Strategic Party Government: An Explanation of Party Influence in Congress, 1789-2000

Matthew Lebo (Contact Author)
Department of Political Science
Stony Brook University
SBS S-749
Stony Brook, NY 11794-4392
Matthew.Lebo@stonybrook.edu

Adam J. McGlynn
Department of Political Science
Stony Brook University
Stony Brook, NY 11794-4392
mcglynn55@yahoo.com

Gregory Koger
Department of Political Science
University of Montana
Liberal Arts 354
Missoula, MT 59812
gregory.koger@umontana.edu

Abstract

Why does the influence of Congressional parties vary over time? We propose a modified form of Conditional Party Government in which parties seek to win votes at minimum cost. This framework, *Strategic* Party Government, highlights competitive interaction: all else equal, each party will seek to match the efforts of the opposing party. We test our claims using autoregressive fractionally integrated moving average (ARFIMA) time series models and fractional cointegration techniques as well as cross-sectional analyses of data from the House and Senate, 1789 to 2000. We find that parties are in a long-run equilibrium as Democrats and Republicans try to match each others' voting unity. By comparison, intra-party cohesion and inter-party differences as measured by NOMINATE scores (the "conditions" in *conditional party government*) have minimal effects on party unity. Finally, party unity in voting tends to cost parties seats while winning contested votes tends to increase seat share. An appendix presents a formal model of these relationships.

Authors' named are arranged randomly.

We develop a theory of legislative parties we call Strategic Party Government (SPG) in which legislators delegate power to party leaders and cooperate to promote their party's success in both the legislative and electoral arenas. The SPG approach builds upon the two leading theories of party activity that focus, in turn, on the importance of legislator ideology (the conditional party government (CPG) model) and the process of agenda setting (Cox and McCubbins 1993, n.d.). We contend that parties interact strategically; each party calibrates its own level of activity to win legislative battles with as little effort as possible. We test this claim in a dynamic framework using Congressional roll call votes from 1789 to 2000 in both chambers of Congress.

The SPG approach posits that legislative parties' underlying goal is to maximize their share of the chamber. To do so, parties choose a level of activity on each issue to win legislative contests. "Activity" includes influencing media coverage of Congress, structuring the floor agenda, gathering information about members' preferences, organizing to win close votes, and buying marginal votes. Since time, space, and staff are scarce, there is a significant opportunity cost for being active on a particular issue. Furthermore, to the extent party activity exposes fissures between members' electoral constituencies and national party positions, party activity endangers the seats of marginal members. On the other hand, when parties deploy their resources well they can sway the outcome of legislative contests. Winning votes is beneficial to the extent that donors and constituents reward success. Parties thus make strategic cost-benefit analyses, comparing the costs and rewards of winning in light of the opposing party's strategy.

We use three empirical tests to demonstrate the usefulness of the Strategic Party Government framework. First, we show that among the determinants of party unity, the most significant predictors are the level of opposition party unity and the size of the gap between the parties' unity levels. Second, we analyze "roll rates" in Congressional voting to show that increased unity helps win votes. Finally, we study Congressional elections over time and demonstrate that, while winning legislative contests helps win elections, the costs of unity can be high – in the House, parties can expect that for each point they raise unity they will lose 1.13 (+/- 1) seats. Similarly, an additional percentage point of unity will cost a Senate party 0.6 members.

While there has been previous research on Congressional voting over long time spans (e.g. Brady, Cooper, and Hurley 1979; Cooper and Young 2002; Cox and Poole 2002; Hurley and Wilson 1989; Patterson and Caldeira 1988; Poole and Rosenthal 1997), the major CPG works have all studied either a single point in time (e.g. Froman and Ripley 1965), the transition from two connected periods (e.g. Rohde 1991), or two distinct time periods (Cooper and Brady 1981). Also, with the exception of Smith and Gamm (2001), prior CPG research has focused on the House of Representatives and not the Senate. We contribute to this literature by employing the entire range of party history in both chambers to test our hypotheses using sophisticated time series techniques.

The goal of this work is to move beyond demonstrating the *existence* of party influence and toward *explaining* variation in party strength. In answer to skepticism about the influence of legislative parties (Krehbiel 1993, 1999), recent work has found that parties influence the decisions of individual members (e.g. Ansolahebere *et al.* 2001; Sinclair 2002), the legislative agenda-setting process (e.g. Covington and Bargen 2004; Cox and McCubbins 1993, n.d.; Marshall 2002; Sinclair 1994) and outcomes (Cox and McCubbins 2002, n.d.; Snyder and Groseclose 2000). We seek to build on this work by explaining why parties are more likely to use these strategies at some times than others, with an explicit role for strategic interaction between legislative parties. In doing so we also provide a partial explanation for the perceived "polarization" of Congress: constituency pressures aside, members cooperate with their parties because they expect the opposing party to be cohesive (see also Brady *et al.* 2003; Carson *et al.* 2004; Jacobson 2004; Lowry and Shipan 2002; Smith and Roberts 2003; Theriault 2004). Finally, one contribution of this paper is to introduce the use of fractional integration and fractional cointegration time series methods to studies of Congressional behavior. These methods are well suited for the hypotheses we seek to test and give us additional confidence that we have minimized the effects of autocorrelation on our estimates.

Conditional Party Government Theory

The starting point for studying Congressional parties is that parties are often invisible, yet occasionally party leaders dominate the chamber and dictate outcomes (Wilson 1885; Hasbrouck 1927). The challenge for Congressional scholars is to explain why the role of Congressional parties varies from issue to issue and era to era. The predominant answer to this puzzle is known as the "conditional party government" (CPG) approach.

The central claim of CPG theory is that legislative party activity will vary over time and across issues with a) the homogeneity of policy preferences within each party and b) the difference of policy views between parties. Congressional parties should be most active when two internally cohesive parties disagree on a wide range of issues. The initial statement of CPG (Froman and Ripley 1965) claimed that party activity varied across issues and contexts. Cooper and Brady (1981) added a temporal dimension to this claim, finding that institutional powers granted to House party leaders in the late 19th century and the mid-20th century varied with the cohesion of House members' electoral constituencies. Rohde (1991) combines these insights, arguing that intra-party policy consensus, and thus party activity, varies by issue and over time.[1]

One critique of CPG is that parties seem to be most active when they are least needed (Krehbiel 1999). If a majority of legislators already has homogenous preferences, Krehbiel asks, what marginal effect does party activity have on outcomes? One potential response is that parties can sway outcomes by setting the agenda and influencing the formation of legislative preferences (Sinclair 2002). Consequently, parties can do more than convince legislators to vote against their preferences.

Another response is to identify cases when parties have been active on issues even though the "conditions" do not apply. For example, in 1887 House Democratic leaders engineered a Mugwump-

[1] In later work with John Aldrich, Rohde stresses the role of party activists as an electoral explanation for increased partisan activity in Congress (Aldrich and Rohde 2001). Cox and McCubbins (1993; 2002; n.d.) propose a modification to the CPG framework in which party leaders always enjoy a negative veto on legislation while their ability to promote a positive agenda varies with legislators' preferences.

preferred railroad commission rather than the court-based approach favored by House Democratic members (James 2000). During Woodrow Wilson's first term, the Senate Democrats were extremely active despite strong intra-party policy differences (Link 1956). Research of the Mike Mansfield archives reveals that during the 1960s, the *only* issue on which the Senate Democrats seem to have conducted whip counts was the one that starkly divided the party: civil rights.[2] In 1998, the House Republican leadership engineered passage of a bill allowing Puerto Ricans to conduct referenda on statehood while staving off an English-language statehood requirement favored by many Republicans (Gravely 1998). These examples of party activity in the face of intra-party division and inter-party agreement suggest the need for a more general specification of parties' goals and strategies.

Sinclair (1995) suggests that legislators delegate more power (and thus increase party activity) to party leaders when doing so will advance their party's policy goals to the benefit of party members. Thus the "conditions" for delegating power are expanded to include the need to respond to an assertive rival party or President, slender party ratios, a changed media or political environment, or an increasingly inefficient legislative process. To the extent that a party's members have diverse policy views, they may lose utility by empowering their leaders to advance a controversial agenda. Empowering party leaders is also costly to the extent it crowds out members' opportunities for individual entrepreneurship (Sinclair 1995). In each case, the basic motive to delegate (or reclaim) power is the goal of achieving policy success on party priorities.

Strategic Party Government[3]

Electoral Goals and Party Activity. We share Sinclair's view that a more general model is necessary to explain the variation of party activity that we observe. We propose a framework that clarifies the links between party goals and party tactics. Although we see this framework as an extension to CPG,

[2] Based on a search of Mansfield's leadership and policy files in the Mansfield archive. Of course, one cannot be certain that all whip counts from 1961 to 1970 are preserved in the files.

[3] Appendix A presents a normal form model that attempts to develop the SPG framework formally.

we label it "Strategic Party Government" to highlight its goal-oriented, interactive approach. Our starting point is to conceptualize the two parties as actors who each seek to maximize their share of the chamber.[4] This general goal motivates party involvement in legislative agenda-setting, candidate recruitment, fundraising, and media relations to enhance party reputation. We assume (and show below) that there is a close relationship between *legislative* success, e.g. winning contested votes, and electoral outcomes. This is consistent with the notion that parties are concerned with maintaining and enhancing their reputation (Cox and McCubbins 1993). Parties that lose contested votes, especially majority parties, appear inept and unable to either address national problems or follow through on campaign commitments. On the other hand, a minority party that rolls the majority demonstrates the appeal of its positions.

There are a number of tactics each party can use to maximize their chances of winning legislative contests. The most obvious is vote-buying, i.e. offering party members favors to vote with their party and against their personal and political inclinations. More subtly, majority party leaders can screen the legislative agenda to prioritize bills that unite their parties, or they can regulate the amendment process to protect party members from amendments that force politically awkward choices or splinter party coalitions. Party leaders can influence members' preferences by earning positive media coverage of party goals or holding party meetings to discuss issues. Taken together, we call this party "activity" intended to promote party unity. Below we use party unity in voting as a proxy for party activity with the understanding that unity in voting is an observable manifestation of a range of hard-to-measure actions.

Party activity is costly for party leaders and members. Investing scarce time and reputation on one issue involves a significant opportunity cost; the more activity parties "spend" on one issue, the less there is for other issues. Also, as shown below, when party leaders induce their members to side with the national party position against their personal electoral interests they increase the electoral risk for those conflicted members. Carson (2003), for example, finds a positive correlation between an incumbent's

[4] Treating parties as unitary actors is seemingly inconsistent with the intra-party disagreement one frequently observes in the U.S. Congress. We do so as a shorthand simplification for the decisions of party leaders or party conferences.

party unity in voting and the probability that a quality challenger emerges in the next election, while Canes-Wrone, Brady, and Cogan (2002) find that incumbents' vote share and probability of reelection decline with the extent to which they vote with the ideologically extreme wing of their party. Party activity is thus a double-edged sword; while unity may increase members' risk of defeat, it also increases the likelihood of party victories on key issues.

Implications. Consistent with CPG theory, we would expect that the *benefits* of party activity will vary over time and across issues as the payoffs for activity increase. First, the net benefits of activity will increase to the extent that members of a party share similar policy preferences. Second, the value of activity increases to the extent the two parties represent divergent viewpoints since the cost for losing will be great if the opposing party is able to enact its preferred policy. These, again, are the two conditions of CPG. Third, the benefits of activity increases with issue salience; parties have more to win or lose in contests over tax cuts or the minimum wage than the reauthorization of the U.S. Fire Administration, so parties will focus their efforts on bills with high impact on their electoral fortunes.

Also, we expect that activity will vary with the *marginal* effect of party involvement over time and across issues. Just as presidential candidates don't focus resources on states they are certain to win or lose (Shaw 1999), parties focus their attention on contests with uncertain outcomes and minimize activity on battles they are sure to win. Over time, the relative size of legislative parties influences the need for party effort. All else equal, a majority party with a large majority has a relatively easy time mustering a winning coalition from its own membership with little arm-twisting. It is therefore easier for large parties to win with low levels of party unity.

Finally – and most central to the SPG model – we expect each party's strategy to be influenced by the anticipated behavior of the opposing party. A party's optimum level of unity ensures legislative victories large enough to offset electoral losses incurred by pulling legislators away from the preferences of their constituents. If one party's unity level is generally lower than the opposing party, it will tend to lose votes that could be won with a little effort, so there is a net incentive to increase its activity level. On the other hand, parties with relatively higher levels of unity risk the perils of overkill, i.e. incurring the

electoral costs of more party loyalty than is necessary to win key votes. Since there are diminishing marginal returns for a party activity advantage, we expect party unity levels to generally track each other.

This implies that we should observe two patterns. Since these are the central claims of our analysis, we state them formally:

Hypothesis 1: Party activity will vary with the activity level of the opposing party. Thus Democratic party unity should increase as Republican party unity increases.

Hypothesis 2: Differences in party activity will be corrected quickly by the parties. Thus the Democrats and Republicans will move to reduce differences in party unity seen in the previous period.

Hypothesis 1 simply states that parties will engage in "real-time" corrections: they observe the unity level of the opposing party and adjust accordingly. We expect that inter-party gaps will nonetheless occur if parties have incomplete information about their opponents' intentions, or if parties do not make optimum adjustments in real time due to the vagaries of party leadership and the inelasticity of members' voting tendencies. In these cases, Hypothesis 2 suggests that parties will correct gaps in party activity in the previous time period by moving toward the level of the opposing party in the previous time period.

While our primary interest is in testing Hypotheses 1 and 2, we take pains below to test whether the key assumptions and ancillary claims of the SPG model are valid. Thus we test whether party unity influences legislative outcomes, and whether party unity and legislative outcomes affect electoral success. We also test whether the size, ideological homogeneity, and ideological separation of legislative parties have the anticipated effect on party unity. Testing these claims requires a broad range of data and sophisticated time-series methods, which we turn to next.

Data and Methods

We test our hypotheses with a macro-level analysis of Congressional voting and elections in the House and Senate from 1789 to 2000. We fully appreciate that this span includes wide variation in

legislative rules, membership, electoral contexts, and issue agendas.[5] Finding consistent results across varying contexts improves our confidence that we have identified general patterns.[6]

We conduct our analyses in two parts. First, we test our key assumptions: a) party unity increases the probability of legislative victory, b) party unity is negatively correlated with electoral success, c) legislative victories are positively correlated with electoral success. We test these with two statistical analyses—first we test the relationship between unity and winning in Congressional voting, then we examine the electoral effects of party unity in the U.S. House and Senate. In the following section we determine whether, as our primary hypotheses suggest, party unity varies with opposition party unity and prior disparities in inter-party unity. In doing so we also test the main tenets of CPG and evaluate the effects of party size; we then repeat our analyses while controlling for agenda effects.

Our measures of party unity and legislative success are derived from Congressional roll call votes (ICPSR 0004). Here we define party unity as the absolute value of the percentage of the party voting "yes" minus the percentage of the party voting "no" on roll calls that are party votes – that is, where at least 50% of one party votes in opposition to at least 50% of the other party.[7] We then aggregate the scores for individual votes such as this to create yearly unity scores for each party, denoted *Democratic Unity* and *Republican Unity*. A party "win" means that the position preferred by a majority of party members on a party vote prevails – this is also known as "rolling" the losing party (Campbell, Cox, and McCubbins 2002; Cox and McCubbins 2002). Note that to test our model we use the surrogate of

[5] We see the legislative agenda as partially endogenous (and hence subject to party manipulation) and partially responsive to external events and influence. Below we test and reject the possibility that exogenous events are the sole source of variation in observed party activity.

[6] Our analysis is informed by previous research on Congressional voting over long time spans, especially Brady, Cooper, and Hurley 1979; Cooper and Young 2002; Hurley and Wilson 1989; Patterson and Caldeira 1988; Poole and Rosenthal 1997.

[7] We use the term "unity" only to describe the voting homogeneity of the parties in Congress. The term "cohesion" is used strictly to describe the ideological homogeneity of the parties.

(observed) party unity in place of (unobserved) party activity. This is a necessary leap in that party activity seems an impossible concept to measure – especially over the entire history of Congress! Indeed, party activity may consist of so many behind-the-scenes actions that it defies quantification. Party unity, on the other hand, is a measurable consequence of party activity and will suffice for our analysis.

We measure aspects and behavior of the "Democratic" and "Republican" parties on a yearly[8] basis from 1789-2000 even though these party labels are not used throughout this span. By "Democratic" we mean opponents of the Washington administration, the (Jeffersonian) Republican party, supporters of Andrew Jackson, and members labeled "Democrat" or "Independent Democrat," all identified using Kenneth Martis' (1989) party affiliation coding. By "Republican" we mean supporters of the Washington Administration, Federalists, pro-Adams and anti-Jackson factions, Whigs, and members labeled "Republicans" and "Independent Republicans." For the 34th House (1855-7), we use the final vote for Speaker (pro-Banks = Republican) to define coalitions. Parties that splintered from a major party – mainly the Democrats – are reunited with their parent parties for our analyses. For example, Van Buren Democrats and Jackson Democrats are coded as Democrats and Unionists are coded as Republicans. Both strict Independents (such as Bernard Sanders) and members of the more prominent third parties of American political history – including the Populists, Progressives and the American/Know-Nothing Party – are dropped from the analyses. Our party coding does not suggest that these labels signify two constant coalitions. Rather, we merely assume that the coalitions, as we identify them, are similar to the group of legislators with the same label in the preceding and succeeding years. Basically, we are interested in explaining how parties respond to their opponent and we expect the same type of behavior from the modern Democrats facing the Republicans as we do from the 19th century Democrats facing the Whigs.

– Figure 1 about here –

Figure 1 shows the yearly level of party unity in the U.S. House of Representatives (top panel) and U.S. Senate (bottom panel) for the Democrat and Republican series for the 1789 to 2000 period.

[8] Using sessions would give too much weight to special sessions. Studying the 106 Congresses would halve our sample and eliminate interesting within-Congress variation.

Noticeable is the recent trend in both chambers towards higher levels of unity for both parties. Several factors may account for this including a greater effort by party leadership to increase the costs to legislators of defecting (Cann 2004; Jacobson 2004). The most evident pattern in Figure 1 is the close relationship between the unity level of the parties in each chamber. In the Senate, the unity of the Republicans and Democrats never stray too far apart with the exception of three noticeable periods: the years prior to the 1824 election when the parties underwent unique transformations, the Civil War to Reconstruction period, and, to a lesser extent, the New Deal period of the 1930s. Thus, for most of its history, parties in the Senate have tracked the unity of each other rather closely. This pattern is also found in the House of Representatives. Figure 2 illustrates the Unity Gap, the yearly difference between the unity levels of the two parties, over time. While the Unity Gap may deviate from zero, it is a *mean reverting* process – it oscillates around zero as the two series tend back towards equilibrium. As we will discuss later, this pattern is typical of an action-reaction relationship (Sandberg 1978). The level of aggregation plays a role here as well. Parties may respond to each other sequentially, but the yearly aggregation makes such moves appear contemporaneous.

– Figure 2 about here –

To test the classic CPG claims we operationalize the concepts of ideological cohesion within parties and ideological distance between the parties. To do so we rely on DW-NOMINATE scores obtained from Keith Poole's website, http://voteview.uh.edu/dwnl.htm. These scores are commonly used as proxies for member ideology on two dimensions.[9] The 1st dimension is liberal-conservative which covers most votes. The 2nd deals mostly with slavery in the 19th century but has "no consistent pattern" for most of the 20th century (Poole and Rosenthal, 1997). We use the standard deviation of each NOMINATE dimension for each party and the absolute difference between the scores of the median members of each major party as measures of intra-party unity and inter-party differences, respectively. This leads to the

[9] Poole and Rosenthal (1997) and Londregan (2000) argue that any bias present in NOMINATE scores is minimized by pooling together a large sample of legislators. Bishin (2004) argues that "examination of general ideological trends in Congress are best described using NOMINATE scores."

creation of 6 time series for each of the House and Senate: *Democratic Ideological Cohesion – N. 1st*, *Democratic Ideological Cohesion – N. 2nd*, *Republican Ideological Cohesion – N. 1st*, *Republican Ideological Cohesion – N. 2nd*, *Ideological Distance – N. 1st*, and *Ideological Distance – N. 2nd*..[10] Figure 3 shows the movement in party cohesion scores for the House from 1789 to 2000 with higher values indicating greater ideological diversity. In the first panel we can see the decline of ideological diversity in both parties as the Democratic-Whig party system emerged in the 1820s. Also evident is the fairly steep decline since the 1930s in the ideological diversity of the two parties in the 2nd dimension score. Overall, these ideological variables are useful measures to test the key CPG conjectures.

– Figure 3 about here –

One drawback of using NOMINATE scores as measures of ideology is that we are using a variable based on roll-call votes to predict party unity, a measure also based on roll-call votes. This is especially troublesome to the extent that parties may be responsible for the observed stability in legislative voting (Poole and Rosenthal 1997, 227). Nonetheless, we agree with Cooper and Young (2002) that DW-NOMINATE scores may not accurately represent *party* voting behavior. For example, the authors find that differences in DW-NOMINATE party medians between Congresses may be unrelated to differences in unity over the same period.[11] Further, Cooper and Young explain that the methods used to compare member behavior over time often involve using data from previous Congresses to explain behavior in current periods, "with the result that votes in a particular Congress are discounted if they do not meet certain parameters. Hence, the full impact of party in structuring voting patterns in particular Congresses may not be captured (Schickler 2000)." Cooper and Young's thorough examination of measurement issues in examining party behavior supports our claim that DW-NOMINATE scores and measures of party voting use roll-call votes to measure two different phenomena and do not create any methodological dilemmas for our analysis.

[10] Scores are by Congress so that these series change only every other year.

[11] For example, a difference as small as 0.03 (i.e. comparing a House with a score of 0.950 to one with a score of 0.920), one can observe a difference in the party vote of 34.1 percent.

One last time series variable that we use measures the percentage of the chamber held by the Democrats, *Democratic Size*, based on opening day tallies obtained from clerkweb.house.gov and www.senate.gov. This serves as an important independent variable in our first set of analyses and then becomes a dependent variable in further analyses. Table 1 (below) presents descriptive statistics for our variables in both the House and Senate. Since these variables are time series, we next discuss the problem of stationarity and the use of ARFIMA models – our principal modeling technique.

Stationarity and Fractional Integration Methods

One of the basic challenges of using time-series data is that it may not be *stationary*. In a stationary series (not integrated or I(0)) events that move the series are quickly forgotten and the series is "mean reverting" or "short-memoried" with finite variance and covariance. Traditionally, time series analysts deal with stationarity as a dichotomy, so a non-stationary series (integrated, unit-root, or I(1)) is one where short-term changes accumulate and no level exists to which the series naturally reverts. A non-stationary series has "perfect memory," no consistent mean, and exhibits infinite variance and covariance.[12] Parameter estimation with non-stationary series are plagued by problems of spurious regression results, bias in standard errors and coefficients, and inflated R^2 statistics (Yule 1926; Granger and Newbold 1974; Lebo, Walker and Clarke 2000). Tests such as the Dickey-Fuller, Variance Ratio, and KPSS (Dickey and Fuller 1979, 1981; Diebold 1989; Kwiatkowski, *et al.* 1992) can be used to categorize a series, and, if determined to be stationary, it can be modeled in an autoregressive moving average (ARMA) format. If non-stationary, one should *difference* the variable and study the changes between time periods rather than the variable itself – that is, use ΔY_t instead of Y_t where $\Delta Y_t = Y_t - Y_{t-1}$.

Given this strict dichotomy, how are we to classify variables such as ours? If party unity is stationary, it quickly forgets short-term changes and reliably returns to its mean level. A problem is presented in that party-level variables are not truly single entities but are, in fact, measures created by

[12] Of course, these last two conditions are impossible to meet with bounded series. This does not affect the process of diagnosing series as tests of stationarity focus on the process of mean reversion.

aggregating the behavior of many individual legislators. Indeed, each party-level series is a mixture of a heterogeneous group of legislators. Each legislator's behavior evolves in its own way as each member reacts differently to events and to constituents and as the actions of each member in one year will depend to a varying degree on her actions in previous years. Also, party-level variables are not composed of the same legislators from one time point to the next – membership itself changes heterogeneously in each Congressional district and Senate seat.

Recent research in political science suggests stationarity should be viewed as a continuous concept (Box-Steffensmeier & Smith 1996, 1998; Lebo & Clarke 2000). If we conceive of a series such as party unity as $Y_{j,t}$ made up of legislators $j=1\ldots n$ each of whom exhibits unique autoregressive behavior, we have: $Y_{j,t} = \alpha_j Y_{j,t-1} + \varepsilon_t$ where $\alpha_j \sim \beta(0,1)$ and $\varepsilon_{j,t} \sim N(0,\sigma^2)$. Such a series is described by Granger (1980) as neither I(0) nor I(1), but as *fractionally* integrated (FI). This generalizes the traditional ARIMA (autoregressive integrated moving average) model into the ARFIMA model where the level of integration can be any real number. An FI series exhibits characteristics of both traditional series, having long– rather than short or perfect-memory – it will be mean reverting, but only over a much longer period than is the case for a stationary series.

The ARFIMA model for variable Y_t is:

$$(1-L)^d Y_t = \frac{\theta(L)}{\phi(L)}\varepsilon_t \qquad (1)$$

In (1) the "lag operator" is represented by L such that $(L)Y_t = Y_{t-1}$; ϕ and θ represent stationary autoregressive (AR) and moving average (MA) parameters, and ε_t is the error term, distributed normally $(0,\sigma^2)$. The key term is d, the fractional differencing parameter – (1) reverts to an ARMA process when d=0 and to an ARIMA process when d=1. Thus, the series must be differenced by d to render it I(0). Because so many variables are constructed by aggregating individuals, studies of political time series have found that most fall in the range $0 < d < 1$ (Box-Steffensmeier & Smith 1996; Lebo *et al.* 2000; Byers *et al.* 2000; Lebo and Moore 2003; Box-Steffensmeier, DeBoef, and Lin 2004). Where FI exists,

fractional differencing can be used to guard against threats to inference similar to those encountered when non-stationary data are left undifferenced.

Cointegration and Strategic Behavior

Time series data may also be *cointegrated* if multiple variables maintain an equilibrium relationship over time. Traditionally, cointegration is said to exist between variables if each are I(1) and if some linear combination of the series is I(0) (Banerjee, *et al.* 1993). As such, changes that move the series apart are quickly forgotten. The classic example is the relationship between income and consumption – though each is non-stationary, the distance between the two returns to some mean level through *error correction*.

As with integration, the concept of cointegration has been generalized to allow for the possibility of fractional cointegration (FCI) (Abadir & Taylor 1998; Box-Steffensmeier & Tomlinson 2000). FCI allows a more general approach where the original (or "parent") series may be I(d_v), where $0 < d_v < 1$, and the combination of variables need only have a level of integration, d', such that $d' < d_v$ for all v. Two or more FCI series are in equilibrium but error correction is itself a long memoried process – shocks that move the series apart dissipate but at a rate slower than would be the case with traditional cointegration.

Fractional cointegration is an especially useful tool for studying action-reaction processes (Lebo and Moore 2003). Fairly common in theories of behavior, action-reaction models explain the case where an actor responds with similar actions to either hostile or cooperative behavior from another actor (Sandberg 1978). Thus, each actor's choice is driven, at least in part, by the other's behavior. The mechanism is sometimes understood to be contemporaneous, but usually it is specified as a retrospective response. Iteration between the actors produces a long-run equilibrium and error-correction mechanisms (ECMs) can be used to estimate the return to balance following a shift (Engle and Granger 1987).

Error-correction is measured using the difference of lagged values of the series of interest. For example, if two series, Y_t and X_t, have the contemporary relationship captured by $Y_t = \alpha + \beta X_t + \varepsilon_t$, then the error-correction mechanism can be written as $ECM = Y_{t-1} - \alpha - \beta X_{t-1}$. We can then include the ECM in a model of Y_t: $Y_t = \alpha_0 + \beta_1 X_t + \beta_2 ECM + e_t$ and expect for an action-reaction model that β_2

will be negatively signed so that an increase in the distance between Y_t and X_t in one period will be corrected in the next as series return to equilibrium. FI techniques have been used to generalize the ECM to become a fractional ECM (FECM; Clarke and Lebo 2003). We expect our time series variables to be FI and use FI methods, fractional cointegration, and FECMs to estimate our models and the action-reaction process we hypothesize to be at work between the Democratic and Republican parties.

We test the level of stationarity of our variables before proceeding to our empirical results. Table 1 presents the results of stationarity tests as well as descriptive statistics. We use the Dickey-Fuller test, Augmented Dickey-Fuller, Variance Ratio Test, and KPSS tests (Dickey and Fuller 1979, 1981; Diebold 1989; Kwiatkowski *et al.* 1992).[13] Each test has a different null and alternative hypothesis and overall, gives us contradictory results and a very hazy picture of whether or not to difference our variables – a good indication that we should suspect fractional integration. This is especially so, given that our variables are created in precisely the manner that should produce FI (Box-Steffensmeier and Smith 1996).

– Table 1 about here –

Given these factors, we use two estimators to get precise values of the fractional differencing parameter, *d*, for our series and present these results in Table 2 (Robinson 1995; Sowell 1992). In nearly every case and for both estimators, FI seems an appropriate way to characterize our series. Our *t* statistics tell us we can be confident rejecting the hypothesis that d=0 for any of these series and for most we can also firmly reject the possibility that d=1. Thus, to avoid the bias and inefficiency caused by under- or over-differencing, we difference each series by its own value of *d* prior to using them in our second and third set of analyses below (Clarke and Lebo 2003).

– Table 2 about here –

Party Unity, Legislative Outcomes, and Electoral Success

Our first goal is to establish the plausibility of the SPG model's key premises. First, we pool together all votes from the 1st to 106th Congresses and estimate a random effects logit model to confirm that party unity increases legislative success. Second, we use a multivariate ARFIMA model with

[13] Also, our data are fractionally integrated when aggregated to either sessions or Congresses.

Democratic Size from 1789 to 2000 as the dependent variable to test whether party unity in voting carries an electoral cost while winning provides an electoral benefit.

Party Unity and Legislative Success

We begin by demonstrating that party unity has a strong effect on legislative outcomes. We use votes for the 1st through 106th Congress in each of the chambers of Congress. We exclude votes with disappearing quorums (i.e. strategic nonvoting by one party) as well as votes on veto overrides and constitutional amendments. We use as our dependent variable a dummy variable *Democratic Roll* scored 1 for a vote on which a majority of Democrats vote for the losing side while a majority of Republicans vote for the winning side and 0 otherwise. In the House, the Democrats have been rolled on 12,334 of 25,433 party votes (48.48%) and in the Senate they have been rolled on 12,964 of 24,360 party votes (53.22%). We expect that the likelihood of the Democrats being rolled will go down as *Democratic Unity* on the vote – measured as the % of Democrats on the side of the majority of Democrats – increases. We also expect that the probability of the Democrats being rolled will decline as *Democratic Size* – measured as the proportion of Democrats in the chamber – increases. We include *Republican Unity* as an explanatory variable and expect it to increase the likelihood of the Democrats being rolled. Also, a control variable is included for the presence of a *Democratic President,* which should help the Democrats avoid being rolled.

– Table 3 about here –

We perform logistic regressions for four sets of cases – Democratic minorities and majorities in each chamber – and present the results in Table 3. To account for the possibility of autocorrelated errors within-Congresses, we use robust standard errors created by clustering on each Congress (Everitt 1993). The strong *z* statistics for Democratic Unity and Democratic Size across all 4 models give strong support for the intuition that the party that votes together wins. Higher levels of Democratic unity make it far less likely that the Democrats will be on the losing end of a vote. For example, with a Senate Democratic Majority, moving Democratic Unity from 0.4 to 0.6 decreases the probability of the Democrats being rolled from 65% to 6%. Similar results occur for the size of the Democratic contingent where an increase

from a bare majority to 60% of the chamber decreases the likelihood of being rolled from 61% to 5%. Also, Republican Unity has a significant positive impact on the probability of the Democrats being rolled.

While these results are hardly surprising, an interesting nuance can be seen by comparing the Democratic Minority models with those of the Democratic Majority. In both chambers, when the Democrats are in the majority, it is their own level of unity that predominates. But when Democrats are in the minority, the unity of the Republicans has the biggest impact on the likelihood of the Democrats being rolled. Thus, parties attempt to manipulate their unity level to win votes and find they have much more leverage to do so when they are the majority party. Furthermore, parties have a strong interest in increasing their seat share beyond a minimum winning coalition. Larger parties are better able to win votes without endangering cross-pressured members. Winning votes, in turn, may help party members succeed in subsequent elections – the topic of our next analysis.

The Electoral Effects of Party Unity and Party Success

Here we use the change in the percentage of the House held by the Democrats from one Congress to the next as the dependent variable and test the consequences of Party Unity and party success, measured as the Democratic Win Rate. The results are shown in Table 4. We expected that increased party activity manifests itself as increased Unity which, in turn, will result in the loss of seats in the next election. We can see that, with a statistically significant coefficient of -0.26, this hypothesis is provisionally accepted. Each additional point of Unity costs the Democrats just over 0.25% in the size of their delegation (roughly 1.13 seats out of 435) in the next Congress – as party activity moves legislators away from the interests of constituents to those of party, the effects are felt at the ballot box. This effect weakens in the 20th century as incumbency becomes a stronger buffer between performance and accountability. On the other hand, the results support our expectation that legislative success leads to electoral success. Substantively, for each additional 10% of the votes the Democrats win, they will win a 0.76% greater share (3.4 seats) in the next Congress (+/- 0.73% with 95% confidence).

– Table 4 about here –

Three dummy control variables are present here and work as we should expect.[14] The Democrats increase their share of the House in midterm elections with a Republican president and lose seats in midterms with a Democratic president. Coattail effects account for a slight rise in the Democratic House share when a Democrat is elected president. Overall, this model explains 25% of the variance in Democratic House Share and model diagnostics indicate no problem of autocorrelation.

The relationship between partisan activity and electoral outcomes is even stronger in the Senate. We repeated our analysis for the Senate soon after the onset of direct elections, 1921 to 2000, and for 1931 to 2000. The results, shown in Table 5, confirm our expectations. Party unity has a negative relationship with the Democrats' share of the chamber in both models. For the period 1931 to 2000, a 1% increase in party unity is associated with a .593% decrease in chamber seat share (i.e. .593 seats in a 100-seat Senate). Winning contested votes, on the other hand, is associated with gaining seat share in both models. For 1931 to 2000, a 10% increase in the portion of party votes won by Democrats is correlated with a 1.43% gain in seat share.

– Table 5 about here –

In addition to control variables for midterm and Presidential swings, our Senate election analysis accounts for variation in the set of senators up for election each year. One effect of the Senate's staggered 6-year terms is that the party breakdown of the 33 or so senators up for reelection in a given year may not be representative of the party composition of the Senate. Consequently, shifts in party composition in one election may be due to exposure (the party balance of senators up for reelection) rather than partisan behavior. We control for this pattern by including the value of the dependent variable (again, *change* in party composition) from six years prior as a predictor variable. The negative coefficient shows that, not surprisingly, when a party is successful in an election year, the increased exposure costs them seats in the election six years later.

[14] While independent variables such as economic conditions and campaign financing may be useful here, it is impossible to collect data on them for enough Congresses to make our time series analyses useful.

Strategic Party Activity

We conclude with our analysis of party unity in voting. Specifically, we use Democratic party unity as our dependent variable and estimate the effects of party size, Republican party unity, previous gaps in party unity, and ideological homogeneity and interparty differences on Democratic unity.[15] Our primary goal is to determine if, controlling for the CPG conditions, strategic interaction influences levels of party activity.

Because we hypothesize that each party may seek to match the unity of the opposing party, we begin by testing for fractional cointegration. FCI would indicate a particularly close relationship where the strategic interaction of the parties moves each one's unity level to match the other. We show that in both the House and Senate this is exactly the case and that the two unity series, along with Democratic Size, form a fractionally cointegrated system.

Our tests of FCI are carried out in a two-step format (Clarke and Lebo 2003). For the Senate data, a linear combination of Democratic Unity (d=0.69, s.e.=.06), Republican Unity (d=0.70, s.e.=.06) and Democratic Size (d=0.91, s.e.=.06) was created by regressing Democratic Unity on the other two variables. The result was a residual series for which d=0.34 (s.e.=.06). Thus, combining the system of variables resulted in a series with a lower level of integration and the null hypothesis of no cointegration can be rejected. For the House data, Democratic Unity (d=0.69, s.e.=.06) was regressed on Republican Unity (d=0.78, s.e.=.06) and Democratic Size (d=0.75, s.e.=.06) creating a residual series where d=0.54 (s.e.=.06). Again, we can conclude that the variables form a fractionally cointegrating system. These results indicate that FECMs are appropriate to model error-correction and, after fractional differencing to render them I(0), we use the cointegrating regression residuals for this purpose.

– Tables 6 & 7 about here –

[15] An important test for the robustness of our findings was a reconfiguration of our data to allow analyses of majority versus minority party rather than Democrats versus Republicans. Our hypotheses of strategic interaction hold up equally well under this alternate specification. Likewise, our findings are robust to aggregating data by session or by Congress.

Tables 6 & 7 show the results of our time series models explaining Democratic Unity in the House and Senate, respectively. Included as independent variables are Republican Unity, the FECM (lagged one period), Democratic Size, a dummy variable for Democratic Majorities, ideological distances in the two NOMINATE dimensions, and Democratic Ideological Cohesion in the two dimensions. Lags of the dependent and independent variables are included where significant. Democratic Unity lagged one year for the House and two years for the Senate are significant and account for autoregression still present after differencing the dependent variable. Additionally, the Senate model includes the independent variable Republican Ideological Cohesion.[16] We explain the two models together.

First, there is very strong support for Hypotheses 1 and 2 – party unity depends a great deal on the level of the other party and parties act to reduce the differences in their unity levels. The first of these points is supported by the strongly significant coefficient for Republican Unity. In the House, a one unit increase in Republican Unity is met by a .51 increase in Democratic Unity (significant at the .001 level). In the Senate, the effect is somewhat lower, .337, but still significant well beyond the .001 level. The last column of Tables 6 and 7 show the effects on the dependent variable when each independent variable changes from its median to its 95th percentile value. Comparing the relative value of variables in the House, we see that *Republican Unity is the strongest determinant of Democrat Unity*. For the Senate, the effect of Republican Unity is not the strongest but does have a far larger impact than does the ideological distance between the parties or Democratic Ideological Cohesion in the 1st NOMINATE dimension.

We use FECMs to test Hypothesis 2 that the unity levels of the two parties are in a long-run equilibrium. The coefficients are correctly signed and statistically significant at the .001 level. Though error correction is strong in both chambers, it is noticeably stronger in the Senate. This is evident in two ways: first, the FECM in the Senate is closer to being strictly stationary (d= 0.43 versus d=0.54). Second, the FECM coefficient is more negative in the Senate (-0.539) than it is in the House (-0.328). This means

[16] This was tried in both models for both NOMINATE dimensions but only proved significant here. Substantively it means that Democratic Unity increases when Republican ideological cohesion increases – but only in the Senate and only with respect to the 2nd dimension.

that, when the two parties' unity move out of equilibrium, 54% of the Unity Gap is corrected in the first year in the Senate and 33% is corrected in the House.[17] Thus, there is a closer action-reaction relationship in the Senate than in the House – Senate parties react more quickly to their opposing party by meeting their level of unity. This may be due to the Senate's smaller size and the leeway afforded by longer terms – parties can more quickly adapt to the opposition.

As expected, Democratic Size has a large negative impact on Democratic Unity. This finding supports the claim that party activity is costly and decreases when larger party size makes it easier to win without trying. Here, the effect of Democratic Size is significant at the .001 level and is the second strongest independent variable in terms of effect size for both chambers (-9.44 in the Senate and -6.50 in the House). An interesting corollary is that in the Senate the Democrats are more unified when they are in the majority as indicated by the significance of the Democratic Majority dummy variable (t=3.57).

Our analysis finds only moderate support for the classic claims of the CPG model. We should expect that in years where the ideological distance between the parties grows the Democrats become more unified. For the House, however, this is not the case when using either NOMINATE dimension. In fact, the effect of Ideological Distance in the 2nd dimension is negative – significantly so if we were to use a two-tailed test. In the Senate, Ideological Distance fails to reach significance except for a two-year lagged effect of the 2nd dimension.[18]

Democratic Ideological Cohesion, as measured by the standard deviation of members' scores in each year, should be negatively related to Democratic Unity – that is, more dispersal leads to less unity. In the House, significant effects are found for Cohesion in the 2nd dimension of NOMINATE both contemporaneously and with a one year lag. In the Senate, the 2nd dimension is also significant as a contemporaneous effect and in fact has – just barely – the largest sized effect of the independent variables

[17] Subsequently 54% of the remaining Unity Gap in the Senate will be corrected in each following year until the series are back in equilibrium.

[18] The Senate's election of only a third of its members per Congress may be the cause of the lagged effect as it takes time for the changes in the membership of Senate delegations to affect their voting behavior.

in the model. The importance of the 2nd dimension is consistent with Rohde's (1991) account of the growing homogeneity of the Democratic party since 1970; as Southern districts realigned, the preferences of members became more homogenous within both parties. As for Cohesion in the 1st dimension, contemporaneous and significant effects are present in neither the House nor the Senate. The only significant effect it has in either chamber is in the Senate – and there, only with a three year lag. This suggests that the presence or absence of a significant cross-cutting cleavage affects party unity, but dispersion along the first dimension has an insignificant effect.

Our model diagnostics indicate that we have explained a substantial amount of the variance in Democratic Unity – 47% for both the House and Senate models. Our Durbin-Watson statistics indicate that the FI methods have done a good job of controlling for autocorrelation in the model and tests of the residuals indicate they are white noise. Thus, these models incorporate the important aspects of the CPG thesis and, beyond those hypotheses, find very strong support for including opposition party strength as a useful complement in explaining why parties get more or less unified over time.

Two concerns with this analysis merit discussion. First, Krehbiel (2000) suggests that party unity is an ambiguous measure of party influence, since variation in party unity over time may reflect the evolution of legislators' preferences as well as party pressure to stay in line. In our analysis, however, we include measures of preferences (NOMINATE scores, which may themselves reflect party activity) that are distinct from other explanatory variables. Clearly the variance we observe is not simply due to preference variation. Furthermore, observed preferences may themselves reflect a significant form of party effort: agenda manipulation. Krehbiel's analysis takes the set of roll call votes as given, and focuses on members' vote choices, but we consider the selection of bills and roll call votes to be the product of partisan agenda manipulation (in the House) or a contest between parties (in the Senate).

This leads to a second concern: what if the observed variation in party unity is actually the product of exogenous events and external actors that drive the legislative agenda? While parties certainly use discretion over the agenda to promote their own priorities, it also seems likely that Congressional action reflects the crises, trends, and lobbying efforts of American society. For example, during the 107th

Congress (2001-2002), the House's agenda reflected the Republican leadership's response to the September 2001 terrorist attacks as well as the desire to advance President Bush's agenda on education, energy policy, and tax cuts.

– Table 8 about here –

If the true cause of variation in party unity is exogenous events, they should affect the House and Senate in a similar fashion. Since the agenda is in neither model, its effect should be present in the respective error terms of the two models and – if the exogenous events hypothesis is correct – these errors should be highly correlated creating an efficiency problem in our estimates (Kmenta 1997). We tested for this possibility using a Seemingly Unrelated Regression procedure (SUR). We first estimate our models using a Classic Linear Regression method on our fractionally integrated data and then obtain the residuals for each model to create a variance-covariance matrix. Lastly, we employ Generalized Least Squares using the GLS (SUR) estimator $\beta = (X'\Omega^{-1}X)^{-1}(X'\Omega^{-1}y)$ where β and y are the stacked vectors of the two equations, X is formed by stacking X_i matrices augmented with columns of zeros for explanatory variables that appear in one but not both equations, and the estimated variance covariance matrix of residuals is calculated as $\widehat{\Omega} = \frac{1}{T}\sum_{t=1}^{T}\hat{u}_t\hat{u}_t'$ (Theil 1971; Kmenta 1997). The efficiency of estimates is improved by including $\widehat{\Omega}$, especially when the errors are highly correlated. The SUR results shown in Table 8 give some support for the agenda hypothesis, but not nearly enough to challenge our results above. At 0.345, the correlation between the error terms of the two models is not excessively high, while the results for the key variables of the Strategic Party Government model are still significant with little change in the coefficients or tests of significance. Some slight differences in these models are that the Democratic cohesion in the 2nd NOMINATE dimension is no longer significant in the House model and that the AR parameters in the Senate model as well as the Democratic cohesion in the 1st Dimension drop from significance. Thus, in these findings, there is some support for the claim that another process not accounted for by either model is driving Democratic party unity in both Houses of Congress but not

nearly enough to alter our belief in the utility of the Strategic Party Government model as an explanation of Congressional voting behavior.

Discussion

Our goal in this article is to advance the study of legislative parties both conceptually and empirically. We began with the ideas that parties seek to maximize seat share in Congress, and do so by allocating party activity to maximize their probability of winning votes. Activity, in this sense, includes the broad range of party efforts to influence outcomes: media relations, agenda-setting, collecting information, and buying votes. We assumed that party activity could sway outcomes, but it is costly. Therefore, each party allocates its effort based on their relative costs, benefits, and the anticipated choice of the opposing party. For specific combinations of preferences, parties will tend to mirror each other's choices so we should expect their level of effort to move in tandem.

We make several empirical contributions to our understanding of parties as we test the assumptions and predictions of this framework. We found that party unity in voting had the expected effects on legislative outcomes: Democratic unity increases the likelihood of Democratic success on votes while Republican unity decreases it. An increase of party size on the one hand decreases party unity but at the same time increases legislative success. This suggests that as parties increase their chamber share they find it easier to win without expending costly effort.

We also found the linkages we expected between legislative behavior and electoral outcomes. All else equal, party unity is costly for election-oriented parties since it costs seats. Each additional point of Unity costs the House Democrats just over 0.25% in the size of their delegation in the following Congress. For Senate Democrats this effect is even stronger with a one point increase in unity leading to the loss of nearly 0.6 Democratic Senators. On the other hand, for each additional 10% of the votes the House Democrats win, they will win a 0.76% greater share in the next Congress. For Senate Democrats the effect is again stronger where a similar boost is associated with an additional 1.4 Democratic Senators in the following Congress. This gives parties the incentive to pick their battles carefully.

Finally, we found that one of the primary sources of party unity is interaction – preferences and party size aside, parties seek to match each other's level of activity in the current year and previous periods. A 1% increase in Republican unity corresponded to a .51% increase in Democratic unity in the House and .34% increase in the Senate. This relationship is actually considerably closer than that since each 1% gap in Republican-Democratic unity is reduced by about one-third in each following year in the House, and by about 54% in each following year in the Senate. These results demonstrate the value of an interactive approach to studying legislative parties.

In the context of the last ten years of research on parties, this work makes two contributions to the question of party influence on Congress. First, it demonstrates that party unity does, in fact, influence outcomes and the voting behavior of other legislators controlling for preferences. Much more important, this work responds to Krehbiel's (1999) call for a theory that *explains* how and why parties influence outcomes. The "how" is the allocation of party resources—agenda-setting, media relations, information-gathering, and vote-buying—to sway outcomes. The "why" is that party members seek the policy and electoral rewards that party effort can obtain, and that party inaction may lose.

A more recent theme of parties research is, "why has the U.S. Congress polarized over the last three decades?" A full answer requires an understanding of how voters, campaigns, electoral rules, interest groups, Presidents, and events influence legislators' payoffs for winning and their expectations about the opposing party. Our contribution is that we highlight the role of interaction as a source of partisanship. Preferences and elections aside, one reason the Democrats are polarized is because the Republicans are, and, in part, the Republicans are polarized because the Democrats are. We also highlight the importance of party resources, e.g. party leader's control over the chamber agenda and committee assignments, the growth of whip systems, and the frequency of party meetings. These resources lower the costs of activity and thus make party cooperation cheaper. Indeed, it is noteworthy that the current polarized era was *preceded* by the growth of leadership resources (Rohde 1991).

Finally, while we have endeavored to test our model systematically, the scope of this work invites additional research. We ought to know more about the role of parties in the agenda-setting process, e.g.

which bills are selected for floor action and why. How, for example, does the set of bills on the agenda compare to the set of bills preferred by majority party members and/or the median member of the chamber? Second, our work invites further work on the development of party organizations. What motivates legislators to make internal (as opposed to chamber) party reforms that strengthen or weaken party leaders? How does the use of these resources, e.g. use of the whip organization, vary across issues and influence outcomes? We hope our work spurs additional work on these questions.

Appendix: A Normal Form Model of Strategic Party Government

We propose a simple formal model that builds on the logic of CPG theory. The actors are two parties, Republicans (R) and Democrats (D).[19] Each party seeks to maximize its share of the chamber. Parties R and D maximize their utility from policy outcomes α and activity cost τ ($\alpha \in \Re$; $0 \leq \tau \leq 1$). Here α represents the benefit to a party from achieving its desired policy outcome. Policy victories are rewarding to the extent they increase the utility of individual members and enhance the party's reputation. We focus on interesting scenarios by assuming that R and D prefer rival outcomes – one party wants an action to pass, the other prefers that it fails. Thus R and D fight for opposite outcomes yet α may be positive for both parties.

For each legislative decision, R and D choose simultaneously whether to be *passive* or *active* with full information about the game and each other's preferences. "Activity" means that a party invests enough effort to win in the absence of activity by the opposition party. To simplify presentation, τ is normalized so the cost for being passive is 0 and τ represents the relative costs of party activity. We assume that $\tau > 0$ for both parties, so party activity is always costly on balance. Also, τ will increase with the number of votes a party needs to sway in order to win and with higher electoral costs to members for voting against their constituencies. Further, τ will decrease with the popularity of the party position, the popularity of party leaders (e.g. the President) and the procedural and staff resources of party leaders. Finally, as discussed below, we further assume τ is bounded at 1 and directly related to each party's likelihood of victory or defeat.

In the first step in the game, nature chooses a probability (p) that the Democratic party will win a specific vote in the absence of party activity, $0 \leq p \leq 1$. Republicans win with probability $(1 - p)$. Substantively, we anticipate that p will vary with party size, the extent to which chamber rules favor the

[19] Treating parties as unitary actors is seemingly inconsistent with the intra-party disagreement we frequently observe in the U.S. Congress. It is more sensible to think of R and D as party leaders deciding how to allocate their time, or as collective party organizations that make decisions in formal meetings or implicitly avoid party activity by deciding not to meet.

majority party, and members' preferences (if any) prior to party activity. If both parties are passive, then the expected payoffs for D and R are, respectively, $p\alpha_D$ and $(1-p)\alpha_R$. If both parties are active, their activities offset and the policy payoffs are the same, minus a cost for activity, τ. However, if one party is active while the other is not, the acting party gets the full benefit of winning minus the cost of activity (α – τ) while the losing party gets nothing. Indifferent parties are passive by default.

Framed this way, τ is the cost of fighting nature, i.e. overcoming the combination of preferences and institutional advantages. We make this relationship explicit by making τ inversely related to each party's probability of winning, so that for Democrats: $\tau = 1 - p$ and for Republicans: $\tau = p$. Figure 1 shows the payoffs for D and R, respectively, for each combination of strategies.

Figure A1: The Party Activity Game

Payoff to (D,R) **D↓** **R→**	Passive	Active
Passive	$p\alpha_D,\ (1-p)\alpha_R$	$0,\ \alpha_R - \tau$
Active	$\alpha_D - \tau,\ 0$	$p\alpha_D - \tau,\ (1-p)\alpha_R - \tau$

Since we allow parties' payoffs to vary from decision to decision, there is no single equilibrium. This is a desirable property for a model of party activity since we observe variation in party activity in real life. Thus we present the solution in terms of which combination(s) of preferences sustain which strategies.

A critical threshold in the game is whether $\alpha > 1$. If not, then getting the whole value of α will not offset the costs of party activity, so that a party with $\alpha \leq 1$ will have a strategy of passivity even if the opposing party is active.

Proposition 1: A necessary condition for party activity is $\alpha > 1$.

> **Proof**: Assume not, e.g. Party D is active when $\alpha = 1$. The maximum payoff for D's activity, $\alpha - \tau$, occurs if R is passive. Since parties are passive if indifferent, A necessary condition for activity to be a best response to a passive R party is $(\alpha - \tau) > p\alpha$.

Substituting $(1 - p)$ for τ, this inequality becomes $\alpha - 1 + p > p\alpha$

Which simplifies to $\alpha > 1$. Since $\alpha = 1$, this is a contradiction. Any $\alpha < 1$ leads to the same result.

This generates conditions under which (passive, passive), (active, passive), and (passive, active) are equilibria, as summarized in Figure 2.

Figure A2: Equilibria for the Party Activity Game

Equilibria for (D,R) **D↓** **R→**	$\alpha_R \leq 1$	$\alpha_R > 1$
$\alpha_D \leq 1$	Passive, Passive	Passive, Active
$\alpha_D > 1$	Active, Passive	D: Active if: $\alpha_D > \frac{1-p}{p}$ R: Active if: $\alpha_R > \frac{p}{1-p}$

What happens if $\alpha > 1$ for both D and R? There is no question that D and R would prefer to be active if the opposing party is passive. What is in doubt is whether D and R would choose to be active knowing that the other party will be active too. For D, activity is a dominant strategy if $p\alpha_D - \tau > 0$, while R will always prefer activity if $(1-p)\alpha_R - \tau > 0$. These constraints are stated in terms of p in the upper right cell of Figure 2. Note that when $\alpha > 1$ for both R and D at least one party must prefer to be active since either $\frac{1-p}{p}$ or $\frac{p}{1-p}$ must be less than 1. Also, this condition may be met for both parties, in which case we get the traditional prisoner's dilemma result: both actors choose activity, yielding worse outcomes than if they could agree to be passive.

What do we learn from this? First, as we might expect, preferences matter. The more a party gains from winning, the more willing it is to be active. Second, however, the role of preferences is

mediated by interaction. In the strategic party model, parties may choose activity only if they expect the other party to be passive; they may also choose activity only because the opposing party will be active.

References

Abadir, Karim M. and A. M. Robert Taylor. 1998. "On the Definitions of (Co-)Integration." Unpublished manuscript. York: University of York.

Aldrich, John H. and David W. Rohde. 2001. "The Logic of Conditional Party Government." in *Congress Reconsidered*, 7th edition, ed. Lawrence C. Dodd and Bruce I. Oppenheimer. Washington, D.C.: Congressional Quarterly.

Ansolabehere, Stephen, James M. Snyder, Jr., and Charles Stewart III. 2001. "The Effects of Party and Preferences on Congressional Roll-Call Voting." *Legislative Studies Quarterly* XXVI:533-72.

Banerjee, A., J. Dolado, J. W. Galbraith, and D. F. Hendry. 1993. *Cointegration, Error Correction, and the Econometric Analysis of Non-Stationary Data*. New York: Oxford University Press.

Bishin, Benjamin. 2004. "The Validity and Accuracy of Commonly used Ideology Measures: A Consumer's Guide." *Unpublished Manuscript*.

Brady, David W., Hahrie Han, and Doug McAdam. 2003. "Party Polarization in the Post WWII Era: A Two Period Electoral Interpretation." Paper presented at the annual meeting of the American Political Science Association.

Box-Steffensmeier, Janet M. and Renee M. Smith. 1996. "The Dynamic of Aggregate Partisanship." *American Political Science Review* 90:567-80.

Box-Steffensmeier, Janet M. and Renee M. Smith. 1998. "Investigating Political Dynamics Using Fractional Integration Methods." *American Journal of Political Science* 42:661-89.

Box-Steffensmeier, Janet M. and Andrew R. Tomlinson. 2000. "Fractional Integration Methods in Political Science." *Electoral Studies* 19:63-76.

Box-Steffensmeier, Janet M., Suzanna DeBoef, and Tse-Min Lin 2004. "The Dynamics of the Partisan Gender Gap." *American Political Science Review* 98:515-528.

Brady, David, Joseph Cooper, and Patricia Hurley. 1979. "The Decline of Party Voting in the U.S. House of Representatives." *Legislative Studies Quarterly* 4: 381-407.

Byers, David, James Davidson and David Peel. 2000. "The Dynamics of Aggregate Political Popularity: Evidence from Eight Countries." *Electoral Studies* 19:49-62.

Campbell, Andrea C. Gary W. Cox, and Mathew D. McCubbins. 2002. "Agenda Power in the U.S. Senate, 1877 to 1989," In *Party, Process, and Political Change in Congress*. ed. David W. Brady and Mathew D. McCubbins, pp.146-165. Stanford: Stanford University Press.

Canes-Wrone, Brandice, David W. Brady and John F. Cogan. 2002. "Out of Step, Out of Office: Electoral Accountability and House Members' Voting." *American Political Science Review* 96:127-140.

Cann, Damon. 2004. "Leadership Investment in Legislative Loyalty in the U.S. House: A Dynamic Panel Analysis. Working Paper, University of Georgia.

Carson, Jamie L. 2003. "Strategic Interaction and Candidate Competition in U.S. House Elections: Empirical Applications of Probit and Strategic Probit Models." *Political Analysis*. 11(4):368-380.

Carson, Jamie L., Michael H. Crespin, Charles J. Finocchiaro, and David W. Rohde. 2004. "Linking Congressional Districts Across Time: Redistricting and Party Polarization in Congress." Paper presented at the annual meeting of the American Political Science Association.

Clarke, Harold D. and Matthew J. Lebo. 2003. "Fractional (Co)integration and Governing Party Support in Britain," *British Journal of Political Science*, 33: 283-301

Cooper, Joseph, and David W. Brady. 1981. "Institutional Context and Leadership Style: The House from Cannon to Rayburn." *American Political Science Review* 75:411-25.

Cooper, Joseph & Garry Young. 2002. "Party and Preference in Congressional Decision Making: Roll Call Voting in the House of Representatives, 1889-1999." In *Party, Process, and Political Change in Congress*. ed. David W. Brady and Mathew D. McCubbins, pp. 64-106. Stanford: Stanford University Press.

Covington, Cary R. and Andrew A. Bargen. 2004. "Comparing Floor-Dominated and Party-Dominated Explanations of Policy Change in the House of Representatives." *Journal of Politics* 4:1069-1088.

Cox, Gary W. and Mathew D. McCubbins. 1993. *Legislative Leviathan: Party Government in the House*. Berkley and Los Angeles: University of California Press.

Cox, Gary W. and Mathew D. McCubbins. 2002. "Agenda Power in the U.S. House of Representatives." In *Party, Process, and Political Change in Congress*. ed. David W. Brady and Mathew D. McCubbins, pp. 107-145. Stanford: Stanford University Press.

Cox, Gary W. and Mathew D. McCubbins. Not dated. *Setting the Agenda: Responsible Party Government in the US House of Representatives*. Manuscript dated April 2004.

Cox, Gary W. and Keith T. Poole. 2002. "On Measuring Partisanship in Roll Call Voting: The U.S. House of Representatives 1877-1999." *American Journal of Political Science* 46: 477-489.

Dickey, D.A. & W. Fuller. 1979. "Distribution of the Estimators for Autoregressive Time Series with a Unit Root." *Journal of the American Statistical Association* 84:427-431.

Dickey, D.A. & W. Fuller. 1981. "Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root." *Econometrica* 49:1057-1072.

Diebold, F. X. 1989. "Random Walks Versus Fractional Integration: Power Comparisons of Scalar and Joint Tests of the Variance-Time Function." In *Advances in Econometric Modeling*, edited by R. Raj. New York, NY: Kluwer Academic Publishers.

Engle, Robert F., and Clive W.J. Granger. 1987. "Cointegration and Error Correction: Representation, Estimation, and Testing." *Econometrica* 55:251-276.

Everitt, Brian S. 1993. *Cluster Analysis*. London: Edward Arnold.

Fenno, Richard F. 1973. *Congressmen in Committees*. Boston: Little, Brown.

Froman, Lewis A. and Randall B. Ripley. 1965. "Conditions for Party Leadership: The Case of the House Democrats." *The American Political Science Review* 59:52-63.

Granger, C.W.J. & P. Newbold. 1974. "Spurious Regression in Econometrics." Journal of Econometrics 2:111-120.

Granger, Clive W. J. 1980. "Long Memory Relationships and the Aggregation of Dynamic Models." *Journal of Econometrics* 14:227-38.

Gravely, Bob. 1998. "Bill On Island's Political Status Skirts Trouble in House." *Congressional Quarterly Weekly Report* (March 7).

Hasbrouck, Paul DeWitt. 1927. *Party Government in the House of Representatives*. New York: MacMillan Co.

Hurley, Patricia A. and Rick K. Wilson. 1989. "Partisan Voting Patterns in the U.S. Senate, 1877-1986." *Legislative Studies Quarterly* XIV:225-250.

Inter-university Consortium for Political and Social Research and Congressional Quarterly, Inc. 1998. *UNITED STATES CONGRESSIONAL ROLL CALL VOTING RECORDS, 1789-1996 (ICPSR 0004)*. Ann Arbor, MI: ICPSR.

Jacobson, Gary C. 2004. "Explaining the Ideological Polarization of the Congressional Parties Since the 1970s," presented at the Annual Meeting of the Midwest Political Science Association, Chicago, April 15-18, 2004.

James, Scott. 2000. *Presidents, Parties, and the State*. Oxford University Press.

Kmenta, Jan. 1997. *Elements of Econometrics, 2nd Edition*. Ann Arbor: University of Michigan Press.

Krehbiel, Keith. 1993. "Where's the Party?" *British Journal of Political Science* 23:235-66.

Krehbiel, Keith. 1999. "Paradoxes of Parties in Congress." *Legislative Studies Quarterly* XXIV:31-64.

Krehbiel, Keith. 2000. "Party Discipline and Measures of Partisanship." *American Journal of Political Science* 44: 212-227.

Kwiatkowski, Denis, Peter C.B. Phillips, Peter Schmidt and Yongcheol Shin. 1992. "Testing the Null Hypothesis of Stationarity Against the Alternative of a Unit Root." *Journal of Econometrics* 54:159-78.

Lebo, Matthew J. and Harold D. Clarke. 2000. "Modelling Memory and Volatility: Recent Advances in the Analysis of Political Time Series." *Electoral Studies* 19:1-8.

Lebo, Matthew J., Robert W. Walker and Harold D. Clarke. 2000. "You Must Remember This: Dealing with Long Memory in Political Analyses." *Electoral Studies* 19:31-48.

Lebo, Matthew J. and Will H. Moore. 2003. "Dynamic Foreign Policy." *Journal of Conflict Resolution* 74:13-32.

Link, Arthur S. 1956. *Wilson: The New Freedom*. Princeton: Princeton University Press.

Londregan, John B. 2000. “Estimating Legislators Preferred Points.” *Political Analysis* 8:35-56.

Lowry, William R. and Charles R. Shipan. 2002. “Party Differentiation in Congress.” *Legislative Studies Quarterly* 27: 33-60.

Marshall, Bryan W. 2002. "Explaining the Role of Restrictive Rules in the Postreform House." *Legislative Studies Quarterly*, 27: 61-85.

Martis, Kenneth C. 1989. *The Historical Atlas of Political Parties in the United States Congress: 1789-1989.* New York: Macmillan.

Patterson, Samuel C. and Gregory A. Caldeira. 1988. “Party Voting in the United States Congress.” *British Journal of Political Science* 18:111-131.

Poole, Keith T. Updated Jan. 26, 2005. Data Download Section. Accessed October 12, 2004. http://www.voteview.com/dwnl.htm.

Poole, Keith T. and Howard Rosenthal. 1997. *Congress: A Political Economic History of Roll Call Voting*. New York: Oxford University Press.

Roberts, Jason M., and Steven S. Smith. 2003. “Procedural Contexts, Party Strategy, and Conditional Party Government in the U.S. House of Representatives, 1971-2000.” *American Journal of Political Science* 474:305-317.

Robinson, P.M. 1995. "Gaussian Semiparametric Estimation of Long Range Dependence." *Annals of Statistics* 23:1630-61.

Rohde, David. W. 1991. *Parties and Leaders in the Post-reform House*. Chicago: University of Chicago Press.

Sandberg, I.W. 1978. “On the Mathematical Theory of Social Processes Characterized by Weak Reciprocity.” *Journal of Peace Science* 3:1–30.

Schickler, Eric. 2000. “Institutional Change in the House of Representatives, 1867-1998: A Test of Partisan and Ideological Balance Models.” *American Political Science Review* 94: 285-286.

Shaw, Daron R. 1999. “The Method Behind the Madness: Presidential Electoral College Strategies, 1988-1996.” *Journal of Politics* 61:893-913.

Sinclair, Barbara. 1994. “House Special Rules and the Institutional Design Controversy.” *Legislative Studies Quarterly* 19: 477-494.

Sinclair, Barbara. 1995. *Legislators, Leaders and Lawmaking*. Baltimore: Johns Hopkins University Press.

Sinclair, Barbara. 2002. “Do Parties Matter?” In *Party, Process, and Political Change in Congress*. ed. David W. Brady and Mathew D. McCubbins, pp. 36-63. Stanford: Stanford University Press.

Smith, Steven S. and Gerald Gamm. 2001. “The Dynamics of Party Government in Congress.” in *Congress Reconsidered*, 7th edition, ed. Lawrence C. Dodd and Bruce I. Oppenheimer. Washington, D.C.: Congressional Quarterly.

Snyder Jr., James M. and Tim Groseclose. 2000. "Estimating Party Influence in Congressional Roll-Call Voting." *American Journal of Political Science* 44 (April): 187-205.

Sowell, Fallaw B. 1992. "Maximum Likelihood Estimation of Stationary Univariate Fractionally Integrated Time Series Models." *Journal of Econometrics* 53:165-88.

Theriault, Sean M. 2004. "The Case of the Vanishing Moderates: Party Polarization in the Modern Congress." Unpublished Manuscript, University of Texas-Austin.

Wilson, Woodrow. 1885. *Congressional Government*. Boston: Houghton Mifflin.

Yule, G. U. 1926. "Why Do We Sometimes Get Nonsense Correlations Between Time-Series? A Study in the Sampling and the Nature of Time Series (with Discussion)." *Journal of the Royal Statistical Society* 89:1-64.

Table 1 Yearly Data Descriptive Statistics and Summary of Stationarity Diagnostic Tests

HOUSE

Time Period	Test Variable	DF/ADF	Var. Ratio	KPSS (η_τ)	KPSS (η_μ)	Diagnosis	Mean	Stan. Dev.	Min.	Max.
Yearly	Democratic Unity	Reject d=1	Reject d=1	Trend	Reject d=0	1>d>0	61.86	13.70	21.10	88.38
Yearly	Republican Unity	Reject d=1	Reject d=1	No trend	d=0	d=0	67.25	11.63	31.53	92.94
Yearly	Democratic Size	Reject d=1	Reject d=1	No trend	d=0	d=0	54.94	12.60	10.40	92.00
Year/Cong.	Dem. Ideological Cohesion N1	Reject d=1	d=1	No trend	d=0	1>d≥0	0.20	0.07	0.08	0.43
Year/Cong.	Dem. Ideological Cohesion N2	Reject d=1	Reject d=1	Trend	d=0	1>d≥0	0.52	0.09	0.34	0.80
Year/Cong.	Rep. Ideological Cohesion N1	Reject d=1	Reject d=1	No trend	Reject d=0	1>d>0	0.20	0.06	0.09	0.51
Year/Cong.	Rep. Ideological Cohesion N2	d=1	Reject d=1	No trend	Reject d=0	1≥d>0	0.51	0.10	0.15	0.74
Year/Cong.	Ideological Distance N1	d=1	d=1	No trend	d=0	1≥d≥0	0.72	0.15	0.21	1.01
Year/Cong.	Ideological Distance N2	d=1	Reject d=1	No trend	Reject d=0	1≥d>0	0.30	0.25	0.00	1.14
Year/Cong.	Democratic Win Rate	Reject d=1	Reject d=1	No trend	d=0	d=0	0.52	0.21	0.10	0.95
Congress	Democratic Unity	Reject d=1	Reject d=1	Trend	Reject d=0	1>d>0	62.51	12.96	22.48	83.93
Congress	Republican Unity	Reject d=1	Reject d=1	No trend	d=0	1>d≥0	67.62	11.45	33.87	90.54
Congress	Democratic Size	Reject d=1	Reject d=1	No trend	d=0	d=0	54.94	12.59	10.40	92.00

SENATE

Time Period	Test Variable	DF/ADF	Var. Ratio	KPSS (η_τ)	KPSS (η_μ)	Diagnosis	Mean	Stan. Dev.	Min.	Max.
Yearly	Democratic Unity	Reject d=1	Reject d=1	No trend	d=0	d=0	60.61	12.29	30.06	87.41
Yearly	Republican Unity	Reject d=1	Reject d=1	Trend	d=0	1>d≥0	63.80	11.83	30.21	95.06
Yearly	Democratic Size	Reject d=1	d=1	No trend	d=0	1≥d≥0	52.26	13.42	16.20	89.60
Year/Cong.	Dem. Ideological Cohesion N1	Reject d=1	Reject d=1	No trend	d=0	d=0	0.19	0.06	0.11	0.41
Year/Cong.	Dem. Ideological Cohesion N2	d=1	Reject d=1	Trend	Reject d=0	1≥d>0	0.50	0.06	0.37	0.66
Year/Cong.	Rep. Ideological Cohesion N1	Reject d=1	Reject d=1	Trend	d=0	1>d≥0	0.18	0.06	0.09	0.46
Year/Cong.	Rep. Ideological Cohesion N2	d=1	Reject d=1	No trend	d=0	1≥d≥0	0.43	0.07	0.27	0.60
Year/Cong.	Ideological Distance N1	Reject d=1	Reject d=1	No trend	Reject d=0	1>d>0	0.73	0.17	0.17	1.07
Year/Cong.	Ideological Distance N2	d=1	Reject d=1	No trend	Reject d=0	1≥d>0	0.39	0.26	0.00	1.02

Table 2 Estimates of *d* obtained from (0,*d*,0) models

Point Estimates of the Order of Integration (*d*)		Robinson's (1995) Gaussian Semiparametric Estimator			Sowell's (1992) Exact Maximum Likelihood Estimate		
HOUSE							
Time Period	Variable Name	Estimate of *d*[a]	T-value for d=0	T-value for d=1	Estimate of *d*[b]	T-value for d=0	T-value for d=1
Yearly	Democratic Unity	0.69 (0.0589)	11.71	5.26	0.54 (0.527)	10.29	8.69
Yearly	Republican Unity	0.78 (0.0589)	13.24	3.73	0.64 (0.0524)	12.20	6.88
Yearly	Democratic Size	0.75 (0.0589)	12.73	4.24	0.82 (0.0717)	11.48	2.47
Year/Congress	Dem. Ideological Cohesion N1	1.17 (0.0781)	14.98	2.18	1.13 (0.0998)	11.27	1.26
Year/Congress	Dem. Ideological Cohesion N2	0.03 (0.0781)	0.384	12.42	0.04 (0.0846)	0.44	11.38
Year/Congress	Rep. Ideological Cohesion N1	0.90 (0.0781)	11.53	1.28	0.79 (0.1014)	7.83	2.03
Year/Congress	Rep. Ideological Cohesion N2	0.75 (0.0781)	9.60	3.20	0.72 (0.0924)	7.82	3.00
Year/Congress	Ideological Distance N1	1.06 (0.0781)	13.57	0.77	0.99 (0.0595)	16.79	0.01
Year/Congress	Ideological Distance N2	0.78 (0.0781)	9.99	2.82	0.77 (0.0612)	12.64	3.70
Year/Congress	Democratic Win Rate	0.54 (0.0781)	6.92	5.89	0.49 (0.0950)	5.21	5.32
Congress	Democratic Unity	0.81 (0.0781)	10.37	2.43	0.77 (0.1002)	7.65	2.33
Congress	Republican Unity	0.88 (0.0781)	11.27	1.54	0.75 (0.0919)	8.18	2.70
Congress	Democratic Size	0.54 (0.0781)	6.92	5.89	0.58 (0.1001)	5.78	4.21
SENATE							
Time Period	Variable Name	Estimate of *d*[a]	T-value for d=0	T-value for d=1	Estimate for *d*[b]	T-value for d=0	T-value for d=1
Yearly	Democratic Unity	0.69 (0.0589)	11.71	5.26	0.57 (0.0537)	10.62	8.00
Yearly	Republican Unity	0.70 (0.0589)	11.88	5.09	0.62 (0.0505)	12.26	7.54
Yearly	Democratic Size	0.91 (0.0589)	15.44	1.53	0.92 (0.0661)	13.89	1.24
Year/Congress	Dem. Ideological Cohesion N1	1.03 (0.0781)	13.19	0.38	1.01 (0.1030)	9.78	0.07
Year/Congress	Dem. Ideological Cohesion N2	0.74 (0.0781)	9.48	3.33	0.69 (0.0878)	7.85	3.54
Year/Congress	Rep. Ideological Cohesion N1	0.98 (0.0781)	12.55	0.26	0.81 (0.0832)	9.71	2.31
Year/Congress	Rep. Ideological Cohesion N2	0.62 (0.0781)	7.94	4.87	0.63 (0.0833)	7.51	4.49
Year/Congress	Ideological Distance N1	0.99 (0.0781)	12.68	0.13	0.95 (0.0633)	14.99	0.81
Year/Congress	Ideological Distance N2	0.73 (0.0781)	9.35	3.46	0.86 (0.0673)	12.78	2.08

[a] Available as RGSER.SRC for RATS from the Estima web site (http://www.estima.com). These estimates come from the estimation of (0, 1+d, 0) on first differenced data due the constrained parameter space ($-1.5 < d < .5$). Thus, the results actually reflect the estimate of $d+1$.

[b] Available as ARF500.SRC from the Estima web site. These estimates follow the same differencing process as do Robinson's.

Table 3 Predictors of Democratic Defeats on Party Votes – Pooled Logit Models by Party Status, House & Senate, 1789-2000

	SENATE		*HOUSE*	
Independent Variable	Democratic Majority Coefficient (SE)† (*z*)	Democratic Minority Coefficient (SE)† (*z*)	Democratic Majority Coefficient (SE)† (*z*)	Democratic Minority Coefficient (SE)† (*z*)
Constant	19.91 (2.37) 8.39***	12.65 (1.86) 6.79***	22.29 (3.14) 7.09***	11.15 (1.59) 7.02***
Democrat Unity	-17.21 (1.46) -11.82***	-10.54 (1.57) -6.77***	-21.53 (2.63) -8.18***	-12.63 (1.46) -8.67***
Republican Unity	13.63 (1.30) 10.46***	14.90 (1.62) 9.19***	15.36 (1.67) 9.18***	16.44 (1.97) 8.33***
Democratic Size	-0.35 (0.04) -8.02***	-0.29 (0.04) -7.84***	-0.38 (0.05) -7.07***	-0.24 (0.04) -6.21***
Democratic President	-0.97 (0.53) -1.81*	0.37 (0.43) 0.86	0.01 (0.29) 0.05	-0.71 (0.61) -1.16
N	13013	11347	15245	10198
Prob > χ^2	.00	.00	.00	.00
Pseudo R^2	0.72	0.67	0.77	0.67
Log Pseudo-Likelihood	-2315.12	-2069.45	-2213.56	-1926.73

* Significant at .05 level, ** Significant at .01 level, *** Significant at .001 level (all one-tailed tests).
† Robust standard errors are clustered by Congress.

Table 4 The Electoral Effects of Party Unity and Party Success – ARFIMA Models of the U.S. House of Representatives†

Independent Variable	Coefficient (s.e.)	t
Constant	-1.912 (1.848)	-1.03
Democratic Party Unity in Previous Congress	-0.260 (0.117)	-2.21*
Democratic Win Rate in Previous Congress	7.660 (4.458)	1.72*
Midterm Election with GOP President	9.948 (2.641)	3.77**
Midterm Election with Dem. President	-6.879 (2.431)	-2.83**
Presidential Election with Democratic Win	4.857 (2.506)	1.94*

† The dependent variable is the percentage of the House won by Democrats (differenced by 0.54).
* Significant at .05 level (one-tailed test).
** Significant at .01 level (one-tailed test).

Durbin Watson Statistic	1.91
Centered R^2	0.25
S.E.E.	9.13
S.S.R.	8176.57
Significance of F (5,98)	0.00
N=104	

Table 5 The Electoral Effects of Party Unity and Party Success – ARFIMA Models of the U.S. Senate†

Independent Variable	67^{th} – 106^{th} Congress Coefficient (s.e.)	t	72^{nd} – 106^{th} Congress Coefficient (s.e.)	t
Constant	-4.222 (1.591)	-2.65**	-2.185 (1.928)	-1.13
Democratic Size$_{t-3}$	-0.317 (0.128)	-2.49**	-0.350 (0.137)	-2.56**
Democratic Party Unity in Previous Congress	-0.346 (0.163)	-2.12*	-0.593 (0.193)	-3.07**
Democratic Win Rate in Previous Congress	10.837 (3.897)	2.78**	14.347 (4.284)	3.35**
Midterm Election with GOP President	8.880 (2.311)	3.84***	6.862 (2.597)	2.64**
Midterm Election with Dem. President	-8.072 (2.388)	-3.38***	-8.081 (2.369)	-3.41***
Presidential Election with Democratic Win	9.713 (2.395)	4.06***	7.723 (2.671)	2.89**
Durbin Watson Statistic	1.81		1.90	
Centered R^2	0.55		0.56	
S.E.E.	4.81		4.72	
S.S.R.	763.97		624.45	
Significance of F	0.00 (6,33)		0.00 (6,28)	
N	40		35	

† The dependent variable is the percentage of the Senate won by Democrats (differenced by 0.78).
* Significant at .05 level, ** Significant at .01 level, *** Significant at .001 level (all one-tailed tests).

Table 6 Strategic Party Voting in the House 1789-2000 – ARFIMA Models of Yearly Data

Independent Variable	Differenced by $(1-B)^d$, d=	Coefficient (s.e.)	t	Effect Size†
Constant		0.585 (0.479)	1.22	---
Democrat Unity$_{t-2}$	0.69	0.166 (0.054)	3.05**	---
Republican Unity	0.78	0.510 (0.062)	8.18***	9.88
(DemUnity – RepUnity)$_{t-1}$ (ECM)	0.54	-0.328 (0.065)	-5.07***	---
Democratic Size	0.75	-0.311 (0.086)	-3.61***	-6.50
Democratic Majority	1.00	-0.221 (1.650)	-0.13	---
Ideological Distance N. 1st	1.10	-2.614 (11.204)	-0.23	-0.55
Ideological Distance N. 2nd	0.69	-9.909 (4.883)	-2.03	-5.70
Dem. Ideological Cohesion NOMINATE 1	1.12	-32.971 (27.443)	-1.20	-4.25
Dem. Ideological Cohesion NOMINATE 2	0.86	-37.868 (18.645)	-2.03*	-4.94
Dem. Ideological Cohesion NOMINATE 2$_{t-1}$	0.86	-73.187 (16.537)	-4.43***	---
Durbin Watson Statistic	1.92			
Centered R^2	0.47			
S.E.E.	6.82			
S.S.R.	9201.82			

N=209

† Effect size is the change in Party Unity as the given independent variable goes from its median value to its 95th percentile value.

* Significant at .05 level, ** Significant at .01 level, *** Significant at .001 level (all one-tailed tests).

Table 7 Strategic Party Voting in the Senate 1789-2000 – ARFIMA Models of Yearly Data

Independent Variable	Differenced by $(1-B)^d$, d=	Coefficient (s.e.)	t	Effect Size
Constant		0.615 (0.469)	1.31	---
Democrat Unity $_{t-1}$	0.69	0.148 (0.085)	1.74*	---
Democrat Unity $_{t-2}$	0.69	0.129 (0.057)	2.25*	---
Republican Unity	0.70	0.337 (0.056)	5.58***	6.04
DemUnity – RepUnity$_{t-1}$ (ECM)	0.43	-0.539 (0.100)	-5.40***	---
Democratic Size	0.91	-0.370 (0.083)	-4.45***	-9.44
Democratic Majority	1.00	5.715 (1.603)	3.57***	---
Ideological Distance N. 1st	0.95	7.058 (7.859)	0.90	1.30
Ideological Distance N. 1$^{st}_{t-2}$	0.95	20.695 (7.870)	2.63**	---
Ideological Distance N. 2nd	0.80	2.246 (4.278)	0.53	1.14
Dem. Ideological Cohesion NOMINATE 1	1.12	0.256 (21.211)	0.01	0.37
Dem. Ideological Cohesion NOMINATE 1$_{t-3}$	1.12	-54.423 (19.886)	-2.74**	---
Dem. Ideological Cohesion NOMINATE 2	0.81	-48.456 (12.020)	-4.03***	-9.49
Rep. Ideological Cohesion NOMINATE 2	0.77	22.732 (10.186)	2.23*	2.72
Durbin Watson Statistic	2.09			
Centered R^2	0.47			
S.E.E.	6.49			
S.S.R.	8159.28			

N=208

† Effect size is the change in Party Unity as the given independent variable goes from its median value to its 95th percentile value.

* Significant at .05 level, ** Significant at .01 level, *** Significant at .001 level (all one-tailed tests).

Table 8 SUR ARFIMA Models of Agenda Hypothesis Yearly Data in the House & Senate 1789-2000

Independent Variable	House-SUR Coefficient (t)	Senate-SUR Coefficient (t)
Constant	0.657 (1.41)	0.648 (1.44)
Democrat Unity$_{t-1}$	----	0.126 (1.62)
Democrat Unity$_{t-2}$	0.142(2.79)**	0.078 (1.48)
Republican Unity	0.447 (7.71)***	0.314 (6.08)***
(DemUnity – RepUnity)$_{t-1}$ (ECM)	-0.332 (5.44)***	-0.517 (5.68)***
Democratic Size	-0.312 (3.89)***	-0.373 (4.86)***
Democratic Majority	-1.02 (0.67)	3.862 (2.65)**
Ideological Distance N. 1st	-4.381 (0.42)	8.049 (1.10)
Ideological Distance N. 1st $_{t-2}$	----	23.71 (3.30)***
Ideological Distance N. 2nd	-7.472 (1.66)	1.75 (0.45)
Dem. Ideological Cohesion NOMINATE 1	-41.441 (1.61)	-1.147 (0.06)
Dem. Ideological Cohesion NOMINATE 1 $_{t-3}$	----	-33.604 (1.86)
Dem. Ideological Cohesion NOMINATE 2	-30.452 (1.76)	-46.29 (4.21)***
Dem. Ideological Cohesion NOMINATE 2$_{t-1}$	-71.420 (4.56)***	----
Rep. Ideological Cohesion NOMINATE 2	----	20.60 (2.22)*
Durbin Watson Statistic	1.93	2.08
Centered R^2	0.46	0.46
S.E.E.	6.47	6.16
S.S.R.	9294.37	8303.13

N=208; * Significant at .05 level, ** Significant at .01 level, *** Significant at .001 level (all one-tailed tests).

Figure 1: Democratic and Republican Party Voting Unity

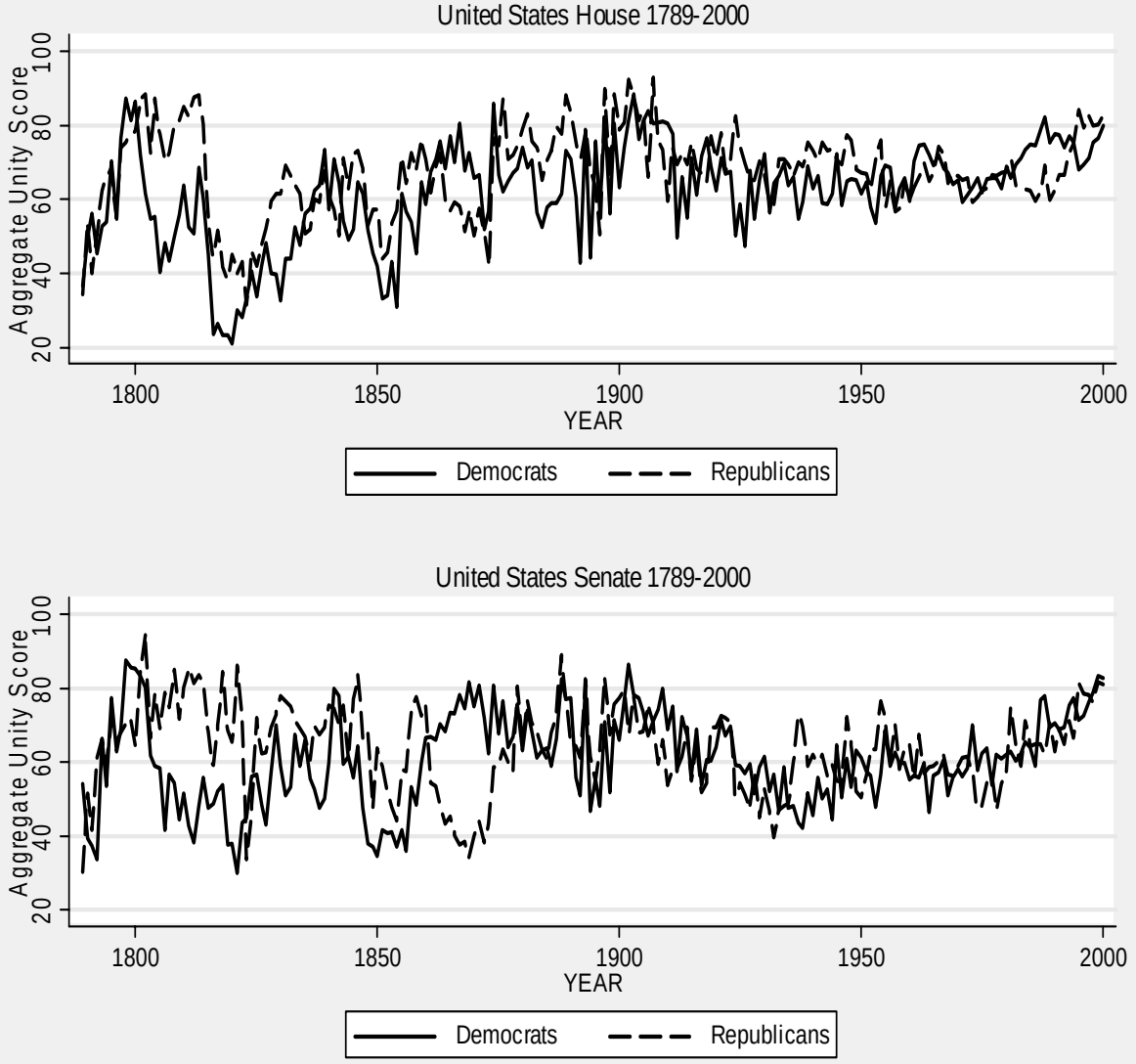

Figure 2: Democratic Unity Minus Republican Unity

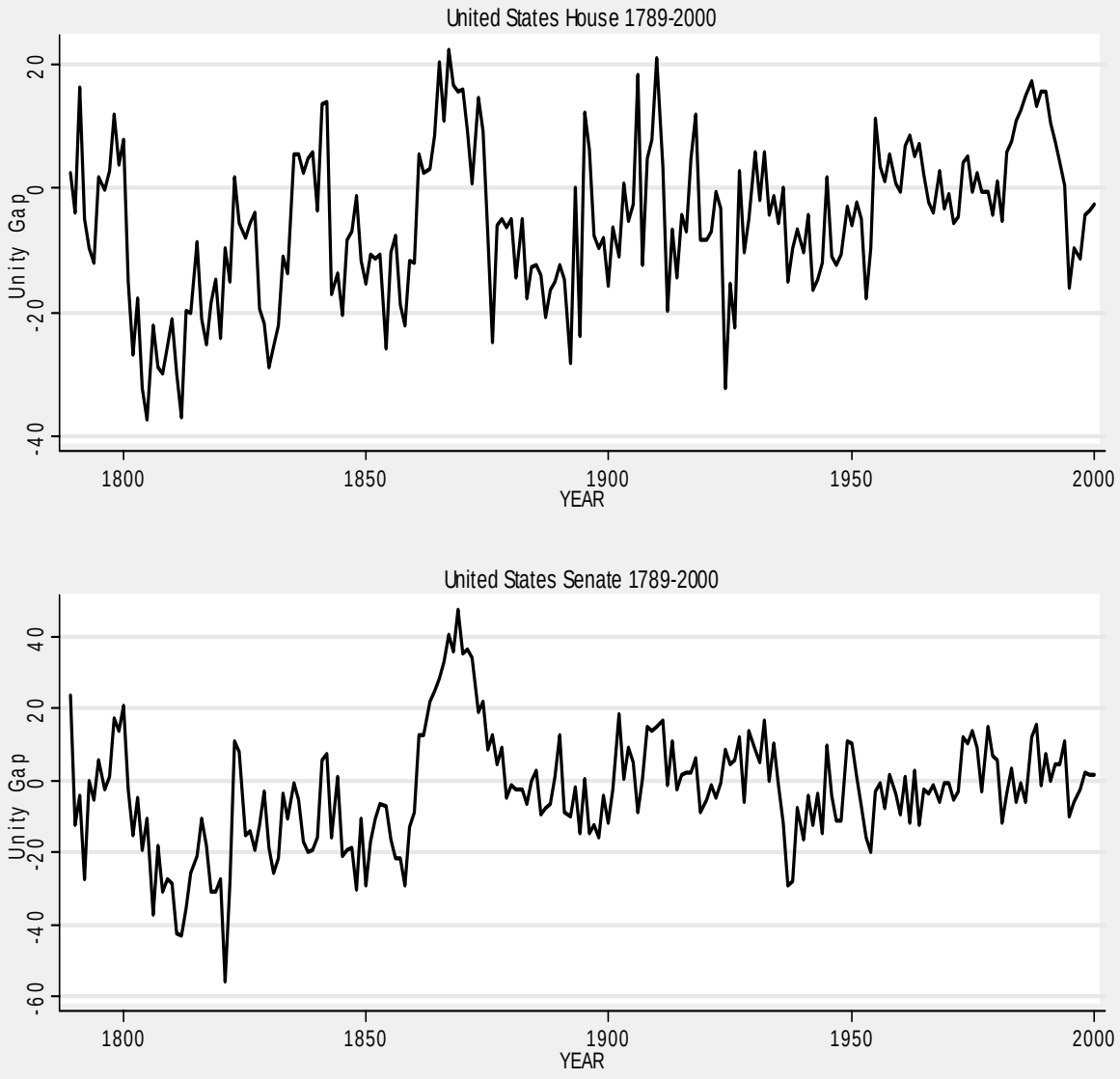

Figure 3: Party Ideological Cohesion in the House