate voting outcomes by what party controls the Presidency. In the second group of explanations lie the policy balancing and referendum explanations, which are each based on a broader model of political economy. This paper’s theory is a general model of political participation that lies somewhere between these two groups of explanations. On the one hand, the present theory is behavioral in the sense that voters’ payoffs depend upon the electoral context in a manner that may or may not be rational in the strict sense of the word. On the other hand, the present theory is based on a model of purposeful individual choice and is, in theory, testable in situations other than elections. We discuss each of the five preexisting explanations in this section.

¹³For a demonstration (within a much more general environment) that the ratio of these two probabilities approach one, the reader is referred to Proposition 2 in McKelvey and Patty [2003].

2.1 Surge and Decline

The surge and decline explanation for the midterm effect was first offered by Angus Campbell [1960]. Since then, it has been subjected to further empirical testing on several occasions. The essence of the explanation is that short-term political forces tend to motivate voters who are typically less involved in politics to turn out and vote in presidential elections. Given these voters' lower information and interest levels, they are typically straight-ticket voters, which aids the winning presidential candidate's party's congressional candidates. In midterm elections, the short-term impulse is reduced in the absence of a presidential campaign, leading to congressional results that more closely mimic the "normal vote." The result of this difference in participation is losses for the president's party in midterm elections.¹⁴

In sum, the theory of surge and decline predicts that midterm losses represent a return to the normal vote (i.e., the distribution of long-standing party attachments within the electorate). Thus, the theory predicts a relative loss of votes for the president's party in midterm elections (i.e., version 2 of the midterm effect) Campbell's discussion also implies a prediction of a tendency toward the relative seat loss for the president's party (i.e., version 4, above).¹⁵ In other words, at an aggregate level, *surge and decline does not predict that the president's party will be at an absolute disadvantage in midterm elections*. Rather, the surge and decline explanation predicts that the president's party will lose some (or all) of the gains achieved in the previous presidential election.

At an individual level, the surge and decline explanation rests on asymmetric short-term forces – both in terms of information/stimuli (presidential elections generally offer a higher stimulus to potential voters) and in terms of the psychological attachment of different voters to either of the major parties. Core and peripheral voters act differently once in the voting booth. Core voters are less likely to switch their allegiance permanently, always returning to their native party in low stimulus elections, whereas peripheral voters simply drop out in the absence of a sufficient electoral stimulus.

The surge and decline theory is a verbal theory, based on primitives that are somewhat vague. Nevertheless, it does offer testable predictions. For clarity, we now list these predictions.

¹⁴Campbell's theory was intended to explain two regularities of American elections. In addition to predicting midterm losses (the "decline"), the surge and decline theory predicts that upward deviations in turnout in presidential elections will result in gains for the party that wins the Presidency (the "surge").

¹⁵This implication is drawn from his statement that the one exception to the midterm losses (to that point in time) occurred in 1934.

- S1** The first prediction of the surge and decline explanation is that, due to the lack of a presidential campaign to provide stimulus to low information/motivation voters, midterm elections will be characterized by lower total turnout. (Campbell [1960], p.408)
- S2** There will be a positive correlation between turnout and the winning presidential candidate's party's congressional performance in presidential election years. (Campbell [1960], p.411)
- S3** The president's party's relative congressional election performance (the change in vote share from the preceding election) is positively correlated with its share of the vote in the presidential race during presidential election years and negative correlated with its share of the preceding presidential race in midterm election years. (Campbell [1960], p.411)
- S4** The ratio of moderate voters' turnout in midterms and moderates' turnout in presidential elections, is less than the same ratios for partisans of either party. (Prediction **S4**, Campbell [1960], p.409)
- S5** Moderate voters vote for the president's party in midterm House elections. (Campbell [1960], p.406)

2.2 Referendum Hypothesis

Tufte [1975] advanced the referendum hypothesis, which states that the midterm election represents a referendum on the presidential administration's performance. This explanation was later set within a broader political economic framework, as elucidated in more detail in Tufte's book, *Political Control of the Economy* [1978]. As an individual-level explanation of the midterm effect, however, the referendum theory is not well-specified in several key ways. While the logic underlying the referendum hypothesis is similar in spirit to the asymmetric evaluation embodied in this paper's theory, the primitives are very different. As opposed to the theory presented here (as well as the surge and decline explanation), Tufte's theory takes turnout as given: the referendum hypothesis does not allow for potential voters to choose between voting and abstaining. The only choice required of voters in the model is whether to vote for or against the president. In a world where abstention is not allowed (or determined exogenously), consistency of the referendum hypothesis and the midterm effect requires that the Administration's performance is consistently poor at the time of midterm elections and moderate and/or independent voters cast their votes against the president's party either as a protest or in search

of policy change. (In this regard, the referendum hypothesis shares common ground with the balancing explanations for the midterm effect.) Secondly, the decision to punish the president must be based upon the alternatives, to some degree. As mentioned by many scholars, the two parties broadly represent different macroeconomic policies. Thus, the proper definition of poor performance in office should be conditioned at the very least upon which party is in power.

Tufte acknowledges that it is possible that the referendum hypothesis is best thought of as an addendum to the surge and decline explanation for the midterm effect, stating that “a satisfactory explanation of why the president’s party always operates in the loss column in off-years will grow from a combination of the midterm model and a revised version version of Campbell’s ‘surge and decline’ model (which, in revision, might place more emphasis on the surge and decline of coattail effects and less on turnout effects).” [Tufte, [1975], p.826] We are in agreement with the first part of Tufte’s statement – the referendum hypothesis is an appealing complement to the surge and decline theory – but obviously disagree with the second, parenthetical part of his statement. Far from deserving less attention than devoted to it by Campbell Campbell [1960], turnout effects are the central cause of the midterm effect.

Given Tufte’s deemphasis of turnout, we can succinctly summarize the referendum explanation of the midterm effect as predicting that voters, conditional upon turning out to vote in a midterm election, will punish the incumbent administration (by voting against its congressional candidates) if they view the administration’s performance negatively. The individual-level evidence presented below offers moderate support for this prediction. The aggregate evidence for the referendum hypothesis is weak at best. As discussed below, the only macroeconomic indicator that we have found to correlate strongly with the election results¹⁶ is short-term interest rates. Similarly, the effect of presidential approval is not statistically significant.

The referendum hypothesis is succinct and yields two testable predictions.

R1 At the aggregate level, the president’s party’s performance in midterm House elections is affected by economic indicators. (Tufte [1975], p. 814)

R2 The likelihood that an individual, upon turning out, will vote for the president’s party’s House candidate is positively correlated with presidential approval. (Tufte [1975], p. 814)

¹⁶Results here are in terms of votes, as opposed to congressional seats.

2.3 Negative Voting

The theory of negative voting was first advanced as an explanation of the midterm effect by Kernell [1977], though the general theory originated much earlier. The central thesis of negative voting is that individuals are more likely to base their decisions on what they do not like than on what they approve of. Kernell's explanation deals with absolute votes in midterm elections, with the seat division following from the individual voters' behaviors.

Kernell discusses the role of negative voting in determining turnout in midterm elections: "Differential turnout remains central to the outcome [of the election], but different categories of voters, disapprovers and approvers, are identified as respectively staying in and dropping out." [Kernell [1977], p.53] In many ways, Kernell's explanation walks hand-in-hand with the theory offered here. The differences are primarily in the foundations and the levels of specification of the two theories. Negative voting is intuitive but, unfortunately, theoretically slippery for three reasons.

First, Kernell's use of negative voting consists of two separate components: what we might term a *negative vote effect*, whereby negative evaluations are more important in determining vote choice among those who turnout, and a *negative turnout effect*, in which negative evaluations of a given candidate have a larger, positive, effect on a voter's turnout decision than do positive evaluations. One strength of the model and empirical analyses presented here is the isolation of these two separate mechanisms.

Secondly, the theory presented here is explicitly based on a mapping of policy preferences into behavior. The theory of negative voting as described by Kernell is based on party identification, presidential approval, and the "transfer" of voters' affects toward the president from the chief executive to the candidates of his party (c.f., Kernell [1977], p.53). Kernell's construction is not incompatible with the theory presented here – and it certainly is intuitively appealing – but it lacks a desired degree of specificity. This paper's theory, on the other hand, is simultaneously more general (with regard to the set of behaviors to which the theory can be applied) and more specific (with regard to the theoretical formulation of the model). Loss aversion is closely linked to existing theoretical traditions in political sciences, social psychology, and economics.

Third, Kernell's theory is explicitly based on presidential approval, leading to a potential confound between Tufte's referendum hypothesis and negative voting explanation. Also, as Erikson [1988] points out, the aggregate-level midterm elections data is not consistent with an explanation based on presidential popularity. The use of presidential approval hides an unappealing aspect of the negative voting model, as well. As pointed out by Kernell (Kernell

[1977], p.52), the negative voting theory can be read as predicting that incumbents will have difficulty securing reelection. Obviously, this conclusion is controverted by the high reelection rate enjoyed by incumbents in the House.¹⁷

Putting theoretical concerns aside, negative voting offers three testable predictions.

N1 The probability of a voter votes for the president's party in midterm House elections (upon turning out to vote) will be positively correlated with presidential approval. (Kernell [1977], p.55)

N2 Vote choices are biased against the president's party in midterm elections. (Kernell [1977], p.53)

N3 Turnout will be negatively correlated with presidential approval. (Kernell [1977], p.53)

2.4 Balancing Theories

Midterm elections represent a constrained opportunity for voters to adjust public policy. Thus, a midterm effect might be the result of rational behavior by policy-seeking voters. This logic lies at the heart of the explanation offered by Alesina and Rosenthal [1989].¹⁸ The theory offered in this paper is consistent with the logic of electoral balancing but differs from the theory offered by Alesina and Rosenthal in that the principal cause of the midterm effect is turnout, rather than the choice of moderate voters to support the president's party in presidential elections and the opposition party in midterm elections. Alesina and Rosenthal's theory offers no prediction regarding turnout in midterm elections, as it essentially assumes full turnout in all elections.¹⁹ The theory offers three predictions regarding midterm elections that we test.²⁰

1. Moderate voters switch between voting for the president's party in House elections during presidential election years and for the opposition party in midterm House elections.

¹⁷ Additionally, the theory would predict a stronger bias against incumbents in races in which the challenger is relatively unknown, as is the case in many House races. This comparative static is also at odds with the reality of congressional races.

¹⁸ It is also put forward as a possible explanation by Erikson [1988].

¹⁹ Alesina and Rosenthal [1996] allow for variable turnout (Alesina and Rosenthal [1996], p. 1328), but require that it be independent of the policy positions and the outcome of the previous election. Additionally, changes in turnout are assumed to have no net effect on the ideological composition of the electorate.

²⁰ An additional prediction of the model presented in Alesina and Rosenthal [1996] is that midterm voting behavior will be affected by the "electoral surprise" of the previous election's outcome. Moderate voters who did not correctly anticipate the previous Presidential election's outcome will be more likely to vote against the President's party in the following congressional election. We do not examine this prediction, given the data that we are using. However, Scheve and Tomz [1999] test and find some support for this prediction.

(Prediction **B1**, Alesina and Rosenthal [1995], pp. 54-56)

2. At the aggregate level, the president's party's performance in midterm House elections is affected by economic indicators. (Alesina and Rosenthal [1989], p. 376)

In addition to the questionable assumptions regarding turnout, the balancing theory assumes that all voters have instrumental motivations – that is, they only care about their vote choice insofar as it affects the final policy outcome. This is not problematic given the assumption that public policy is a convex combination of the platforms of the parties based on a continuous function of the shares of the legislature (which is assumed to be unicameral) controlled by the two parties. This assumption is convenient, but seemingly at odds with the reality of legislative policymaking in the United States, where the majority party in the House has nearly dictatorial control of the agenda (e.g., Smith [1989], Cox and McCubbins [1993, 2002], Sinclair [1999], and Patty and Penn [2004]). Given a “majoritarian” model of the legislative process and instrumental motivations on the part of voters, one would only be interested in the *absolute seats* version of the midterm effect (version 3 in the paper's introduction). However, as noted earlier, such a regularity does not exist. The loss aversion theory presented in this paper assumes that turnout is based on a behavioral calculus that is less firmly wedded to purely instrumental motives.

Moreover, once one considers a voter's motivation to incur a positive cost to vote, the restriction of attention to the instrumental desires of a classically rational voter (e.g., Downs [1957]) results in predicted levels of turnout that are negligible – unless one assumes a consumption benefit from voting (e.g. the “duty” term made famous by Riker and Ordeshook [1968]). The model presented in this paper does not suffer from this problem, as it includes both the vote choice and turnout decisions in a single framework.²¹

2.5 Presidential Penalty

In an important piece, Erikson Erikson [1988] presented an explanation of the midterm phenomenon that hinges on the existence of a “presidential penalty”. According to the explanation, voters in midterm elections are predisposed to vote against the party controlling the Presidency.

²¹Alesina and Rosenthal [1996] discuss the fact that their model assumes that policy outcomes are directly determined by the national vote shares received by the two parties (p. 1335). Rather than discussing the majoritarian nature of the House of Representatives (for example), the discussion implicitly centers on the translation of votes into seats and the possibility of vote shares offering signals to incumbent legislators rather than on the ensuing legislative bargaining game, *per se*.

Erikson examines the effect in terms of seats as well as votes. The penalty is framed in relative terms, as illustrated by Figure 1 in Erikson [1988].

Erikson's theory is parsimonious but also *ad hoc*, as the microlevel foundations of the penalty are left unmodeled. In other words, Erikson remains agnostic for the individual-level cause of the midterm effect. As he states,

“The reason why the midterm electorate punishes the in-party so harshly is not immediately evident. Negative voting is one possibility, presenting the constant appearance at midterm of a ‘protest’ vote. The presidential penalty could also be the calculated hedge by a rational electorate that chooses to balance off a president of one ideological persuasion with a Congress tilted in the opposite ideological direction.

The aggregate evidence regarding midterm elections cannot distinguish among these important nuances in the interpretation of the presidential penalty. Further analysis is required both of survey data and of aggregate data in other electoral contexts beyond that of the midterm election.” [Erikson [1988], p. 1027]

Just as Erikson offers negative voting and balancing as possible causes of the presidential penalty, the loss aversion theory of political participation also provides an individual-level foundation for Erikson's aggregate-level theory. The presidential penalty explanation offers two direct predictions, which are stated below.

P1 Midterm House election outcomes will be biased against the president's party. (Erikson [1988], p.1013.)

P2 Individual vote choices in midterm House elections will be biased against the president's party. (Erikson [1988], p.1013.)

3 Conclusion

This paper has advanced a theory of political behavior that is based on prospect theory, in accordance with the work of Kahneman and Tversky [1979] and Quattrone and Tversky [1988]. While the theory itself is not new, it does provide an alternative explanation for one of the more robust empirical phenomena in US elections: the regular losses by the president's party in midterm congressional elections. In addition, it offers stronger predictions than existing explanations for the midterm effect. The purpose of this paper is two-fold: first, we have presented,

and derived the predictions of, the theory itself as applied to turnout and election outcomes. Second, we have presented the five prominent competing explanations for the midterm effect and summarized their testable predictions. The predictions of this paper's theory, as well as those of the competing explanations, are tested in Patty [2004]. This paper complements that work by examining the theoretical bases of all six explanations in more detail.

When comparing the six explanations, it is useful to consider each explanation's predictive "reach." Some of the explanations (notably surge and decline, negative voting, and loss aversion) predict more than others (such as the presidential penalty model) about voting in congressional elections. Similarly, the referendum and balancing explanations are part of larger models of political economy and ultimately should be judged on an appropriately broader basis. In sum, the existing explanations

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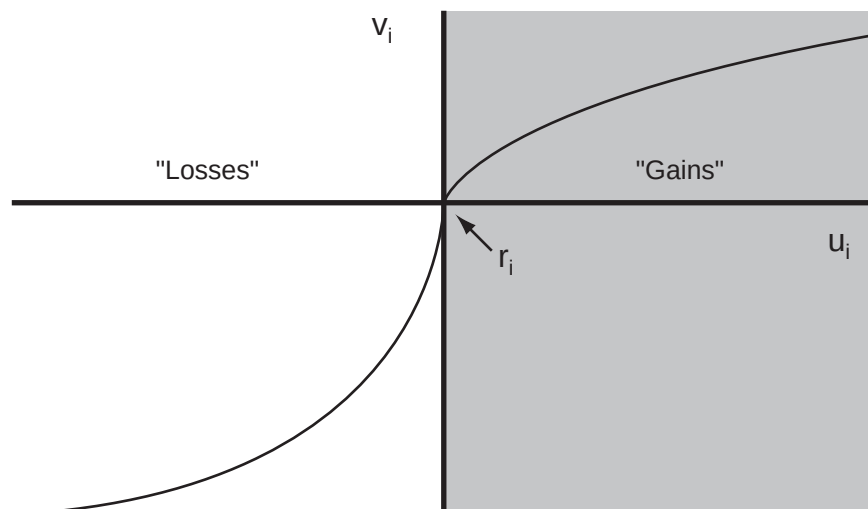


Figure 1: Reference-Level Dependent Payoff (v_i) as a Function of Utility (u_i)

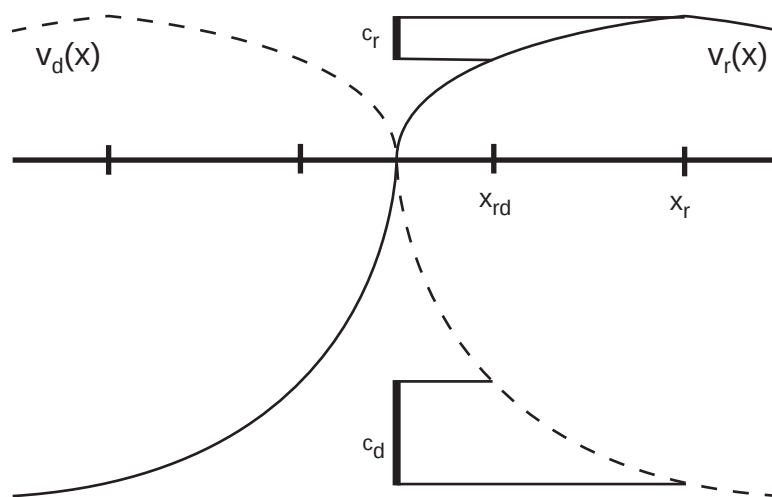


Figure 2: A Midterm Election with Republican-Controlled Presidency