Information Contagion, Presidential Coattails and Policy Skewness*

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Abstract

This paper asks how information about candidates in the presidential race affects outcomes in congressional races. We develop a theory in which parties benefit from 'coattail' effects when a candidate's performance exceeds expectations. To test the predictions of our theory, we use a new measure of presidential coattails as a source of exogenous variation in voters' beliefs about congressional candidates. We find that, in constituencies that experience unexpectedly strong performance by a presidential candidate, more ideologically extreme legislators are elected and federal spending is higher. Our results suggest that elections with contemporaneous races skew policies away from the median-voter ideal.

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1 Introduction

Information about one market can affect beliefs about another, and if the accuracy of those beliefs is improved, then economic gains may be realized. As with markets, elections aggregate information and are most effective when voters have accurate beliefs (Downs, 1957; Becker, 1958). In this paper, we explore how variation in beliefs about congressional candidates that stems from information about a concurrent presidential race affects electoral outcomes and subsequent policy in Congress.

We develop a theory of 'information contagion' in elections with contemporaneous races for office. To illustrate our theory, suppose the Democratic and Republican presidential candidates take more conservative positions than voters expect. This results in more support for the Democratic presidential candidate relative to expectations. If party affiliation provides a signal of the ideological positions of its members (Caillaud and Tirole, 2002; Snyder and Ting, 2002), then uninformed voters may wish to update their beliefs about candidates in congressional races. If so, this updating generates a so-called 'coattail' effect, whereby unexpected support for a party's presidential candidate provides a built-in advantage for its other candidates competing for office. As a result, more ideologically extreme congressional candidates, who are typically less electorally viable, can win.

There are three key predictions of our model: (a) despite the relatively more moderate nature of the electorate, presidential elections return more ideologically extreme congressional entrants than do midterm elections, (b) unexpected support for a party's presidential candidate ('coattails') induces more of its ideologically extreme candidates to win, and (c) Democratic (Republican) coattails induce a more liberal (conservative) congressional entrant, independent of her party. The first two predictions relate coattail effects to within-party ideological extremism, while the third prediction looks at the ideological bias produced by presidential coattails. We test these and related predictions using U.S. Congress panel data and find evidence congruent with our theory. Specifically, coattails influence the type of legislator who first takes office ('selection effects') and subsequently shape her behavior in Congress ('incentive effects').

To isolate the effect of information on outcomes from that of voters' preferences, we construct a new empirical measure of coattails in congressional elections. In particular, we use the difference between the realized presidential voteshare and its historical average as a source of exogenous variation in information about the

ideological positions of parties. Absolute support for a presidential candidate in a given location confounds invariant preferences of the electorate with presidential race-specific effects. For example, substantial support for the Democratic presidential candidate in California may have more to do with voter preferences in California than a favorable draw of presidential candidates for Democrats during a particular election year. And, for the same reason, relatively liberal candidates are likely to get elected. We assume that our measure of coattails (i.e., unexpected presidential support) identifies the effect of a particular draw of presidential candidates net of voter preferences.

To better understand our results and to increase clarity, we (a) scale our results on ideology by the degree of polarization between Democrats and Republicans using Poole and Rosenthal's Nominate scores, a common measure of legislative voting, (b) define coattails as the difference between a party's realized and unweighted average of four preceding presidential voteshares and (c) examine the marginal effect of an increase in coattails by 0.1 units, which is roughly one standard deviation of our measure. Finally, the measure of coattails is constructed at the constituency-level (e.g., state-level presidential votershares for senators).

Using Senate data from 1968 to 2006, we find that polarization is 12 percent greater among presidential-election entrants relative to midterm-election entrants; conversely, polarization is 9 percent greater among incumbents who exit in midterm elections relative to incumbents who exit in presidential elections. Focusing more closely on selection in presidential elections, we find that coattails increase polarization among entrants in presidential-election years by 8 percent, and that Democratic (Republican) coattails induce 11 to 17 percent more liberal (conservative) entrants.

In the House, by comparison, we find that coattail effects on ideology are relatively modest. Using data from 1982 to 2004, we do not find appreciable ideological differences between entrants in midterm and presidential elections, and Democratic (Republican) coattails induce 5 to 6 percent more liberal (conservative) entrants. However, looking beyond the immediate effects of coattails, we find that in the subsequent midterm election ideological bias is reversed: the positions of legislators elected in the 'decline' after Democratic (Republican) presidential coattails are 12 to 13 percent more conservative (liberal) in the Senate and 8 percent more conservative (liberal) in the House.

We next explore incentive effects of coattails. To identify economic repercussions, we merge our sample with data on the allocation of federal funds across counties.

We find that if a representative is elected with coattails in a given county in her district, then per capita federal spending in that county is 5 to 7 percent higher during her tenure in office. We find similar effects when we limit the variation in our sample to within-district. Finally, conditional on entry coattails, we find mixed evidence as to the effect of subsequent coattails on incumbents. We find no effects in the Senate but large effects in the House. We take this as evidence that incentive effects of coattails may operate differently in each chamber of Congress. In sum, our findings suggest that selection effects of coattails bias representation away from the median voter's preference and incentive effects of coattails skew redistribution disproportionately within her constituency.

To address the robustness of our results, we employ a variety of coattails specifications and controls. We account for heterogeneity in the impact of coattails on legislators by controlling for individual characteristics, electoral-race conditions and constituency demographics as well as by including fixed effects. To further control for voter information, we employ Snyder and Strömberg's measure of media congruence in our analysis of the House. Finally, we instrument for congressional-district coattails using state-level coattails to address the possibility that changes in presidential support might be the result of gerrymandering.

Our work is most closely related to papers by Snyder and Strömberg (2010) and Knight and Schiff (2010). The former show how information improves political accountability through its effects on voter behavior, electoral outcomes and policy in Congress. Our work demonstrates how information asymmetries can affect voters' beliefs and skew electoral outcomes and policies. Knight and Schiff (2010) examine sequential learning about candidates and momentum effects, while we look at how learning about one race affects outcomes in contemporaneous races. More broadly, this paper shares insights with the literature on information asymmetries in markets for horizontally differentiated goods. As a case in point, Hendricks and Sorensen (2009) find analogous coattail-like effects across sales for a given artist's music albums: the release of a new album, particularly if the album is a hit, spikes sales for older albums, thereby generating backward (rather than down-ticket) spillovers.

The sparse theoretical literature on contemporaneous races suggests that voter behavior and electoral outcomes might differ between midterm and presidential elections because of strategic concerns or changes in the information structure voters face. Papers by Alesina and Rosenthal (1989, 1995, 1996) have focused on the effect of such electoral environments on split-ticket voting, whereby a voter's objective is

to obtain a balanced government. More recent work examines positive properties of simultaneous races with respect to voter information. Ahn and Oliveros (2010) show that where voters share common values, multiple races for office aggregate information if and only if they each do so separately; however, when voters have private values, holding multiple races for office can generate inefficiencies (Ahn and Oliveros, 2012). Our theory speaks to the latter.

In line with Levitt (1996), our results suggest that senators heavily weigh their own preferences in legislative voting; however, in the House, incentive effects appear to loom large. Our results on federal spending allocations suggest that representatives who benefit from coattails, and are therefore less fit ideologically to represent their district in Congress, are likely to compensate their constituents in other ways. Perhaps legislators seek to avoid punishment by their constituents for their policy choices by signalling their ability (Ashworth and Bueno de Mesquita, 2006; Ashworth, 2005) or by providing a substitute in the form of services to increase their reelection prospects (Levitt and Snyder, 1997; Grossman and Helpman, 2005).

The existing literature on presidential coattails focuses on the relationship between a party's presidential voteshare and its subsequent share of congressional seats (Besley and Preston, 2007; Campbell, 1986; Campbell and Sumners, 1990; Coate and Knight, 2007), but not on the types of candidates elected as a result. We fill this gap. There is a large literature on presidential surge and midterm decline, which studies the regular oscillation in support for the president's party in congressional elections: congressional seat gains in presidential elections and losses in midterms. This phenomenon has motivated a variety of theories (Campbell, 1960, 1991, 1997; Tufte, 1975; Kernell, 1977; Erikson, 1988; Alesina and Rosenthal, 1989, 1995, 1996; Folke and Snyder, 2011) and our results connect to and inform those theories. Furthermore, an extensive literature focuses on political polarization (Glaeser and Ward, 2006; McCarty, Poole and Rosenthal, 2008), and our work offers insights as to how voter information and institutional design may play a role in increasing polarization.

Finally, our paper contributes to the growing body of literature on the interactions between voter information and political outcomes and policy. Recent work has looked at the effects of information on elections in developing countries (Ferraz and Finan, 2008; Banerjee et al., 2010; Casey, 2010; Fujiwara, 2011; Pande, 2011). Other work has isolated the effect of media on beliefs and voter behavior (Gerber, Karlan and Bergan, 2009; Gentzkow, 2006; DellaVigna and Kaplan, 2007; Chiang and Knight, 2011) and on electoral outcomes and policy (DellaVigna et al.,

2011; Durante and Knight, 2012; Gentzkow, Shapiro and Sinkinson, 2011; Strömberg, 2004*a*,*b*). Our work suggests that supplying citizens with political information may have unintended consequences.

We next present a puzzle to motivate our analysis, followed by a model that offers an intuitive solution to it. In Section 4, we describe our measure of coattails. In Section 5, we lay out the empirical framework, followed by our results. We address identification and robustness in Section 7. Section 8 concludes.

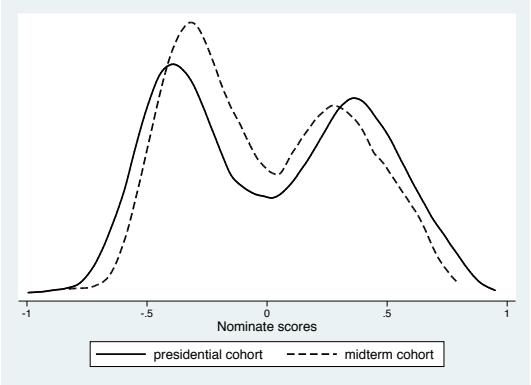
2 Empirical Motivation

Elections serve as aggregators of individual choice. Thus, if electoral institutions work as they should, one would expect political outcomes to reflect voter preferences. In the context of U.S. elections, it is well-known that the electorate in midterm elections is more ideologically extreme than in presidential elections; thus, it seems natural to suppose that midterm elections produce more ideologically extreme outcomes.

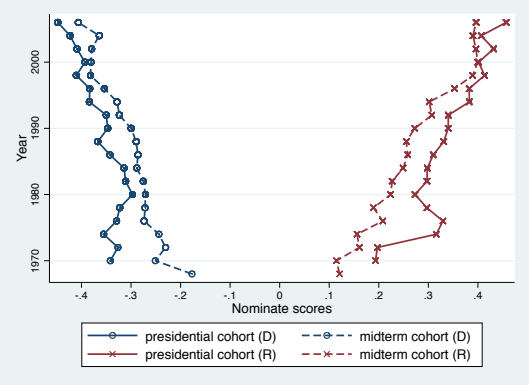
In the case of U.S. senators, we find the opposite to be true and the evidence on this to be very strong. In Figure 1a, we plot the results of a kernel density estimation of roll-call-based ideology scores for senators over the past four decades by their entry environment (midterm or presidential election). The scores are given to legislators once every congressional session and range from -1 to 1, where a more positive score reflects a more conservative voting record in Congress. We find the distribution of ideological preferences for both cohorts to be distinct: the distribution of those who first won office in presidential elections is more bimodal than that of those who first won in midterms. Put differently, despite the moderate nature of the electorate in presidential elections, more ideologically extreme candidates take office. To emphasize the regularity of the distinct patterns in voting behavior, in Figure 1b, we plot the average ideology scores by entry environment for each party and for every congressional session. The results are striking: the policy choices of midterm entrants are consistently more moderate than those of presidential entrants, for both parties.[1]

In Figures 1c and 1d, we present analogous plots for exit. The figures strongly

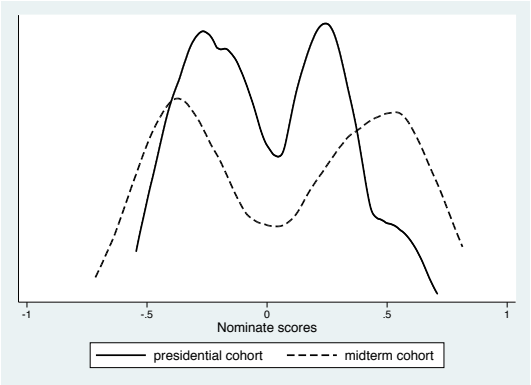
[1]Another pattern, which is not the subject of this paper, that emerges in Figure 1b is well-documented in the literature: over the past 40 years, Democrats have become relatively more liberal and Republicans more conservative, the overall effect being increasing ideological polarization in Congress. See McCarty, Poole and Rosenthal (2006) for more on this literature.



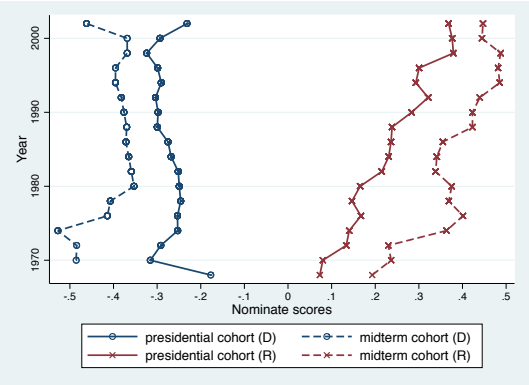
(a) Distribution of Ideology by Entry Election



(b) Average Ideology by Entry Election



(c) Distribution of Ideology by Exit Election



(d) Average Ideology by Exit Election

Figure 1: Senator Ideology and Electoral Selection 1968-2006

Notes: 'midterm cohort' refers to senators who first ran for office in a midterm election; 'presidential cohort' refers to senators who first ran for office in a presidential election. In Figures 1a and 1c, we plot Epanechnikov kernel density estimation results of Poole and Rosenthal's Nominate scores. In Figures 1b and 1d, each point corresponds to the average Nominate scores in a given congressional session for one of the four possible groups of senators, where (D) and (R) indicate Democrat and Republican cohorts respectively. The data include senators who took office between 1968 and 2006. There are 221 entrants of which 137 incumbents exit, resulting in 1430 senator-year observations for entry and 754 senator-year observations for exit. See Section 4 for more details on the data.

suggest that senators who leave office in midterm elections are more ideologically extreme than senators who exit in presidential elections. Together with our results on entry, we find that a relatively moderate electorate in presidential elections returns a more ideologically extreme Senate, with moderates leaving and extremists entering. These findings seem to undermine the presupposition that elections will always deliver outcomes that mirror the preferences of the median voter. In the model that follows, we suggest an explanation for this puzzle.

3 Model

Our theory focuses entirely on selection effects that stem from voter behavior, taking exogenously parties and their candidates. We explore incentive effects suggested by our theory in the empirical application.

The most basic insight of our theory is that midterm elections aggregate preferences as one would expect: the candidate whose ideological position is closest to the preferred position of the median voter wins office. In contrast, in presidential elections, voter uncertainty introduces errors and occasionally the 'wrong' candidate–one who is farther away from the median voter's preferred position–is elected. Thus, in expectation, outcomes generated in presidential elections are more ideologically extreme than outcomes generated in midterm elections.

Given our empirical objectives, we present a simple version of our theory here.[2] We begin by noting that less informed citizens are more likely to abstain (Palfrey and Poole, 1987), and because a substantial number of citizens vote in presidential elections but abstain otherwise, the typical voter in presidential elections is likely to be less informed about down-ticket races (e.g., congressional races). Party labels in elections enable these voters to form informational linkages across contemporaneous races, introducing bias to their voting behavior and resulting electoral outcomes. A mainstream candidate in the up-ticket race can support a marginal candidate from the same party in a down-ticket race.

Since we focus on the effect of presidential coattails on outcomes in congressional races, suppose there are only two races for office, presidential (p) and congressional (c), and that each office is contested by two parties, Democratic (D) and Republican (R). There are two election cycles: midterm and presidential. In presidential elections, both offices are contested, while in midterm elections only the congressional office is contested.[3]

We assume the selection of candidates is independent of one another. For simplicity, we let candidate positions in each race be given by two independent draws from a normal distribution. We label the draw of both candidates y_D^r and y_R^r, where $r \in \{p, c\}$, such that the more liberal draw in each race is a Democrat (i.e., $y_D^r < y_R^r$),

[2] A more elaborate and robust framework that includes voter microfoundations, formal proofs and a discussion of our modeling assumptions and related theoretical literature can be found in Halberstam and Montagnes (2011).

[3] Depending on the election cycle, there are one, two or three federal races for office; in each election, all the seats in the House are contested and there is at most one senatorial race in each state.

and denote the midpoint of positions in each race by $M^r \equiv \frac{y_D^r + y_R^r}{2}$. To allow for commonality across races, we assume the following additive model of candidate midpoints:[4]

$$(1) \qquad \underbrace{M^p}_{\substack{\text{presidential race} \\ \text{midpoint}}} = \underbrace{\Omega}_{\substack{\text{party} \\ \text{midpoint}}} + \underbrace{\epsilon^p}_{\substack{\text{presidential race} \\ \text{idiosyncratic effect}}}$$

and

$$(2) \qquad \underbrace{M^c}_{\substack{\text{congressional race} \\ \text{midpoint}}} = \underbrace{\Theta^c}_{\substack{\text{constituency} \\ \text{fixed effect}}} + \underbrace{\Omega}_{\substack{\text{party} \\ \text{midpoint}}} + \underbrace{\epsilon^c}_{\substack{\text{congressional race} \\ \text{idiosyncratic effect}}},$$

where Ω is fixed but unknown, Θ^c is some constant allowing for variation in candidate selection at the local level (e.g., $\Theta^c > 0$ denotes a relatively conservative constituency), and ϵ^p and ϵ^c are independent draws from a normal distribution with mean zero and variance σ_ϵ^2. We denote the expected midpoints of candidates by μ_p in the presidential race and by μ_c in the congressional race. Note that, while both races share the party midpoint (Ω), the ideological midpoints of candidates are independent of one another. This plays an important role in how voting decisions by the uninformed are independent of the realized positions of congressional candidates.

We allow voters' preferences over policy to vary. Specifically, we assume that ideal positions of voters in constituency c are distributed symmetrically and unimodally with full support around the median preference, μ_c. Conditional on voting, each person votes for the candidate whose position is closest (in expectation) to her own preferred position. In particular, if a voter's preferred position, which we denote by y_i, is to the left of M^r (i.e., $y_i < M^r$), she votes for the Democratic candidate; otherwise, she votes for the Republican candidate in race r.

To incorporate variation in voter information, we assume that there are two types of voters: those who observe the positions of presidential and congressional candidates ('informed'), and those who observe only the positions of presidential candidates ('uninformed'). We let the uninformed voters constitute a proportion $\delta > 0$ of the population. Informed voters always turn out and vote; uninformed voters

[4]We do not model parties or their candidate selection process directly. For examples of such models, see Snyder and Ting (2002) and Caillaud and Tirole (2002).

turn out in presidential elections but abstain in midterm elections.[5] In presidential elections, the uninformed vote for their preferred presidential candidate, and use their updated beliefs to vote in the congressional race.

In midterm elections, a Democrat wins the congressional race if and only if[6]

$$M^c > \mu_c.$$

That is, if the midpoint of candidate positions is to the right of the median voter's preferred position, then the Democrat obtains more than half the votes and wins office.

In presidential election years, the winner in the congressional race depends on conditions in the presidential race. For uninformed voters, the observed positions in the presidential race are used as signals to update beliefs about the party midpoint, and, consequently, the congressional race midpoint. To keep things simple, we represent voters' beliefs about the unknown party midpoint (Ω) by a normal distribution with mean Ω and variance σ_ω^2. Suppose the draw of candidates in the presidential race is observed to be m^p. Then the expected midpoint in the congressional race may no longer be the median (μ_c). Rather,

$$E\left(M^c | M^p = m^p\right) = \mu_c + \Delta\eta, \tag{3}$$

where $\Delta \equiv m^p - \mu_p$ corresponds to so-called presidential coattails–the difference between the realized and expected draw of presidential candidates–and $\eta \equiv \frac{\sigma_\omega}{\sigma_\epsilon}\rho_{\omega,\epsilon}$ is a voter's updating coefficient, which is increasing in the correlation between the signal (m_p) and unknown party midpoint (Ω), but decreasing in the relative noise of the signal (σ_ϵ) to initial uncertainty (σ_ω).[7] Thus, a Democrat wins the congressional race if and only if

$$\underbrace{(1-\delta)\,\underbrace{F_c\left(M^c\right)}}_{\substack{\text{Democratic voteshare of} \\ \text{informed voters}}} + \underbrace{\delta\,\underbrace{F_c\left(\mu_c + \Delta\eta\right)}}_{\substack{\text{Democratic voteshare of} \\ \text{uninformed voters}}} > \frac{1}{2}, \tag{4}$$

[5] We assume heavier turnout and a less informed electorate in presidential elections, both of which are consistent with the data; however, our formal model endogenously generates these and additional phenomena, such as the relative moderation of the electorate in presidential elections as well as 'roll-off'.

[6] We break ties in favor of Republicans.

[7] Notice that $\eta > 0$ is implied since $\rho_{\omega,\epsilon} = \frac{\sigma_\omega}{\sqrt{\sigma_\omega^2 + \sigma_\epsilon^2}}$.

where F_c is the cumulative distribution function of preferences in constituency c. This inequality reduces to

$$M^c > a\left(\Delta\right),$$

where $a\left(\Delta\right) \equiv F_c^{-1}\left(\frac{1-2\delta F_c(\mu_c+\Delta\eta)}{2(1-\delta)}\right)$ is strictly decreasing in Δ, meaning that the threshold above which Democrats win office declines in coattails. Intuitively, unexpected support for the Democratic presidential candidate results in better prospects for Democrats in the down-ticket race. When positions of presidential candidates meet expectations ($\Delta = 0$) the condition above becomes $M^c > \mu_c$, the same as in midterm elections.

We next derive the first testable prediction regarding legislator ideology: expected electoral outcomes in presidential elections are more ideologically extreme than in midterms. We begin by noting that Democrats and Republicans are equally likely to win the congressional office, both in midterms and in presidential elections. In midterms, a Democrat may only win when the congressional midpoint is to the right of the median voter. Thus, we can express the expected position of a Democrat who wins in midterms as

$$E_m\left[y_D^c|win\right] = E_m\left[y_D^c|win, M^c > \mu_c\right], \tag{5}$$

where *win* indicates a win in the congressional race. In contrast, in presidential elections, if a Democrat wins the congressional race, the ideological midpoint of candidates may lie leftward of the median's preference ($M^c < \mu_c$) when coattails are positive ($\Delta > 0$), an event that occurs with probability one half. In other words, Democrats can prevail with more liberal positions unattainable in midterms at the cost of failing to win office with certainty when $M^c > \mu_c$. As a result, $E_p\left[y_D^c|win\right]$ is a weighted average of $E_p\left[y_D^c|win, M^c > \mu_c\right]$ and $E_p\left[y_D^c|win, M^c < \mu_c\right]$. Because positions in the presidential race are independent of those in the congressional race, we conclude:

$$E_p\left[y_D^c|win, M^c < \mu_c\right] < E_p\left[y_D^c|win, M^c > \mu_c\right]. \tag{6}$$

Moreover, since coattails (Δ) are distributed symmetrically with mean zero, the reduction in the probability that a Democrat wins when an arbitrary midpoint, m^c, exceeds the median is recovered by a symmetric gain in the probability of winning a more liberal position equidistant from the median ($2\mu_c - m^c$). Finally, since the

distribution of congressional candidates in midterm and presidential elections are identical, we obtain the first key prediction.

Prediction I:

$$E_p\left[y_D^c|win\right] < E_m\left[y_D^c|win\right].$$

The converse inequality holds for Republicans who win and for Democrats who lose (i.e., congressional candidates who lose in midterms are likely to be more ideologically extreme than candidates who lose in presidential elections). Another way to understand this result is to realize that, without information contagion, expected outcomes in midterms and presidential elections would be identical. However, this is not the case in our model, as information in the presidential race is valuable for decision-making in the congressional race. Instead, positive coattails ($\Delta > 0$) enable relatively more liberal Democrats to win office, and because it is more likely than not that positive coattails carry Democrats, a Democrat who wins office in a presidential election is likely to be more liberal than one who wins in midterms.

In the final portion of our model, we explore the effect of coattails on selection in presidential elections in more detail. We saw that the Democratic threshold for winning ($a(\Delta)$) decreases with Democratic coattails. As a result, for any two arbitrary draws of coattails such that $\Delta^1 > \Delta^0$, the Democratic threshold for winning the congressional race decreases by $a\left(\Delta^0\right) - a\left(\Delta^1\right) > 0$ when coattails are Δ^1. Because this range is associated with more liberal positions, we obtain the second key prediction.

Prediction II:

$$\Delta^1 > \Delta^0 \iff E_p\left[y_D^c|win, \Delta^1\right] < E_p\left[y_D^c|win, \Delta^0\right].$$

The inequality is satisfied for Democrats who lose as well: if a candidate loses despite relatively positive coattails, she must be too ideologically extreme to carry ($M^c < a(\Delta)$). Intuitively, as a party's coattails increase, uninformed voters provide a greater built-in advantage for their candidates (independent of their positions) in down-ticket races. As a result, relatively marginal (and more ideologically extreme) candidates can win. We illustrate this last result using a flow chart in Figure 2.

Until now, we have conditioned our results on party affiliation of candidates. Our third prediction speaks to the overall effect of coattails on candidate selection

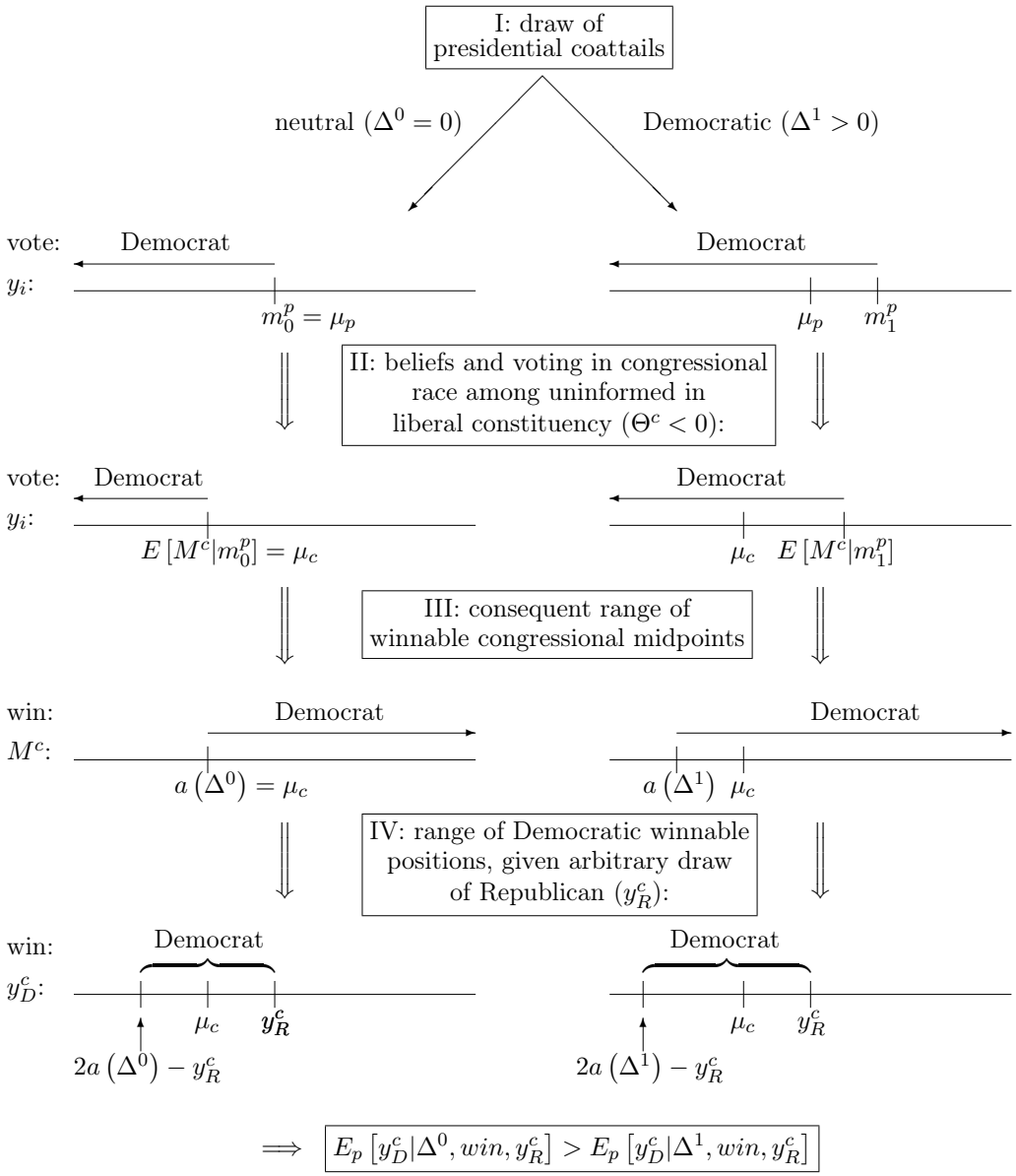


Figure 2: Flow Chart for a Pair of Presidential Coattails

Notes: This chart shows the effects of two distinct draws of presidential coattails in a relatively liberal constituency ($\Theta^c < 0$): one that meets expectations ($\Delta = 0$) and one in which support for the Democratic presidential candidate exceeds them ($\Delta > 0$). Step II shows that a wider range of voter preferences (y_i) among the uninformed support the Democratic congressional candidate when $\Delta > 0$; in turn, the Democratic threshold of winnable congressional midpoints ($a(\Delta)$) decreases (III). As a result, when $\Delta > 0$ a Democrat can win with more liberal positions for any arbitrary Republican congressional candidate (IV), thereby inducing, in expectation, a more liberal Democrat overall.

in congressional elections. Recall that $y_D^c < y_R^c$. Given the symmetry we imposed, it is easy to verify that

$$E[y_D^c|win] < E[y_R^c|win]. \tag{7}$$

Both expected Democratic and Republican winning positions move to the left as support for the Democratic presidential candidate becomes widespread: the expected Democrat is more liberal and the Republican less conservative. Since the probability that a Democrat wins increases with Δ, we obtain the third key prediction**.**

Prediction III:

$$\Delta^1 > \Delta^0 \iff E_p\left[y^c|win, \Delta^1\right] < E_p\left[y^c|win, \Delta^0\right].$$

This third result can be understood as the effect of coattails on policy. Democratic coattails foster relatively liberal candidates from both parties, inducing more liberal electoral outcomes down-ticket. While the previous two results are exit-relevant, this final prediction is not: the expected position of a challenger who loses the election may not be monotone in coattails.

The broader implications of our theory go beyond the unidimensional ideological space we assumed. Information asymmetries in presidential elections induce uninformed voters to externalize their biased (yet rational) decisions. Collectively, this behavior may enable less qualified, as well as ideologically less fit, candidates to win ('selection effects'). In return, a marginal candidate that is carried by coattails may anticipate a more informed electorate in the subsequent midterm election and try to compensate her constituents for her initial electoral misfit ('incentive effects'). Further, when contending in presidential elections for another term in office, incumbents, too, may wish to calibrate their behavior with the coattails they experience. We address both selection and incentive effects of coattails on ideology and alternative measures of legislators' behavior in the empirical application, with the allocation of federal funds as a primary measure of performance.

4 Coattails Measurement

Predictions I, II and III indicate the primary relationships we test using the data. To derive the observable analog for presidential coattails, we denote the expected Democratic presidential voteshare in constituency c by $\bar{\pi} \equiv F_c\left(\mu_p\right)$, and the realized one, $F_c\left(m^p\right)$, by π. Democratic coattails can then be rewritten as

$$\Delta = F_c^{-1}\left(\pi\right) - F_c^{-1}\left(\bar{\pi}\right). \tag{8}$$

Equation 8 establishes a mapping between candidate positions in the presidential race and the corresponding observable voteshares in constituency c. Thus, our empirical analogue for Democratic coattails is:

$$\text{DemCoattails}_{c\tau} = \pi_{c\tau} - \frac{1}{r}\sum_{j=1}^{r} \alpha_j \pi_{c\tau-j}, \tag{9}$$

where $\pi_{c\tau}$ is the Democratic presidential voteshare in election τ in constituency c, r is the number of preceding presidential elections used to construct $\bar{\pi}$, and $\frac{1}{r}\sum \alpha_j = 1$. We use $\tau = 0$ to indicate the entry time of a given legislator, $\tau = T$ to indicate her exit, and $\tau = t$ to indicate the most recent presidential election a legislator faced. By construction, DemCoattails can take values between -1 and 1. To apply the measure of unexpected presidential support symmetrically to both parties, we let

$$\text{Coattails}^*_{c\tau} = \begin{cases} \text{DemCoattails}_{c\tau} & \text{if Democrat} \\ -\text{DemCoattails}_{c\tau} & \text{if Republican} \end{cases}. \tag{10}$$

In the panel we constructed, each datapoint is a legislator-by-year observation. Data on presidential-election returns and legislators' entry and exit election-years come primarily from the Congressional Quarterly Electronic Library and the Almanac of American Politics. For the Senate, the data consist of senators who took office between 1968 and 2006. Of the 221 senatorial entrants, 122 were first elected to office in a presidential election.[8] During the same time period, 137 of these entrants left the Senate, with 76 leaving in presidential election years.[9] Spanning a shorter time period, our data on representatives cover those who served in the House between 1982 and 2004. These data include 553 representatives who took office during presidential election years and 522 whose entry followed midterm elections. Of the 770 representatives who left office, 427 ended their career in the House in a presidential-election year.

In Table 1, we report descriptive statistics of state, district, and county coattails measures with varying lengths of trailing averages (r) and election years (τ). In

[8] One Independent senator and four senators that were appointed off-cycle and did not subsequently face a November election were omitted from the analysis.

[9] We do not distinguish between incumbents who choose to retire at the end of a term and those who compete in elections and are subsequently ousted from office. See Diermeier, Keane and Merlo (2005) for an empirical investigation of strategic retirement decisions in Congress, which suggests that retirees are forward-looking in terms of electoral prospects.

Table 1: Coattails Measures Descriptive Statistics

(a) DemCoattails and Expectations

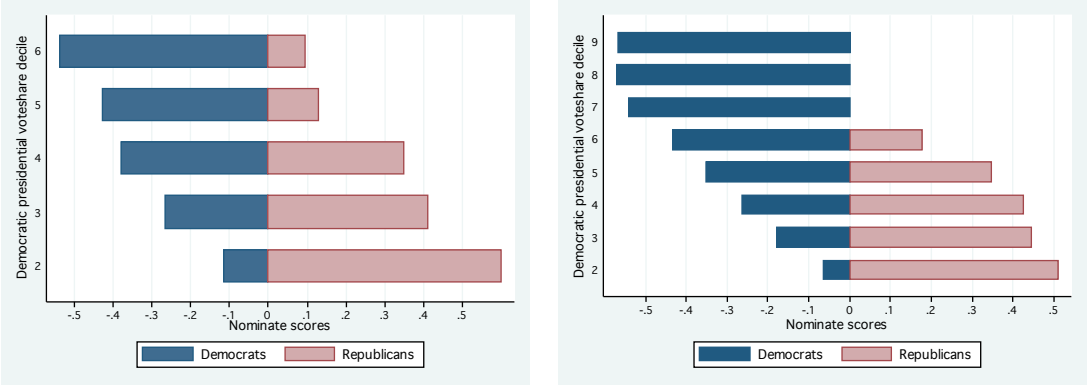
Number of Presidential Elections included in $\bar{\pi}$	Mean	Standard Deviation	Minimum	Maximum	Observations
Panel A:	State-level DemCoattails				
$r = 2$	0.005	0.087	-0.24	0.312	647
$r = 4$	0.007	0.077	-0.309	0.219	647
$r = 6$	0.002	0.082	-0.367	0.171	647
Panel B:	District-level DemCoattails				
$r = 2$	0.005	0.096	-0.609	0.549	2454
$r = 4$	0.021	0.095	-0.512	0.513	2455
$r = 6$	0.018	0.105	-0.493	0.503	2455
Panel C:	County-level DemCoattails				
$r = 2$	-0.007	0.096	-0.422	0.272	15247
$r = 4$	0.007	0.073	-0.284	0.279	15247
$r = 6$	-0.002	0.087	-0.308	0.296	15247

(b) Coattails and Timing

	Presidential Election	Mean	Standard Deviation	Minimum	Maximum	Observations
Panel A:	State-level Coattails					
DemCoattails	$\tau = 0$	-0.016	0.083	-0.21	0.158	739
DemCoattails	$\tau = t$	0.007	0.077	-0.309	0.219	647
DemCoattails	$\tau = T$	0.049	0.062	-0.148	0.158	360
Coattails*	$\tau = 0$	0.013	0.083	-0.208	0.21	739
Coattails*	$\tau = t$	0.007	0.077	-0.309	0.219	647
Coattails*	$\tau = T$	0.007	0.079	-0.158	0.158	360
Panel B:	District-level Coattails					
DemCoattails	$\tau = 0$	0.013	0.112	-0.395	0.45	2471
DemCoattails	$\tau = t$	0.021	0.095	-0.512	0.513	2455
DemCoattails	$\tau = T$	0.044	0.091	-0.279	0.398	1544
Coattails*	$\tau = 0$	0.024	0.11	-0.362	0.45	2471
Coattails*	$\tau = t$	0.022	0.095	-0.448	0.513	2455
Coattails*	$\tau = T$	0.006	0.101	-0.333	0.398	1544
Panel C:	County-level Coattails					
Coattails*	$\tau = 0$	0.018	0.097	-0.461	0.498	16114
Coattails*	$\tau = t$	-0.001	0.074	-0.279	0.284	15247
Coattails*	$\tau = T$	0.002	0.074	-0.235	0.27	9163

Notes: In Table 1a, DemCoattails is the difference between the realized and historical (unweighted) average Democratic presidential voteshare ($\bar{\pi}$), where r is the number of preceding presidential elections included in the average. In Table 1b, Coattails are measured as the difference from the unweighted average of four preceding presidential voteshares; $\tau = 0$ denotes the presidential election year of legislator entry, $\tau = T$ denotes the presidential election year of legislator exit and $\tau = t$ denotes the most recent presidential election year. $\tau = 0$ and $\tau = T$ are invariant legislator specific elections years; $\tau = t$ varies by election cycle.

general, the mean of the coattails measures is close to zero across specifications with a standard error of 0.1. We explore a variety of measures to approximate $\bar{\pi}$, including



(a) The Senate

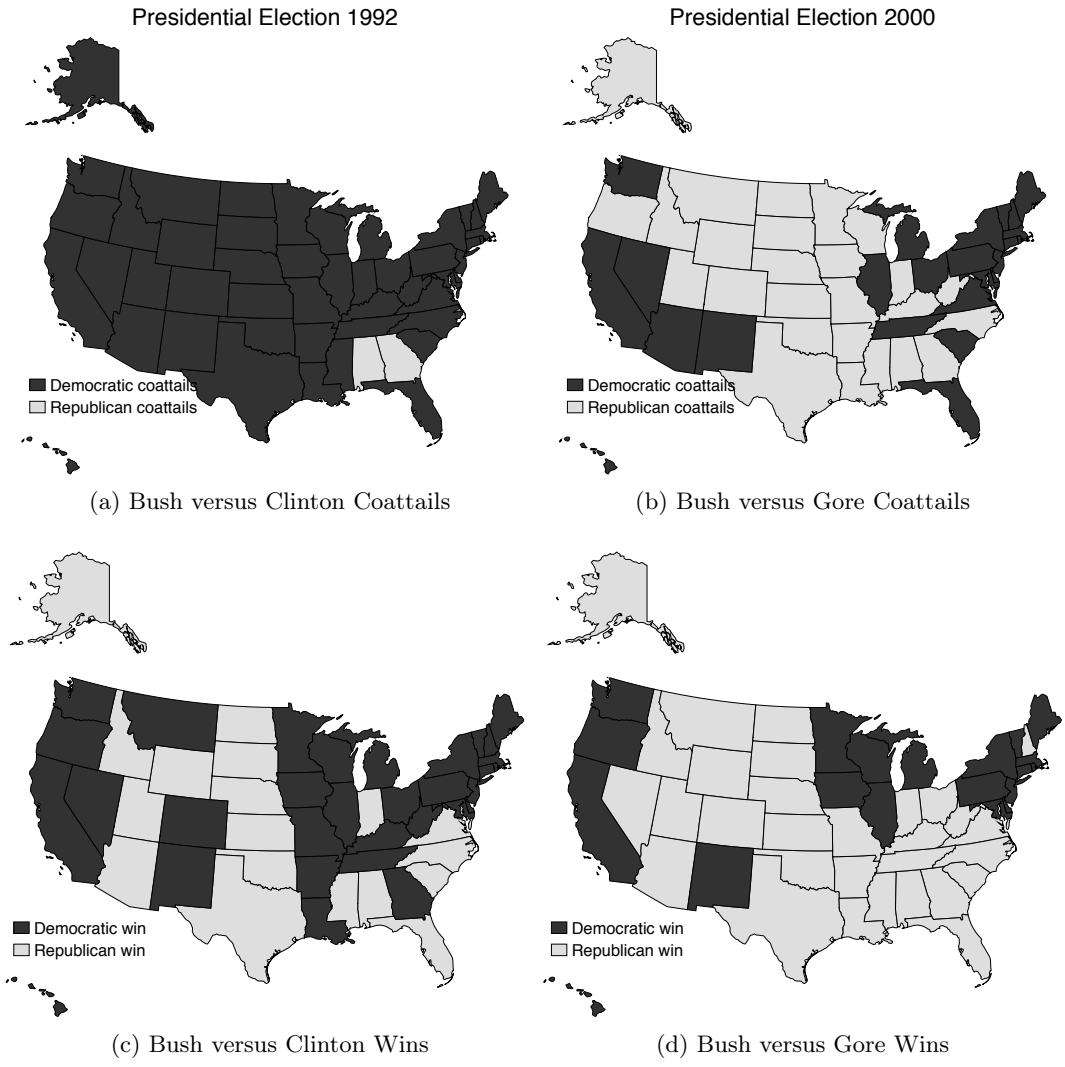
(b) The House

Figure 3: Roll Call Voting and Presidential Voteshares

Notes: The left (right) bound of horizontal bar representes average Nominate scores for Democrats (Republicans) in a given Democratic presidential vote decile at the time of entry. Data on the Senate is for entrants from 1968 to 2006. Data on the House is for representatives who served between 1982 to 2004.

different lengths of trailing and weighted averages. Unless noted otherwise, we use the unweighted average of four preceding presidential voteshares (i.e., $\alpha_j = 1$ and $r = 4$). For example, voters facing the presidential election in 2012 use information from previous presidential elections dating back to Clinton versus Dole in 1996 to form expectations about party positions (Ω).

To emphasize the importance of employing our new measure of coattails, we make the following point: our model indicates that support in the presidential race affects selection in contemporaneous congressional races. In Figure 3, we restrict our attention to legislators who enter during a presidential-election cycle, and plot the average Nominate scores of legislators in both chambers of Congress by the Democratic presidential vote-decile in their constituency at the time of entry. In both the Senate and the House, support for a party's presidential candidate is associated with more extreme voting behavior by its legislators. Although this is evidence in support of our model's prediction, the ideological preferences of voters in a given locality may account for much of this phenomenon. For example, a Democratic presidential candidate is likely to generate more support in a liberal-leaning state, which in turn is likely to elect more liberal legislators. Our measure of coattails addresses this concern and is a more accurate representation of its theoretical counterpart–an increasing function of the difference between $\bar{\pi}$ and π. We assume that coattail swings are unexpected and thus exogenously vary in races for congressional offices.



(a) Bush versus Clinton Coattails

(b) Bush versus Gore Coattails

(c) Bush versus Clinton Wins

(d) Bush versus Gore Wins

Figure 4: Presidential Coattails versus Wins 1992 and 2000

Notes: Democratic win denotes plurality vote for party's presidential candidate in given state ($\pi > 1/2$); Democratic coattails denotes positive difference of party's presidential voteshare from unweighted average of four preceding presidential voteshares in given state (DemCoattails > 0).

To contrast our measure of coattails with voteshares, in Figure 4, we map presidential wins and coattails in the 1992 and 2000 presidential elections to states. In 1992, when George H.W. Bush ran against Bill Clinton, Bush obtained a plurality in 19 states. However, this statistic underrepresents the overwhelming victory by Clinton: in all but two states, Clinton's coattails were realized. On the other hand, in the 2000 election, the presidential candidates were more evenly matched. George

W. Bush won 29 states, but his coattails reached only 26 states.

5 Empirical Framework

We lay out our empirical approach and the data we use for testing the predictions of our theory.

5.1 Econometric Approach

We relate our theoretical and empirical measures of coattails in the following way:

$$\text{DemCoattails}_{c\tau} = \psi\left(\Delta_{c\tau}\right) + \zeta_{c\tau}, \tag{11}$$

where ψ is a strictly increasing function and $\zeta_{c\tau}$ is an i.i.d. preference shock uncorrelated with $\Delta_{c\tau}$.[10] To capture the effect of presidential coattails on outcomes, we estimate regressions of the form:

$$y = \beta\text{Coattails} + \mathbf{x}'\gamma + \mathbf{z}'\rho + \alpha + \theta + \varepsilon, \tag{12}$$

where y is a legislator-relevant outcome, Coattails is a subset of the DemCoattails and Coattails* measures, $\mathbf{x}$ is a matrix of legislator and electoral-race controls, $\mathbf{z}$ is a matrix of constituency controls, and α and θ are year and constituency fixed effects controls. We cluster the standard errors by legislator or by constituency. Our identifying assumption is that presidential coattails are conditionally uncorrelated with congressional outcomes.

5.2 Data

To test the predictions of our theory, we gather data on congressional legislators, electoral-race conditions and constituent characteristics and merge them with the panel described in Section 4. Data on Nominate scores, our measure of legislator ideology, come from Poole and Rosenthal's Voteview website. Federal government expenditures across counties are from the U.S. Census Consolidated Federal Funds Report.

[10] We address the possibility of correlation between coattails and preferences, and other threats to identification in Section 7.

Table 2: Legislator and Electoral Race Data

	Mean	Standard Deviation	Minimum	Maximum	Observations
Panel A:			Senators		
Age	56.11	9.061	32	82	1430
Freshman	0.155	0.362	0	1	1430
Number of sessions in Congress	3.83	3.342	0	16	1430
Democrat	0.485	0.5	0	1	1399
Member of majority party	0.541	0.498	0	1	1430
Nominate scores (Democrat)	-0.334	0.184	-0.995	0.462	700
Nominate scores (Republican)	-0.351	0.154	-0.995	0.174	679
Entry in presidential election	0.546	0.498	0	1	1430
Exit in presidential election	0.613	0.487	0	1	754
Voteshare margin in preceding race[†]	0.064	0.062	0.001	0.349	1414
Open seat in preceding race	0.624	0.484	0	1	1430
Panel B:			Representatives		
Age	52.45	10.27	26	88	4938
Freshman	0.136	0.342	0	1	5077
Number of sessions in Congress	4.482	4.036	0	26	5072
Democrat	0.528	0.499	0	1	5083
Member of majority party	0.561	0.496	0	1	5077
Nominate scores (Democrat)	-0.355	0.178	-0.875	0.568	2681
Nominate scores (Republican)	0.402	0.196	-0.55	1	2381
Powerful committee member[†]	0.306	0.461	0	1	5077
Committee chair	0.048	0.214	0	1	5069
Committee ranking member	0.048	0.213	0	1	5069
Party leader	0.018	0.132	0	1	5077
Entry in presidential race	0.509	0.5	0	1	5083
Exit in presidential race	0.546	0.498	0	1	3417
Voteshare margin in preceding race[‡]	0.156	0.092	0	0.469	4167
Open seat in preceding race	0.097	0.296	0	1	5070
Preceding race uncontested	0.178	0.383	0	1	5070

[†]Among contested races.
[‡]Member of Ways and Means, Rules or Appropriations committees.

Our model abstracts from the possibility of asymmetric information about candidates in a given race; however, when an incumbent is running for office or when a candidate has certain characteristics that voters value, this assumption might fail. For this purpose, we gathered biographical data on senators and representatives. We report descriptive statistics of these data in Table 2. In the state-level analysis of senators, we include six senator and electoral-race controls: age, tenure, dummy variables for whether a senator is a freshman or belongs to the majority party, a dummy variable for whether an open seat is contested and a measure of the closeness of a race, defined as the negative voteshare margin of victory. In the district-level analysis of

representatives, we include eleven representative and electoral-race controls: dummy variables for whether a representative is a party leader, committee chair, committee ranking member or serves on a powerful committee, a dummy for whether the race was uncontested and the controls we use for senators. In the county-level analysis we employ the same representative and electoral-race controls as in the district-level analysis.

Turning to constituents, one factor that scales the impact of coattails on outcomes is the share of uninformed voters in the electorate (δ). When all voters are informed ($\delta = 0$), presidential coattails do not influence congressional outcomes. At the other end of the spectrum, when the entire electorate is uninformed ($\delta = 1$), electoral success at the congressional level is a deterministic function of coattails: a Democrat wins if and only if $\Delta > 0$. A second factor that influences the coattail effect is the degree of initial uncertainty citizens have about congressional candidates ($\sigma_\omega^2 + \sigma_\epsilon^2$). To explore heterogeneous effects of coattails that stem from voter information as well as a preference bias for certain policies (Θ^c), we gathered data on constituent characteristics. Most of the demographic data are from the U.S. Census and Bureau of Economic Analysis. To proxy more closely the supply of local political information, we merged the measure of media congruence from Snyder and Strömberg (2010) with our district- and county-level data. This measure captures the degree of overlap between a newspaper market and a given geographical area, with a higher score implying a larger share of local coverage. We report descriptive statistics of these data in Table 3.

In the state-level analysis, we include twelve constituency controls: the share of the population that is above age 65, that is black, who are farmers, who work in finance, government or manufacturing (each considered separately), and who are foreign born, as well as the state's urban population, per capita income (logged), population (logged and per square mile) and land area (squared miles). In the district-level analysis, we employ nine controls: the share of the population that is above age 65, who are farmers, blue collar workers or work in the military, and who are foreign born, as well as the district's urban population, population per square mile (logged), median income (logged) and media congruence. In the county-level analysis, we focus on auxiliary determinants that might affect spending allocations. Along the lines of Snyder and Strömberg (2010), we employ twenty controls: the share of the population that is above age 65, below 20, black, female, with high school education, more than high school education, the county's share of urban population,

Table 3: Constituency Characteristics

	Mean	Standard Deviation	Minimum	Maximum	Observations
Panel A:		State-level Data 1970-2006			
Population (logged)	14.87	1.026	12.513	17.338	1790
Population (square mile)	159.267	227.543	0.474	1134.416	1790
Land (1000 squared miles)	70.884	85.896	1.044	573.435	1790
Urban population (share)	0.605	0.181	0.154	0.922	1790
Per capita income (logged)	10.148	0.23	8.274	10.74	1790
Black population (share)	0.092	0.093	0.001	0.389	1790
Farmers (share)	0.017	0.014	0.001	0.087	1790
Foreign born (share)	0.047	0.042	0.004	0.262	1790
Work in Manufacturing (share)	0.078	0.033	0.008	0.15	1790
Work in finance (share)	0.027	0.007	0.004	0.056	1790
Government workers (share)	0.07	0.017	0	0.137	1790
Age 65 or above (share)	0.113	0.023	0.023	0.183	1790
Democratic presidential voteshare	0.458	0.089	0.201	0.690	892
Panel B:		District-level Data 1982-2004			
Population (logged square mile)	5.850	2.002	-0.351	11.209	5073
Urban population (share)	0.700	0.271	0	1	5073
Median income (logged)	-1.231	0.422	-2.473	-0.088	5073
Military workers (share)	0.007	0.014	0	0.146	5073
Farmers (share)	0.012	0.012	0	0.099	5073
Foreign born (share)	0.076	0.09	0.002	0.585	5073
Bluecollar workers (share)	0.073	0.023	0.02	0.175	5073
Age 65 or above (share)	0.148	0.048	0.041	0.438	5073
Media congruence	0.451	0.239	0.002	0.995	5052
Democratic presidential voteshare	0.497	0.139	0.1	0.961	2484
Panel C:		County-level Data 1984-2004			
Population (logged)	10.175	1.381	3.932	16.11	33931
Population (logged square mile)	3.643	1.649	-3.165	11.144	33916
Urban population (share)	0.378	0.3	-0.344	1.041	33913
High school education (share)†	0.373	0.081	0.109	0.657	33916
More than high school (share)†	0.36	0.126	0.076	0.854	33916
Per capita income (logged)‡	9.934	0.228	8.42	11.36	33827
Black population (share)	0.087	0.145	0	0.866	33761
Female population (share)	0.507	0.018	0.302	0.574	33761
Age 20 or below (share)	0.273	0.035	0.135	0.509	33761
Age 65 or above (share)	0.147	0.043	0.01	0.539	33761
State capital in county (=1, if yes)	0.016	0.126	0	1	33931
Media congruence	0.547	0.297	0	1	33375
Per capita federal spending (logged)‡	7.683	0.631	3.637	11.774	33909
Democratic presidential voteshare	0.442	0.122	0.066	0.893	15247

†Among population aged 25 or above.
‡In 2000 dollars.

population (logged), population per square mile (logged), per capita income (logged), a dummy variable for whether the state capital is located in the county and media congruence. To address nonlinearities, we add categorical controls for the degree of

urbanism (four dummy variables) and for the log of population density (four dummy variables).

6 Results

After testing the direct predictions of our theory on legislators' roll call voting, we explore alternative effects of coattails on legislators. As a vertical (quality) measure of performance, we investigate the extent to which coattails influence the share of federal funds a legislator secures for his constituency. To better understand our results, we consider the estimated effect of a 0.1 unit change in the measure of coattails, which is approximately one standard deviation.

6.1 Roll Call Voting

We begin by testing the three predictions of our model. For each estimation equation, we report results with and without controls and fixed effects. We continue using Nominate scores as a measure of ideology, emphasizing that our results are robust to the use of alternative ideology estimates based on roll calls (e.g., ADA scores). For clarity, we compare the estimates we obtain to the ideological distance between Democratic and Republican legislators ('interparty polarization') in the Senate (0.69) and the House (0.76), as measured by Nominate scores.

Prediction I examines the relationship between a legislator's ideology and whether her first (last) race for office occurred in a midterm or presidential election-year. To test this relationship, we estimate the equation:

$$(13) \qquad y_{ict} = \beta_1 p_{i\tau} + \beta_2 p_{i\tau} \times D_i + \beta_3 D_i + \mathbf{x}'_{ict}\gamma + \mathbf{z}'_{ct}\rho + \alpha_t + \theta_c + \varepsilon_{ict},$$

where y_{ict} is legislator i's Nominate score at year t in constituency c, $p_{i\tau}$ is a dummy for whether entry ($\tau = 0$) (exit ($\tau = T$)) occurred in a presidential election and D_i is a Democrat indicator. The theory predicts that, relative to midterm election entrants, Republicans are more conservative ($\beta_1 > 0$) and Democrats are more liberal ($\beta_1 + \beta_2 < 0$); the converse predictions hold for exit.

Moving to Prediction II, the theory suggests that ideological extremism of legislators increases with Coattails*, the party-aligned measure, both upon entry and

exit. Thus, we estimate the equation:

$$(14) \quad y_{ict} = \beta_1 \text{Coattails}^*_{ic\tau} + \beta_2 D_i \times \text{Coattails}^*_{ic\tau} + \beta_3 D_i \times + \mathbf{x}'_{ict}\gamma + \mathbf{z}'_{ct}\rho + \alpha_t + \theta_c + \varepsilon_{ict},$$

where, under the null, Coattails* induces more conservative Republicans ($\beta_1 > 0$) and more liberal Democrats ($\beta_1 + \beta_2 < 0$).

Lastly, Prediction III relates coattails to the expected ideological position of an entrant, independent of party affiliation. To test this prediction, we estimate the equation:

$$(15) \quad y_{ict} = \beta \text{DemCoattails}_{ic\tau} + \mathbf{x}'_{ict}\gamma + \mathbf{z}'_{ct}\rho + \alpha_t + \theta_c + \varepsilon_{ict}.$$

The theory predicts that DemCoattails$_0$ induces more liberal entrants ($\beta < 0$), but is silent about the effect of DemCoattails$_T$ on legislator ideology.

Baseline Results

We report regression results for the Senate in Table 4. Our estimates across specifications support Prediction I. Restricting attention to the fully-specified regression results in Columns 4 and 8, the estimates suggest that interparty polarization is 12 percent (=0.0694/0.589) greater among presidential entrants, with Republicans and Democrats splitting the increase. The picture for exit is quite similar, yet converse, with an increase of about 9 percent in interparty polarization among those who exit in midterms, with Republicans accounting for two thirds of the increase. That said, the results lack robustness: the coefficients are inconsistently significant and are relatively weaker for Republicans. Nonetheless, we can soundly reject a one-sided null of moderation among senatorial-race outcomes in presidential elections.

Moving to Prediction II, regression estimates of Equation 14 indicate that a 0.1 unit increase in Coattails$^*_0$ results in a 0.0387 conservative shift among Republicans and a 0.0135 (=0.0387-0.0522) liberal shift among Democrats; the estimate for Republicans is significant while the estimate for Democrats is not. Robustness aside, in the fixed effects specifications, the estimated coefficients for entry do not vary with the inclusion of the set of controls. Thus, absent cross-sectional variation, the change in interparty polarization among presidential-election entrants induced by a 0.1 unit increase in Coattails$^*_0$ (0.0522) is equal to 8 percent of interparty polarization

Table 4: The Senate Baseline Results

Dependent Variable: Nominate Scores First Dimension

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects			X	X			X	X
Prediction I:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
Presidential$_\tau$	0.0447	0.0707*	0.0189	0.0346	-0.188***	-0.138**	-0.0516	-0.0290
	(0.0445)	(0.0387)	(0.0299)	(0.0305)	(0.0667)	(0.0569)	(0.0491)	(0.0494)
Presidential$_\tau$	-0.120**	-0.123**	-0.0583	-0.0694	0.286***	0.232***	0.108	0.0673
×Democrat	(0.0569)	(0.0484)	(0.0429)	(0.0427)	(0.0783)	(0.0715)	(0.0654)	(0.0644)
Democrat	-0.600***	-0.588***	-0.595***	-0.589***	-0.793***	-0.787***	-0.733***	-0.730***
	(0.0410)	(0.0345)	(0.0334)	(0.0338)	(0.0644)	(0.0544)	(0.0413)	(0.0423)
R^2	0.733	0.814	0.901	0.912	0.729	0.806	0.913	0.927
Observations	1,430	1,329	1,430	1,329	754	754	754	754
Prediction II:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
Coattails$^*_\tau$	0.482	0.622**	0.362**	0.387**	0.0503	-1.018	0.276	0.277
	(0.406)	(0.296)	(0.156)	(0.187)	(0.759)	(0.685)	(0.757)	(0.774)
Coattails$^*_\tau$	-0.732	-0.507	-0.511*	-0.522	-0.469	0.954	-0.282	-0.551
×Democrat	(0.492)	(0.381)	(0.259)	(0.342)	(0.823)	(0.765)	(0.829)	(0.739)
Democrat	-0.724***	-0.709***	-0.652***	-0.651***	-0.522***	-0.573***	-0.728***	-0.761***
	(0.0365)	(0.0320)	(0.0322)	(0.0351)	(0.0588)	(0.0467)	(0.0621)	(0.0567)
R^2	0.798	0.865	0.951	0.960	0.728	0.851	0.966	0.977
Observations	729	684	729	684	353	353	353	353
Prediction III:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
DemCoattails$_\tau$	-1.031*	-0.600	-0.733**	-1.197***	-0.314	0.295	0.377	0.433
	(0.538)	(0.488)	(0.312)	(0.361)	(0.661)	(0.584)	(0.938)	(1.032)
R^2	0.043	0.275	0.709	0.773	0.004	0.416	0.755	0.792
Observations	739	693	739	693	353	353	353	353

Notes: Results are from OLS regressions. The unit of observation is senator by congressional session. State and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by senator, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

in the Senate (0.69). The results for exit are quite similar albeit less statistically significant. A 0.1 unit increase in Coattails$^*_T$ results in a similar effect equal to 8 percent of interparty polarization.

The overall effect of coattails is given by regression estimates of Equation 15. The estimated coefficients on DemCoattails$_0$ are negative and significant. In the fully-specified regression, an increase in DemCoattails$_0$ by 0.1 units results in a leftward shift of 0.1197 in Nominate scores or, equivalently, 17 percent of interparty polarization. Given the results relating to Prediction II, between a tenth and a third of the coattail effect stems from within-party selection. Finally, the coefficient estimates for exit are insignificant, perhaps reflecting the ambiguity our theory suggests.

In Table 5, we report analogous regression results for the House. For Prediction I, estimates of β_1 and β_2 are smaller and less significant, and their signs are inconsistent across regression specifications. In particular, Columns 3 and 4 suggest moderation

Table 5: The House Baseline Results

Dependent Variable: Nominate Scores First Dimension

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects			X	X			X	X
Prediction I:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
Presidential$_\tau$	-0.0234	-0.00247	-0.0300**	-0.0163	-0.00202	0.00959	0.0294*	0.0186
	(0.0176)	(0.0168)	(0.0141)	(0.0129)	(0.0204)	(0.0183)	(0.0165)	(0.0149)
Presidential$_\tau$	0.000498	-0.00644	0.00560	0.00266	0.0244	0.00464	0.0107	0.0216
×Democrat	(0.0245)	(0.0218)	(0.0186)	(0.0168)	(0.0288)	(0.0242)	(0.0227)	(0.0209)
Democrat	-0.769***	-0.714***	-0.698***	-0.656***	-0.711***	-0.673***	-0.646***	-0.626***
	(0.0174)	(0.0170)	(0.0150)	(0.0139)	(0.0220)	(0.0194)	(0.0177)	(0.0169)
R^2	0.825	0.873	0.940	0.955	0.803	0.858	0.947	0.957
Observations	4,978	4,800	4,978	4,800	3,318	3,251	3,318	3,251
Prediction II:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
Coattails$^*_\tau$	-0.133	0.0534	-0.143	-0.0542	0.702***	0.196	0.351	0.276
	(0.127)	(0.121)	(0.122)	(0.111)	(0.173)	(0.177)	(0.231)	(0.209)
Coattails$^*_\tau$	-0.0455	-0.0930	-0.178	-0.0783	-1.005***	-0.388*	-0.290	-0.433
×Democrat	(0.155)	(0.144)	(0.144)	(0.135)	(0.215)	(0.207)	(0.333)	(0.269)
Democrat	-0.756***	-0.700***	-0.656***	-0.621***	-0.677***	-0.659***	-0.642***	-0.621***
	(0.0181)	(0.0178)	(0.0181)	(0.0160)	(0.0224)	(0.0221)	(0.0303)	(0.0267)
R^2	0.817	0.873	0.958	0.968	0.801	0.842	0.964	0.973
Observations	2,467	2,404	2,467	2,404	1,544	1,535	1,544	1,535
Prediction III:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
DemCoattails$_\tau$	-0.769***	-0.607***	-0.846***	-0.471***	-0.664***	-0.140	-0.197	-0.359
	(0.171)	(0.165)	(0.158)	(0.166)	(0.221)	(0.189)	(0.409)	(0.314)
R^2	0.042	0.333	0.799	0.851	0.026	0.347	0.839	0.883
Observations	2,467	2,404	2,467	2,404	1,544	1,535	1,544	1,535

Notes: Results are from OLS regressions. The unit of observation is representative by congressional session. District and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by representative, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

among presidential entrants (albeit by less than one percent relative to midterm entrants) and Columns 7 and 8 suggest that both Democrats and Republicans who exit in presidential elections take more conservative positions (Democrats more than Republicans). Support for Prediction II in the House is also mixed. For exit, the estimates support our theory: coattails induce more conservative Republicans and more liberal Democrats. For entry, however, coattails induce more liberal entrants from both parties. Overall, estimates of the fully-specified regressions suggest that polarization induced by a 0.1 unit change in Coattails$^*_0$ equals 1 to 2 percent of the distance between Democrats and Republicans in the House (=0.76).

Turning to Prediction III, regression estimates of Equation 15 indicate that DemCoattails$_0$ is associated with a leftward swing in the expected positions of representatives who win office. The estimates are significant yet modest compared to the Senate. In regressions with controls, a 0.1 unit increase in DemCoattails$_0$ is

Table 6: Coattails and Subsequent Midterm Entrants

Dependent Variable: Nominate Scores First Dimension

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects			X	X			X	X
Panel A:	The Senate				The House			
Coattails^*_{-1}	-0.0173	-0.599*	-0.369	-0.358	-0.279***	-0.0876	-0.620***	-0.472***
	(0.422)	(0.324)	(0.403)	(0.430)	(0.104)	(0.117)	(0.162)	(0.166)
Coattails^*_{-1}	0.397	0.630*	0.512	0.621	0.0718	0.0702	0.377**	0.234
×Democrat	(0.488)	(0.349)	(0.414)	(0.409)	(0.146)	(0.150)	(0.183)	(0.189)
Democrat	-0.611***	-0.689***	-0.676***	-0.664***	-0.776***	-0.728***	-0.686***	-0.657***
	(0.0399)	(0.0513)	(0.0507)	(0.0560)	(0.0182)	(0.0188)	(0.0195)	(0.0176)
R^2	0.781	0.944	0.949	0.953	0.829	0.874	0.967	0.975
Observations	536	536	536	503	2,305	2,202	2,305	2,202
Panel B:	The Senate				The House			
DemCoattails_{-1}	1.539***	1.334***	0.894**	0.823**	-0.126	-0.356**	0.482**	0.0780
	(0.433)	(0.303)	(0.394)	(0.379)	(0.200)	(0.173)	(0.201)	(0.186)
R^2	0.134	0.373	0.657	0.719	0.001	0.299	0.803	0.859
Observations	557	518	557	518	2,305	2,202	2,305	2,202

Notes: Results are from OLS regressions. The unit of observation is legislator by congressional session. Constituency and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares; $\tau = -1$ denotes presidential election-year preceding legislator's entry in midterms. Robust standard errors, clustered by legislator, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

associated with a liberal ideological shift equal to 5 to 6 percent of interparty polarization. The results for exit are insignificant. Notably, the estimated effects for entry coattails vary substantially between controlled and uncontrolled regression results.

In general, the results for the House are underwhelming. Perhaps because senators and representatives are evaluated differently by voters, have divergent term lengths (6 and 2 years, respectively) and play separate roles in Congress, the degree to which coattails affect roll-call voting varies with the incentives faced by each type of legislator.

Subsequent Entrants and Incumbents

We now ask whether coattails influence outcomes in subsequent elections. To explore this question, we match entrants in midterm elections with presidential coattails from the preceding election-year. For example, legislators who first competed for office in the 1982 midterm election were merged with 1980 presidential coattails.

We estimate Equations 14 and 15 with $\tau = -1$ and report our results in Panels A and B of Table 6, respectively. Focusing on the within-party effects of coattails, the results in Panel A indicate that coattails induce moderation among subsequent midterm entrants in the Senate. Republicans take more liberal positions

Table 7: Coattails and Incumbents

Dependent Variable: Nominate Scores First Dimension

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects			X	X			X	X
Panel A:	The Senate				The House			
Coattails_t^*	-0.210	-0.132	-0.0407	0.0278	0.291***	0.253***	0.313***	0.284***
	(0.173)	(0.148)	(0.162)	(0.138)	(0.107)	(0.0934)	(0.0825)	(0.0695)
Coattails_t^*	-0.0361	0.0490	-0.155	-0.210	-0.822***	-0.529***	-0.777***	-0.637***
×Democrat	(0.200)	(0.179)	(0.251)	(0.215)	(0.122)	(0.108)	(0.119)	(0.0997)
Democrat	-0.677***	-0.671***	-0.637***	-0.640***	-0.763***	-0.727***	-0.683***	-0.659***
	(0.0296)	(0.0257)	(0.0197)	(0.0201)	(0.0124)	(0.0126)	(0.0112)	(0.0119)
R^2	0.766	0.831	0.921	0.928	0.843	0.882	0.948	0.961
Observations	633	633	633	633	2,445	2,346	2,445	2,346
Panel B:	The Senate				The House			
DemCoattails_t	-0.499**	-0.131	-0.419*	-0.279	-1.316***	-0.859***	-1.322***	-0.809***
	(0.207)	(0.184)	(0.232)	(0.208)	(0.109)	(0.118)	(0.136)	(0.106)
R^2	0.010	0.186	0.502	0.567	0.085	0.305	0.729	0.786
Observations	647	645	647	645	2,445	2,346	2,445	2,346

Notes: Results are from OLS regressions. The unit of observation is legislator by congressional session. Constituency and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares. $\tau = t$ denotes most recent presidential election-year in which legislator won office. Robust standard errors, clustered by legislator, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

and Democrats take more conservative ones. The estimates suggest a 5 to 8 percent moderation in interparty polarization as a result of a 0.1 unit increase in Coattails_{-1}^*. In the House, coattails reduce polarization; however, both parties take more liberal positions, with coattails inducing moderation among Republicans that outweighs the liberal shifts among Democrats. In the fully-specified regression estimates, a 0.1 unit increase in Coattails_{-1}^* induces a 6 percent liberal shift among Republican representatives, relative to interparty polarization, but only a 3 percent liberal shift among Democrats. In Panel B, the coefficients on DemCoattails_{-1} for senators are sizably positive and significant. Across the fixed effects specifications, a 0.1 unit increase in DemCoattails_{-1} results in a conservative shift equal to 12 to 13 percent of the ideological distance between Democrats and Republicans. In the House, the estimates are inconsistent across specifications, with both measures obtaining both positive and negative estimates. In sum, coattails are associated with a pendulum-like effect: an ideological pull toward the popular presidential candidate's party among contemporaneous senatorial entrants and a push away among subsequent midterm entrants. The evidence in the House is less conclusive.

Next, if legislators respond to coattails, a closer look at the regular effect of coattails on incumbents is warranted. To this end, we run regressions of the form

Table 8: Preceding versus Entry Coattails: Voting

Dependent Variable: Nominate Scores First Dimension

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	The Senate				The House			
DemCoattails_t	-0.292	0.0975	-0.254	0.0306	-0.939***	-0.596***	-1.010***	-0.678***
	(0.296)	(0.232)	(0.288)	(0.214)	(0.160)	(0.141)	(0.181)	(0.149)
DemCoattails_0	-0.888	-0.610	-0.741**	-1.127***	-0.464**	-0.429**	-0.640***	-0.416**
	(0.573)	(0.483)	(0.324)	(0.370)	(0.190)	(0.175)	(0.149)	(0.170)
Controls		X		X		X		X
Fixed effects			X	X			X	X
R^2	0.044	0.291	0.708	0.778	0.090	0.339	0.823	0.862
Observations	367	367	367	367	1,304	1,254	1,304	1,254

Notes: Results are from OLS regressions. The unit of observation is legislator by congressional session. Constituency and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by legislator, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

specified in Equations 14 and 15, with $\tau = t$. We report regression results in Table 7. The difference between the results for the Senate and those for the House is striking. In the Senate, support for the effect of coattails on incumbents is uniformly weak. The estimated coefficients are an order of magnitude smaller than those we obtained for entry and exit, and lack statistical significance. Even the estimates for DemCoattails_t, the overall measure of coattails-induced bias in roll call voting, are weak, and are significant only in specifications without controls. In contrast, the results for the House are surprisingly robust. A 0.1 unit increase in Coattails_t^* widens interparty polarization by 8 to 10 percent, and an identical change in DemCoattails_t induces 11 to 17 percent more liberal voting behavior. Thus, coattails seem to regularly skew the voting behavior of incumbents in the House, but not in the Senate.

To further compare selection effects to incentive effects of coattails with respect to roll call voting, we estimate the simultaneous effect of DemCoattails_0 and DemCoattails_t on Nominate scores. We report regression results in Table 8. Consistent with the previous findings on the Senate, the coefficient estimates for DemCoattails_t are small, inconsistent and insignificant; however, the estimates for entry coattails are predominantly unaffected by the presence of DemCoattails_t. Thus, we find no support for incentive effects of coattails on roll call voting in the Senate. This lack of incentive effects is in line with the findings of Levitt (1996), which suggests that senators are so-called 'citizen candidates'. Turning to the House, following presidential elections in which they do not run as freshmen, representatives

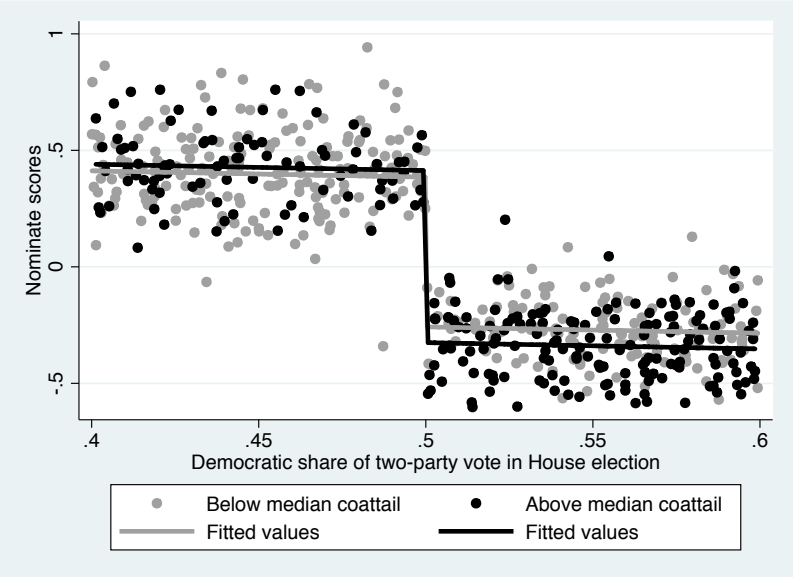


Figure 5: Current Coattails and Representative Behavior

Notes: Data are races for the House with less than 0.1 voteshare margin of victory. Median coattail is the median value of preceding presidential coattails (Coattails$_t^*$), constructed by taking a legislator's party's presidential voteshare net of its unweighted average of four preceding presidential voteshares. Fitted values are linear fit of legislators' Nominate score in subsequent congressional session with Coattails$_t^*$.

take more ideologically liberal positions when DemCoattails$_t$ is positive, even when controlling for entry coattails. The estimates for both DemCoattails at time 0 and at time t are robust.

We can further emphasize the effects of coattails on House incumbents using a quasi-regression discontinuity approach. In Figure 5, we plot Nominate scores of representatives following each presidential election against the most recent share of voters who supported the Democratic candidate for the House. Focusing on close races, we capture representatives that serve very similar constituents, thereby mitigating the impact of preferences on representative selection (Lee, Moretti and Butler, 2004). We distinguish between those who ran for office and experienced above-median Coattails$_t^*$ and those who experienced below-median Coattails$_t^*$. The plot reveals that the interparty distance between representatives who benefit from above-median Coattails$_t^*$ is greater than that of representatives who suffer from below-median Coattails$_t^*$. Put differently, positive coattails (Coattails$_t^* > 0$) are associated with incumbents taking more ideologically extreme positions in the House.

6.2 Federal Spending

We have shown that presidential coattails affect the voting decisions that entrants make in Congress, both in the House and in the Senate. In particular, it appears that coattails bias representation away from the median voter's preferences. We now ask whether coattails affect redistribution. Specifically, do coattails provide incentives for legislators to differentially influence federal spending across constituencies?

Perhaps by allowing information in the presidential race to influence their voting decisions in congressional races, uninformed voters are responsible for enabling less qualified, as well as less ideologically fit, legislators to win office ('selection effects'). Alternatively, legislators carried into office by coattails may realize that in subsequent elections they will face a more informed or less favorable electorate and try to compensate their constituents for their ideological bias to remain in office ('incentive effects'). To that end, we focus on what is considered the second (if not first) most important measure of legislator success in the eyes of voters: the appropriation of federal funds to one's constituency. Since pork-barrel politics are predominantly the domain of representatives, we focus our analysis on the House.

In the analysis that follows, the outcome variable is log spending per capita in constant 2000 dollars. The data are from 1984 to 2004, with a total value of about $2,700 per capita, each congressional session. The expenditures include grants, procurement contracts, salaries and wages, direct payments for retirement and disability, and other direct payments.[11] To estimate the effect of coattails on spending, we run regressions of the form:

$$y_{ict} = \beta \text{Coattails}^*_{ic\tau} + \mathbf{x}'_{idt}\gamma + \mathbf{z}'_{ct}\rho + \mathbf{w}'_{ct}\varsigma + \varphi_{kt} + \varepsilon_{ict}, \tag{16}$$

where y_{ict} is the log of spending per capita in county c represented by legislator i at time t, $\text{Coattails}^*_{ic\tau}$ is coattails encountered by i in county c in election τ, $\mathbf{x}$ and $\mathbf{z}$ are the same sets of controls at the district and county level, respectively; $\mathbf{w}$ is a set of categorical controls at the county level; and φ_{kt} is a state-by-year or district-by-year fixed effect, the former to control for state growth and for the influence of its senatorial delegation in the appropriations process, and the latter to capture more directly incentive effects of coattails on representatives. Any effects of coattails on spending using only within-district variation would suggest that representatives

[11] See Snyder and Strömberg (2010) for more details on the data.

Table 9: Presidential Coattails and Federal Spending

Dependent Variable: Log Spending per Capita

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects	State× year	State× year	District× year	District× year	State× year	State× year	District× year	District× year
Panel A	a. Entry ($\tau = 0$)				b. Exit ($\tau = T$)			
Coattails$^*_\tau$	0.587***	0.484***	0.659***	0.511***	0.0922	-0.132	-0.230	-0.466
	(0.108)	(0.0975)	(0.202)	(0.186)	(0.198)	(0.198)	(0.385)	(0.376)
R^2	0.241	0.386	0.417	0.492	0.195	0.347	0.341	0.437
Observations	16,107	15,819	13,902	13,651	9,156	9,016	8,148	8,017
Panel B	a. Presidential Entry and Exit				b. Full Sample			
Coattails$^*_0$	0.477***	0.533***	0.682***	0.586**	0.368***	0.365***	0.640***	0.351*
	(0.154)	(0.144)	(0.237)	(0.251)	(0.121)	(0.103)	(0.198)	(0.195)
Coattails$^*_T$	0.364	-0.0122	-0.0410	-0.431	-0.008	-0.291*	-0.303	-0.582
	(0.258)	(0.220)	(0.394)	(0.360)	(0.185)	(0.170)	(0.389)	(0.378)
R^2	0.269	0.426	0.407	0.492	0.197	0.340	0.365	0.451
Observations	5,417	5,381	4,845	4,815	19,255	18,949	16,774	16,482

Notes: Results are from OLS regressions. The unit of observation is county by congressional session. Benchmark in full sample regressions is entry and exit in midterms. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by representative, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

strategically target constituents within their jurisdiction.[12]

We report regression results for Equation 16 for entry and exit coattails in Panel A of Table 9. We find a robust relationship between entry coattails and redistribution: representatives who benefit from positive coattails upon entry (Coattails$^*_0 > 0$) are likely to secure a greater allocation of federal spending for their constituents. The coefficient on entry coattails is significant and positive. The magnitude is slightly smaller in the within-state specifications than the within-district specifications, confirming our suspicion that representatives strategically target counties within their district. Moreover, we find support for a negative selection effect. Since the state-by-year regressions capture both selection and incentive effects, and since the district-by-year regressions only capture incentives, our estimates imply a negative selection on coattails; however, incentive effects appear to dominate.

Overall, a 0.1 unit increase in Coattails$^*_0$ induces a 5 to 7 percent increase in spending per capita with selection accounting for approximately one to three quarters of a percent loss. Turning our attention to exit coattails, we do not find support for an effect on federal spending. In Panel Ba, we look at the combined effect of entry and exit coattails on spending among representatives who enter and exit in

[12]In the within-district specifications, we exclude counties that fall within the limits of more than one congressional district.

Table 10: Preceding versus Entry Coattails: Spending

Dependent Variable: Log Spending per Capita

The House	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Coattails$_t^*$	0.300***	0.106	0.569***	0.345**	0.343***	0.0573	0.589**	0.365
	(0.0829)	(0.0733)	(0.195)	(0.175)	(0.114)	(0.0981)	(0.273)	(0.236)
Coattails$_0^*$					0.495***	0.501***	0.550**	0.460**
					(0.117)	(0.108)	(0.220)	(0.207)
Controls		X		X		X		X
Fixed effects	State× year	State× year	District× year	District× year	State× year	State× year	District× year	District× year
R^2	0.227	0.363	0.407	0.486	0.228	0.371	0.405	0.480
Observations	15,233	15,012	13,291	13,077	6,868	6,813	5,923	5,872

Notes: Results are from OLS regressions. The unit of observation is county by congressional session. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by county, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

presidential election years (omitting those who enter or exit in midterm elections), and in Panel Bb we analyze the full sample of legislators. The estimated effects for a 0.1 unit increase in Coattails$_0^*$ remain strongly significant and positive, varying between 5 and 7 percent in Panel Ba and between 4 and 6 percent in Panel Bb. The results for exit coattails remain insignificant. We take these results as evidence that representatives who benefit from positive entry coattails trade off their ideological mismatch and work harder to serve their constituents. They possibly anticipate a more informed electorate (Snyder and Strömberg, 2010) or a less favorable electoral environment (Levitt and Snyder, 1997) in subsequent elections.

Our previous results on roll call voting suggest that coattails have incentive effects in election-years beyond legislator entry or exit. In further support of this claim, we find that Coattails$_t^*$ has a positive and relatively robust effect on spending as well, as shown in Table 10; however, relative to the estimates for entry coattails (which appear unaffected by the inclusion of Coattails$_t^*$), the estimates are smaller and inconsistently significant.[13]

Looking more closely at the interaction effect of voter information and coattails on spending allocations, we estimate the equation:

$$\begin{aligned} (17) \qquad y_{ict} &= \beta_1 \text{Coattails}^*_{ic\tau} + \beta_2 \text{Coattails}^*_{ic\tau} \times \text{Congruence}_{ct} + \\ &\quad \beta_3 \text{Congruence}_{ct} + \mathbf{x}'_{idt}\gamma + \mathbf{z}'_{ct}\rho + \mathbf{w}'_{ct}\varsigma + \varphi_{kt} + \varepsilon_{ict}. \end{aligned}$$

[13]In the uncontrolled specifications, both types of coattails perform equally well. We take this as evidence that our controls (in particular, those for legislator and electoral race) explain much of the incentive effects following each election, leaving the permanent effect of entry unaccounted for in the regressions.

Table 11: Presidential Coattails and Media Congruence: Spending

Dependent Variable: Log Spending per Capita

The House	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Entry Coattails ($\tau = 0$)				Preceding Coattails ($\tau = t$)			
Coattails$^*_\tau$	0.485***	0.515***	0.763***	0.631***	0.498***	0.157	0.532**	0.218
	(0.182)	(0.157)	(0.245)	(0.228)	(0.152)	(0.133)	(0.234)	(0.213)
Coattails$^*_\tau$	0.165	-0.0591	-0.207	-0.247	-0.389	-0.101	0.100	0.242
×Congruence$_t$	(0.302)	(0.273)	(0.312)	(0.303)	(0.248)	(0.224)	(0.263)	(0.242)
Congruence$_t$	0.0732**	0.130***	0.0586	0.102***	0.0957***	0.128***	0.0741**	0.0887***
	(0.0343)	(0.0310)	(0.0358)	(0.0350)	(0.0308)	(0.0284)	(0.0320)	(0.0317)
Controls		X		X		X		X
Fixed effects	State× year	State× year	District× year	District× year	State× year	State× year	District× year	District× year
R^2	0.244	0.386	0.417	0.492	0.228	0.363	0.409	0.486
Observations	15,954	15,819	13,755	13,651	15,014	15,012	13,079	13,077

Notes: Results are from OLS regressions. The unit of observation is county by congressional session. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by county, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

From previous results, we expect the direct effects of coattails and congruence to be positive; however, it is less clear what effect to expect from their interaction. For any given level of coattails, voter information should mitigate its effect on voter beliefs and subsequent outcomes: the interaction effect (if any) should be negative. On the other hand, informed voters, as suggested by Snyder and Strömberg (2010), are more likely to hold their representative accountable and induce more federal spending. This implies that voter information should increase spending for any given level of coattails.

In Table 11, we report the results of estimating Equation 17 for $\tau = 0$ and $\tau = t$. The estimates and robustness of the direct effects remain similar to those we obtained previously. That said, we find little support for any interaction effect of coattails and congruence, perhaps suggesting that the countervailing effects offset each other. We leave a more detailed analysis of the interaction between voter information and coattails for future research. Overall, we find strong evidence for a positive effect of entry coattails on federal spending allocations.

6.3 Alternative Measures of Performance

As a final exercise, we further explore the effects of coattails in other areas, but find little evidence both in the House and in the Senate. The little support we do obtain stems from the effect of Coattails$^*_t$ on incumbents in the House. In Table 12, we present descriptive statistics for the (vertical) measures we use. In Tables

Table 12: Supplementary Representative Measures

	Mean	Standard Deviation	Minimum	Maximum	Observations
Close votes with party (percent)[a]	86.823	13.635	7.333	100	4631
Votes with party leaders (percent)	83.97	10.235	23.276	100	4623
Member of policy committee[b]	0.153	0.36	0	1	5077
Majority on distributive committees[c]	0.278	0.448	0	1	4774
Witness appearances	3.423	3.688	0	28	5083
Witness appearances (budget)[d]	1.507	2.147	0	21	5077

[a]Less than 65 percent majority vote.
[b]House Judiciary Committee or the Foreign Affairs committee.
[c]More than 50 percent of assignments are on constituency committees.
[d]Appearances before the Ways and Means or Appropriations committees.

13 and 14, we report the results of estimating Equation 15 using Coattails$_t^*$. There, we find that Coattails$_t^*$ induces more party loyalty, particularly when roll calls are close–majorities of less than 65 percent. A 0.1 unit increase in Coattails$_t^*$ results in a 1 to 2 percent greater proportion of votes with a legislator's party on close roll calls. This amounts to a handful of decisive votes every congressional session. Perhaps incumbents who benefit from coattails are compelled to pitch in more than others when aiding their party matters most.

We also look at whether Coattails$_t^*$ affects a representative's type of committee assignments. We find that Coattails$_t^*$ increases the probability of serving on a policy committee with broad national appeal but has no effect on serving on constituency-oriented committees. Finally, one way a representative can promote his constituents' agenda is by appearing before congress as a witness to weigh in on federal project proposals. We do find a positive effect of coattails on the number of witness appearances; however, the point estimates are economically insignificant.

We take these results together as suggesting that conditions in the presidential race for office might affect the behavior of legislators beyond the immediate selection effect it has on their entry and exit. Although our theory is focused on the selection effect with respect to ideology, our empirical results indicate that legislators, particularly in the House, trade off policy positions on roll calls with other dimensions that constituents might observe and value.

Table 13: Preceding Coattails: Party Loyalty and Committee Assignments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects	District, year	District, year	State × year	State × year	District, year	District, year	State × year	State × year
Panel A	Dependent Variable: Party Loyalty Scores							
	a. Votes with Party Leaders				b. Close Roll Calls			
Coattails$^*_t$	3.651	5.648*	9.000***	4.775	15.04***	12.64***	17.62***	8.245**
	(3.397)	(2.958)	(3.312)	(3.124)	(3.575)	(3.434)	(3.667)	(3.586)
R^2	0.560	0.640	0.217	0.367	0.620	0.655	0.309	0.393
Observations	2,042	2,020	2,042	2,020	2,043	2,021	2,043	2,021
Panel B	Dependent Variable: Committee Assignment							
	a. Policy Committee				b. Distributive Committee			
Coattails$^*_t$	0.387***	0.259***	0.350***	0.244**	0.0833	0.0419	-0.0861	0.124
	(0.0958)	(0.0959)	(0.121)	(0.113)	(0.105)	(0.104)	(0.121)	(0.112)
R^2	0.484	0.555	0.104	0.217	0.458	0.578	0.125	0.355
Observations	2,449	2,348	2,449	2,348	2,313	2,230	2,313	2,230

Notes: Results are from OLS regressions. The unit of observation is representative by congressional session. Scores are given on a subset of roll calls with majority of 65 percent of less. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by representative, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

Table 14: Presidential Coattails and Witness Appearances

Dependent Variable: Number of Witness Appearances in the House

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation	Poisson				Negative Binomial			
Coattails$^*_t$	0.342	0.574**	0.677*	0.609**	0.287	0.524*	0.580*	0.542*
	(0.238)	(0.279)	(0.349)	(0.286)	(0.232)	(0.272)	(0.350)	(0.284)
Committee appearances	All	All	Appr., W&M	All	All	All	Appr., W&M	All
Controls		X	X	X		X	X	X
Fixed effects	District, year	District, year	District, year	State× year	District, year	District, year	District, year	State× year
Observations	2,449	2,348	2,348	2,348	2,449	2,348	2,348	2,348

Notes: Results are from OLS regressions. The unit of observation is representative by congressional session. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by representative, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

7 Identification and Robustness

Threats to identification stem from the possibility of structural changes in constituent preferences. We assumed that preference shocks ($\zeta_{c\tau}$) are uncorrelated with coattails ($\Delta_{c\tau}$). If this assumption fails, then we might misinterpret our results as being driven by voter information instead of preferences. In particular, we interpret a positive

value for DemCoattails as an election in which the Democratic presidential candidate exceeds expectations. A structural change in the electorate's preferences to favor Democrats can produce the same result. In both cases, more liberal congressional candidates are elected.

To address this concern we employ constituent controls in our regressions. Further, because preference shocks are realized in off-years as well as in presidential-election years, our measure of coattails in presidential election τ should not influence outcomes in the subsequent midterm election $(\tau + 1)$. Alternatively, if our measure is capturing trending preferences (i.e., preference shocks are not i.i.d.), then DemCoattails should be positively associated with liberal positions of entrants, regardless of when they enter. In Table 6, we presented contrasting evidence on the effects of our coattails measure on subsequent midterm entrants. Also, our results on federal spending would seem puzzling. Why preferences for more ideologically extreme legislators result in more government spending is unclear, and we are unaware of such a correlation in practice. More generally, if preference shocks are the main driver of outcomes in congressional races, then it would mean that a relatively moderate electorate in presidential elections induces more ideologically extreme entrants due to preference shocks. Thus, while we cannot rule out the possibility that preference shocks take a particular structure and confound our interpretation, we think it is unlikely to explain much of our results.

Another concern addresses our information-ordering assumption. If coattails flow from the bottom to the top of the ticket, then our interpretation of the coattail effect is not warranted. Suppose that strong legislators provide coattails that carry candidates in the presidential race. If this is the case, however unlikely, then our empirical specification suffers from reverse causality. A simple distinction between our theory and a theory of reverse coattails is that in the former, coattails are associated with the selection of 'less fit' candidates, while in the latter we expect the reverse. Perhaps congressional candidates that generate coattails in the presidential race stand out in other dimensions as well. To this end, we look at several leadership characteristics that we use as legislator controls and differentiate legislators by a binary criterion of whether they experienced above- or below-median Coattails$_t^*$. We report the results in Table 15. There is very little meaningful distinction between the groups and, if anything, those elected with above-median Coattails$_t^*$ are less likely to be party leaders or chair committees.[14]

[14]Since we are testing for reverse causality, we examine the relationship between leadership status

Table 15: A Test for Reverse Coattails

Representative Leadership Characteristics

	Mean of below-median Coattails_t^*	Mean of above-median Coattails_t^*	Mean inequality t-test
Party leader	0.0178	0.0154	0.4618
Committee chair	0.0475	0.0456	0.2246
Committee ranking member	0.0441	0.0487	-0.5409
Powerful committee member	0.3098	0.2996	0.5519

Notes: District-level variables described in Subsection 5.2. Coattails_t^* is a representative's party's most recent presidential voteshare net of its unweighted average of four preceding presidential voteshares.

The final identification-related concern we address here is that our results for ideology on the House might reflect the consequences of gerrymandering. If districts become more polarized over time, then variation in our measure of coattails may result from a change in the composition of voter preferences, not presidential candidates. To address this concern, we follow a similar approach to the one taken in Evans, Oates and Schwab (1992): we employ state-level coattails to instrument for district-level coattails. The exclusion restriction implies that state-level coattails do not directly affect outcomes in congressional races. Since candidates for the House win office if they obtain the plurality vote in their district, not their state, this restriction is plausible. When we test the theory's predictions on coattails using this IV strategy, the estimates are more statistically robust but those for entry in Prediction II do not support the theory. When we exclude early entrants to the House, however, OLS and IV estimates support the theory. We report a summary of this analysis in the Appendix. As suggested in Poole and Rosenthal (2000), it is possible that the unidimensional ideology space we assume in theory and the score we use is not well-suited to capture the behavior of entrants before 1980.

Turning to robustness, we address the possibility that growing states are awarded more congressional districts and possibly experience other changes that are correlated with voter information by including state-by-year fixed effects in our regressions, but do not find appreciable differences in the estimates we obtain. We also examine the variation in our measure of coattails and find ample within-constituency variation in draws of DemCoattails, both positive and negative, and little support for correlation across time.

We restrict our analysis to different term lengths and employ alternative measures of coattails. In general, we do not find a dominant measure and therefore opt for one

at time t and Coattails_t^*. We also substitute Coattails_t^* with Coattails_0^* and obtain similar results.

that is simple to interpret and reasonable to proxy for voter expectations. A longer trailing average (r) will come at the cost of including dated information on elections in our measure of voter expectations, $\bar{\pi}$. On the other hand, an average constructed from fewer observations will be subject to idiosyncrasies, which voters may ignore or significantly tune out when forming beliefs. Keeping within a range of $r = 2$ to $r = 6$, the results we obtain are qualitatively very similar.

We also investigate interaction effects between coattails and a variety of controls but do not find any noteworthy relation. Finally, to get a sense of whether our measure of coattails is correlated with unobservables, we check whether it correlates with our set of controls; however, we find primarily insignificant and inconsistent evidence. Although the possibility of omitted variable bias remains a plausible concern, obtaining different estimates across regression specifications suggests that presidential coattails do indeed have heterogenous effects on congressional-race outcomes.

8 Conclusion

In this paper, our main objective was to explore the limits of presidential coattails. We offered a framework in which variation in voter information drives electoral outcomes. Just as market outcomes are shaped by information asymmetries, we showed that political outcomes are affected much in the same way. The consequences, however, are likely to be quite different. In particular, the oscillation between midterm and presidential elections in the types of congressional candidates who take office may have robust effects on economic outcomes, as illustrated by our results on federal spending allocations. Our work suggests that a closer look at how institutional design affects the information voters face in elections is warranted.

When studying electoral institutions, the temptation is to look at elections in isolation. Our results caution against that approach. Our theory suggests that when information asymmetries arise, the presence of unbiased public signals, such as party labels, facilitates information contagion. In the context of contemporaneous races for office, we suggest that information contagion results in substantial distortions in representation and policy outcomes in the U.S. Congress.

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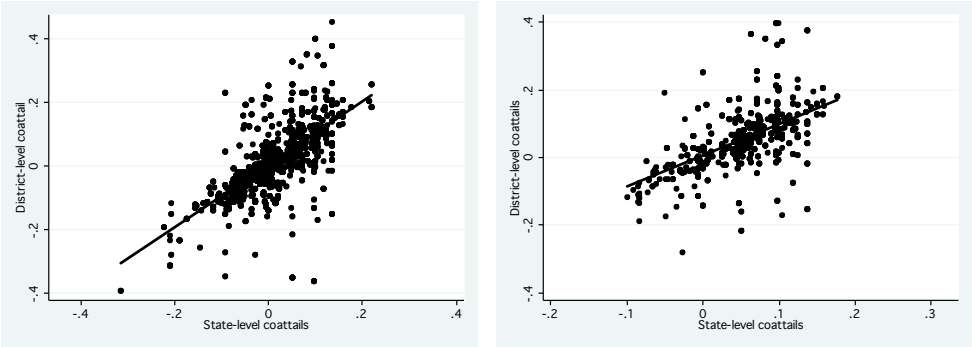
Appendix



(a) Entry Coattails Correlation (b) Exit Coattails Correlation

Figure A.1: State and District Coattails

Notes: Data include presidential elections years 1984 to 2004. Each datapoint represents a state-district pair of Democratic coattails in a given election year. District-level (state-level) coattails is DemCoattails_t: the Democratic presidential voteshare net of its unweighted average of four preceding presidential voteshares at the district-level (state-level).

Table A.1: Representative Coattails: First Stage and Reduced Form

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects			X	X			X	X
Panel A	Dependent Variable: District-level DemCoattails							
First Stage	a. Entry ($\tau = 0$)				b. Exit ($\tau = T$)			
State-level	0.989***	0.960***	0.985***	0.942***	0.921***	0.892***	1.006***	1.054***
	(0.0554)	(0.0532)	(0.0806)	(0.0733)	(0.0906)	(0.0774)	(0.0977)	(0.0829)
R^2	0.444	0.490	0.824	0.863	0.274	0.310	0.972	0.983
Observations	2,427	2,401	2,427	2,401	1,136	1,134	1,136	1,134
Panel B	Dependent Variable: Nominate Scores First Dimension							
Reduced Form	a. Entry ($\tau = 0$)				b. Exit ($\tau = T$)			
State-level	-0.583**	-0.931***	-0.410	-0.370	-1.333***	-0.738**	-0.256	-0.797
DemCoattails	(0.252)	(0.235)	(0.318)	(0.296)	(0.483)	(0.352)	(0.796)	(0.623)
R^2	0.011	0.327	0.790	0.848	0.034	0.494	0.886	0.925
Observations	2,543	2,517	2,543	2,517	1,184	1,172	1,184	1,172

Notes: Results are from OLS regressions. The unit of observation is representative by congressional session. District and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by representative, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

Table A.2: The House IV Results

Dependent Variable: Nominate Scores First Dimension

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls		X		X		X		X
Fixed effects			X	X			X	X
Prediction II:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
Coattails$^*_\tau$	-0.540***	-0.0731	-0.669***	-0.348*	0.977***	0.661*	0.332	0.545
	(0.189)	(0.171)	(0.237)	(0.204)	(0.319)	(0.347)	(0.362)	(0.366)
Coattails$^*_\tau$	0.469*	0.176	0.688**	0.514**	-2.147***	-1.326***	-1.337**	-1.302***
×Democrat	(0.246)	(0.232)	(0.291)	(0.259)	(0.525)	(0.495)	(0.529)	(0.466)
Democrat	-0.761***	-0.706***	-0.675***	-0.631***	-0.634***	-0.663***	-0.637***	-0.638***
	(0.0189)	(0.0177)	(0.0245)	(0.0193)	(0.0359)	(0.0375)	(0.0380)	(0.0366)
p-value(Hausman)	0.730	0.488	0.413	0.274	0.0418	0.191	0.159	0.287
Weak Id F Stat.	84.75	100.4	61.32	68.15	21.71	31.74	31.29	60.30
Observations	2,427	2,401	2,409	2,383	1,136	1,134	1,101	1,099
Prediction III:	Entry ($\tau = 0$)				Exit ($\tau = T$)			
DemCoattails$_\tau$	-0.470*	-0.827***	-0.401	-0.431	-1.474***	-0.845**	-0.252	-0.755
	(0.254)	(0.245)	(0.296)	(0.286)	(0.561)	(0.408)	(0.700)	(0.528)
p-value(Hausman)	0.220	0.328	0.0863	0.885	0.0436	0.0696	0.621	0.415
Weak Id F stat.	318.7	325.5	173.7	192.8	103.3	132.7	135.9	208.2
Observations	2,427	2,401	2,409	2,383	1,136	1,134	1,101	1,099

Notes: Results are from IV regressions. The unit of observation is representative by congressional session. District and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares. Excluded instrument is state-level coattails. Weak identification statistic is the Kleibergen-Paap rk Wald F statistic. Robust standard errors, clustered by district, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.

Table A.3: House Entrants 1984 to 2004

Dependent Variable: Nominate Scores First Dimension

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Prediction II:	OLS Estimation				IV Estimation			
Coattails$^*_0$	0.555***	0.467**	-0.0950	-0.124	0.660**	0.789**	0.430	0.397
	(0.188)	(0.214)	(0.213)	(0.254)	(0.322)	(0.349)	(0.541)	(0.466)
Coattails$^*_0$	-0.853***	-0.609***	-0.334	-0.161	-1.645***	-1.513***	-1.235**	-1.020*
×Democrat	(0.214)	(0.223)	(0.250)	(0.290)	(0.478)	(0.534)	(0.592)	(0.542)
Democrat	-0.853***	-0.767***	-0.725***	-0.706***	-0.795***	-0.744***	-0.723***	-0.702***
	(0.0225)	(0.0263)	(0.0344)	(0.0405)	(0.0385)	(0.0334)	(0.0506)	(0.0485)
Controls		X		X		X		X
Fixed effects			X	X			X	X
R^2/p-value(Hausman)	0.884	0.906	0.983	0.986	0.0484	0.118	0.649	0.632
Observations	1,156	1,112	1,156	1,112	1,116	1,109	1,096	1,087

Notes: Results are from OLS regressions. The unit of observation is representative by congressional session. Entrants prior to the 1984 general election are exluded from analysis. District and year fixed effects included where noted. Coattails are difference from average of four preceding presidential voteshares. Robust standard errors, clustered by representative, in parentheses; * denotes 90% significance, ** denotes 95% significance, and *** denotes 99% significance.