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INCUMBENCY DISADVANTAGE IN
U.S. NATIONAL POLITICS

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Abstract

We document that postwar U.S. national elections show a strong pattern of "incumbency disadvantage": If the presidency has been held by a party for some time, that party tends to lose seats in Congress. A model of partisan politics with policy inertia and elections is presented to explain this finding. We also find that the incumbency disadvantage comes sooner for Democrats than Republicans. Based on the observed Democratic bias in Congress (Democrats have held more seats in the House and Senate, on average, than Republicans), the model also offers an explanation for the second finding.

Keywords: rational partisan model, incumbency disadvantage, policy inertia, political disagreement model, partisan politics

1 Introduction

Since 1952, when Dwight Eisenhower was elected president, there have been eight presidential elections in which the presidency had been held continuously by either a Democrat or a Republican for the eight preceding years or more (two or more terms). In six of those elections, the incumbent president's party could not hold on to the presidency. Based on this history, the probability that the U.S. presidency switches parties after being with any party for eight or more years is 88 percent (7/8). On the other hand, the fraction of times each party has held the presidency since 1952 is roughly 50 percent. These two facts suggest that there is an *incumbency disadvantage* in U.S. national politics: When a party has held the presidency for two or more terms, the popularity of the party with voters is strongly diminished.[1]

Our paper makes two contributions. First, it documents a pattern of incumbency disadvantage in the electoral performance of the two parties in the postwar era. Specifically, we examine how the Democratic lead in the House and the Senate is affected by how long a party has held the presidency going into each election. We also examine how a party's electoral performance compares between its first presidential term versus its later terms. Regardless of which measure of performance is used, we find strong evidence that electoral performance of either party is adversely affected if the party has held the presidency for some length of time. For instance, in our main empirical specification — which estimates a common incumbency disadvantage for both the Republican and Democratic parties — we find that the Democratic lead in the House drops (increases) by 38 seats if Democrats (Republicans) have held the presidency for six or more years. For the Senate, we find that Democratic lead drops (increases) by 14 seats if Democrats (Republicans) have held the presidency for six or more years.

This pattern motivates the second contribution of the paper, which is to propose an explanation of incumbency disadvantage using a model of political disagreement. We build on Alesina and Tabellini's (1990) model of partisan politics. In the original setup of this model, there are two parties with different preferences over policy choices that circulate in power. The policy choices available are different types of government expenditures — social insurance and defense, for instance. When a party gets into power, it directs expenditure to maximize its own utility function.

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[1] After their first term in office, most presidents get reelected (this fact may reflect the personal appeal of a president once the public gets to know him and is not addressed in this paper). After two terms in office, a president cannot run for a third term, so the identity of the next presidential party mostly depends on the appeal of party platforms.

We extend this setup in two ways. First, we endogenize political turnover *via* a model of elections. We assume that each party has an equal measure of adherents who share the same preferences over policy choices as the party (more accurately, the two citizen groups with symmetrically divergent preferences over policy choices are each represented by a party). But voters do not necessarily vote in a partisan fashion. At the time of an election, each voter receives a mean-zero i.i.d. preference shock that affects his or her utility under the two parties (the stochastic partisanship model, in the terminology of Duggan (2006)). As is realistic, these shocks ensure that members of a party do not all vote in the same way in each election. In addition to this idiosyncratic preference shock, there is also a mean zero, purely transitory aggregate preference shock for one party over another that affects all voters in an election in the same way. This shock ensures that the outcome of an election is not, generally, a foregone conclusion.

Second, we introduce a distinction between policy outcomes and party platform. By *party platform*, we mean the ideal policy of a party, i.e., the policy that would give the adherents of the party the highest utility possible. Actual policy, however, will deviate from the party platform of the party in power because of the many constraints faced by politicians in changing policies. For instance, these constraints could reflect the fact that politicians must win their *local* elections to serve in Congress. As emphasized by Mayhew (2004), this *electoral incentive* serves to moderate politicians' willingness to hew to the party line at all times. In addition, constraints could arise from the necessity of bipartisan support for legislation (supermajority) to avoid Senate filibusters or presidential vetoes (Krehbiel (1998)). These constraints impart an inertia to policy choices that we capture in our model through the assumption that politicians bear a cost to changing policies, and these costs are higher the bigger the change that is contemplated.

Extended in this fashion, the model gives a ready explanation of incumbency disadvantage. After a long Democratic incumbency (which can happen randomly), inherited policies will be relatively far from a Republican voter's ideal policies. Given diminishing marginal utility from any particular type of policy, the utility loss to a Democratic voter from a small change in policy (the change is small due to inertia) toward those preferred by Republicans will be smaller than the utility gain for a Republican from the same small change in policy. As a result, the aggregate preference shock is likely to be less determinative for Republicans than for Democrats, and the former are more likely to vote along partisan lines and win the election. Of course, the same logic applies in reverse after a long Republican incumbency.

The model also offers an explanation for why incumbency disadvantage tends to come sooner for Democrats than for Republicans, a fact that we document as well. Suppose that the adjustment cost of changing policies is lower for Democrats than for Republicans. This will imply that when Democrats hold the presidency, they will move toward their ideal policy faster than Republicans and, thus, incur the ire of their opponents sooner. In our model, this would imply that Democratic control of the government would be less frequent than Republican control. But this counters the facts in the following sense: Each party has held the presidency for about an equal fraction of time since 1952. In the model, consistency with this fact is maintained if there is also a bias in favor of Democrats in the population of voters, i.e., the fraction of the population that is Democratic is larger than the fraction that is Republican. Interestingly, the historical record on the party composition of Congress reveals that, on average, Democrats have indeed held a lead in both houses in the postwar era. In the empirical section, we argue that this Democratic bias is also the reason why the adjustment costs of changing policies is lower for Democrats than for Republicans.

The paper is related to several strands of the political economics literature. On the theoretical side, the closest relationship is to the "rational partisan business cycle" approach initiated by Alesina and Rosenthal (1995). What distinguishes our approach is that we assume that citizens are as polarized as parties and that policies evolve toward the ideal of the party in power gradually. Coupled with the fact that the voters do not always vote along party lines (i.e., there are issues in every election that cause people to vote across party lines), our model predicts an electoral disadvantage that grows with incumbency.[2] There is methodological novelty as well in that we compute and analyze the Markov equilibrium of a infinite-horizon two-player dynamic game in which current policy choices act as strategic and state variables.[3]

On the empirical side, our finding of incumbency disadvantage echoes previous findings in the politics literature. Bartels and Zaller (2001) study a large set of empirical presidential vote models and identify an"incumbent fatigue" effect wherein the percent of the two-party vote for the party of the incumbent president is negatively affected by how long that party has held the presidency.

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[2]Alesina and Rosenthal (1995) found that the president's party loses seats in midterm elections. They interpret this as voters (who are less polarized than politicians) trying to get more median policies by counterbalancing the president's power by electing the opposite party in midterm elections. We show that the incumbency disadvantage is even stronger after four years of presidency by one party (which corresponds to a main election), and we explain this by policy inertia that gradually tilts policy in favor of the party in power.

[3]Such games can be hard to compute because of possible lack of continuity of Markovian decision rules (Chatterjee and Eyigungor (2016)). We import computational methods developed to deal with similar lack of continuity of decision rules in debt and default models (Chatterjee and Eyigungor (2012)) to solve the model.

Our findings are similar to theirs, except that we focus directly on the electoral performance of the two parties rather than the two-party presidential vote share.[4]

The paper is organized as follows. In Section 2, we present our empirical findings regarding incumbency disadvantage. In Section 3, we develop the model outlined previously. In Section 4, we analyze a static version of the model with specific parametric assumptions on preferences to provide intuition for the main result of the paper. In Section 5, we explore the full dynamic model computationally — the goal of this section is to show that analogs of the empirical findings reported in Section 2 can arise in the full equilibrium of the model.

2 Facts

For the baseline estimation, we consider all national elections between 1954 and 2014 (both years inclusive).[5] Over this period, there have been 7 presidential elections in which the presidency has been held continuously by either a Democrat or a Republican for at least the 8 preceding years (two or more terms). In 6 of those elections, the (incumbent) president's party could not hold on to the presidency. Based on this history, the probability that the U.S. presidency switches parties after two or more terms is 86 percent (6/7). On the other hand, the percentage of times either party has held the presidency since 1952 is roughly 50 percent, implying that if the outcome of each election was an independent draw, we would expect the presidency to switch parties with a probability 50 of percent, regardless of history. These two facts suggest that there is an *incumbency disadvantage* in U.S. national politics: When any party has held the presidency for two or more terms, the popularity of the party with voters is strongly diminished.[6]

In the rest of this section, we present systematic evidence that confirms the presence of this incumbency disadvantage in House and Senate elections. Specifically, we compare the electoral performance of the two parties when one of the parties had held the presidency for 6 or more years

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[4]In an early study, Stokes and Iverson (1962) observed that over the 24 presidential elections between 1868 and 1960, neither the Republican nor the Democratic party succeeded in winning more than 15 percent beyond an equal share of presidential or congressional votes (and the same remains true for the 13 elections since 1960). They interpret their findings as strong evidence against the proposition that vote shares are a random walk and, thus, evidence in favor of "restoring forces" that work to elevate the popularity of the party that has been less popular in the past.

[5]We ignore earlier postwar years because of possible lingering effects of momentous events such as the Great Depression and World War II. Also, this study was done prior to the 2016 presidential elections and so does not include results of that election.

[6]After their first term in office, most presidents get reelected (this fact may reflect the personal appeal of a president once the public gets to know him and is not addressed in this paper). After two terms in office, a president cannot run for a third term, so the identity of the next presidential party mostly depends on the appeal of party platforms.

Figure 1: Democratic Lead in the House in Election Years, 1952-2014
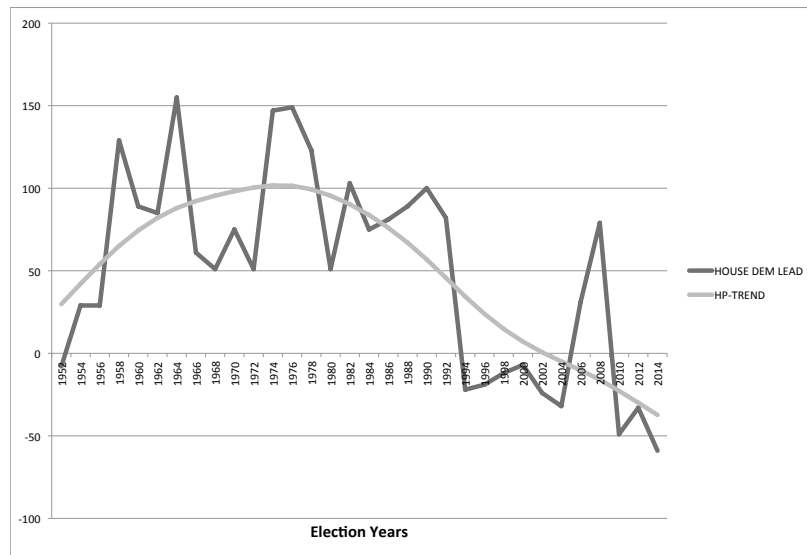
with the parties' electoral performance when one party had held the presidency for 2 or 4 years.[7] The point of the comparison is that, in a presidential system such as the U.S., the president's party gets to set the policy agenda and, so, during elections, we expect voters to vote against (or for) the members of the president's party if they disapprove (or approve) of the party's current policies.

To start, we focus on electoral performance of the two parties as reflected in party composition of the U.S. House of Representatives. Since every seat in the House is generally contested in every national election (held every two years), the scope of the electorate to express approval or disapproval of current policies is the greatest in House elections. We measure electoral performance by the Democratic lead in the House (which can range from 0 to 435), denoted LH.[8]

Figure 1 plots the time series of LH. Two facts stand out: First, in contrast to presidential election outcomes, there is a Democratic bias in House elections in that LH is positive, on average. Second, there is long-run variation in LH. The heavy line is the Hodrick-Prescott trend, computed using a smoothing parameter of 100. We use the deviations of LH from the HP trend, denoted DLH, as our measure of electoral performance.[9]

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[7]This helps us to avoid mixing things up with midterm election disadvantage.

[8]We examine the robustness of our findings to using democratic vote share lead.

[9]We examine the robustness of our results to not detrending LH at all.

Our main empirical specification is:

$$DLH_t = \beta_0 + \beta_1 SIX_t^+ + \beta_2(TWO_t^+ \cdot DGY_t) + \beta_3 DEM_t + \beta_4 MID_t$$

where

- SIX_t^+ is a trichotomous variable that takes a value of 1 if, at the time of election, the presidency has been held by a Democrat for 6 or more years, takes a value of -1 if the presidency has been held by a Republican for 6 or more years, and takes the value 0 otherwise. If there is an incumbency disadvantage, we expect β_1 to be negative. A negative coefficient implies that, after 6 years of Democratic presidency, the Democratic lead in the House falls, and, after 6 years of Republican presidency, the Democratic lead in the House increases.

- $TWO_t^+ \cdot DGY_t$ is a control interaction variable, where TWO_t^+ is a binary variable that takes a value of 1 if the presidency was held by a Democrat in the preceding two or more years, and it takes the value -1 if the presidency was held by a Republican in the preceding two or more years. And, DGY_t is the average growth rate (detrended in the same way as LH) of real GDP from the third quarter of $t-2$ to the third quarter of t (because elections are held in the fourth quarter). This interaction term takes into account that above-trend economic performance in the interelection period may be attributed to the success of policies of the presidential party and, so, the presidential party gains more seats. If so, we expect β_2 to be positive.

- DEM_t is a dummy variable that takes value 1 in the elections that followed the assassination of President John F. Kennedy and the resignation of President Richard M. Nixon. We include this dummy to control for the electoral boost these events may have given to the Democratic party.

- MID_t is a trichotomous variable that takes the value 1 if it is a midterm election and the incumbent president is a Democrat; it takes the value -1 if it is a midterm election and the incumbent president is Republican; and it takes the value 0 otherwise. This variable is a control for the loss in House seats of the president's party during midterm elections documented in other studies.

Table 1 presents the regression results. The second column reports the results of the regression that includes only a constant term and our main explanatory variable SIX_t^+. The coefficient on SIX_t^+ is statistically strongly significant and substantially negative; on average, the Democratic lead declines by about 38 seats after six years of a Democratic presidency and increases by 38 seats after six years of a Republican presidency. The magnitude of the response is about 1 standard deviation of the dependent variable. The magnitude of the constant term is small, and it is statistically insignificant.

The third column reports the results for our main specification, which includes the controls mentioned previously. Note, first, that the magnitude of estimated coefficient for SIX_t^+ is still statistically strongly significant and almost unchanged in magnitude relative to the first specification; the incumbency disadvantage is about 39 seats. The coefficient on the control for inter-election economic performance is strongly statistically significant, positive and fairly substantial. A 1 percent above-trend economic growth increases the incumbent party's lead, on average, by 9 seats. The dummy variable for the two special elections is weakly statistically significant, but the magnitude is substantial: The boost to the Democratic lead is estimated to be about 35 seats in these two elections.

The fourth column reports results from the regression in which TWO_t^+ is included as a separate regressor. The aim here is to give a sharper interpretation to the coefficient on SIX_t^+. By including TWO_t^+ separately, we capture any pure incumbency effect, unrelated to duration. The pure incumbency effect is insignificant, and the coefficient on our main explanatory variable is now even larger in magnitude.

The fifth column assesses sensitivity to detrending. We redo the main regression using LH and GY. The overall R^2 of this regression is much lower. However, the coefficient on SIX_t^+ remains strongly statistically significant although its magnitude relative to the standard deviation of the dependent variable is now smaller. The substantive effect of not detrending is to lower statistical significance of the effect of interelection economic performance, although it is still estimated to be positive.

The final column reports the results of including the midterm dummy. The president's party is punished somewhat in midterms, but the effect is small and statistically insignificant. This is consistent with Figure 1, which does not show much movement in the Democratic lead in midterm

Table 1: Presidential Party Incumbency and House Electoral Performance

	Alt1	Main	Alt2	Alt3	Alt4
Dep. Var.	*DLH*	*DLH*	*DLH*	*LH*	*DLH*
Constant	-5.0(5.4)	-11.5**(4.7)	-11.5**(4.7)	38.5*** (9.3)	−6.4 (6.3)
SIX^+	-38.5*** (7.7)	-38.9***(6.4)	-43.2***(9.1)	-54.1***(17.5)	−38.9*** (6.3)
$TWO^+ \cdot DGY$		9.6*** (3.1)	9.8***(3.1)		11.4*** (3.4)
DEM		35.4*(17.8)	33.0*(18.3)	80.8** (37.7)	33.6* (17.7)
$TWO^+ \cdot GY$				3.0*(3.4)	
TWO^+			4.1(6.1)		
MID					−11.2 (9.4)
Adj. R^2	0.44	0.63	0.62	0.37	0.64
S.D. Dep. Var.	38.9	38.9	38.9	61.8	38.9

Figure 2: House Democratic Lead, Controlling for GDP Growth Effects
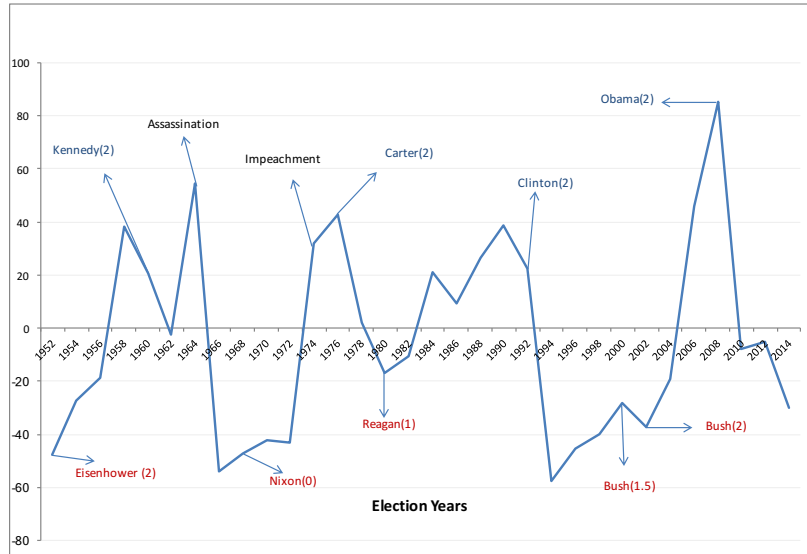
elections. It is not surprising that the addition of the midterm dummy leaves the coefficient of our main explanatory variable almost unchanged.

In the main specification, we estimated a common incumbency disadvantage for both parties. In Table 2, we estimate separate incumbency disadvantages for the two parties. In this specification, $RSIX_t^+$ ($DSIX_t^+$) is a dummy variable that takes value 1 in any election in which the Republican (Democratic) party had controlled the presidency for 6 or more years. The disadvantages are estimated to be quite asymmetric, with Republicans getting punished more than twice as much as Democrats after a long incumbency and the Democratic incumbency disadvantage is no longer statistically significant. However, the asymmetry is more apparent than real.

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Table 2: Differential Incumbency Disadvantage by Party

Dep. Var.	DLH
Constant	18.0*** (5.8)
$RSIX^+$	55.2*** (11.1)
$DSIX^+$	-23.8 (14.0)
$TWO^+ \cdot DGY$	8.3** (3.1)
DEM	35.6* (17.7)
TWO^+	3.7 (5.9)
Adj. R^2	0.65
S.D. Dep. Var.	38.9

To understand its source, Figure 2 plots DLH - $(TWO_t^+ \cdot DGY_t)$, the variation in the House Democratic lead not explained by GDP growth during the interelection period. Notice that after a Republican president comes into power, House Republicans do not lose popularity right away. During the Eisenhower, Nixon, and George W. Bush presidencies, the House Democratic lead did not rise much two or four years into their respective presidencies. Most of the incumbency disadvantage came 6 or 8 years into Republican-controlled presidencies, and this is well captured by the regression coefficient for $RSIX_t^+$. In contrast, the pattern for Democratic-controlled presidencies is different: Two years into the Jimmy Carter, Bill Clinton and Barack Obama presidencies, House Democrats saw big drops in their lead from which they essentially did not recover. Carter failed to get reelected, while Obama and Clinton were reelected despite the unpopularity of House Democrats. Thus, in our sample, the incumbency disadvantage for Democrats mostly comes two years into their presidential incumbency. Given that our $DSIX_t^+$ variable can pick up differences between 6-8 year incumbencies and 2-4 year incumbencies only, it fails to capture the quick nature of Democratic incumbency disadvantage.

Why might the incumbency disadvantage for Democrats be so quick? In the figure, we also display whether the president's party holds both Houses going into the election, or one of them, or none of them (denoted, 2, 1, and 0, respectively). Given the Democratic bias in the House, *all* Democratic presidents have held both Houses during their first two years. Among Republican presidents, this happened only for Eisenhower and after the midterm elections during George W. Bush's first term. In light of the model presented in this paper, this difference is important. In the model, incumbency disadvantage occurs as a reaction to accumulation of policy changes that continually favor the party in power. Since policy changes are presumably easier when a

president holds both Houses, policies favoring the president's party accumulate faster in these circumstances and, hence, the disadvantage comes sooner.

In all our specifications thus far, the regressors did not (directly) encode information on which party won each presidential election (the variables only record incumbency going into each election). An alternative way to measure incumbency disadvantage is to compare the House Democratic lead between the first term of a party's presidency and its later terms. In addition to the two control variables in the main specification, the regressors now include four new dummy variables:

- D (R) is a dummy that takes the value of 1 in any presidential election in which the president elected is a Democrat (Republican); if it is a midterm election, the value of the dummy is 1 if the president elected in the immediately preceding presidential election is a Democrat.

- $DTWO^+$ ($RTWO^+$) is a dummy that takes the value 1 in any presidential election in which the elected presidents in that election and the preceding presidential election are Democrats (Republicans); again, if it is a midterm election, the dummy takes value 1 if the presidents elected in both preceding presidential elections are Democrats (Republicans).

In Table 3, we display the regression results. In the first term of a Republican presidency, the Democratic lead in the House is below trend by about 34 seats (the coefficient on R is -33.6 and strongly significant), while in the first term of a Democratic presidency, the Democratic lead is above trend by about 13 seats (the coefficient on D is 12.5 but not significant). Since we are examining the electoral performance of a party *conditional* on the party winning the presidency, the electoral boost to the winning party is to be expected. For our purposes, the important coefficients are the ones on $DTWO^+$ and $RTWO^+$. These coefficients are both negative, large, statistically significant, and virtually identical. The House Democratic lead is below trend by 43 seats after 8 or more years of a Democratic presidency, and it is above trend by 42 seats after 8 or more years of a Republican presidency. The two control variables are once again significant with the expected signs. Overall, these results provide a strong confirmation of incumbency disadvantage in U.S. national politics.

The rest of this section reports results for alternative measures of electoral performance. Table 4 reports the results when performance is measured by the vote share lead, denoted $DLHV$ and LHV, for detrended and non-detrended values, respectively. We confine the reporting of

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Table 3: First versus Later Presidential Terms and Electoral Performance

Dep. Var.	DLH
R	−33.6*** (11.5)
D	12.5 (11)
$RTWO^+$	42.0** (15.6)
$DTWO^+$	−43.0** (17.1)
$TWO^+ \cdot DGY$	11.4** (4.2)
DEM	52.1** (23.7)
Adj. R^2	0.38
S.D. of Dep. Var.	38.9

Table 4: Presidential Party Incumbency and House Vote Share Lead

	Main	Alt1	Alt2
Dep. Var.	$DLHV$	$DLHV$	LHV
Constant	-1.5** (0.6)	-2.2*** (0.8)	3.3*** (0.9)
SIX^+	-5.0*** (0.8)		-5.7*** (1.7)
$RSIX^+$		6.4*** (1.2)	
$DSIX^+$		-2.9* (1.7)	
$TWO^+ \cdot DGY$	1.1** (0.4)	1.0** (0.4)	
DEM	4.9** (2.3)	5.1** (2.3)	9.5** (3.6)
$TWO^+ \cdot GY$			0.1 (0.3)
Adj. R^2	0.62	0.63	0.47
S.D. Dep. Var.	5.1	5.1	6.5

results to the main specification, the specification with separate incumbency disadvantages for the two parties, and the specification with no detrending. The results are similar to what we found for the Democratic lead in the House. The estimate of the common incumbency disadvantage is statistically significant and substantial in magnitude (again, about 1 standard deviation in size). The specification with separate incumbency disadvantage shows that incumbency disadvantage for Republicans is much stronger than for Democrats but, as explained previously, this is more apparent than real. The specification with no detrending shows that the presence of the incumbency disadvantage does not hinge on detrending but the variation explained is lower. The estimated coefficients on the controls have the expected signs and are mostly statistically significant (the exception is the coefficient on the impact of interelection economic performance for the non-detrended specification).

Table 5: Presidential Party Incumbency and Senate Electoral Performance

Dep. Var.	Main DLS	Alt1 DLS	Alt2 LS
Constant	-2.1 (1.5)	-4.2** (1.6)	6.2**(2.3)
SIX^+	-14.0*** (2.5)		-13.1***(4.4)
$RSIX^+$		17.9*** (3.0)	
$DSIX^+$		-7.9*** (3.8)	
$TWO^+ \cdot DGY$	2.6*** (0.9)	2.1** (0.9)	
TWO^+	5.8*** (1.7)	5.8*** (1.6)	-5.3(5.0)
$TWO^+ \cdot GY$			3.4**(1.3)
Adj. R^2	0.53	0.58	0.27
S.D. Dep. Var.	9.9	9.9	14.1

Table 5 reports results when performance is measured by the Senate Democratic lead, denoted *DLS* and *LS*, for detrended and non-detrended values, respectively. The results of the regressions confirm the presence of incumbency disadvantage in Senate elections as well. The coefficient on incumbency disadvantage is very strongly statistically significant in the main specification and even larger in magnitude (the coefficient is more than 40 percent larger than 1 standard deviation of the dependent variable). When estimated separately for the two parties, the incumbency disadvantage comes in stronger for Republicans than for Democrats even in the Senate. The presence of incumbency disadvantage holds up in the non-detrended series as well. One difference between the House and Senate results is that the *DEM* is not significant in the Senate results (the coefficient is not reported in the table) and, instead, the pure incumbency effect is significant in both the main and the separate disadvantage specifications (but not in the non-detrended specification).

Finally, Table 6 reports the results for the Democratic House vote share and Senate leads when a party's first term is compared with later terms. The results for the House vote share lead show that the incumbency disadvantage for Democrats is not found to be statistically significant, although the coefficient has the correct sign, but the results are uniformly strong and supportive of incumbency disadvantage for both parties in the Senate.

In sum, the postwar historical record strongly supports our claim that there is an incumbency disadvantage in U.S. national politics. After a party has been in charge of the presidency for six or more years, it tends to lose favor with voters. Also, this incumbency disadvantage comes sooner for Democrats than for Republicans.

Table 6: First *vs* Later Terms: House Vote Share and Senate

Dep Var	*DLHV*	DLS
R	-3.4**(1.6)	-10.7***(2.7)
D	-0.3(1.6)	6.8**(0.01)
RTWO$^+$	5.0**(2.2)	10.9***(3.6)
DTWO$^+$	-2.9(2.4)	-11.3***(4.0)
TWO$^+$· *DGY*	1.3**(0.6)	2.5**(1.0)
DEM	6.4*(3.4)	10.1*(5.5)
Adj. R^2	0.24	0.47
S.D. of Dep Var	5.0	9.8

3 Model

We build on Alesina and Tabellini's (1990) influential model of two parties with different policy preferences circulating in power. We denote one party by D and the other by R. We use $g \geq 0$ to denote the type of expenditures (policies) preferred more by the D party. We assume that tax revenues are constant and given by $\tau > 0$. Then, $\tau - g$ is the type of expenditure that is more preferred by the R party. If we interpret g as the ideological stance of policies, then τ is the D end of the ideological spectrum, and 0 is the R end. In what follows, g will denote the expenditures/policies inherited from last period, and g' will denote the expenditure policy chosen in the current period. We assume that there is decreasing marginal utility to g' and to $\tau - g'$.

At the start of any period, with constant probability $\pi > 0$, an election happens. Conditional on an election, $\mathbb{1}(g, A)$ is an indicator variable that takes the value 1 if party D is elected, given the inherited policy, g, and the aggregate party preference shock A. The party in power then experiences an i.i.d. shock, m, that affects the marginal utility from its preferred good.[10] The party in power chooses g', and all period payoffs are realized.

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[10]This shock is necessary to ensure that the dynamic game being played by the two parties has an equilibrium in pure strategies. In our computations, the shock has a small variance and thus does not affect the thrust of our results.

For $j \in \{D, R\}$, let V_j denote the value of party j when it is in power and by X_j its value when it not in power. Then,

$$V_D(g, m) = \max_{g' \in \Gamma} U(g' + m) + \alpha U(\tau - g') - \eta (g' - g)^2 + \tag{1}$$

$$\beta \mathbb{E}_{(A', m')} \begin{bmatrix} [\pi \mathbb{1}(g', A') + (1 - \pi)] V_D(g', m') + \\ \pi (1 - \mathbb{1}(g', A')) X_D(g', m') \end{bmatrix},$$

where $U(c)$ is a strictly increasing and strictly concave function defined on all $c > 0$, $\alpha \leq 1$ and $\eta (g' - g)^2$ is the cost of adjusting policies. Symmetrically, party $R's$ value function when it is in power is:

$$V_R(g, m) = \max_{g' \in \Gamma} \alpha U(g') + U(\tau - g' + m) - \eta (g' - g)^2 \tag{2}$$

$$+ \beta \mathbb{E}_{(A', m')} \begin{bmatrix} [\pi (1 - \mathbb{1}(g', A')) + 1 - \pi] V_R(g', m') \\ + \pi \mathbb{1}(g', A') X_R(g', m') \end{bmatrix}.$$

If we let $G_j(g, m)$ denote the optimal policy of the party j when it is in power, the value function party D when it is out of power is

$$X_D(g, m) = U(g') + \alpha U(\tau - g') - \eta (g' - g)^2 \tag{3}$$

$$+ \beta \mathbb{E}_{(A', m')} \begin{bmatrix} \left(\pi \mathbb{1}(g', A') V_D(g', m') \right. \\ \left. + [\pi (1 - \mathbb{1}(g', A')) + 1 - \pi] X_D(g', m') \right) \end{bmatrix}$$

s.t. $g' = G_R(g, m)$,

and, symmetrically, the value of party R when it is out of power is

$$X_R(g, m) = \alpha U(g') + U(\tau - g') - \eta (g' - g)^2 \tag{4}$$

$$+ \beta \mathbb{E}_{(A', m')} \begin{bmatrix} \left(\pi (1 - \mathbb{1}(g', A')) V_R(g', R, m') \right. \\ \left. + [\pi \mathbb{1}(g', A') + 1 - \pi] X_R(g', m') \right) \end{bmatrix}$$

s.t. $g' = G_D(g, m)$.

When the party is not in power, it does not make any choices but lives with the choices being made by the party in power. Note, however, that the costs of adjustment are borne equally by both parties: It takes effort to persuade as well as to acquiesce.

Next, we turn to the decision problem of voters that provides the underpinning of the election outcome function $\mathbb{1}(g, A)$. There is a continuum of voters. In terms of utility from g' and $\tau - g'$, half of them have the same preferences as the D party, and the other half has the same preferences as the R party. Voters differ from their affiliated party in two ways. First, they do not experience the costs of changing policies borne by their representatives in government: The interpretation is that changing policy is costly for politicians, not the constituents they represent. Second, as mentioned earlier, voters experience preference shocks, idiosyncratic and aggregate, that affect their utility but do not affect the policy objectives of the parties themselves. We denote the idiosyncratic preference shock by $\varepsilon \sim F(\varepsilon)$ and the aggregate preference shock by $A \sim H(A)$. Both distributions are assumed to be symmetric around 0.

For $j \in \{D, R\}$, let W_j be the value function of voters belonging to party j when their party is in power, and let Z_j be their value function when their party is out of power. Then,

$$
\begin{aligned}
W_D(g, m, \varepsilon, A) = U(g') &+ \alpha U(\tau - g') + \varepsilon + A \\
&+ \beta \mathbb{E}_{(\varepsilon', A', m')} \left[\left(\begin{array}{c} [\pi \mathbb{1}(g', A') + 1 - \pi] \, W_D(g', m', \varepsilon', A') \\ + \pi (1 - \mathbb{1}(g', A')) Z_D(g', m', \varepsilon', A') \end{array} \right) \right]
\end{aligned}
\tag{5}
$$

$$
\text{s.t. } g' = G_D(g, m),
$$

and

$$
\begin{aligned}
Z_D(g, m, \varepsilon, A) = U(g') &+ \alpha U(\tau - g') \\
&+ \beta \mathbb{E}_{(\varepsilon', A', m')} \left[\left(\begin{array}{c} \pi \mathbb{1}(g', A') \, W_D(g', m', \varepsilon', A') \\ + (\pi (1 - \mathbb{1}(g', A')) + 1 - \pi) Z_D(g', m', \varepsilon', A') \end{array} \right) \right]
\end{aligned}
\tag{6}
$$

$$
\text{s.t. } g' = G_R(g, m).
$$

Symmetrically,

$$W_R(g,m,\varepsilon,A) = \alpha U(g') + U(\tau - g')$$

$$+ \beta \mathbb{E}_{(\varepsilon',A',m')} \left[\left(\begin{array}{c} \pi \mathbb{1}(g',A') Z_R(g',m',\varepsilon',A') \\ + (\pi(1 - \mathbb{1}(g',A')) + 1 - \pi) W_R(g',m',\varepsilon',A') \end{array} \right) \right] \tag{7}$$

$$\text{s.t. } g' = G_R(g,m),$$

and

$$Z_R(g,m,\varepsilon,A) = \alpha U(g') + U(\tau - g') + \varepsilon + A$$

$$+ \beta \mathbb{E}_{(\varepsilon',A',m')} \left[\left(\begin{array}{c} [\pi \mathbb{1}(g',A') + 1 - \pi] Z_R(g',m',\varepsilon',A') \\ + \pi(1 - \mathbb{1}(g',A')) W_R(g',m'\varepsilon',A') \end{array} \right) \right] \tag{8}$$

$$\text{s.t. } g' = G_D(g,m).$$

The preference shocks are assumed to directly affect the utility a person gets when the D party is in power. If there is an election, these shocks affect which party is elected. But since only the net preference toward any one party matters for the election outcome, the fact that the shock only affects the D party is without any loss of generality.

Given (g,A), let $\varepsilon_D(g,A)$ denote the threshold ε above which a D party person will vote for the D party in the event of an election; similarly, let $\varepsilon_R(g,A)$ denote the ε threshold above which an R party person will vote for the D party in the event of an election. Then,

$$\varepsilon_D(g,A) = -[\mathbb{E}_m W_D(g,m,0,0) - \mathbb{E}_m Z_D(g,m,0,0)] - A, \tag{9}$$

and

$$\varepsilon_R(g,A) = [\mathbb{E}_m W_R(g,m,0,0) - \mathbb{E}_m Z_R(g,m,0,0)] - A. \tag{10}$$

The terms in square brackets represent the expected gain to members of any given party from their own party coming into power, ignoring the voter preference shocks.[11] Holding fixed A, the

---

[11]t is also the average gain. Since the preference shocks enter linearly in the payoffs of voters and have means zero, the expected gain over m, ε, and A can be evaluated by taking expectations over m and setting the values of the preference shocks to zero in the value function itself.

bigger the gain in (9), the lower the threshold ε_D; and the bigger the gain in (10), the higher the threshold ε_R. Hence, the higher these expected gain terms are, the more partisan voting will be.

Because A is a shock that positively affects voter preferences for the D party, an increase in A lowers *both* thresholds and increases the fraction of the population that prefers party D over party R. Thus, there is a threshold for A above which the D party gets more than 50 percent of the votes and below which R party gets more than 50 percent of the vote. This threshold, denoted $A(g)$, solves:

$$\frac{1}{2}F(\varepsilon_D(g,A(g))) + \frac{1}{2}F(\varepsilon_R(g,A(g))) = \frac{1}{2},$$

or,

$$F(\varepsilon_D(g,A(g))) = 1 - F(\varepsilon_R(g,A(g))). \tag{11}$$

Since ε is symmetrically distributed around 0, we may infer that at $A(g)$, ε_D must equal ε_R in magnitude. Using (9) and (10) then gives:

$$A(g) = \tag{12}$$
$$\frac{[\mathbb{E}_m W_R(g,m,0,0) - \mathbb{E}_m Z_R(g,m,0,0)] - [\mathbb{E}_m W_D(g,m,0,0) - \mathbb{E}_m Z_D(g,m,0,0)]}{2}.$$

Thus, we have

$$\mathbb{1}(g,A) = \begin{cases} 1 & \text{if } A \geq A(g) \\ 0 & \text{otherwise.} \end{cases} \tag{13}$$

Observe that if the two expected gain terms are equal in value, $A(g) = 0$ and from the symmetry of the A distribution $\mathbb{E}_A \mathbb{1}(g,A) = 1/2$, i.e., each party is equally likely to win the election.

An equilibrium of this model is then defined as follows.

Definition: The (Markovian) equilibrium of this model is a collection $V_j^*, X_j^*, W_j^*, Z_j^*, G_j^*$, and $\mathbb{1}^*(g,A)$ such that (i) V_j^*, X_j^*, and G_j^* solve the parties decision problems, given $\mathbb{1}^*(g,A)$; (ii) W_j^* and Z_j^* solve the voters utility recursions, given G_j^* and $\mathbb{1}^*(g,A)$; and (iii) $\mathbb{1}^*(g,A)$ satisfies (13) given W_j^* and Z_j^*.

The technical appendix (in preparation) shows that when the set of possible g' is restricted to a finite set, such an equilibrium exists and describes the numerical algorithm used to compute it.

4 Adjustment Costs and Incumbency Disadvantage in a Static Model

The basic idea underlying the key result of this paper — incumbency disadvantage — can be illustrated in a static model. Imagine that the economy has arrived into a "last" period with some g, and an election has been called. Our goal is to understand how the probability of a particular party winning the election varies with g.

For this illustration, we ignore the m shock and assume that $\alpha = 0$ and that $U(g') = -(\tau - g')^2$. Hence, $U(\tau - g') = -(\tau - (\tau - g'))^2 = -(g')^2$. Thus, the D party's ideal g' is τ, and the R party's ideal g' is 0. Here g is best interpreted as ideological stance, with τ being the liberal end and 0 being the conservative end.

If the D party wins the election, it will choose g' to maximize $-(\tau - g')^2 - \eta(g - g')^2$ subject to $g' \in [0, \tau]$. This maximization implies

$$G_D(g) = \frac{1}{1+\eta} \tau + \frac{\eta}{1+\eta} g.$$

The optimal decision is, thus, a convex combination of the D party's ideal policy, τ, and the inherited policy g. We can verify that if the R party were to win, then

$$G_R(g) = \frac{\eta}{1+\eta} g.$$

This optimal decision is also a convex combination of the R party's ideal policy, 0, and the inherited policy g. Thus, the lower is η, i.e., the smaller is the adjustment cost, the closer is g' to the elected party's ideal policy.

Ignoring preference shocks, the gain to D party members from electing their own party over the R party is then

$$
\begin{aligned}
W_D(g, 0, 0) - X_D(g, 0, 0) = & \quad -\left[\frac{\eta}{1+\eta}\right]^2 (\tau - g)^2 + \left(\tau - \frac{\eta}{1+\eta} g\right)^2 \\
= & \quad \frac{2\eta\tau}{(1+\eta)^2} \tau(\tau - g) + \left[\frac{1}{1+\eta}\right]^2 \tau^2,
\end{aligned}
$$

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and the gain to R-party members from electing their own party over the D party is

$$W_R(g, 0, 0) - X_R(g, 0, 0) = \quad -\left[\frac{\eta}{1+\eta}\right]^2 (g)^2 + \left(\frac{1}{1+\eta}\tau + \frac{\eta}{1+\eta}g\right)^2$$

$$= \quad \frac{2\eta\tau}{(1+\eta)^2}\tau g + \left[\frac{1}{1+\eta}\right]^2 \tau^2$$

Thus, the threshold level of A above which the D party wins is given by

$$A(g) = \frac{\eta\tau}{(1+\eta)^2}(2g - \tau). \tag{14}$$

When $\eta > 0$, the sign of $A(g)$ depends on the sign of $g - \tau/2$. If g is closer to the ideal choice of the D party, then $A(g)$ is positive, which means that the probability of R party winning the election is greater than 1/2. The result stems from the fact that the symmetry of adjustment costs makes it equally costly to move away from the inherited policy in either direction (toward τ or toward 0). However, if g is closer τ than 0, then, by diminishing marginal utility, the expected gain to members of D party from electing their own party will be smaller than the expected gain to members of R party from electing their own party. The same logic applies in reverse if g is closer to 0 than to τ. These results are consistent with an incumbency disadvantage because g will be closer to τ (0) if the D (R) has been in power for some time.

It is worth pointing out that the expression in (14) shows that $A(g)$ will be zero, and there will be no incumbency disadvantage, under three circumstances. First, if $g = \tau/2$, then the term in parentheses is 0. This is the case where the inherited g is halfway between the ideal choices of the two parties, and so, given the symmetry in preferences and adjustment costs, the expected gain from electing one's own party is the same across the two parties.

Second, if $\eta = 0$, then the term multiplying the one in the parentheses is 0. In this case, there are no adjustment costs and whichever party is elected implements its ideal policy regardless of g. Again, given the symmetry in preferences, the gain from electing one's own party is the same across the two parties.

Finally, the threshold is zero if η is infinite, in which case, the term multiplying the one parenthesis is again 0. In this case, adjustment costs are infinite so policy following the election will be g regardless of which party gets elected. Thus, the expected gain from electing one's own party over the other party is 0 (and, therefore, the same) for members of both parties.

5 Numerical Exploration of the Model

The goal of this section is to explore the quantitative properties of the model described in Section 3. The time period is taken to be a year. The parametric form for U is assumed to be CRRA, so $U(g) = g^{1-\gamma}/[1-\gamma]$, and all distributions are assumed to be uniform.

The value of β is set at 0.96 and the value of γ to 2. Both are standard values in the macroeconomics literature. The value of τ is set at 0.30, which is roughly the size of discretionary government spending relative to total government spending for the three decades, 1985-2015. Since elections for the House and Senate occur every 2 years, the value of π was set to 0.5. Since we don't observe large shifts in expenditure patterns when parties controlling the presidency changes, we chose a value of α so that each party would ideally want to spend 52 percent of the budget on their preferred good. This implied a value of $\alpha = 0.87$. The support for ε and A distributions were set fairly tightly to ±0.10 and ±0.03, respectively. The support for m distribution was set ±0.01, just wide enough to get convergence in about 3000 iterations. These parameter choices are summarized in Table 7.

Table 7: Parameter Selections

Parameter	Description	Value
γ	Curvature of utility function	2.00
β	Yearly discount factor	0.96
α	Weight given to other party's desired public good	0.87
π	Election probability	0.50
τ	Total government exp.	0.30
$\bar{A}$	Upper bound of aggregate shock	0.03
$\bar{\varepsilon}$	Upper bound of idiosyncratic shock	0.10
$\bar{m}$	Upper bound of marginal utility shock	0.01

Since our model has only parties, the mapping between the output of the model and the actual data is necessarily imperfect. For the purposes of comparison with the regression results reported in Section 2, we will treat the number of periods a particular party is in power as the length of the time period that party controls the presidency and the change in the fraction voting for the D party minus the fraction voting for the R party as the Democratic vote share lead. The model does not have a direct analog for the change in the House and Senate Democratic lead, but we will use the probability that the D party wins in any given election as a proxy.

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We explore two variants of the model. In the first, we set $\eta = 0$, so there are no adjustment costs. In the second, $\eta = 3000$, a fairly high value. We perform the same regressions on the model output as we do for the data. We have two measures of the dependent variable: The change in the probability of D party winning an election (a proxy for the change in Democratic lead in the House or Senate) and the change in the fraction of people voting for the D party minus the fraction voting for the R party (a proxy for the change in the Democratic vote share lead in any election). For our explanatory variable, we measure how long the party in power going into an election has been in power (a proxy for how long the president's party has controlled the presidency going into the election).

Table 8: Incumbency Disadvantage

Expl. var.	Δ prob. of D win	Δ prob. of D win	Δ (frac D-frac R)	Δ (frac D-frac R)
	$\eta = 0$	$\eta = 3000$	$\eta = 0$	$\eta = 3000$
constant	0.4998	0.5000	0.0000	0.0000
$RSIX+$	0.0003	0.2354	0.0001	0.1409
$DSIX+$	0.0005	-0.2350	0.0001	-0.1412

The first column of numbers in Table 8 shows the results of the regression when there is no adjustment cost ($\eta = 0$). The results confirm that there is no incumbency disadvantage in this case: The change in the probability of D party winning is essentially 0 after the D party has been in power for six or more years. The second column shows the results of the same regression when there is adjustment cost ($\eta = 3000$). Now, the change in the probability of D party winning drops by 24 percentage points if the D party has been in power for at least six years. This is a strong incumbency disadvantage. The results are symmetric for the R party.

The final two columns give the regression results for the change in fraction voting for the D party minus the fraction voting for the R party. The fraction drops by 14 percentage points if the D party has been in power for six or more years. There is a symmetric effect for the R party. These results seem too strong relative to the findings reported in Table 4: The drop in the data is closer to 5 percentage points. But the smaller drop can be easily targeted by lowering the adjustment cost parameter η.

Table 9 presents the results from the regression that compares the electoral performance of the party in the election in which it wrests power from the opposition with its performance in

subsequent elections when it is the incumbent party. The first column of numbers shows that even when $\eta = 0$, the party that wins the election sees an increase in the fraction of the population voting for it. This is a pure selection effect: The winning party must show an increase by virtue of having won the election. The change in the fraction voting for the party in subsequent elections is essentially 0. This result comes about because, if a party continues to win in subsequent elections as an incumbent, it wins on average by the same margin as it first won power from the opposition.

Table 9: First Term *versus* Later Terms

Expl. var.	Δ (frac D-frac R)	Δ (frac D-frac R)
	$\eta = 0$	$\eta = 3000$
R	-0.049	-0.1701
D	0.049	0.1701
$RTWO+$	0.0000	0.0814
$DTWO+$	0.0000	-0.0813

The second column shows the results for the case in which there is an adjustment cost. Now, the increase in the share voting for the D party less the fraction voting for the R party is substantially higher when it wins power back. And, there is large drop off in its lead in subsequent elections when it is the incumbent.

As discussed in Section 2, the incumbency disadvantage for Democrats looks weaker than for Republicans because it comes sooner, and our incumbency regression cannot pick this up adequately. As we argued there, the reason for the quicker disadvantage is the Democratic bias in the House and Senate. This bias means that the Democrats have held the presidency and both chambers of Congress more often than the Republicans. This could have led to policy moving more quickly toward the Democratic party ideal and, hence, the disadvantage comes sooner.

Tables 10 and 11 show that this explanation does work in our model. We consider an environment in which the fraction of voters affiliated with the D party is higher than 50 percent, and (consequently) the adjustment cost for changing policies is lower for the D party. We assume that the fraction of the population that is affiliated with the D party is 64 percent, $\eta_D = 300$, and $\eta_R = 3000$.

The first column of numbers in Table 10 reports the change in the probability of a D party win following two or more and 6 or more years of incumbency. Observe that the disadvantage for the

D party after a long period of incumbency seems quite weak: A drop in the probability of winning of only 1.5 percentage points as compared with a drop of almost 18 percentage points for the *R* party. The same asymmetric pattern emerges in the second column of numbers. Once again, the incumbency disadvantage for the *D* party seems quite weak relative to the *R* party.

Table 10: Incumbency Disadvantage with Asymmetric Adjustment Costs, *D* 64% of Voters

Expl. var.	Δ prob. of *D* win	Δ (frac *D*-frac *R*)
	$\eta_D = 300, \eta_R = 3000$	$\eta_D = 300, \eta_R = 3000$
RTWO+	0.5685	0.0377
DTWO+	0.4047	-0.0524
RSIX+	0.1761	0.0969
DSIX+	-0.0145	-0.0081

In Table 11, we report the results of the regression in which we compare a party's electoral performance when it wrests power from the opposition with its performance in subsequent elections when it is the incumbent. Observe that although the *D* party disadvantage following a long incumbency is estimated to be weaker than the *R* party disadvantage, the difference is much less pronounced in these regressions. This is consistent with the findings reported in Section 2.

Table 11: First versus Later Terms with Asymmetric Adjustment Costs, *D* 64 % of Voters

Expl. var.	Δ (frac *D*-frac *R*)
	$\eta_D = 300, \eta_R = 3000$
R	-0.1531
D	0.1511
RTWO+	0.0693
DTWO+	-0.0430

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