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Turnout and presidential coattails in congressional elections

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Abstract Estimating the impact of turnout on House election results is problematic because of endogeneity and omitted variable bias. The following study proposes an instrumental approach to correct for these problems by using a series of fixed effects two-stage least squares panel-data regression models covering three congressional apportionment cycles (1972–1980; 1982–1990; 1992–2000). The analysis tests whether voter participation decreases the House incumbent's electoral support, regardless of the level of competition in the district. The study also aims to determine if an increase in participation benefits Democratic candidates and whether this effect is constant across apportionment cycles. The results show that the influence of turnout on incumbency vote share is conditional on the level of presidential support in the district. This finding is explained by the surge and decline thesis of Campbell (1960).

Keywords Congressional elections · Turnout · Presidential coattails

1 Introduction

The relationship between turnout and candidate vote share is simultaneously determined in congressional elections. A higher level of turnout may affect an incumbent's vote margin, but it is likely that this effect will depend inter alia on the level of competitiveness in the district. The following study proposes an instrumental variable approach to correct for the simultaneous nature of this relationship. The instrument measures the mean statewide turnout rate *outside* a specific district by identifying exogenous variations in turnout that are not correlated with the level of electoral competition found *inside* the same district (see Levitt and Snyder 1997). By basically removing the influence of district competitiveness on turnout, it becomes possible to measure the impact of an increase in the number of voters on incumbent support. Furthermore, this empirical strategy provides an estimate of turnout that is theoretically not affected by an incumbent's individual vote advantage (i.e., personal

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vote). Therefore, by using the same instrument, it is also possible to determine the impact of presidential coattails on congressional election results by eliminating any potential spillover effects of popular incumbent candidates on the ballots (Broockman 2009).

The analysis employs a cross-sectional time series modelling scheme that treats congressional districts as fixed effects. This type of model has previously been used to study House elections to control for constant but *unobserved* variables that have the potential to affect voting inside a district (e.g., Snyder and Ting 2011; Griffin 2006; Stratmann 2000). And since a large number of the district boundaries change between each decennial census, the study focuses on three apportionment cycles (1972–1980; 1982–1990; 1992–2000) where the mapping of congressional districts generally remains the same. Hence, the time-series component of the fixed effects model controls for some of the unobserved variables that theoretically could affect electoral competitiveness in each apportionment cycle. The fixed effects also allows us to measure the impact of turnout on House election results *within* a hypothetical congressional district over time.

In this study, I intend to determine the validity of three widely held views related to the effects of political participation on voting in congressional elections. To begin, I aim to test whether an increase in turnout reduces the incumbent's electoral support, regardless of the level of competition in the district. I also plan to determine whether a surge in the number of voters actually helps Democratic incumbents, and whether high turnout is more beneficial to incumbent candidates during presidential elections, regardless of party affiliation (e.g., presidential coattail effects). Finally, I consider if these effects are constant across apportionment cycles.

The paper is organized as follows: First, I present a brief review of the literature on congressional election and turnout. Second, I introduce my theoretical arguments, model and data. Third, I estimate the effects of turnout on House election results in the empirical analysis. Finally, I draw some conclusions.

2 Incumbency, turnout and electoral competition

Even if most aggregated studies of voting patterns demonstrate that higher turnout does not automatically benefit the Democratic Party, it seems highly unlikely that an increase in political participation will have no effect on election results.[1] The most important difficulty in measuring this relationship lies in the fact that turnout is so intrinsically related to the level of electoral competition. If we compare the support for Democratic House candidates across several congressional districts, for example, we may find that some candidates will benefit from higher turnout—especially Democratic *challenger* candidates. On the other hand, we may also find that Democratic incumbent candidates will experience a reduction in their level of electoral support when turnout increases (Grofman et al. 1999). This is because a surge in the intensity of electoral competitiveness has a much greater chance of influencing the decision to participate in the election (Holbrook and McClurg 2005; Rosenstone and Hansen 1993; Gilliam 1985; Caldeira et al. 1985).

In fact, the few aggregate studies that directly estimate the influence of turnout on congressional election results, by DeNardo (1980) (House), Nagel and McNulty (1996) (Senate), and Citrin et al. (2003) (Senate), demonstrate that Democrats benefit from higher

[1] Studies generally find that nonvoters support the Democratic party more. However, this advantage is very small and not important enough to make a huge difference in election results (e.g., Sides et al. 2008; Martinez and Gill 2005).

turnout in some specific circumstances only. Their argument is based on the theory developed by DeNardo (1980) and updated by Nagel and McNulty (1996: 788) which assumes that higher turnout helps opposing party candidates in heavily partisan districts. When the Democratic majority is large, for example, higher levels of political participation should reduce the support for the incumbent candidate since the number of sporadic or "peripheral" voters will increase. Although peripheral voters are more likely to support the Democratic Party on average (what Nagel and McNulty call the composition effect), they also have weaker partisan attachments than "core" voters. And because peripheral voters are more likely to cross party lines and support the opposing candidates on Election Day (what Nagel and McNulty call the defection effect), an increase in political participation could generate fewer votes for the incumbent, whether Democratic or Republican. This forms the basis of the two-effect theory. The theory predicts that in heavily Republican districts, the two effects will work together, so that higher turnout will help Democratic candidates. On the other hand, in Democratic districts, the theory also predicts that Republican candidates will benefit from higher turnout as long as the defection effect outweighs the composition effect.

The classic theory of "surge and decline" developed by Campbell (1960) also makes a related claim by arguing that a reduction in turnout is more likely to hurt incumbent candidates who share the party of the president in midterm elections. This theory asserts that congressional candidates should have an advantage in presidential election years, but are at a greater risk in subsequent midterm contests. It follows that lower turnout in midterm elections, combined with the increase in attention given to presidential elections, are detrimental to representatives who may have benefited previously from the spillover effect of a presidential coattail (Hogan 2005). In this context, high turnout could actually mean more votes for an incumbent if the party's presidential candidate draws more support down the ballot (Burden and Wichowsky 2010).

The theory of surge and decline provides us with a clear set of predictions about the influence of turnout on congressional elections. When turnout is high in presidential elections, House candidates should receive more votes if they hold onto the coattail of a strong presidential candidate from their party (Campbell 1987). On the other hand, this "presidential bonus" is expected to decline in midterm elections, when turnout is lower and candidates cannot rely on the electoral boost provided by their party's top candidate. Unfortunately, attempting to determine what the congressional vote share would have been in a presidential election year—had there not been a presidential candidate on the ballot—is a difficult counterfactual to estimate, mainly because it is almost impossible to isolate the proportion of the vote explained by the popularity of the presidential or that of the incumbent candidates on the ballot (Broockman 2009; Miller 1955).

This last point highlights a fundamental problem in estimating the relationship between the level of political participation and the vote. Electoral competitiveness—present at both the congressional and presidential levels—renders any attempt to measure the relationship between turnout and voting problematic, primarily because we cannot distinguish between participation and competition effects. In two recent studies, Hansford and Gomez (2010) and Gomez et al. (2007) were able to overcome this problem of endogeneity by using an instrumental variable approach that identifies a variable that is correlated with turnout but not with political competition. Both studies employ county-level weather station data to demonstrate that the amount of precipitation (snow or rain) negatively affects turnout rates in presidential elections. The authors then proceed to show that an increase in the average level of precipitation actually produces a surge in the level of support for Republican presidential candidates (Gomez et al. 2007). The strength of their work lies with the fact that weather patterns are not related to competitiveness in any way. And since precipitation is correlated with turnout, it becomes possible to estimate the electoral consequences of an increase in the number of voters, regardless of the actual strength of electoral competition.

Although appealing empirically, this instrument cannot be applied readily to analyze the effects of turnout on congressional election results. The weather data are reported at the county level, and congressional district boundaries unfortunately do not automatically follow county lines across apportionment cycles. And without any information about congressional district geography, it is impossible to control for campaign spending effects, challenger quality, or incumbency status; important factors that are known to influence the results of House elections. All of the previous variables are likely to affect turnout but cannot be accounted for unless a specific congressional district encompasses a whole county's geographic boundaries.[2]

Should we conclude then, based on the previous findings, that a surge in the level of political participation will benefit a Democratic House candidate just as in the case of presidential elections? So far, we have empirical confirmation of this relationship only at the presidential level. However, if Campbell (1960), DeNardo (1980, 1987), and Nagel and McNulty (1996) are right, we should expect a different kind of participation effect in the House since some incumbents are more likely to gain support when turnout is high. In this study, I propose to validate this claim by estimating the influence of turnout on electoral support in congressional elections.

I evaluate three related arguments about the potential effects of political participation on voting. First, I aim to determine whether a surge in political participation will reduce the electoral support for House incumbents, regardless of the level of competition in the district (e.g., Grofman et al. 1999). Second, I also aim to determine if higher turnout gives an electoral advantage to the Democratic Party and if this effect is constant across time (e.g., Lijphart 1997). And finally, I intend to validate whether the influence of turnout on incumbency vote share is conditional on the level of presidential support found in the district. This last analysis is related to the surge and decline theory of Campbell (1960).

It is important to note that the following study also needs to account for the reciprocal relationship that exists between turnout and electoral competitiveness. Hence, the analysis proposes a method to control for this simultaneity bias by using a two-stage fixed effects panel time series model. This model integrates an instrument for congressional district participation rate that is correlated with turnout, but not necessarily with the level of personal vote observed in the district. In the next section, I outline in greater detail the theoretical and methodological assumptions required for this type of analysis.

3 Theory and empirical models

Since I am interested in measuring the effect of political participation on incumbency support in congressional elections, it is necessary to correct for the endogenous nature of the relationship between turnout and House election competitiveness. However, before I can proceed with this analysis, it is also necessary to outline briefly a theory of congressional election and turnout.

I begin by making the assumption that it is possible to explain the level of turnout in a congressional district where a House incumbent is running for reelection by relying on two variables: statewide and district specific factors that influence voter participation rates.

[2] Although Gomez et al. (2007) have made their data available to researchers, their dataset does not contain midterm election weather information.

Statewide levels of turnout are assumed to be determined by the presence on the same ballot of a gubernatorial or senatorial elections, by state voter registration laws, or by the overall level of competitiveness in a presidential election and coattail effects. The within-district turnout rate is assumed to be a function of various socio-demographic indicators—such as the proportion of district residents who are African-American, homeowners, unemployed, or college educated, for example. District turnout is also assumed to be a function of congressional election competitiveness.

In return, the competitiveness of a specific congressional election is expected to be related to the incumbent's individual support in the district or by the incumbency (valence) advantage, an advantage that will vary across election years. However, the socio-demographic and ideological composition of the district should remain relatively constant between elections, especially if we limit ourselves to fixed congressional district boundaries in a specific apportionment cycle (for a period of five elections). Since the Census Bureau measures the population characteristics of the state and draws new district boundaries every 10 years, it seems reasonable to make this assumption.

In order to account for the endogenous relationship between turnout and electoral competitiveness, I will take advantage of the fact that turnout in a congressional district is determined by these two factors. On the one hand, we find variables—like socio-demographic characteristics or the presence of an incumbent—which are unique to each individual district. And, on the other, we find variables—like the presence of senatorial or presidential elections—which are constant across all districts in a given state. Hence, early registration laws, or gubernatorial elections, should theoretically increase turnout evenly across the state. However, the presence of a weak House incumbent or quality challenger should influence turnout only *inside* a specific congressional district; it should not affect participation rates *outside* the same district.[3]

So by using an *outside* district measure of turnout to estimate the level of turnout *inside* a specific district, we obtain a measure of turnout that is a function of the statewide turnout level, but not of the specific characteristics found in the district. In other words, the presence of a strong incumbent candidate may indeed be correlated with the level of competitiveness and turnout inside a congressional district, but it should have no influence on the turnout rate outside of this district. Of course, this assumption holds if there is more than one district in the state.

This proposed conceptualization of turnout is similar to the study of Levitt and Snyder (1997), who measure the effects of federal spending on congressional election results. Since incumbents who expect to have difficulties being reelected are likely to work harder in order to obtain federal outlays, these authors used an instrumental variable to measure spending. They identified spending outside of a district, but inside of a state containing the district, as a valid instrument for federal outlays.

It remains important to note that in addition to the presence of an incumbent, we can find other district-wide variables that can affect turnout and the level of electoral competition.

[3] Of course, one could argue that media markets do not follow district boundaries. Thus, campaign messages in one district could encourage participation in another nearby district. This is a valid argument, which unfortunately cannot be controlled for (Niemi et al. 1986). The consensus in the literature according to Prior (2006) seems to be that an incumbent benefits from television advertisement in districts where there is a poor overlap between media markets and district boundaries since challengers must compete with different incumbents to get media attention. Stratmann (2009) has also shown that campaign spending by an incumbent can increase electoral support, more so when the costs of media advertising in the district is low. If anything, congressional districts with overlapping media boundaries will be less likely to be affected by outside competition since challenger candidates will have a harder time communicating with the voters.

We can think of the presence of a quality challenger, a first-term incumbent, party affiliation, campaign spending, or some other district specific socio-demographic characteristics. In the following analysis, I control directly for the level of campaign spending, incumbent party, freshman status, and the presence of quality challengers.

Since the study employs a panel time series modeling scheme that treats congressional districts as fixed effects, the analysis also controls for constant but *unobserved* variables that may affect voting results across an apportionment cycle. Because a considerable number of congressional district boundaries change after each decennial census, the empirical analysis focuses on three specific periods (1972–1980; 1982–1990; 1992–2000) in which congressional districts boundaries remained constant.[4] The time-series component in the model permits us to estimate changes across an apportionment cycle. These fixed effects estimators control for unobserved variables—such as district ideology or district socio-demographic characteristics—which theoretically can affect the level of electoral competition in a specific House election.

The proposed empirical strategy also allows us to circumvent one of the most common problems found in the congressional turnout literature, which is to estimate turnout effects cross-sectionally by comparing safe Republican districts to safe Democratic districts (Nagel and McNulty 1996). In our model, we avoid this issue by measuring the effects of turnout *within* a specific congressional district.

The following set of equations illustrates this logic. First, let $y_{d,t}$ represent the level of incumbent support in a congressional district d at election t. We can model this relationship with a simple equation where $y_{d,t}$ or the incumbent vote share is a function of: (1) the level of turnout in a district $x_{d,t}$; (2) a constant fixed effects error component ν_d; and (3) an error term $\varepsilon_{d,t}$ representing the residuals in the regression. In this model, ν_d can be thought of as unobserved variables like socio-demographic indicators or the ideological leanings in the district. In addition, ν_d remains constant *within* a district during an apportionment cycle but varies *across* different districts. Equation (1) represents this model:[5]

$$y_{d,t} = \beta x_{d,t} + \nu_d + \varepsilon_{d,t} \tag{1}$$

A panel-data time series model requires us to average the changes for all of the variables in each d over every elections t in the apportionment cycle.

$$\bar{y}_d = \beta \bar{x}_d + \nu_d + \bar{\varepsilon}_d \tag{2}$$

In order to get the within-district transformation, it is necessary to subtract Eq. (1) from Eq. (2). In this part of the equation, we "time de-mean" the data by computing the difference between each observation in the model (i.e., $x_{d,t}$) and its average over the apportionment cycle (i.e., $\bar{x}_d$),

$$y_{d,t} - \bar{y}_d = \beta(x_{d,t} - \bar{x}_d) + \nu_d - \nu_d + \varepsilon_{d,t} - \bar{\varepsilon}_d \tag{3}$$

As we can see, the district-specific error ν_d—which represents time-constant unobserved heterogeneity—drops out of the equation. Consequently, we can assume that any constant unobservable variables found in a district, that affect turnout or electoral competition, are excluded from the residuals in Eq. (3). Thus, the time series fixed effects component of the equation controls for the omission of district-wide specific variables that remain constant across apportionment cycles.

[4] I exclude states like Alaska and Wyoming where there is one congressional district only.

[5] Without loss of generality, I assume that the intercept is zero in the following equations.

Still, as we saw earlier, the variable $x_{d,t}$, representing the level of political participation in the district, is correlated with the error term $\varepsilon_{d,t}$ in Eq. (1). Hence, we need to identify a variable z_d that is uncorrelated with $\varepsilon_{d,t}$ but correlated with the level of political participation in the district, x_d. By using such a variable, we can control for this endogeneity bias by computing a two-stage least squares regression model, where the variable z_d is assumed to be correlated with the level of turnout (x_d) but not with the incumbent vote share, y_d. We obtain the first-stage regression of the two-stage least squares model with the following formula:

$$x_{d,t} = \beta z_{d,t} + \nu_d + \mu_{d,t} \tag{4}$$

The model follows the same transformation as in Eqs. (1), (2), (3). We begin by obtaining the predicted values $\hat{x}_{d,t}$ from Eq. (4). In the second stage of the regression model, we include these predicted values in Eq. (1) to replace the measure of district turnout. Hence, we are left with a measure of political participation that is exogenous, and uncorrelated with the change in the amount of individual vote advantage that an incumbent may receive between elections.

The final estimations of our models of House incumbent electoral support are obtained from this second stage reduced form equation, where $cov(\hat{x}_{d,t}, \varepsilon_{d,t}) = 0$,

$$y_{d,t} = \gamma \hat{x}_{d,t} + \nu_d + \varepsilon_{d,t} \tag{5}$$

As I indicated earlier, the analysis also controls for the level of spending and partisanship in the district, as well as for the presence of a freshman or quality challenger. Equations (6) and (7) present this final two-stage model which is used in the analysis. Equation (6) estimates the effect of a change in the level of political participation on the level of support for the incumbent candidate in a congressional election. Equation (7) estimates turnout with the instrumental variable $z_{d,t}$, which represents the outside district turnout rate.

For each congressional district d at election t, the influence of turnout is represented by the variable $\hat{x}_{d,t}$ in the following second stage equation:

$$y_{d,t} = \gamma_1 \hat{x}_{d,t} + \gamma_2 W_{d,t} + \nu_d + \varepsilon_{d,t} \tag{6}$$

The instrumental variable $\hat{x}_{d,t}$ is obtained from the predicted values of this first stage equation:

$$x_{d,t} = \beta_1 z_{d,t} + \beta_2 W_{d,t} + \nu_d + \mu_{d,t} \tag{7}$$

The variables are equal to the following:

$y_{d,t} = \textit{Incumbent vote share}$

$x_{d,t} = \textit{Inside district turnout}$

$W_{d,t} = \textit{Constituency/Legislator characteristics that vary in a cycle}$

$z_{d,t} = \textit{Outside district turnout}$ (*Instrumental variable*)

$\nu_d = \textit{District fixed effects}$

$\varepsilon_{d,t} = \textit{Error term in second stage}$

$\mu_{d,t} = \textit{Error term in first stage}$

It is important to note that the preceding two equations are transformed in the same way as Eqs. (2), (3), (4) to obtain the average change in the variables of interest over the period covered by the analysis. In order to test the preceding models, I use a dataset for the years

1972–2000, which contains House election results, participation rates, as well as a measure of candidate quality, presidential vote share in the district, campaign spending, freshman status, and incumbent party affiliation. The dataset combines variables from Jacobson's (2012) and Carson's (2012) congressional and presidential election files.

As I indicated earlier, congressional redistricting and reapportionment can alter the values of the variables included in the model. Thus, in order not to remove all of the races where a statewide reapportionment occurred in 1972–1982–1992, the analysis divides the data into three apportionment cycles. This was done to account for the fact that the electoral boundaries generally change two years after a decennial census. Furthermore, I removed districts in which there was a major court-ordered mid-decade redistricting.[6] I also created a series of interactive variables to determine whether Democratic incumbents benefit from higher turnout rates and whether an increase in participation reduces incumbent support conditional on the presidential vote share in the district. Each of these interactive variables uses the instrumented or predicted value of turnout ($\hat{x}_{d,t}$). Because the second stage regression interacts a predicted value from a previous (first stage) regression, the variance-covariance matrix and the estimated standard errors obtained in the second stage are inaccurate. In order to correct for this problem, I bootstrapped the standard errors of all the coefficients included in the second stage model (Eq. (6)).[7]

3.1 Variable description

The measurement of each variable included in the analysis below is as follows:

Incumbent vote share: The percentage of the two-party vote received by the incumbent (either Democrat or Republican) in election t. Open seats, unchallenged races and third-party candidates were excluded. This variable ranges from 35 % to 97 % since incumbents who lost their re-election bids are included in the data. There is a total of 4,834 incumbents who ran for re-election between 1972–2000.

Within district turnout: In order to obtain the turnout rate in each congressional district for every election between 1972 and 2000, I divided the total number of votes counted in an election (as reported by the U.S. Congress 2012) by the voting age population of the district. Estimating the voting age population in each congressional district is not an easy task, especially if we consider that many district boundaries change following each decennial redistricting (and also following mid-decade court-ordered redistricting). The Bureau of the Census offers an estimate of the voting age population (VAP) at the beginning of a decade in each congressional district and the VAP data associated with the new census generally does not correspond exactly to the boundaries of the old congressional district. To account for this inconsistency, I have estimated the statewide growth rate of the voting age population between censuses, and adjusted the voting age population of every congressional district for the five elections following the first measure of VAP in each census.[8] In the period covered by this study, the mean turnout rate for all congressional elections is 45 % of the VAP (with the lowest observed turnout at 9 % and the highest at

[6] I removed districts where there was a significant amount of redistricting. See Carson et al. (2007) for a detailed explanation of this procedure.

[7] For a discussion of this procedure, see Sanchez (2011a, 2011b). See also Hansford and Gomez (2010) who use a similar approach. All of the bootstrapped standard errors in the second stage models are obtained from 1,000 repetitions.

[8] Like Adler (2000), I use linear interpolation. For example, I began by taking the 1980 census measure of the VAP in each congressional district. I then estimated the growth rate of the statewide population over 18 in

87 %). The official average turnout rate in federal elections for the same period was 44 %, according to the Census Bureau. For presidential election years, I calculated the average turnout to be 51 % (52.5 % according to the Census Bureau); and in midterm elections, to be at 37.9 % (37 % according to the Census Bureau).[9]

Outside district turnout: The outside district turnout rate is calculated by averaging all of the statewide congressional district turnout rates in the election, but by excluding from this calculation the within district participation rate. This measure controls for the factors that influence turnout in the state (such as gubernatorial, senatorial, presidential elections and voter registration laws). However, factors that theoretically could affect competitiveness and participation rates within the district are excluded from this measure. I use the method and formula of Levitt and Snyder (1997). Formally, $\bar{x}$ denotes the turnout rate across all of the districts in a state s (D is the number of districts in the state):

$$\bar{x}_{s,t} = \frac{1}{D}\sum_{d=1}^{D} x_{sd,t} \tag{8}$$

We can obtain $\bar{z}$, the outside district turnout rate, with the following formula, where sj represents the remaining congressional districts in the state minus district d:

$$\bar{z}_{sd,t} = \frac{1}{D-1}\sum_{j\neq d}^{D} x_{sj,t} \tag{9}$$

Incumbent spending ratio: The spending variable reports the incumbent and challenger spending in the election campaign (adjusted for inflation in year 2000 dollars). The average spending for incumbent and challenger candidates is, respectively, \$528,862 and \$208,483. Because the spending variable also suffers from endogeneity problems (e.g., incumbents spend more when the election is competitive), the variable was transformed into the ratio of incumbent spending over the total amount of money spent in the congressional election. Thus, this variable should have a positive effect on incumbent vote share since larger ratios represent elections where the incumbent spent most of the money.

Quality challenger: The challenger quality variable identifies challenger candidates who have previously held an elected office (from Jacobson's dataset: coded 1 for experienced challengers, 0 otherwise). There are 1,063 quality challengers in the analysis.

Freshman candidate: The freshman candidate variable identifies incumbents who will soon complete their first term in Congress (from Jacobson's dataset: coded 1 for freshman candidates, 0 otherwise). There are 938 freshmen candidates in the analysis.

Democrat incumbent: The Democrat incumbent variable indicates whether the previous winner of the election in the district was a Democrat (from Jacobson's data set: coded 1 for Democratic incumbent, 0 for Republican incumbent). There are 2,736 incumbent Democrats in the analysis. As explained above, this variable is also interacted with the

each state between 1980 and 1990. Finally, I used this estimated growth value to calculate the VAP for each congressional district in the state in the five elections following the census (i.e., 1982, 1984, 1986, 1988, and 1990). I did the same for the 1972–1980 and 1992–2000 apportionment periods.

[9] One could argue that because the level of political participation in congressional elections is not correctly measured and since turnout is not necessarily decreasing in the United States (McDonald and Popkin 2001), any analysis of the relationship between political participation and election results will be biased because of systematic measurement errors. However, since I focus on the effects of fluctuating turnout rates in each congressional election, the fact that there is a measurement error associated with voter turnout in the study makes little difference because the error is systematic across the entire sample.

predicted value of turnout (obtained in the first stage model). The inclusion of this interactive variable in the second stage was done to measure the *conditional* influence of turnout on election results when the incumbent is a Democrat (Democrat × Turnout).[10]

Incumbent party presidential vote share: This variable represents the vote share received by the presidential candidate in the congressional district. It is coded by the House incumbent's party affiliation. In each election, the most recent presidential election results are used. In 1992, for example, the results are coded by the party of the incumbent (e.g., Democrat presidential vote share for Democratic incumbents and vice versa). I also use the 1992 presidential results for the subsequent 1994 midterm election.[11] Presidential vote is included in the model because we want to estimate coattail effects on incumbent support directly. This variable ranges from 17 % to 96 %, with an average of 55 % for all districts. The variable is also interacted with the predicted value of turnout (from the first stage model). This interaction term is included in the second stage model to measure the influence of turnout on election results, *conditional* on the presidential vote in the district (President × Turnout). The presidential vote variable is also interacted with the Democrat incumbent variable (President × Democrat). Finally, this two-way interaction is multiplied one more time by the predicted turnout variable (President × Democrat × Turnout). The addition of several interactive terms requires some justification. First, adding a three-way interactive variable allows us to model the conditional effect of turnout on election results as a function both of the average level of presidential vote in the district *and* the party of the incumbent. In order to determine simultaneously if higher turnout benefits Republican candidates in districts where the Democratic presidential candidate receives a majority of the vote, for example, it is necessary to calculate the slope independently for each party. Second, modeling the effect of turnout on incumbency vote share for Democrats and Republicans simultaneously increases the number of cases in the analysis. This is an important advantage since the district fixed effects use up a lot of degrees of freedom. Finally, for ease of interpretation, I include a series of plots to illustrate the marginal effect of turnout and the corresponding standard errors across the level of presidential vote found in the district. I also consider how the marginal effect of presidential vote share varies with the value of turnout. For a detailed explanation of this procedure, see Brambor et al. (2006) and Berry et al. (2012).

Election year dummies: These are a series of dummy variables representing election years. The years 1972, 1982 and 1992 are the baseline in each apportionment cycle. I also control indirectly for the average presidential campaign effects on turnout with these variables. This is done to account for the higher turnout rates found in presidential elections.

4 Analysis

In this empirical analysis, the selection of the instrumental variable (out-turnout) requires some additional justification. First of all, the identifying assumptions are that the instrument of turnout is correlated with district turnout, but not with the error term in the equation (or the level of competitiveness in the state). Unfortunately, this assumption can never fully be

[10] Since open seat races are excluded from the analysis, the inclusion of a Republican incumbent dummy variable is not necessary (this is the baseline category in the model).

[11] In 1982, the 1980 presidential election had to be used. Because some district boundaries changed between 1980 and 1982, I removed 24 districts where there was a significant amount of redistricting. See Carson et al. (2007) for a detailed explanation of this procedure.

Table 1 Correlation matrix, In/Out turnout and Incumbent support

	Incumbent vote	In-turnout
1972–1980		
In-turnout	−0.28 (0.00)	–
Out-turnout	−0.05 (0.08)	0.68 (0.00)
1982–1990		
In-turnout	−0.17 (0.00)	–
Out-turnout	0.02 (0.47)	0.74 (0.00)
1992–2000		
In-turnout	−0.19 (0.00)	–
Out-turnout	−0.01 (0.83)	0.76 (0.00)

Note: Significance levels are in parentheses. The analysis includes House races where an incumbent was running for re-election only, uncompetitive races are removed from the sample. The out of district statewide turnout rate measures participation in the state but outside of the district. In-turnout is the reported turnout in the district. Single district states and Louisiana are removed from the analysis

tested. Murray (2006: 114) stipulates that an instrument which is correlated with the error term in the first equation (like in Eq. (4)) can always be invalid; it could also "potentially yield a biased and inconsistent instrumental variable estimator that can be even more biased than the corresponding ordinary least squares estimator". The question remains, how can we determine if our instrumental variable is valid?

We can begin by looking at the correlations between the variables in the apportionment cycles. As we can see from Table 1, the correlation between outside district turnout and district incumbent support is close to zero in each cycle. We can also see that the correlation between inside and outside turnout is relatively strong across the three periods, thus hinting that our instrument for turnout is valid. Of course, correlations alone cannot determine the validity of an instrument. We could have also employed a tests of over-identifying restrictions. This test requires the addition of a second instrumental variable, like a measure of lagged district turnout. However, if we add a lagged value of turnout to the model, we lose one election year in the sample.[12] Nevertheless, I conducted such an analysis, and the over-identifying restrictions fail to reject the null hypothesis that all instruments are uncorrelated with the error term.[13] Still, one should be careful about concluding that over-identifying restrictions tests can fully confirm the validity of an instrumental variable. After all, the probability of failing to reject a null hypothesis is much greater than the corresponding probability of accepting an alternative hypothesis as true.

As Murray (2006) explains, an intuitive argument for why an instrument is valid is better than no argument at all. Hence, understanding why turnout rates outside of the district cannot be related to turnout rates inside of the district remains the ultimate test of validity. It makes sense to assume that the individual vote advantage of an incumbent candidate will affect competitiveness and turnout inside his or her congressional district. However, the

[12] 1972–1982–1992 would have to be excluded.

[13] This test included a one-year lagged observation on turnout in combination with the variables described above in Eqs. (6) and (7). For the 1972–1980 apportionment cycle, the Sargan-Hansen statistic is 0.67 (p-value = 0.42). For the 1982–1990 apportionment cycle, the Sargan-Hansen statistic is 0.12 (p-value = 0.73). For the 1992–2000 apportionment cycle, the Sargan-Hansen statistic is 1.67 (p-value = 0.20).

same cannot be said about competition outside of the incumbent's district. Why would a challenger or an incumbent candidate spend money in an adjacent district to get people to the polls on Election Day? This should not be a problem even if we find that district level competition is related to state-level turnout (e.g., an existing anti-incumbent sentiment at the overall statewide level). This is because competitiveness at the state level theoretically affects all of the districts equally (like a gubernatorial, senatorial or presidential election); hence this effect should be accounted for in the first stage instrumental regression. In addition, because the analysis is focusing on House *incumbents*, as opposed to the Democratic candidate's vote share in a congressional election, we are less likely to find a correlation between statewide level party competitiveness and turnout.

Nevertheless, it is normal to have some reservations about the validity of the proposed instrument. One can think that smaller states (with two districts, for example) are more likely to be affected by state level competitiveness, especially if the incumbents are from the same party. However, even if we remove smaller states from the analysis (states with five or fewer congressional districts), the substantive conclusions presented below do not change. One has to remember also that a truly exogenous instrumental variable is almost impossible to find in the context of congressional elections. Even weather conditions are not randomly assigned on Election Day. Temperature, clouds, rain and snow follow specific patterns in the United States. Voters have expectations about weather conditions in November. One is more likely to anticipate snow in Vermont in the fall, and rain is less likely to affect the behavior of someone who lives in the Northwest.

4.1 Empirical results

The main finding of the following analysis is that the influence of turnout on incumbency vote share is conditional on the presidential party support in a congressional district. In the first apportionment cycle, an increase in turnout reduces the vote share of both Democrat and Republican incumbents. However, in the second apportionment cycle, greater levels of participations help Republican incumbents in districts where the same party presidential candidate is successful. And, finally, in the last apportionment cycle, turnout increases the support for Democratic incumbents, once again conditional on the level of presidential support in the district. As I will show in the second part of the analysis, these seemingly contradictory results are best explained by the surge and decline thesis of Campbell (1960).

I begin by reporting the results of the two-stage least squares panel-data fixed effects regressions in Tables 2, 3, 4. The first column of each table also includes the results of a non-instrumental variable panel-data fixed effects regression equation for comparative purposes only. Note that the signs of the variables in the turnout and instrumental variable models remain the same throughout the periods under study. Since I interact turnout with party affiliation and presidential vote share, the interpretation of the marginal effect of participation on the vote is not straightforward. Therefore, I include three plots (one for each apportionment cycle) in Fig. 1 to illustrate the influence of turnout on incumbent vote share conditional on presidential support and the incumbent party in the district. These plots are useful not only for reviewing the regression results; they are also used in the second part of the empirical analysis to validate the surge and decline theory of congressional elections.

Table 2 reports the results for the first apportionment cycle (1972–1980). In this analysis, 412 congressional districts were treated as fixed, and 1,534 cases (or single elections) were included in the regression. The model controls for campaign spending, quality challengers, and first term incumbents. As we can see in the instrumental model presented in the second column (model 2.2), the district turnout variable has a negative effect on the dependent

Table 2 Incumbent vote share: 1972–1980

	Model 2.1 Turnout	Model 2.2 Instrument
Quality Challenger	−0.02 (0.00)	−0.02 (0.01)
Freshman	0.01 (0.00)	0.01 (0.00)
Incumbent Spending Ratio	0.23 (0.01)	0.23 (0.01)
Presidential Vote Share	−0.43 (0.13)	−0.66 (0.19)
Democrat Incumbent	−0.09 (0.10)	−0.14 (0.13)
Turnout	−0.76 (0.18)	−1.12 (0.29)
Democrat × Turnout	0.27 (0.20)	0.38 (0.29)
President × Turnout	1.07 (0.27)	1.60 (0.42)
President × Democrat	0.40 (0.15)	0.46 (0.22)
President × Democrat × Turnout	−0.73 (0.32)	−0.91 (0.49)
1974	−0.05 (0.01)	−0.06 (0.02)
1976	−0.01 (0.01)	−0.02 (0.01)
1978	−0.05 (0.01)	−0.06 (0.02)
1980	−0.02 (0.01)	−0.02 (0.01)
Constant	0.80 (0.09)	0.98 (0.14)
N	1534	1534
Number of Groups	412	412
Within R^2	0.45	0.45

[a]*Note*: The table displays the results of a fixed effects panel-data regression. The first column reports the estimations with the endogenous turnout rate in the district. The second column reports the results from the second stage instrumental variable model using the out of district statewide turnout rate. The regression coefficients are estimated with congressional district fixed effects. Robust standard errors are in parentheses. The standard errors in the instrumental variable model are computed using bootstrap estimations obtained after 1,000 replications. Uncompetitive races and single district states (and Louisiana) are removed from the analysis

variable, which is the incumbent vote share. However, one should be careful about interpreting this coefficient since turnout has a conditional effect on incumbent support. Indeed, this variable is interacted with the presidential vote in the district and with Democratic Party affiliation. Consequently, the marginal effect of the coefficient of turnout for a Democratic incumbent is cumulative and equal to: -1.12 (Turnout) $+$ 0.38 (Democrat $\times$ Turnout) $+$ 1.60 (President $\times$ Turnout) $-$ 0.91 (President $\times$ Democrat $\times$ Turnout). For Democrats, then, turnout appears to reduce the incumbent vote share. Because this effect is conditional on the presidential vote in the district, the negative influence of turnout will be reduced as the Democratic presidential vote share increases. For Republican incumbents, the marginal effect of turnout is also negative: -1.12 (Turnout) $+$ 1.60 (President $\times$ Turnout). However, in this case, an increase in Republican presidential votes reduces the negative impact of turnout on incumbent support. Turnout has even a positive influence on the vote when presidential support reaches 0.70, but we need to consider the conditional standard errors to confirm whether the impact of this variable is significant or not.

The top plot of Fig. 1 includes such an analysis by reporting the marginal effect of turnout on incumbent vote share conditional on the party and the presidential vote in the district. The y axis corresponds to the hypothetical values of the turnout regression coefficients in the model ($\hat{x}_{cd,t}$ in Eq. (6)) as presidential vote in the district shifts (the x axis). The x axis

Table 3 Incumbent vote share: 1982–1990

	Model 3.1 Turnout	Model 3.2 Instrument
Quality Challenger	−0.02 (0.00)	−0.02 (0.00)
Freshman	−0.01 (0.00)	−0.01 (0.01)
Incumbent Spending Ratio	0.19 (0.01)	0.19 (0.02)
Presidential Vote Share	−0.19 (0.15)	−0.23 (0.19)
Democrat Incumbent	0.04 (0.10)	0.00 (0.14)
Turnout	−0.37 (0.21)	−0.31 (0.26)
Democrat × Turnout	−0.15 (0.21)	−0.06 (0.27)
President × Turnout	0.69 (0.33)	0.85 (0.39)
President × Democrat	0.31 (0.18)	0.39 (0.23)
President × Democrat × Turnout	−0.15 (0.34)	−0.37 (0.44)
1984	0.01 (0.01)	−0.00 (0.01)
1986	0.01 (0.00)	0.02 (0.01)
1988	0.01 (0.01)	0.00 (0.01)
1990	−0.05 (0.01)	−0.04 (0.01)
Constant	0.56 (0.09)	0.53 (0.13)
N	1588	1588
Number of Groups	415	415
Within R^2	0.45	0.44

Note: The table displays the results of a fixed effects panel-data regression. The first column reports the estimations with the endogenous turnout rate in the district. The second column reports the results from the second stage instrumental variable model using the out of district statewide turnout rate. The regression coefficients are estimated with congressional district fixed effects. Robust standard errors are in parentheses. The standard errors in the instrumental variable model are computed using bootstrap estimations obtained after 1,000 replications. Uncompetitive races and single district states (and Louisiana) are removed from the analysis

covers the observed range of this variable (0.20–0.90) in the data. The dotted (solid) line reports the values of turnout coefficients for Democrat (Republican) incumbents. The plot also includes the estimated 0.95 confidence interval across the full range of presidential vote in the district.[14]

The plot highlights two trends. First, an increase in turnout *reduces* the incumbent vote share in the district. This is true for Democrat and Republican incumbents. However, the substantive influence of turnout declines whenever a returning candidate runs in a district where the presidential candidate obtained a strong majority (i.e., a safe district). In this context, the impact of turnout is near zero when Republican (Democrat) incumbents are elected in districts where the presidential vote is greater than 0.60 (0.70). Thus, it appears that for the 1972–1980 apportionment cycle, turnout reduces the incumbent vote share outside of safe districts, regardless of party affiliation.

Table 3 reports the results of the analysis for the second apportionment cycle (1982–1990). In this model, 415 congressional districts were treated as fixed, and 1,588 cases (or single elections) were included in the regression. The instrumental variable results presented

[14] See Brambor et al. (2006) for a description on how to estimate these parameters.

Table 4 Incumbent vote share: 1992–2000

	Model 3.1 Turnout	Model 3.2 Instrument
Quality Challenger	−0.02 (0.00)	−0.02 (0.00)
Freshman	0.00 (0.00)	0.00 (0.00)
Incumbent Spending Ratio	0.20 (0.01)	0.20 (0.01)
Presidential Vote Share	−0.16 (0.14)	−0.30 (0.20)
Democrat Incumbent	−0.51 (0.08)	−0.69 (0.10)
Turnout	−0.44 (0.14)	−0.66 (0.21)
Democrat × Turnout	0.70 (0.17)	1.11 (0.21)
President × Turnout	0.69 (0.27)	1.05 (0.40)
President × Democrat	0.83 (0.15)	1.08 (0.21)
President × Democrat × Turnout	−0.96 (0.32)	−1.57 (0.44)
Other Presidential Candidate	0.19 (0.05)	0.19 (0.06)
1994	0.00 (0.01)	0.01 (0.01)
1996	0.00 (0.01)	0.01 (0.01)
1998	0.01 (0.01)	0.02 (0.01)
2000	0.03 (0.01)	0.03 (0.01)
Constant	0.57 (0.07)	0.66 (0.10)
N	1520	1520
Number of Groups	419	419
Within R^2	0.51	0.54

Note: The table displays the results of a fixed effects panel-data regression. The first column reports the estimations with the endogenous turnout rate in the district. The second column reports the results from the second stage instrumental variable model using the out of district statewide turnout rate. The presidential vote share variable measures proportion of the three candidate vote received by the presidential candidate in the district (e.g., Republican + Democrat + Ross Perot in 1992–1996/Ralph Nader in 2000) as coded by the party of the incumbent. The variable other presidential candidate controls for third party vote share in the district. The regression coefficients are estimated with congressional district fixed effects. Robust standard errors are in parentheses. The standard errors in the instrumental variable model are computed using bootstrap estimations obtained after 1,000 replications. Uncompetitive races and single district states (and Louisiana) are removed from the analysis

in model 3.2 differ slightly from the previous analysis. The main difference is related to the Turnout × Democrat interaction effect. The sign of this coefficient is reversed. However, to better understand the marginal effect of this variable, we need to look at the estimated value of the turnout coefficient in the second plot of Fig. 1.[15]

The plot shows that the influence of turnout on incumbency vote share is negative and significant for Democrats in districts where the party's presidential support is low (presidential vote < 0.30). On the other hand, the effect of turnout on the vote is *positive* for Republican incumbents in the most partisan districts (presidential vote > 0.60). Thus, in marginal

[15] Notice also that, contrary to the previous analysis, several variables do not appear to reach the conventional level of significance because they have very large bootstrapped standard errors relative to their regression coefficients. However, since we measure the marginal effect of turnout on incumbent vote share, we need to consider the cumulative standard error of the interactive term which can be significant for different values of presidential vote even if this parameter is insignificant when it is set to zero (Brambor et al. 2006).

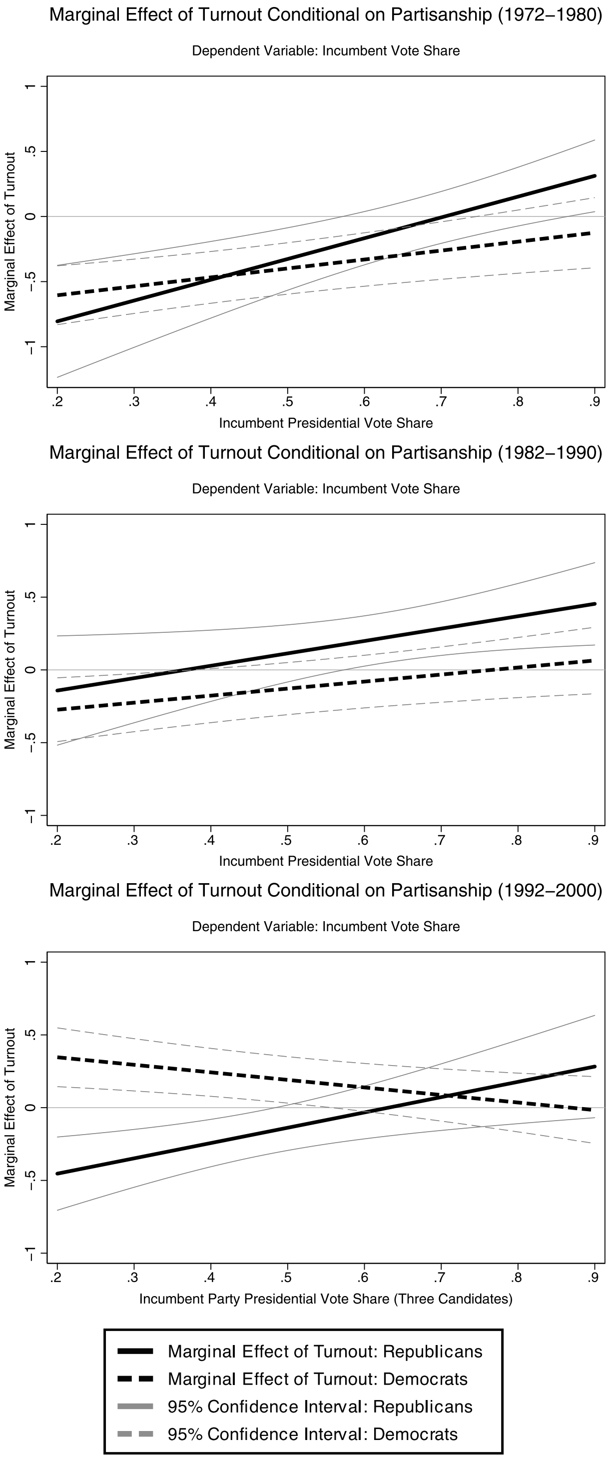

Fig. 1 The plots report the marginal effect of turnout (instrument) on incumbent vote for Democrats and Republicans and the corresponding standard errors across the level of same party presidential vote share in the district

districts, an increase in the number of voters reduces the support for the Democratic Party, whereas in safe districts, higher turnout generates more votes for Republican incumbents.

Finally, the second column of Table 4 displays the results for the panel regression of the last apportionment cycle (1992–2000). The model treats 419 congressional districts as fixed and includes 1,520 elections. All of the variables of interests—except Turnout × Democrat—have the same signs as in the previous two periods. However, the effect of turnout on Democratic vote is now positive (as in the 1972–1980 cycle). As was previously noted, it is necessary to combine the value of this coefficient with the other relevant interactive parameters to measure the marginal effect of turnout on the vote.

The bottom plot of Fig. 1 illustrates how this effect is negative for Republican incumbents elected in districts where the party's presidential support is small. However, as the presidential vote increases, the impact of electoral participation becomes indistinguishable from zero (notice that the upper bound of the confidence interval is above zero when the vote share reaches 0.50 on the x axis). On the other hand, the conditional influence of turnout for Democrats remains positive across most districts, but indistinguishable from zero in the most partisan cases (presidential vote >0.60). Still, the effect of turnout is always positive for Democrats, regardless of presidential support.

So what have we learned from the preceding analysis? First, none of the previous results seem to confirm the expectation that an increase in turnout will reduce the incumbent's vote share. This is true for both parties only in the 1970s, but for Democrats only in the 1980s and then only for Republicans in the 1990s. We also find that in all cases, the effect of turnout is conditional on the value of presidential support in the district. We also do not find confirmation of the two-effect theory of DeNardo (1980) and Nagel and McNulty (1996). Higher turnout in marginal Democratic districts (where the same party presidential support is low) does not necessarily increase the Democratic vote share, and higher turnout rates in the most partisan Democratic districts do not systematically help Republican challengers.

4.2 Surge and decline theory

In the remainder of this study, I will argue that the theory of surge and decline proposed by Campbell (1960) is best suited for evaluating these seemingly contradictory results. Indeed, the cyclical nature of American elections may shed some light on the complex relationship between participation and incumbency support. Recall that this theory asserts that House candidates who share the party of a successful presidential contender are advantaged in presidential election years, but are at greater risk in the subsequent midterm election. This expectation is in line with the revised theory of surge and decline proposed by Campbell (1987). For example, the Republicans may have been advantaged in the 1994 election by a decline in turnout among Democratic loyalists, while the Democrats could have benefited from a decline in turnout among Republican supporters in the 1986 election. Is it possible, then, to explain the previous results simply by the rise and fall of turnout in presidential and midterm elections? Fortunately, we can use the different empirical models in the analysis to test this theory directly.

We start by identifying two possible values of presidential coattails. Since we already have a measure of presidential vote share in the model, we can divide the data into two types of districts where the presidential coattail is either weak (presidential support <0.50 on the x axis of Fig. 1) or strong (presidential support >0.50 on the same axis). This division may seem arbitrary but recall that in the panel fixed effect models, the estimation of a parameter is always relative to its mean in the apportionment cycle. Second, we need to determine how this presidential coattail will affect the incumbent vote share in presidential or midterm elections. This step is easy because presidential vote is measured every four years. Thus, we use the same value twice in the model: once for the presidential election and once more for the following midterm election. In this context, a hypothetical presidential vote share (i.e., the value of the coattail) remains fixed in the district during the "surge" phase of the presidential election, but also during the subsequent "decline" in the midterm phase.

We can use the marginal effect plots of Fig. 1 to test the predictions of the surge and decline theory. First, we should expect that when a party's presidential coattail is strong, turnout will increase the incumbent vote share. On the other hand, turnout will reduce the incumbent vote in districts where the presidential coattail is weak (or the opposing presidential coattail is strong). Thus, to confirm these two predictions, the two slope lines of the interactive model in Fig. 1—indicating how the marginal effect of turnout changes with presidential support in the district—should be positive diagonals crossing over the baseline horizontal value ($\beta = 0$) right around where the coattail effect is expected to be strong ($x > 0.50$).

Likewise, we need to estimate whether the marginal effect of presidential coattails on incumbent support is affected by the value of turnout in the district. It follows that if the presidential vote influences the relationship between turnout and incumbent support, then we must also consider the possibility that turnout modifies the effect of presidential vote on incumbent support.[16] We can estimate this last marginal effect in both the electoral "surge" and "decline" phases by making the assumption that district turnout will be higher in presidential elections and smaller in midterm elections. Lesser turnout in midterm elections leads us to expect that the marginal effect of presidential support in the district will be smaller. On the other hand, when turnout increases during a presidential election, the marginal effect of presidential support is expected to be higher.

The graphics of Fig. 2 illustrate this logic. In these three plots, the y axis corresponds to the hypothetical values of the presidential vote coefficients (or coattail effects) from the previous three instrumental models as the value of turnout in the district shifts (the x axis in Fig. 2). The x axis covers the observed range of this variable (0.20–0.70) in the data. Just as in Fig. 1, these predictions lead us to expect that the slopes of the two lines in Fig. 2—indicating how the marginal effect of presidential vote changes with turnout in the district—will be positive.

With the previous predictions in mind, it becomes possible to estimate directly the marginal effect of turnout (and presidential vote share) on incumbent support, conditional on the strength of presidential coattails (or turnout) in the district. If we consider more broadly how the political affiliation of the president interacts with elections in each cycle, we can begin to understand why Republican and Democratic candidates may have—at certain times—benefited from an increase in political participation. We first evaluate the predictions in the turnout-coattail analysis (Fig. 1) and follow with the coattail–turnout results (Fig. 2).

Looking back at the first plot of Fig. 1 for the 1972–1982 apportionment cycle, we find that the support for both Republican and Democrat incumbents is reduced when the presidential coattail is weak ($x < 0.50$). In the 1982–1990 apportionment cycle, we see that Republican incumbents increase their support in districts where the presidential coattail is strong ($x > 0.50$). The second plot of Fig. 1 also shows that Democrats elected in districts where presidential vote share is small see a reduction in their electoral support. Finally, for the 1992–2000 period, we find that Republican incumbents are penalized when the opposing

[16] This is an implication of the symmetry of interactive terms (Brambor et al. 2006; Berry et al. 2012).

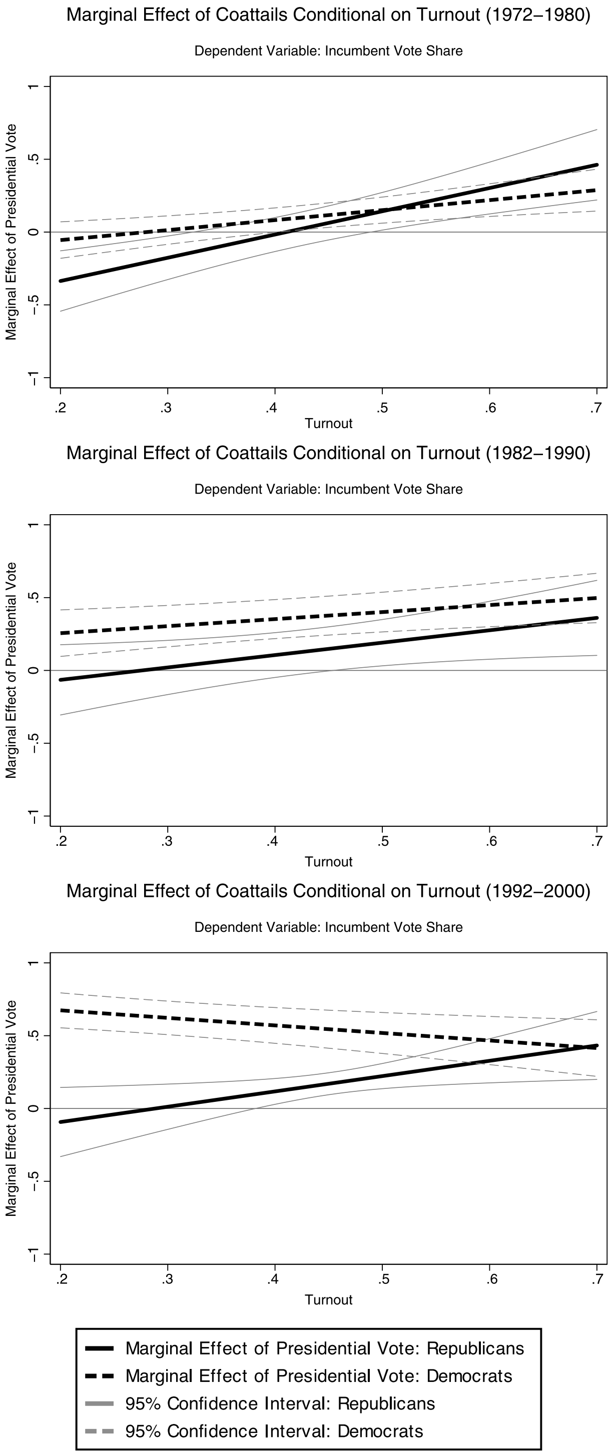

Fig. 2 The plots report the marginal effect of presidential vote share on incumbent support for Democrats and Republicans and the corresponding standard errors across the level of turnout in the district (instrument)

presidential candidate receives more votes in the district. However, in this cycle, the conditional effect of participation remains positive for Democrats who appear to benefit from both weak and strong coattail effects throughout the 1990s.

Turning now to the marginal effect of presidential vote on incumbent support in Fig. 2, we find confirmation of the surge and decline thesis in almost all cases. Presidential coattails have a smaller impact on the vote in midterm elections when turnout is expected to be lower. The only exception here is with the Democratic Party in the last apportionment cycle. The Republican Party conforms especially well to the surge and decline predictions. In the 1982–1990 period, for example, the marginal impact of presidential vote share actually increases the incumbent support for this party when turnout is high. Since the fixed effects model allows us to measure the influence of presidential support on incumbent vote share inside a hypothetical district, we can compare the coattail effects in two consecutive elections directly when turnout is expected to be high (presidential election years) and low (midterm elections). In this example, the impact of presidential support would be stronger in a presidential election (the surge phase) and weaker in a midterm election (the decline phase). And this is true for most of the periods, except for Democrats in the last apportionment cycle.[17] In this case, the marginal effect of presidential support is actually greater in midterm elections when turnout is expected to be lower. I return to this finding below.

4.3 Discussion

We can summarize the conditional implications of the surge and decline theory in the following terms. First, in the 1972–1982 apportionment cycle, Fig. 1 shows that for Republican incumbents, the marginal effect of turnout is negative when the presidential coattail is weak. Furthermore, Fig. 2 also demonstrates during the same period that the marginal effect of a presidential coattail is close to zero when turnout is expected to be low (in midterm elections). By combining both of these results, we can conclude that lower turnout rates in midterm elections reduce the Republican incumbent vote share when the presidential coattail is weak and that higher turnout rates in presidential elections increase the incumbent vote share when the coattail is strong. This basic pattern is confirmed for the Republican Party in all three apportionment cycles (although the marginal effect of presidential support can be closer to zero when turnout is low). As for the Democrats, the party seems to conform somewhat to the basic surge and decline pattern described above in the first and second apportionment cycles. However, the theory doesn't hold in the 1990s. The conditional effect of participation on incumbent support appears to be stronger during this period when the presidential coattail is weak (Fig. 1), and more so when turnout is low (Fig. 2).[18]

Perhaps the partisan realignment that started in the electorate during the late 1960s can help us understand some of the variations observed across the decades. This realignment began by influencing presidential voting habits first and, later, congressional election voting patterns (Campbell 1997). The resulting outcome of this partisan shift was a gradual decline in the number of Democratic incumbents elected in the House, not only in the South, but also in other regions of the United States (McCarty et al. 2009). Not surprisingly, the first

[17] Although the effect of presidential support remains positive for the Democrats in the 1980s, this effect is stronger in presidential election years.

[18] A potential caveat is that the difference observed between the apportionment cycles could be explained by a lack of statistical power. However, the significant marginal effects of turnout and presidential vote share on incumbent support in the 1992–2000 apportionment cycle for Democrats and the confirmation of the basic patterns in all other cases provides sufficient evidence to the contrary (see the bottom plots of Figs. 1, 2).

Democratic incumbents to be replaced were elected in the most marginal districts where Republican presidential candidates now won a majority of the vote.[19]

According to Jacobson (2001), the congressional results of the 1996, 1998, and 2000 elections mirrored the fact that the electorate was becoming more polarized and split evenly among Democratic and Republican supporters. This close partisan balance made national forces essentially neutral after the 1994 election; none of the national conditions clearly favored one party over the other so neither could benefit from presidential coattails (Jacobson 2001: 7). In fact, Campbell (1997) argues that the surge and decline effect began to weaken even earlier—during the 1980s. However, the presence of so many Democratic incumbents delayed the change in congressional seats that normally would have occurred during this partisan shift (Bullock 1988). For Campbell (1997), the 1994 elections were the culmination of this process. Fewer Democratic incumbents could now count on the spillover effect of their party's national ticket to get elected because there were simply fewer marginal House districts available during the 1990s (Abramowitz et al. 2006).

Nevertheless, this does not explain why the analysis shows that Republican incumbents benefited from presidential coattails during the last apportionment cycle. This final puzzle can be linked back to the structural advantage held by the Republican Party in the distribution of likely voters across congressional districts (Jacobson 2011). During the 1990s, the Democrats could still count on a slightly larger number of supporters in the electorate (Abramowitz and Saunders 1998). However, these supporters were also more likely to be packed in densely populated urban areas.[20] On the other hand, Republican supporters were more likely to be spread evenly across suburban and rural districts. In this context, vulnerable Democratic incumbents may have benefited the most from higher turnout rates (because of the larger number of Democratic supporters in the electorate), whereas, in partisan districts, an increase in the number of voters may not have made much of a difference for Democrats because the support for this party already was high. This last explanation seems partially to confirm the two-effect theory, although we do not find that the marginal influence of turnout on incumbent support is negative in the most partisan district (the defection effect). The results simply show that the impact of turnout is reduced (but still positive) as the party's presidential vote share increases in the most partisan Democratic districts in the 1990s.

5 Conclusion

The previous study has confirmed in part the surge and decline theory outlined by Campbell (1960). Since the instrumental variable of turnout used in the analysis was not affected by the incumbent's individual vote advantage, it was possible to estimate the magnitude of presidential coattail effects on congressional election results. In most cases, the results show that the support for the incumbent House candidate increases when there is a strong

[19] For example, the number of Democratic districts where the incumbent presidential candidate received less than 0.30 of the vote was 54 cases in the 1970s, 24 in the 1980s, and nine in the 1990s. And in this last decade, all of these cases were conservative Democrats in Congress: Bill Orton from Utah, Ralph Hall from Texas, Charles Stenholm from Texas, Earl Hutto from Florida, and Ben Erdreich from Alabama.

[20] As Jacobson (2005) explains, the results of the 2000 election helps demonstrate this point. In that election, Gore won the majority of the popular presidential vote, yet the distribution of House seats was 240 for Republicans and 195 for Democrats. In these data, the mean presidential vote share for Democratic incumbents is 0.54 with a standard deviation of 0.14. For Republicans, the mean is 0.47 with a standard deviation of 0.08.

presidential coattail in the district. We found that this effect is even larger when turnout surges in presidential elections. One the other hand, the analysis shows that this electoral bonus declines when turnout is reduced in the following midterm election. Furthermore, the results demonstrate that incumbent support is somewhat lower when candidates trail a weak presidential coattail. This effect is more substantive in presidential elections when turnout is higher, but more or less neutralized when turnout is reduced in midterm elections.

It is important to note that the theory of surge and decline was not confirmed in the last apportionment cycle for the Democratic Party. I have argued in the last part of the analysis that partisan realignment could explain why the effect of presidential coattails has weakened over the years. Unfortunately, in order to fully validate this conjecture, it is necessary to consider other relevant variables—like sorting and partisan distribution—that remain outside of the scope of the models described above.

The previous study has also highlighted the fact that a surge in political participation does not always reduce the electoral support of incumbent candidates. In addition, the analysis did not support the conclusion that Democratic candidates (challengers or incumbents) benefit systematically from higher voter turnout rates. We also saw that between 1982 and 1990, the support for Republican incumbents representing safe districts actually increased with turnout. This last result is not supported by the two-effect theory of DeNardo (1980) and Nagel and McNulty (1996), which fails to be confirmed empirically in this increasing partisan era. The next logical step will be to determine if the turnout advantage for the Democratic Party has declined further in the most recent apportionment cycle (2002–2010), a period often characterized as one of the most polarized in recent times (Abramowitz 2011).

It is to be hoped that this study has demonstrated the importance of understanding the relationship between presidential coattails and turnout to explain incumbent support in congressional elections. If an incumbent Democratic candidate ran for re-election during the tenure of a Republican president, it makes sense to assume that an increase in voter turnout will not automatically generate additional electoral support. If anything, the surge of new voters may be detrimental to a Democratic incumbent, especially in realigning districts or during the 1980s when the public had a generally conservative policy sentiment (Stimson et al. 1995). Similarly, if a Republican candidate ran for re-election under a Democratic president, an increase in the level of participation could also reduce the incumbent's vote share. Recall that the models in this analysis include a measure of turnout that is not theoretically linked to the level of district competitiveness and the individual vote advantage of an incumbent. Thus, it is not surprising that we find that any remaining surge in the number of voters is intrinsically related to presidential coattail effects.

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References

Abramowitz, A. I. (2011). Expect confrontation, not compromise: the 112th House of Representatives is likely to be the most conservative and polarized House in the modern era. *PS: Political Science and Politics*, *44*(2), 293–295.

Abramowitz, A. I., & Saunders, K. L. (1998). Ideological realignment in the U.S. electorate. *Journal of Politics*, *60*(3), 634–652.

Abramowitz, A. I., Alexander, B., & Gunning, M. (2006). Incumbency, redistricting, and the decline of competition in U.S. House elections. *Journal of Politics*, *68*(1), 75–88.

Adler, E. S. (2000). Constituency characteristics and the guardian model of appropriations subcommittees, 1959–1998. *American Journal of Political Science*, *44*(1), 104–114.

Berry, W., Golder, M., & Milton, D. (2012). Improving tests of theories positing interaction. *Journal of Politics*. doi:10.1017/S0022381612000199.

Brambor, T., Clark, W. R., & Golder, M. (2006). Understanding interaction models: improving empirical analyse. *Political Analysis*, *14*(1), 63–82.

Broockman, D. E. (2009). Do congressional candidates have reverse coattails? Evidence from a regression discontinuity design. *Political Analysis*, *17*(4), 418–434.

Bullock, C. S. III (1988). Regional realignment from an officeholding perspective. *Political Analysis*, *50*(3), 553–574.

Burden, B. C., & Wichowsky, A. (2010). *Local and national forces in congressional elections*. Oxford: Oxford Handbook.

Caldeira, G. A., Patterson, S. C., & Markko, G. A. (1985). The mobilization of voters in congressional elections. *Journal of Politics*, *47*(2), 490–509.

Campbell, A. (1960). Surge and decline: a study of electoral change. *Public Opinion Quarterly*, *24*, 397–418.

Campbell, J. E. (1987). The revised theory of surge and decline. *American Journal of Political Science*, *31*(4), 965–979.

Campbell, J. E. (1997). The presidential pulse and the 1994 midterm congressional election. *Journal of Politics*, *59*(3), 830–857.

Carson, J. L. (2012). *Presidential congression district voting data, 1992–2000*. Available through author.

Carson, J. L., Crespin, M. H., Finocchiaro, C. J., & Rohde, D. W. (2007). Redistricting and party polarization in the U.S. House of Representatives. *Public Opinion Quarterly*, *35*(6), 878–904.

Citrin, J., Schickler, E., & Sides, J. (2003). What If everyone voted? Simulating the impact of increased turnout in Senate elections. *American Journal of Political Science*, *47*(1), 75–90.

DeNardo, J. (1980). Turnout and the vote: the joke's on the democrats. *American Political Science Review*, *74*(2), 406–420.

DeNardo, J. (1987). Declining turnout in an era of waning partisanship. *British Journal of Political Science*, *17*(4), 435–456.

Gilliam, F. D. Jr. (1985). Influences on voter turnout for U.S. House elections in non-presidential years. *Legislative Studies Quarterly*, *10*(3), 339–351.

Gomez, B. T., Hansford, T. G., & Krause, G. A. (2007). The Republicans should pray for rain: weather, turnout, and voting in U.S. presidential elections. *The Journal of Politics*, *69*, 649–663.

Griffin, J. D. (2006). Electoral competition and democratic responsiveness: a defense of the marginality hypothesis. *Journal of Politics*, *68*(4), 911–921.

Grofman, B., Owen, G., & Collet, C. (1999). Rethinking the partisan effects of higher turnout: so what's the question? *Public Choice*, *99*, 357–376.

Hansford, T. G., & Gomez, B. T. (2010). Estimating the electoral effects of voter turnout. *American Political Science Review*, *104*(2), 268–288.

Hogan, R. E. (2005). Gubernatorial coattail effects in state legislative elections. *Political Research Quarterly*, *58*(4), 587–597.

Holbrook, T. M., & McClurg, S. D. (2005). The mobilization of core supporters: campaigns, turnout, and electoral composition in United States presidential elections. *American Journal of Political Science*, *49*(4), 689–703.

Jacobson, G. C. (2001). A House and Senate divided: the Clinton legacy and the congressional elections of 2000. *Political Science Quarterly*, *116*(1), 5–27.

Jacobson, G. C. (2005). Polarized politics and the 2004 congressional and presidential elections. *Political Science Quarterly*, *120*(2), 199–218.

Jacobson, G. C. (2011). The republican resurgence in 2010. *Political Science Quarterly*, *127*(1), 27–52.

Jacobson, G. C. (2012). *Congressional election data, 1946–2008* (HR4604). Available through author.

Levitt, S. D., & Snyder, J. M. Jr. (1997). The impact of federal spending on House election outcomes. *The Journal of Political Economy*, *105*(1), 30–53.

Lijphart, A. (1997). Unequal participation: democracy's unresolved dilemma. *American Political Science Review*, *91*(1), 1–14.

Martinez, M. D., & Gill, J. (2005). The effects of turnout on partisan outcomes in U.S. presidential elections 1960–2000. *Journal of Politics*, *67*(4), 1245–1274.

McCarty, N., Poole, K., & Rosenthal, H. (2009). Does gerrymandering cause polarization? *American Journal of Political Science*, *53*(3), 666–680.

McDonald, M. P., & Popkin, S. L. (2001). The myth of the vanishing voter. *American Political Science Review*, *95*(4), 963–974.

Miller, W. (1955). Presidential coattails: a study in political myth and methodology. *The Public Opinion Quarterly*, *19*(4), 353–368.

Murray, M. P. (2006). Avoiding invalid instruments and coping with weak instruments. *Journal of Economic Perspectives*, *20*(4), 111–132.

Nagel, J. H., & McNulty, J. E. (1996). Partisan effects of voter turnout in senatorial and gubernatorial elections. *American Political Science Review*, *90*(4), 780–793.
Niemi, R. G., Powell, L. W., & Bicknell, P. L. (1986). The effects of congruity between community and district on salience of U.S. House candidates. *Legislative Studies Quarterly*, *11*(2), 187–201.
Prior, M. (2006). The incumbent in the living room: the rise of television and the incumbency advantage in U.S. House elections. *The Journal of Politics*, *68*, 657–673.
Rosenstone, S. J., & Hansen, J. M. (1993). *Mobilization, participation, and democracy in America*. New York: Macmillan.
Sanchez, G. (2011a). How do I estimate recursive systems using a subset of available instruments? http://www.stata.com/support/faqs/stat/ivr_faq.html.
Sanchez, G. (2011b). How do I obtain bootstrapped standard errors with panel data? http://www.stata.com/support/faqs/stat/xt_boot.html.
Sides, J., Schickler, E., & Citrin, J. (2008). If everyone had voted, would Bubba and Dubya have won? *Presidential Studies Quarterly*, *47*(1), 521–538.
Snyder, J. M., & Ting, M. M. (2011). Electoral selection with parties and primaries. *American Journal of Political Science*, *38*(3), 782–796.
Stimson, J. A., Mackuen, M. B., & Erikson, R. S. (1995). Dynamic representation. *American Political Science Review*, *89*(3), 543–565.
Stratmann, T. (2000). Congressional voting over legislative careers: shifting positions and changing constraints. *American Political Science Review*, *94*(3), 665.
Stratmann, T. (2009). How prices matter in politics: the returns to campaign advertising. *Public Choice*, *140*(3–4), 357–377.
U.S. Congress, Office of the Clerk of the U.S. House (2012). Election statistics. http://clerk.house.gov/member_info/electionInfo/index.aspx.