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Do Electoral Institutions Affect Party Discipline?, or:
Nominations Rule!
Comparative Evidence on the Impact of Nomination Procedures on Party Discipline

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Abstract

In this paper I use a cross-section of 60 political parties in democratic polities to offer evidence of the impact of candidate selection procedures on legislative discipline. More centralized nomination rules will generate more disciplined parties in the 'governing stage' so long as the party label remains valuable. I also show that contrary to expectations, ideological diversity or distance is a minor element explaining lack of legislative discipline. While constitutional system (presidential vs. parliamentary government) remains a significant part of the explanation, the impact of nominations is similar for parties operating across both types of systems. Finally, and contrary to well-established theoretical work, electoral features such as an open list system appear to have no effect—and if they have any effect it is in the *wrong* direction—on legislative cohesiveness once we control for internal party institutions and constitutional system.

Introduction

This paper develops and tests a series of hypotheses that stem from looking at political parties as collective instruments that help politicians solve coordination problems inherent to their activity. According to this view, parties serve the main purpose of diminishing the costs that individuals ambitious for public office face in trying to get elected and governing. This coordination task implies regulating and enforcing deals between candidates and leaders for mutual benefit. Party discipline is here studied as the phenomenon resulting from the ability of leaders to impose costs on members in exchange for an increased probability of furthering their political careers. It implies the willingness of a party member to make a choice he would not have made in the absence of some induction by the leadership. Specifically, this paper argues that nomination procedures are the key regulatory institution that determines leaders' ability to make credible commitments in supporting legislators' bids for re-nomination and reelection in exchange for favorable votes in the legislature. It offers systematic evidence in favor of this view, it corroborates additional complementary hypotheses, and puts into question some long-standing tenets about the influence of electoral laws on party discipline. I proceed by developing the argument behind my hypotheses and setting it up for empirical testing, along with some additional hypotheses. I then present evidence from two cross sections of 60 political parties in the 1950s and 1960s and discuss the implications of the results. I conclude with a summary of arguments.

The Argument

John Aldrich has convincingly argued that political parties serve the main purpose of solving the collective dilemmas politicians face in carrying out their every-day duties (Aldrich 1995). Once we take into account the problem of excess supply of potential candidates for valuable offices, the social choice problem inherent to legislating, and the collective action needed to turn out the vote,

parties become quite useful instruments in diminishing the costs politicians must absorb in order to have a productive and long-lived professional career. This paper is about how a specific set of party institutions (nomination procedures) allows two types of party members (leaders and legislators/candidates) to engage in mutually beneficial interactions, oriented towards the solution of these problems. I here argue that nomination institutions allow leaders to extract discipline from party politicians in exchange for credible commitments to deliver party resources that increase the probability of nomination in the next electoral round. This contract helps leaders produce coherent policy, and permits legislators to diminish the net cost of complying with their requests.

This argument stems from two simple premises. First, I assume that parties are in control of a set of resources that are valuable for the legislator/manifest candidate (Schlesinger 1994), such as the endorsement that comes with usage of the party label in itself, but also money, activist support, specialized information and the like (Aldrich 1995). Second, I assume that party leaders[1] are given the task of coordinating legislators to vote in favor of the party's position in governance.[2] Finally, I postulate that the centralization of nomination procedures determines the extent to which party leaders can alter a legislator's probability of future career success by regulating the market for electorally relevant inputs. More centralized procedures will supply leaders with preferential access to key resources for members, and thus with a potentially better position to coordinate behavior in the relevant governing body.

In short, this paper makes the *non-provocative* argument that legislators will be more likely to behave in a disciplined way if they have good reason to believe that this will enhance their

[1] For the sake of simplicity, I assume that if there exists a division between party leadership inside and outside of parliament, the latter are a perfect agent of the former.

[2] I will be using the term legislator for simplicity and because the data actually refers to such; however, the logic of the argument applies to all types of party members who have a governing stake and wish to continue their electoral careers. Governors in a federal state are another notable example. See Filippov, Ordeshook and Shvetshova (1997).

political career. The implications of such an argument, however, are anything but trivial. First, it parts from systemic hypotheses that stress the uniqueness of presidential vs. parliamentary regimes (Linz and Valenzuela 1994), by placing both types of parties within the same basic analytical structure. Second, it moves beyond the predominant literature on internal party institutions as bureaucracies and organizations (Lawson 1994), and focuses more closely on those incentive structures—like nomination rules—with a strong impact on career-seeking politicians. Finally, and perhaps most importantly, it sets the analysis of the impact of *electoral institutions* on party discipline in the proper perspective: only those institutions that shift the 'balance of access' of candidates and leaders to valuable inputs for a successful electoral career are considered relevant explanatory variables. Current categorizations of electoral laws fail to take into account this feature and thus fail as empirical predictors of party discipline.

My main argument is summarized in the following hypothesis:

H1) Party discipline will be an increasing function of the interaction between centralization of candidate selection processes and the value of the party label,

with the null hypothesis being that the impact of the interaction term between candidate selection centralization and party label value on discipline is zero. Recall that the argument made above about the impact of nomination institutions is contingent upon the value of the resources available to party leaders, which explains the conditional nature of the hypothesis. The strictly interactive nature of the hypothesis also implies that candidate selection centralization should have no effect on legislative cohesiveness when value of the party label is very low, and that the same should be true when party label is very valuable but centralization is zero. More generally, this formulation of discipline as an investment in a larger probability of success in nomination and election, is

complemented by the following hypothesis which specifies the differential cost of such investment according to legislators' distinct policy positions:

> *H2) Party discipline will be decreasing in ideological distance between the manifest candidate(s) and the party leader.*

This idea complements the underlying assumption about parties being formed by a set of politicians whose policy preferences—while possibly quite similar—are not identical (Downs 1957, Aldrich 1995, Schlesinger 1994). It simply states that the larger the distance between a legislator and the policy espoused by the party, the more costly voting in favor of the party position is going to be. The null hypothesis for the ideological variable is that it has no effect on party discipline.

In short, assuming politicians and leaders do not share the same ideal policy point, discipline is understood as the cost candidates pay for the production of policy, and the larger the ideological distance, the higher this cost will be. From candidates' perspective, however, this cost will be more bearable the more it influences his or her personal chances of being reelected. Party leaders can only credibly commit to support a candidate's prospects for re-nomination (and reelection) if they exert some influence over the selection and campaign process, and their rewards will be more valuable for reelection the stronger the party is. This perspective on discipline is generally consistent with critics of partisan theories of the US Congress—most notably Krehbiel (1993 and 2000)—whose work emphasizes the differences between discipline and cohesion, the former resulting from effective leadership influence, and the latter from plain preference homogeneity. However, one need not exaggerate the implications of such a claim. While it is certainly true that the greater similarity between legislators' preferences, the less costly it will be to produce coherent voting blocs, it is also the case that there will *always* be a cost to be paid by legislators whose ideal point will not be the exact outcome of any given vote.

Needless to say, the hypotheses presented here are not utterly original. Among others, Carey (1996) and Mainwaring and Shugart (1998) theorize on the importance of party control over nominations as an explanatory variable for party discipline.[3] More generally, party discipline has long been an issue of concern for political scientists (Ostrogorski 1922, Schattschneider 1942, Ozbudun 1970), and a large number of recent studies have emphasized its importance and inquired about its causes (a non-exhaustive list includes Carey and Shugart 1995, Cain et. al. 1987, Bowler et. al.1999, Samuels 1999, Mainwaring 1991, Ames 1995a, Krehbiel 2000, Snyder and Groseclose 2000, Diermeier and Feddersen 1998, Cox and McCubbins 1993).

Three elements, I contend, make the current effort a wholly novel contribution. I here argue in favor of looking at nomination rules as institutions endogenous to the political party, as opposed to those set outside the confines of party life. While it is true that most parties regulate their internal selection procedures with little interference or help from formal state authorities,[4] most theoretical accounts of their influence overlook this point and study them as part of the "macro" institutional environment in which parties play.[5] By using the political party and not the country or electoral system as the unit of analysis, this study portrays nomination rules as institutions whose causes and consequences lie at the level in which politicians' strategies to maximize their career ambitions are carried out. Second, nomination rules *per se*, and institutions more generally, need not be taken as sweeping restrictions with a uniform influence on actors' strategies. The theory outlined in this

[3] Likewise, in a couple of quite interesting papers, Gerber and Morton (1998a, 1998b) explore the impact of variation in types of nomination institutions on electoral coalition formation and on representation in the context of the 50 United States.

[4] Notable exceptions being the US and Finland. On the latter see Sundberg (1997).

[5] Mainwaring and Shugart's (1997) edited volume is a case in point. Likewise, Samuels' (1999) elegant account of the way in which Brazil's PT produces coherent legislative behavior falls short of expounding on the general point implicit in his argument, namely that nomination rules are instruments endogenous to *every* political party on almost *every* electoral system in the world.

paper sees nomination rules as instruments that influence behavior *only* when the inputs they regulate access to are actually worthy for manifest candidates. Third, this paper presents cross-country, cross-party evidence to substantiate its claims, and further controls for the main alternative explanations about party discipline in the literature. As I mention above, these have to do with the impact that exogenous institutions and party organization might have on party cohesion. On the one hand, we expect parliamentary parties to be more disciplined than their presidentialist counterparts, due to institutions like the confidence vote which raise the stakes of lack of discipline for members of parliament (Diermeier and Feddersen, 1998). Also, and closely following Carey and Shugart's (1995) influential article, it has been argued that certain configurations of electoral laws determine "incentives to cultivate a personal vote,"[6] and therefore lack of party discipline. Finally, the research controls for organizational theories of parties, which would argue that bureaucratic tendencies determine parties' ability to behave in a disciplined way (Michels 1962, Panebianco 1988).

Testing these hypotheses enables us to appraise the general validity of a theory of parties that puts politicians and their career advancement at its core (Aldrich 1995, Schlesinger1994), and it establishes the critical importance of nomination rules as an explanatory variable. It also sets other theoretical frameworks in their proper perspective when analyzing party politics. It provides a sound empirical basis on which to further explore the role and consequences of nomination rules for party life.

Data Analysis

In order to test the aforementioned hypotheses, I analyze two cross sections of political parties in the period between 1950 and 1962 (Janda 1979, 1980). To the best of my knowledge, this is the first

[6] Carey and Shugart (1995) develop a complete ranking of electoral formulas according to four variables: Extent to which parties have control over the ballot, number and type of votes electors can cast, type of vote pooling for allocation of seats and district magnitude.

empirical effort at explaining party discipline using data from a large cross section that includes several countries and dozens of parties.[7] To be sure, the comparative evidence on party discipline is wanting, and that is why most previous studies are based on longitudinal analysis of individual countries or parties, or on 'small *n*' comparisons.[8] This sensible strategy, however, usually impedes testing *simultaneously* for the relevant hypotheses, because there is limited variation in *all* the relevant explanatory variables. The data used in this research overcomes that obstacle.

Proper testing of the hypotheses described in my model requires measures of party discipline, candidate selection centralization, the value of the party label and of ideological distance. Moreover, the alternative hypotheses to be considered require knowledge of regime type (presidential vs. parliamentary), degree of party bureaucratization and certain features of the electoral system (mainly the electoral formula and the average district magnitude).

For this study, variables specific to political parties come in their entirety from Kenneth Janda's (1979, 1980) International Comparative Political Parties Project (ICPPP), to which I added the country-specific variables (regime type and electoral system).[9] It should be noted up front that each observation in the Janda database includes information from a long time period, from 1950 to 1956 for the first cohort and from 1956 to 1962 for the second. In other words, each of the ICPPP observations is an aggregate measure of the variable during the period of interest.[10]

[7] This same database has been used for purposes different than the one explored in this study, see for example: Harmel et. al. (1995), Janda and Colman (1998).

[8] Both Bowler et. al. (1999) and Carey (1996) discuss these problems.

[9] The data for the electoral variables of countries was corroborated using the following sources: Carey and Shugart (1995), Carstairs (1980), Hand, Georgel and Sasse (1979), Lakeman (1974), Lijphart (1984, 1994), Mainwaring and Scully (1995), Mejía (1996), Taagepera and Shugart (1989).

[10] For a full discussion of the methodology used for constructing the data, see Janda (1980). Appendix B includes a description of the explanatory variables used from their study.

Variable Description. As a direct measure of the dependent variable, party discipline, I use ICPPP's indicator of legislative cohesiveness *(cohesion)*, which is an average of the absolute differences between the percentage of members of each party voting Aye to those voting Nay. Its maximum theoretical value is one—when every member of the party votes in the same direction—and its smallest is zero—when a vote splits a party exactly by half.[11]

The measure for our most important explanatory variable is also straightforward. It captures the extent to which a party features centralized control of valuable resources for its candidates, and is constructed as an interaction term between the degree of centralization of candidate selection procedures (ICPPP's centralization of 'parliamentary' candidate selection *candcent*) times the value of the party label. By value of the party label I mean the extent to which a party is a valuable vehicle for fulfilling a politicians' career ambitions. A good indicator of this is certainly the electoral strength of a party, which can be proxied in at least two ways using ICPPP's data. First is by using the average number of seats a party holds in the legislature, under the assumption that all else being equal, a party with more seats will be more likely to be valuable for a candidate who is seeking to win a seat. However, this measure is highly correlated with some features of the institutional system that we might also want to control for, such as regime type and electoral law (Taagepera and Shugart 1989). Thus, it might be better to proxy the value of a party's label with the average percentage of votes a party gets in parliamentary/legislative elections.[12] To save the suspense for other parts of the paper, in running the statistical models the interaction term based on

[11] While some of the observations were directly calculated, some were estimated independently by two country experts. The possibility of estimation problems due to measurement error is discussed at length in Appendix A.

[12] Cain, Ferejohn and Fiorina's seminal work would suggest using district level data to estimate the value of the party label for each individual legislator/candidate. Unfortunately, there is currently no database containing the necessary information for a large enough set of countries and parties to test for the hypotheses presented here. The results presented in this paper, on the other hand, lend much promise to such an endeavor.

the "seats" measure produces less efficient estimates, but the substantive findings remain unchanged. Therefore I only report results based on the 'votes' coding of the interaction term (heretofore called *Valuectrl*), which is expected to have a positive effect on *cohesion*.[13]

Two venues can be used in order to test for the impact of ideological distance on party discipline. One looks at the social bases of party support and makes the argument that the more concentrated they are on one single group of the population, the more ideologically cohesive the party will be, i.e. the less distance there will be between leader and typical member; a set of variables from the ICPPP addresses this question. The other one looks directly upon elite behavior and identifies the existence of visible *ideological* factions within the party –distinct from those based on personalistic, strategic or tactical differences amongst party members. Such factions would suggest higher ideological distance on average between party leader and members. Both operationalizations of this explanatory variable were explored,[14] and neither turned out to be significant, so I decided to keep the one in which measurement error was smallest and that needed less theoretical assumptions to be used: ideological factions *(ideofac)*, which are hypothesized in my model to have a negative effect on discipline.[15] Regime type *(regime)* was coded 0 for

[13] A third way of thinking about this variable—which I argue is wrong—is through the percentage of years in which the party was part of the cabinet or government coalition, which is also coded in ICPPP *(cabinet)*. This measure however, is correlated with parliamentary systems, and its use would assume more about politicians than my model does, namely that they care about their chances of being in the government coalition rather than simply of being reelected. The *cabinet* variable, on the other hand, will be incorporated in model specifications in order to control for the effect of 'governance' in political parties' discipline.

[14] Janda's data contains a series of indicators on 'concentration of electoral support' across different social groups (1979, 1980). However, information is quite scarce on cleavages such as ethnicity, religious group and socioeconomic status or 'class.' The educational dimension was the most amenable to empirical testing, but none turned out to yield any significant results.

[15] For a debate stressing the difficulty of obtaining individual-level measures of ideological distance see Snyder and Groseclose (2000) and Krehbiel (2000).

presidential regimes (including Ecuador, Uruguay and the United States),[16] and 1 for parliamentary regimes, which should turn out to be significantly more disciplined. Bureaucratic-centered theories of parties would hypothesize that parties which have a larger number of national organs which are more "institutionalized" would be able to exert more control over their members (Michels 1962). Janda's data includes a corresponding measure of national articulation *(articul)*, which is hypothesized to have a positive impact on discipline. It is well known that the 50s and 60s are often thought of as the 'Golden Era of Parties' (Harmel et. al, 1995). This is taken to mean the time in which party bureaucracies were most important and pervasive in society, and would perhaps tilt the balance of explanatory power in favor of such bureaucratic-type variables. In other words, given the contemporary prevalence of 'catch-all' parties (Kirchheimer, 1966) and media-based campaigns and elections, we should expect to see smaller effects of bureaucratic variables today than what will be observed in the data.

An additional control variable was introduced in the model, to ensure proper specification. This variable *(cabinet)* is measured as the percentage of years in which the party belonged to the governing coalition. There is no specific expectation about the effect of this variable on *cohesion*. Some arguments would have members of government being more disciplined, since their stakes are the highest should the government fall (Diermeier and Feddersen, 1998). Alternatively, however, discipline is more valuable for opposition parties due to the beneficial status that majority leaders enjoy. Banning relatively uncommon minority governments, in order to win a simple majority vote in the legislature, opposition parties would need to have full discipline plus be aided by some lack

[16] While neither Ecuador nor Uruguay featured consolidated democratic regimes at the time, they cannot be disregarded as being completely undemocratic: parties competed for power and election results were respected. Polity III's coding of Ecuador reflects this feature (4 for the whole period, compared to Mexico's zero (a system featuring authoritarian elections throughout), while the US obtains the highest possible score of 10) (Jaggers and Gurr 1996).

of discipline on the government's side. On the contrary, majority coalitions can typically be able to afford some lack of discipline and still pass legislation. Moreover, if opposition parties have strong position-taking incentives, breaches to discipline can be potentially more costly, since they will signal that the policy proposed by the government is not entirely deleterious. To be sure, these position-taking incentives to be fully cohesive on the part of the government are somewhat diminished by the fact that policy is perhaps the best signaling device for an incumbent coalition.

A few additional variables were used to perform a set of robustness checks, but their theoretical and statistical relevance is limited. I turn to them in some detail below.

Model Specification I: Multiple Imputation.[17] Attrition was a major problem faced when trying to account for the effect of a number of variables on party discipline. The total number of parties studied in Janda's project is 158. However, only a subset of these was useful for our purposes. In order to be included in the sub-sample under study, parties had to comply with two general criteria. First, their main goal would have to be to compete for power through electoral means, and second, they would have to be operating in a democratic system. Both features were coded by the ICPPP team and corroborated using alternative sources (Janda 1979 and 1980, Jaggers and Gurr 1996). What this selection process does is purge revolutionary movements or hegemonic parties from the database –as well as democratic parties operating in authoritarian systems, which are not the object of study.[18] This decreased our sample to 68 cases, 8 of which had virtually no information on any of the relevant variables and thus had to be dropped.[19] Alas, the final sample ended with 60 political

[17] Appendix A discusses at length the possibility of measurement error in the data, which was not a substantial problem.

[18] An additional case dropped from the models was the Liberal Party of Austria, which is coded by Janda's team as being virtually banned by the government during both time periods. I found it to behave as an outlier in estimation, plus the logic of selection also applies to it, since it is not operating in a democratic environment, even if their counterparts in the country are.

[19] These parties came mostly from newly independent or highly undeveloped countries.

parties from 18 countries.[20] However, even within this limited sample of parties from mostly developed democratic regimes, there was a significant amount of missing information. Tables I. a, and I. b show the extent to which missing data was present for each of the periods under study.

[Tables I. a, b here]

Two alternative ways of dealing with missing data are pursued in this study: list-wise deletion and multiple imputation (King, Honaker, Joseph and Scheve 2000). List-wise deletion (performing statistical analyses using only those observations for which we have complete information, given the set of variables used) is the one most often used in applied research, but is preferable only when we have strong reason to believe that missingness in the data is generated at random, that is, that the probability of an observed unit to have missing information is a stochastic phenomenon. However, this is generally not the case, and Janda's data is not the exception that confirms the rule.[21] Thus, multiple imputation uses the information from the existing data in the study to generate a series of databases which are identical in the observed information, and have imputed values for each of the cells that were originally empty. One can easily use these new databases to perform statistical analyses and obtain summary inferences from them.[22] In research designs as the present one, in which we quickly run out of degrees of freedom, it is imperative to use all the information available in the data, and multiple imputation allows one to do so.[23] Although there are fundamental reasons to argue in favor of the multiple imputation method (King, Honaker, Joseph and Scheve 2000), I present results based upon both strategies for the sake of full disclosure and to support the

[20] Australia, Austria, Canada, Denmark, Ecuador, France, the Federal Republic of Germany, Greece, Iceland, India, Ireland, Luxembourg, Netherlands, New Zealand, Sweden, United Kingdom, United States and Uruguay.

[21] For example, the more developed the country, the better information we have.

[22] Using Honaker et. al.'s software (1999).

[23] In particular, the additional number of observations which we can include in our inferences with multiple imputation is around a third of those used with list-wise deletion.

robustness of the substantive findings of the paper. In other words, while it is important to use multiple imputation to avoid bias in our inferences, both its results and those derived from list-wise deletion support the substantive claims made here.

Model Specification II: use of Tobit. The dependent variable on our study, legislative cohesiveness, has two characteristics that prevent the use of simple linear techniques. First, its values are limited by design between 0 and 1. Second, it is very skewed to the left, with a large concentration of values on the 'very high discipline' end. The best estimation technique for a dependent variable with this distribution is a tobit model (Kmenta 1997, Greene 1993, Judge et. al. 1985). OLS estimates of a dependent variable with an upper limit will tend to be biased 'downwards,' that is, the coefficient of explanatory variables with a true positive or negative effect will be artificially pulled towards zero. Assuming normality in the residuals, tobit yields unbiased and consistent estimates of the true linear effects of a set of variables on a truncated dependent variable (Judge et. al. 1985, Kennedy 1996).

The following section is organized as follows: I first offer the results of my basic model and add some control variables for multiply imputed data sets. After discussing these findings, I contrast these results with those obtained using tobit on a list-wise deleted data set to illustrate the robustness of the results and the validity of the general statistical model. I also show the results obtained using robust regression for multiply imputed data sets to illustrate the slight bias caused by the method, and to offer additional substantial interpretation based upon these more conservative estimates. I conclude by offering two alternative tests of Shugart and Carey's (1995) hypotheses regarding the impact of electoral laws on party discipline.

Main Results and Robustness Checks. Table II below contains six different model specifications, each of them performed for both time periods in multiply imputed data sets. Odd Roman-numbered

models (I, III, V) are performed on all parties, while even Roman-numbered models (II, IV, VI) are performed on parliamentary parties only. Given the arguments above, I expect the coefficients of *Valuectrl* (centralization of candidate selection times electoral strength of the party), *articul* (articulation of national party) and *regime* (parliamentary system) to be positive and significant, and *ideofac* (presence and strength of ideological factions) to be negative and significant. There are no specific expectations about the coefficient of *cabinet* (percentage of years party was present in the government coalition). I also include a control variable, *leadcent*, which measures the degree of centralization of party leader selection, and is expected to have a positive and significant effect on discipline for similar reasons to those explaining the impact of *Valuectrl* on discipline.

[Table II here]

The most important finding to emphasize is the positive and significant coefficients *Valuectrl* consistently gets. For every model, its statistical significance is above the 90% confidence level, and with two exceptions it is well above 95%. The magnitude of the coefficient is also worthy of notice; while it is not surprisingly—given the relatively small *n*—sensitive to different specifications, it remains well within the range of 0.05 to 0.07, both for parliamentary parties only and for the total sample of parliamentary and presidential parties. Below I illustrate how this translates into specific predictions about the value of the dependent variable. Suffice to say for now that the evidence confirms the theoretical expectation about the impact of candidate selection procedures on party discipline, and that the findings are robust to a set of alternative specifications and controls for two different time periods in the data. The interaction between centralization of nomination rules and electoral strength of the party is a positive and significant predictor of party discipline in the legislature.

The second result that deserves to be underscored is the large and always significant coefficient obtained by the *regime* variable. Models I, III and V show that parliamentary parties are more disciplined than presidential ones. The fact that the rest of the coefficients remain similar when the sample is restricted to the parliamentary parties suggests that the impact of the other variables is the same across both types of regimes, and that regime type is just acting as an increase in the intercept of the model. That is, party discipline is a common political phenomenon once you take into account the different 'starting points' from where parliamentary and presidential systems begin. Perhaps surprisingly, the impact of national articulation *(articul)* while always significant, is substantively small. This would suggest the small leverage offered by organizational-based accounts of party discipline even in their supposed hey-day. Also, the positive effect of leadership selection centralization *(leadcent)*, while small in magnitude, suggests a venue for further theoretical elaboration. More importantly, however, the impact of ideological factionalism *(ideofac)*, while in the right direction, is only significant once at the 95% confidence level, indicating the inability to reject the null of Hypothesis 2. Parties belonging to the government coalition seem to be less disciplined than those outside of government. While the theory outlined in this paper does not have a specific expectation about this issue, it is well worth further analysis. Even if this finding might seem to be counterintuitive—especially considering rationalizations of parliamentary discipline based upon fear of losing office—it can be explained by the consistently larger 'room to maneuver' which majority parties enjoy, as discussed above.[24]

[24] A commentator suggested that another potential explanation would alert to the fact that some parties which are typically out of the governing coalition might be relatively more prone to hold strong and narrow ideological commitments, which in turn makes them less electorally effective; these parties would be more disciplined since it is less costly according to my original argument. However, this feature of parties is controlled for by the *ideofac* variable, which does not have a significant impact on discipline.

Let me now illustrate the effect of *Valuectrl* on party discipline with a simple set of simulations. Table III presents predicted first differences on party discipline for relatively high and low levels of *Valuectrl* (candidate selection centralization times electoral strength), holding all other variables at their means. It should be kept in mind that most parties in the sample are highly disciplined and that being able to explain the relatively small variation in their behavior is not a simple task. Table III shows that for both periods, a rise in *Valuectrl* from a low to a high level causes party discipline to increase in about ten percent points, from levels around 82 to 92%. This increase amounts to about 60 to 65% of the standard error of the dependent variable, party discipline.

[Table III here]

To portray more clearly the interactive nature of *Valuectrl*, let us see how an increase in candidate selection centralization for alternative levels of party strength affects party discipline. Table IV shows point estimates of first differences based on Model I above.

[Table IV here]

As predicted, candidate selection centralization is more of a serviceable tool for party leaders the more valuable the resources they hold are. For the first time period, a hypothetical increase in candidate selection centralization generated a hike in discipline of only 2.7% for electorally 'weak' parties, 6.7% for 'medium strength' parties and 10.4% for 'strong' parties,[25] with comparable levels for the period between 1956 and 1962.

The evidence is based upon the coefficients obtained through the use of multiply imputed databases, as recommended by King, Honaker, Joseph and Scheve, 1988.[26] An important

[25] For this simulation, 'high' and 'low' should be read as 'the mean plus/minus one standard deviation.'

[26] While King, Tomz and Wittenberg (2000) recommend the use of slightly more sophisticated techniques for the presentation of the estimates, these are at present still computationally cumbersome for multiply imputed tobit models. I

assumption about the data used in a tobit model has yet to be substantiated, namely the normality of the residuals (Judge et. al., 1985). Moreover, the reader will appreciate the comparison between the results from the analyses performed on the multiply imputed and the list-wise deleted data. Thus, I here show the results and normality tests for the residuals stemming from the tobit analysis of list-wise deleted data.[27]

[Table V here]

As Table V shows, the explanatory power of the main theoretical variables remains intact when reducing the analysis to the observed data only. More important for now is the information yielded by Figures 1 and 2, which allow me to visually confirm the normality of the residuals obtained for each model and time period. Finally, Table VI indicates the results of alternative statistical tests on the normality of the residuals confirming what is indicated by the graphs. These tests show that a tobit specification of the model is appropriate, further enhancing the validity of our results.

[Figures 1 and 2 and Table VI here]

I conclude this section by offering an alternative model specification which will knowingly bias the effects of the explanatory variables towards zero (Kennedy 1997), but that is useful as a tool to illustrate the 'minimal' effect that *Valuectrl* will have on the dependent variable. Tables VII and VIII show the coefficients obtained by performing OLS regression with the Huber/White/Sandwich estimator of variance on the multiply imputed and the list-wise deleted databases. It should be noted that the latter are the *most conservative* estimates to be obtained, given the anticipated downward bias that the coefficients will incorporate by using the incorrect estimation technique.

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use such techniques below to show how *Valuectrl* predicts significant shifts in party discipline even when its effect is underestimated by design.

[27] Since the multiply imputed data will generally follow the multivariate distribution of the list-wise deleted data, it is expected that the pattern of the residuals will be similar across models of the multiply imputed data.

[Tables VII and VIII here]

The regression models shed light on a couple of things. First, even when using inappropriate linear estimates we can explain a significant amount of the variation on the dependent variable, both for the parliamentary and presidential cases considered together (R^2 around 0.75 for both periods using the list-wise deleted data), and still a fair amount for the parliamentary cases on their own (0.37 for period 1, 0.26 for the second period). More importantly, all the coefficients behave in the expected ways (with the corresponding smaller magnitudes), and the model allows us to obtain conservative *expected* values of the effect of our main explanatory variable on party discipline (King, Tomz and Wittenberg 2000).[28]

[Table IX and Figure 3 here]

Table IX and Figure 3 show the effect of an increase of *Valuectrl* on party discipline. As in the point estimates obtained for the main specification, the results are noteworthy. The expected increase in party discipline as a result of a shift in *Valuectrl* from a high to a low value is around 7 percent points in this model, and the 90% confidence intervals between the expected values do not overlap. As with the more trustworthy results above, there is clear evidence that more centralized nomination rules in electorally strong parties foster higher levels of discipline.

To sum up, this section has provided a score of alternative specifications to test for the conditional effect of nomination procedures on party discipline and some related hypotheses. It has taken a series of steps to strengthen the conclusions to be derived from the available data. Its basic insight is simple but compelling: by regulating access to electorally valuable inputs, candidate selection procedures can serve as powerful tools towards the achievement of coordinated legislative

[28] The difference between a predicted value and an expected value is that the former only takes into account the uncertainty that derives from not being able to estimate the population parameter with certainty; the latter incorporates an estimate of the uncertainty derived from the stochastic nature of social phenomena into the quantity of interest.

behavior. This research shows that nomination rules help party politicians solve one of their main coordination problems (Aldrich, 1995).

Testing for the Effect of Electoral Institutions on Party Discipline

As I mentioned above, alternative explanations of party discipline focus on the impact of electoral institutions on politicians' incentives in their legislative/governing behavior (Cain, Ferejohn and Fiorina 1987, Myerson 1993, Ames 1995a 1995b, Samuels 1999, Mainwaring 1991, Mainwaring and Shugart 1997, Carey and Shugart 1995). Most prominent and systematic among these accounts is Carey and Shugart's "Incentives to Cultivate a Personal Vote" (1995). In their article, the authors argue that different configurations of four features of every electoral system will promote a greater degree of incentives for individual politicians to "benefit by developing personal reputations distinct from their party" (1995: 417), or in the terms of this paper, to breach party discipline in the governing stage. The rank ordering of the formulas the authors propose corresponds to a combination of, first, the extent to which the electoral law allows voters to alter party lists in an election, called *Ballot* by Carey and Shugart, and coded 0 when party lists can not be altered in any meaningful way by voters, 1 when voters can alter lists, and 2 when parties have no formal control over who gets on the ballot, thus rendering control almost completely to the electorate. Second, formulas are categorized according to the type of vote pooling that takes place if it in effect is needed to allocate seats to parties or candidates; thus, *Pool* is coded 0 when votes are pooled strictly at the party level, 1 when votes are pooled at the sub-party level, and 2 when there is no vote pooling of any kind, implying that votes are solely for the benefit of the selected candidate, as in Japan's until recently used Single Non-Transferable Vote. Third, formulas are categorized with regards to the number of votes they allow voters to cast, where 0 corresponds to a voter casting a single vote for a party list, 1 with the voter being able to cast multiple votes for multiple

candidates,[29] and 2 when voters cast a single vote below the party level (1995: 420 – 423). What these three variables yield is a combination of thirteen 'feasible' electoral formulas, with increasing incentives to 'cultivate a personal vote.' Finally, Shugart and Carey argue that the effect of district magnitude *(M)* is also generally to increase such personalistic incentives, except in such cases in which parties present a "closed list," namely, in those cases in which the value of *ballot* equals zero and voters cannot express their preferences between members of a same party. When this condition is present, an increase in *M* will generate decreased particularistic incentives. They conclude their article with a call for empirical testing of their arguments and suggest alternative research strategies. This paper provides a first straightforward test of their hypotheses.[30]

[Table X here]

To evaluate the effect of these variables on party discipline, I included them in my main statistical models and ran the corresponding tobits on the list-wise deleted data. Table X above shows the code used. Except for the cases in the database in which $M > 1$ and *ballot* = (0), the inclusion of the electoral institutions' variables is straightforward: according to Carey and Shugart's argument, both *rank* and *M* should have a *negative* and statistically significant effect on party discipline. For those cases in which there is a closed list system (*ballot* = 0) and average district magnitude is larger than 1, I simply multiplied the value of M times –1, to account for the differential effect hypothesized by the authors. Table XI shows the results of Models I and II for both time periods.

[Table XI here]

[29] Even if it is at different points in time, as in run-offs or primaries.

[30] While the hypotheses elaborated by Carey and Shugart (1995) relate specifically to the *relative* value of personal reputations vs. party reputations, the following quote validates my claim to be testing their theory: "When we speak of a tension between personal and party reputation, then, we are referring to the potential conflict between individual politicians and district level party leaders" (1995: 420). Tension, it is implied, which manifests itself as an infringement on party discipline.

The statistical analysis yields quite noteworthy results. It should first of all be noticed that the magnitude and significance of *Valuectrl* remains unaffected, indicating that even after controlling for features of the electoral system, internal party institutions play a very strong role in explaining party discipline. Surprisingly, moreover, the coefficient for Carey and Shugart's *rank* variable is only significant when considering the full sample of parties, but relatively small in magnitude and *NEVER* in the right direction. It is unlikely that these results suggest a strong and robust correlation between party discipline and electoral laws for the parties in the period, given the lack of significance in the smaller sub-sample. Regardless, what the evidence shows is that the more an electoral formula suggests individual politicians should distinguish themselves from their party peers, the *more disciplined* in the legislature, if anything, they seem to behave. This is an important finding to which I give more attention ahead. The variable referring to district magnitude simply has no effect on party discipline.

Given the results obtained from the *rank* variable, an additional test of the impact of electoral variables is pertinent. Conventional arguments less developed than Carey and Shugart's rank ordering of formulas are summarized in the following phrase: "In open list systems, personal reputation is more valuable to legislative candidates than in closed list systems" (Carey and Shugart 1995: 418). Instead of running the models on the *rank* variables suggested by Shugart and Carey's work, I included only the *ballot* variable as a predictor of party discipline, plus the corrected coding for M. Table XII below shows the results.

[Table XII here]

Again, *Valuectrl* is perfectly robust as a predictor of party discipline, while district magnitude shows no effect, and remarkably again *ballot* turns out to be *ALWAYS* in the wrong direction, and significant (at the .10 significance level) when considering the whole sample of parties. It is

important to stress these findings: electoral institutions regulating voters' ability to choose amongst candidates of the same party have no discernible effect on these politicians' behavior in legislature. For a long time the scholarly shortcut for explaining party discipline has consisted of two simple variables, one of them being regime type (presidential vs. parliamentary) and the other one being electoral list type (open vs. closed). I here show persuasive evidence that we can confidently use the first one, but that the empirical basis for employing the second one is dubious at best.

Summary of Results

This paper presents three main findings, two of which call for the need to reconsider contemporary thought on party discipline. One important positive finding is in accordance with the wealth of academic literature on the differences between parliamentary and presidential government (Linz and Valenzuela 1994, Lijphart 1984, 1994):[31] presidential parties indeed seem to be less disciplined in the legislature than their parliamentary counterparts. The implications of this finding need not be controversial; while for some this is a strong enough reason to doubt the merits of a presidential system for developing democracies (Linz and Valenzuela 1994, Sartori 1976), more sophisticated accounts of presidential-executive relations and the reasons behind gridlock and constitutional collapse[32] alert against such generalizations. Another finding of this paper should be given due importance in further research on political parties. Opposite to the propositions of my original model, and to most of the literature on party behavior (Sartori 1976), ideologically factionalized

[31] The solidity of this claim could be enhanced if we had more presidentialist countries in the sample. There is actually some reason to believe that countries with parties which bear highly decentralized nomination procedures were over-represented in the presidentialist subset. Other presidentialist systems with "democracy" scores (Jaggers and Gurr 1996) equal or higher to those of Ecuador for at least six years of the 1950 – 1962 period include Costa Rica, Colombia, Peru, Brazil and Chile.

[32] Mainwaring and Shugart (1998: 394 – 439) make the most careful argument of this type to be found in the literature, and are actually quite attentive to the role played by nomination procedures. Carey (1993) is, likewise. Their analyses, however, take nomination rules mostly as features of the party system, not of the parties.

parties appear to be—if at all—only slightly less disciplined than coherent ones, once candidate selection procedures and party label value are controlled for. Moreover, the data used in this paper do not suggest a strong correlation, let alone a causal relation between ideological factionalism and candidate selection centralization.[33] Perhaps this type of hypothesis is only applicable when the individual politician is taken as the unit of analysis, since an aggregate measure of discipline will probably reflect some adaptation of policy choices by leaders facing highly diverse internal coalitions.

Two additional inferences from the paper merit some careful discussion. Contrary to mainstream scholarly expectations, electoral institutions seem to play a negligible role in legislators' coordinated behavior. In contrast, the interaction between the value of a party's label and its internal nomination institutions strongly determines parties' ability to behave in a disciplined way. As long as a party's leadership holds valuable inputs for a politician's reelection and re-nomination (high value of party label), and it faces regulation that allows it to credibly commit to delivering them (centralized nomination rules), we should expect members of such a party to be more willing to follow the leadership's mandates in the governing stage. In other words, nomination rules are the key internal institution determining the terms of interaction between leaders and rank and file within a party, influencing the bargaining position of these two sets of actors and consequently their behavior.

The extension of this perspective to account for our negative findings on the electoral law would suggest that these institutions (ballot structure, vote pooling, number of votes cast) simply do not play this same regulatory role. Carey and Shugart argue that:

[33] The pair-wise correlation between observed values of candidate selection procedure centralization and ideological factionalism, while always negative, fails to be significant at the 95% confidence level in both periods. This relationship is further weakened when obvious variables like regime type are introduced as controls.

> "if electoral prospects depend on winning votes cast for the individual politician instead of, or in addition to, votes cast for the party, then politicians need to evaluate the trade-off between the value of personal and party reputations" (Carey and Shugart, 1995: 419).

According to them, electoral laws can significantly alter the sources from where politicians can gather the relevant means for reelection and re-nomination, and thus foster changes in the level of party discipline. This argument, however, seems to overstress the relative ability of isolated politicians to affect their electoral fortunes through casework and other particularistic strategies. Turning out the vote is anything but a cheap endeavor, and it is unlikely that candidates will forfeit the resources of the party even in the presence of incentive structures that do allow for more targeted clientelistic interactions, so long as parties remain a valuable resource for campaigning. While Carey and Shugart's rank ordering of formulas—and arguments based on the electoral law more generally—might remain a good indicator of the relative electoral effectiveness of casework and pork-barreling, it underestimates the ability of party leaders to enforce discipline by managing access to resources of potentially much greater importance for reelection purposes.[34] This type of argument, in short, lacks enough attention to the collective action problems faced by politicians. As detailed by John Aldrich: it is difficult for individual politicians to drive the vote out and get reelected; it is also not effortless to create the legislative coalitions that will deliver particularistic goods to their own constituents (Aldrich 1995). Even in the presence of such personality-oriented incentives parties remain an essential tool. Parties help individuals solve these collective action problems, but parties work well and survive because their leaders can extract costs from and deliver

[34] An alternative reading of Carey and Shugart, though, would encourage one to research on what it is that legislators do aside from their voting behavior—which is such a crucial component of their interaction with their party—in order to attend to these particularistic incentives. Hall and Wayman (1990), explore this view for the case of the US Congress with quite interesting results.

benefits to those who join them. Candidate selection procedures provide an essential instrument for this ultimately crucial task. Parties with valuable labels and centralized nominations will be more effective at enforcing discipline, while laws determining *voters'* ability to favor one candidate over another might encourage legislators to increase their personal contacts with specific sets of constituents, but not to the point of jeopardizing their party's essential support. To sum up, this research suggests that electoral institutions do not alter party discipline simply because they do not regulate access to the inputs that really determine electoral success for a typical politician. Nomination rules do, and that's what explains their forceful consequences.

Conclusion

In this paper I have used a cross-section of 60 political parties in democratic polities to offer convincing evidence of the impact of candidate selection procedures on legislative discipline. More centralized nomination procedures will generate more disciplined parties in the 'governing stage' so long as the party label remains valuable. Contrary to expectations, ideological diversity or distance is a minor element behind lack of legislative discipline. While constitutional system (presidential vs. parliamentary government) remains a significant part of the explanation, the impact of nominations is similar for parties operating across both types of systems. Finally, and contrary to well-established theoretical work, electoral laws appear to have little if any effect on legislative cohesiveness once we account for internal party institutions and constitutional system. Taken together, these findings make an important theoretical claim, which I summarize in three statements.

I have here argued that the relevance of electoral institutions can be easily overstated in theoretical accounts of party politics; this paper calls for a reconsideration of their leverage as explanations of party discipline. Second, nomination institutions provide the crucial link that

extends Aldrich's theory of political parties by joining politicians' strategies for solving the dilemmas faced in governing with those confronted in getting reelected. Third, thinking of nomination rules as regulating access to valuable inputs for electoral success shows great promise for further theoretical work. This theoretical work should account for candidate selection procedures as a dependent variable, and study more carefully their role in relation to the third collective dilemma faced by politicians: the problem of an excess supply of candidates, which inherently raises the issue of party splits. In light of the present findings, I shall devote future analysis to those questions.

Appendix A: Measurement Error?

Several reasons could make the reader wary of the quality of the data used in the present study. After all, it is dated, it took apparently far too long—ten years—to be gathered, and it was eventually not completed in some variables due to lack of funds.[35] My argument for using Janda's project is simple and powerful. Not only is it to date the best available source of data on a large enough set of political parties' rules and behavior; most importantly, it is *perfectly adequate* for proper statistical testing according to methodological standards. I here show why.

The main problem with the data could come from using variables for which the quality of the existing information is relatively low. As we know, it is not always easy to come up with accurate measures of legislative cohesiveness, ideological distance between party members and so on. The group led by Janda was very conscious about this type of problem and therefore coded an adequacy/confidence score for each of the cells of the data matrix, that is, every single observation for every variable is coded as to how adequate and accurate its value is. This score proves very useful in assessing the extent of measurement error questions in this paper.

The issues that might arise as a result of low quality of the available data can be divided in two basic types: measurement error in the dependent variable and measurement error in the explanatory variables. The effect of the first one is simply to increase the variance of the residuals (or the standard error of the regression in the simple OLS case), but does not necessarily generate biased or inconsistent estimates of our coefficients (Pindyck and Rubinfeld 1991). Biased estimates will be the case, however, when the measurement error in the dependent variable is correlated with any of the explanatory variables used for estimation. Measurement error in the explanatory variables can generally be more problematic, yielding biased and inconsistent parameter estimates

[35] Specifically those related to party tactics. See Janda (1980).

(Pindyck and Rubinfeld 1991). None of these problems, as I show below, is prevalent in the data used for this study.

The adequacy/confidence score for each observation provided in the ICPPP data is an excellent proxy for the degree of measurement error present in each of the variables. Once we eliminate missing observations (coded as 1), its values go from 2 when the quality of the information is minimal, to 9 when the observation is completely accurate.[36] Table AI shows the average value of the confidence score for the variables included in the 'observed' models for each time period.

[Table AI here: A/C scores by period]

A mean score of 7.173, like the one obtained by candidate selection *(candcent)* for the period between 1950 and 1956, reflects an 'adequately' coded variable, with an average confidence between 'medium/high' and 'high.' Thus, it seems appropriate to discard possible problems with measurement error in the explanatory variables.

To be sure, measurement error is really only a significant problem in the dependent variable, *cohesion1* and *cohesion2* (the mean values of 5.44 and 5.25 for both periods indicate an 'adequately' coded variable, with 'low/medium' to 'medium' confidence). As stated above, this will cause the estimated models to have larger than desired residuals, but the key question—in order to assess the possibility of biased estimates—is whether the error is correlated with any of the explanatory variables used. The empirical answer to this question is a sound no. Table AII below describes the pair-wise correlation between the A/C score for *cohesion* (our proxy for measurement

[36] See Janda (1979). Actual coding: 1 = Inadequate: no data; 2 = Inadequate: disagreement; 3 = Barely adequate: lowest confidence; 4 = adequate: low confidence; 5 = adequate: low to medium confidence; 6 = adequate: medium confidence; 7 = adequate: medium to high confidence; 8 = adequate: high confidence; 9 = adequate: highest confidence.

error on the dependent variable) and all the explanatory variables used in this paper for both cross-sections.

[Table AII here: Correlation of A/C scores with explanatory variables by period]

Since none of these correlation coefficients can be taken to be significantly different from zero,[37] we can assert that measurement error is not a consequential problem for the model specifications chosen in this paper. In short, Janda's database, while certainly not perfect, is *perfectly fit* for empirical testing of the hypotheses I develop here.

[37] The corresponding t-tests for the null Hypothesis $\rho = 0$ were performed, and in no case were the significant at the 90% confidence level.

Appendix B: Variable Description[38]

Cabinet: Cabinet participation. This variable measures the participation in the cabinet in any ministry… A party is credited with government coalition if ANY MEMBER of the party holds a front-line cabinet position, including the premiership. It is expressed as a proportion of the total years that the party was represented in each time period.

Votestrength: Electoral Strength. Defined as the extent of the party following within the electorate, Electoral Strength is expressed by the party's proportion of the total vote cast in national elections for the lower house of the legislature (or elections for president, if the former data are not available), averaged over the number of elections held.

Articul: Structural Articulation. This variable is defined using three basic ideas: 1) identifying the existence of party organs, 2) specifying the ways in which this membership is attained, and 3) establishing the functional relationships that exist among the various organs. Thus, a party which ranks high in structural articulation demonstrates a well defined set of party organs, features fixed membership with definite terms of service, and prescribes clear election procedures.

Leadcent: Selecting the National Leader. This variables isolates the set of procedures used to select the national leader. The most "decentralized" (lowest score) method of selection would involve the direct election of the party leader by its members. The most centralized would involve the leader naming the successor.

Candcent: Selecting Parliamentary Candidates. This variable scores the number of participants in the decision of the selection of a candidates, and their location in the organizational hierarchy. The more restricted the privilege to participate in candidate selection, the more centralized is the party.

[38] Excerpts transcribed from Janda (1979). Emphases in the original.

Cohesion: Legislative Cohesion. Coherence is defined in terms of the attitudes and BEHAVIOR of party members… Ideally, data were sought from where the mean index of cohesion could be calculated, a measure devised by Stuart A. Rice and calculated for a given vote as follows: Index of Cohesion = (|N Yes – N No|) / (|N Yes + N No|). Unfortunately, the parties' literature rarely reported precise indices of cohesion of the legislative voting. When party divisions on legislative votes themselves were divulged, the index was calculated or approximated. In the complete absence of empirical data, party cohesiveness was estimated according to the following table:

Descriptive Statement	Divisions	Estimated Index
Completely Cohesive	100% – 0%	1.00
		0.90
Highly Cohesive	90% – 10%	0.80
		0.70
Somewhat Cohesive	80% – 20%	0.60
		0.50
Not Cohesive	70% – 30%	0.40
		0.30
Divisive	60% – 40%	0.20
		0.10
Highly Divisive	50% – 50%	0.00

The presence of bicameral legislatures forced a choice between chambers in assessing legislative behavior, with the lower house generally selected. Finally, because there was no sound basis for picking issues on which to base the measure of cohesion, votes reported on any issues were accepted.

Ideofac: Ideological factionalism. Ideological factionalism is based on conflicting emphases in the context of overall governmental philosophy… The higher the score on this variable, the greater the degree of ideological factionalism.

Table I. a

Summary Statistics Observed Data 1950 – 1956

Variable	n	Mean	Std.Dev.	Min	Max
cohesion1	47	0.872	0.161	0.4	1
candcent1	52	4.788	1.892	1	9
votestrength1	61	0.261	0.154	0.04	0.52
ideofac1	58	2.50	2.062	0	6
articul1	60	8.10	3.166	0	11
cabinet1	61	0.539	0.399	0	1
regime	61	0.868	0.340	0	1
Valuectrl1	52	1.205	0.713	0.15	3.08

Table I. b

Summary Statistics Observed Data 1956 – 1962

Variable	n	Mean	Std. Dev.	Min	Max
cohesion2	47	0.879	0.159	0.4	1
candcent2	52	4.769	1.832	1	9
votestrength2	60	0.270	0.155	0.02	0.54
ideofac2	58	2.758	2.226	0	6
articul2	60	8.183	3.148	0	11
cabinet2	61	0.495	0.439	0	1
regime	61	0.868	0.340	0	1
Valuectrl2	52	1.234	0.732	0.18	3.22

Table II

Tobit Estimates on Multiply Imputed Databases

Dependent Variable: *cohesion*

	Valuectrl	*articul*	*ideofac*	*regime*	*cabinet*	*leadcent*	*constant*	*se*	*n*
Model I 1950 – 1956	**0.06692**	**0.01789**	**-0.01841**	**0.21898**	**-0.09879**		0.55851	0.10678	60
	0.009	*0.015*	*0.046*	*0.000*	*0.023*		*0.000*		
Model I 1956 – 1962	**0.06978**	**0.01833**	-0.01024	**0.22796**	**-0.08517**		0.51938	0.10853	60
	0.012	*0.016*	*0.242*	*0.001*	*0.046*		*0.000*		
Model II 1950 – 1956	**0.07412**	**0.02166**	-0.01233		**-0.09158**		0.71943	0.10291	52
	0.003	*0.003*	*0.173*		*0.030*		*0.000*		
Model II 1956 – 1962	**0.07615**	**0.02145**	0.00651		-0.07011		0.69666	0.1058	52
	0.007	*0.005*	*0.455*		*0.092*		*0.000*		
Model III 1950 – 1956	**0.0501**	**0.02499**	-0.01113	**0.1797**	-0.06908	**0.02835**	0.38392	0.0981	60
	0.041	*0.001*	*0.222*	*0.004*	*0.108*	*0.013*	*0.003*		
Model III 1956 – 1962	0.04861	**0.02472**	-0.00723	**0.17981**	-0.07565	**0.02905**	0.38285	0.09792	60
	0.075	*0.001*	*0.386*	*0.008*	*0.063*	*0.006*	*0.000*		
Model IV 1950 – 1956	**0.05692**	**0.0266**	-0.00815		-0.06582	**0.02481**	0.55107	0.09653	52
	0.024	*0.000*	*0.359*		*0.119*	*0.040*	*0.000*		
Model IV 1956 – 1962	**0.05678**	**0.02557**	-0.00534		-0.06764	**0.02555**	0.55446	0.0985	52
	0.045	*0.001*	*0.529*		*0.093*	*0.028*	*0.000*		
Model V 1950 – 1956	0.05072	**0.01746**	-0.01721	**0.23523**			0.51018	0.11296	60
	0.054	*0.021*	*0.072*	*0.000*			*0.000*		
Model V 1956 – 1962	**0.05369**	**0.01672**	-0.01046	**0.24474**			0.49598	0.11441	60
	0.049	*0.031*	*0.249*	*0.000*			*0.000*		
Model VI 1950 – 1956	**0.06027**	**0.02185**	-0.01044				0.68189	0.10918	52
	0.020	*0.003*	*0.270*				*0.000*		
Model VI 1956 – 1962	**0.06254**	**0.02115**	-0.00627				0.68203	0.11008	52
	0.022	*0.007*	*0.483*				*0.000*		

* Figures are tobit coefficients obtained from 99 multiply imputed datasets. Italicized figures are the corresponding p-values for each coefficient, given the null hypothesis $\beta = 0$. In boldface are parameter coefficients statistically significant at the 95% confidence level. The coefficient for *se* is the ancillary parameter, or an estimate of the average residual size. Models I, III and V are performed using all parties in the sample, while models II, IV and VI are performed only on parliamentary parties.

Table III

Impact of Increased Centralization times Electoral Strength on Legislative Cohesion

Point Estimates of First Differences

1950 – 1956 All Parties		1956 – 1962 All Parties	
Valuectrl	***cohesionhat****	***Valuectrl***	***cohesionhat****
Low (0.48)	0.826	Low (0.49)	0.831
High (1.91)	0.922	High (1.98)	0.935
Change in *cohesionhat*	0.096	Change in *cohesionhat*	0.104
% of se(*cohesion*)	60.22%	% of se(*cohesion*)	64.97%

*Figures are predicted values for legislative cohesiveness, based on tobit multiple imputation results of Model I, fixing all variables at their means and shifting *Valuectrl* from a low value to a high value (its mean minus/plus one standard deviation). Change in *cohesionhat* indicates the first difference, and % of se(*cohesion*) expresses it as a proportion of the standard deviation of *cohesion*.

Table IV

Impact of Increased Centralization for Given Levels of Electoral Strength

Point Estimates of First Differences

1950 – 1956 All Parties				1956 – 1962 All Parties			
Candidate Selection	**Electoral Strength**	**Change in *cohesionhat****	**% of se (*cohesion*)**	**Candidate Selection**	**Electoral Strength**	**Change in *cohesionhat***	**% of se (*cohesion*)**
Low – High	Low	0.02742	17.19%	Low – High	Low	0.02912	18.16%
Low – High	Average	0.06601	41.39%	Low – High	Average	0.06836	42.65%
Low – High	High	0.10460	65.59%	Low – High	High	0.10760	67.13%

*Figures are point estimates of first differences based on tobit multiple imputation results of Model I, fixing all variables at their means and shifting *Valuectrl* according to the described values of its components *(candcent, votestrength)*. For 1950-1956 *candcent* has a mean of 4.922 with a standard deviation of 1.867 while the mean of *votestrength* is 0.264 and its standard deviation is 0.154. For the second period, the mean of *candcent* is 4.859, and its standard deviation 1.807; for *votestrength* these values are 0.271 and 0.155 respectively.

Table V

Tobit Estimates on List-wise Deleted Databases. Dependent Variable: *cohesion*

	Valuectrl	*articul*	*ideofac*	*regime*	*cabinet*	*constant*	*se*	*n*
Model I 1950 – 1956	**0.05319**	**0.01273**	-0.00481	**0.33276**	-0.06316	0.46426	0.04879	43
	0.007	*0.048*	*0.499*	*0.000*	*0.063*	*0.000*		
Model I 1956 – 1962	**0.05098**	0.00920	0.00201	**0.35362**	-0.03443	0.45126	0.07652	43
	0.011	*0.165*	*0.761*	*0.000*	*0.280*	*0.000*		
Model II 1950 – 1956	**0.06028**	**0.01692**	-0.00336		**-0.06550**	0.78603	0.07590	39
	0.002	*0.042*	*0.627*		*0.048*	*0.000*		
Model II 1956 – 1962	**0.05943**	0.00913	0.00306		-0.03666	0.79326	0.07462	39
	0.004	*0.160*	*0.639*		*0.242*	*0.000*		

* Figures are tobit coefficients from the list-wise deleted data sets. Italicized figures are the corresponding p-values for each coefficient, given the null hypothesis $\beta = 0$. In boldface are parameter coefficients statistically significant at the 95% confidence level. The coefficient for *se* is the ancillary parameter, an estimate of the average residual size.

Table VI

Tests for Normality of Residuals by Model

	Shapiro / Francia Test		**Shapiro / Wilk test**		
	z	***P*** **>** | *z* |	*z*	***P*** **>** | *z* |	***n***
Model I 1950 – 1956	-0.337	0.63196	-0.873	0.80870	43
Model I 1956 – 1962	0.713	0.23801	0.318	0.37529	43
Model II 1950 – 1956	-0.126	0.55000	1.11	0.57390	39
Model II 1956 – 1962	1.402	0.08047	1.150	0.12502	39

* Figures are z statistics and associated p-values, for the null hypothesis $e \sim N(\mu, \sigma^2)$, where *e* denotes the residuals resulting from list-wise tobit estimation. We can only reject the null with 90% confidence for the Shapiro / Francia test for residuals in Model II (parliamentary parties) in 1956 – 1962. This result coincides with the visual evidence from figure 2.

Table VII

OLS Estimates on Multiply Imputed Databases

Dependent Variable: *cohesion*

	Valuectrl	*articul*	*ideofac*	*regime*	*cabinet*	*constant*	*n*
Model I 1950 – 1956	**0.05180**	**0.01658**	**-0.01937**	**0.21032**	-0.07772	0.57191	60
	0.019	*0.026*	*0.031*	*0.001*	*0.059*	*0.000*	
Model I 1956 – 1962	**0.05468**	**0.01659**	-0.01422	**0.21092**	-0.07296	0.55812	60
	0.025	*0.035*	*0.081*	*0.003*	*0.076*	*0.000*	
Model II 1950 – 1956	**0.05789**	**0.01988**	-0.0144		-0.07251	0.73347	52
	0.007	*0.006*	*0.087*		*0.073*	*0.000*	
Model II 1956 – 1962	**0.05912**	**0.01932**	-0.01125		-0.0593	0.72665	52
	0.016	*0.014*	*0.153*		*0.134*	*0.000*	

* Figures are robust regression coefficients from 99 multiply imputed data sets. list-wise deleted data sets. Italicized figures are the corresponding p-values for each coefficient, given the null hypothesis $\beta = 0$. In boldface are parameter coefficients statistically significant at the 95% confidence level.

Table VIII

OLS Estimates on List-wise Deleted Databases

Dependent Variable: *cohesion*

	Valuectrl	*articul*	*ideofac*	*regime*	*cabinet*	*constant*	R^2	*SER*	*n*
Model I 1950 – 1956	**0.04084**	**0.01282**	-0.00711	**0.32022**	-0.04923	0.47603	0.7577	0.069	43
	0.007	*0.043*	*0.260*	*0.000*	*0.092*	*0.000*			
Model I 1956 – 1962	**0.03790**	0.00963	-0.00238	**0.33372**	-0.02773	0.47812	0.7561	0.067	43
	0.012	*0.293*	*0.743*	*0.000*	*0.171*	*0.000*			
Model II 1950 – 1956	**0.04713**	**0.0128**	-0.00581		-0.05218	0.787	0.3709	0.064	39
	0.002	*0.041*	*0.349*		*0.075*	*0.000*			
Model II 1956 – 1962	**0.04504**	0.00961	-0.00144		-0.02977	0.80149	0.2613	0.063	39
	0.003	*0.286*	*0.840*		*0.141*	*0.000*			

* Figures are OLS coefficients with robust standard errors in italics. Estimation performed on list-wise deleted data. In boldface, parameter coefficients significantly different from zero with 95% confidence. Notice the underestimation of the effect of *Valuectrl* on cohesion.

Table IX

First Differences: Impact on Legislative Cohesion

1950 – 1956 All Countries		1956 – 1962 All Countries	
Valuectrl	***cohesionhat***	***Valuectrl***	***cohesionhat***
Low (0.5)	0.8584 (0.828, 0.888)	Low (0.5)	0.8684 (0.839, 0.898)
High (2.15)	0.9268 (0.904, 0.948)	High (2.2)	0.9328 (0.912, 0.952)
Change in *cohesionhat*	0.0683 (0.028, 0.109)	Change in *cohesionhat*	0.0644 (0.023, 0.104)

*Figures are expected values with 90% confidence intervals for legislative cohesiveness *(cohesionhat)*, based on list-wise deleted robust regression results of Model I, using Tomz, Wittenberg and King's (2000) "CLARIFY." Value of all explanatory variables is fixed at their mean and *Valuectrl* is shifted from a low value to a high one (fifteenth percentile to eighty-fifth percentile). Change in *cohesionhat* indicates the estimate for the expected value of the same first difference, with its corresponding 90% confidence interval.

Table X

Coding of Carey and Shugart's Electoral System Variables

	1950 – 1956					1956 – 1962				
Country	***Ballot***	***Pool***	***Vote***	***Rank***	***M***	***Ballot***	***Pool***	***Vote***	***Rank***	***M***
Australia	1	1	1	4	1	1	1	1	4	1
Austria	1	0	1	3	6.6	1	0	1	3	6.6
Canada	0	0	0	1	1	0	0	0	1	1
Denmark	1	0	2	5	6.19	1	0	2	5	7.29
France	0	0	0	1	5.39	0	0	1	2	1
Greece	1	0	1	3	5	1	0	1	3	5
Iceland	1	0	2	5	1.79	1	0	2	5	6.7
India	0	0	1	2	1.21	0	0	0	1	1
Ireland	1	1	1	4	3.75	1	1	1	4	3.75
Luxembourg	1	0	1	3	14.02	1	0	1	3	14.02
Netherlands	1	0	2	5	100	1	0	2	5	100
New Zealand	0	0	0	1	1	0	0	0	1	1
Sweden	1	0	1	3	8.27	1	0	1	3	8.27
UK	0	0	0	1	1	0	0	0	1	1
Uruguay	1	0	2	5	99	1	0	2	5	99
USA	2	2	1	10	1	2	2	1	10	1
W. Germany	0	0	1	2	1.94	0	0	1	2	2

**Ballot, Pool, Vote* were coded according to Carey and Shugart's criteria (1995: 420 – 430). *M* is the average district magnitude for the period. Sources: Carey and Shugart (1995), Carstairs (1980), Hand, Georgel et. Sasse (1979), Lakeman (1974), Lijphart (1984, 1994), Mainwaring and Scully (1995), Mejía (1996), Taagepera and Shugart (1989).

Table XI

Tobit Estimates on List-wise Deleted Databases, Testing for *Rank* and *M*

Dependent Variable: *cohesion*

	Valuectrl	*articul*	*ideofac*	*regime*	*cabinet*	*rank*	*M*	*constant*	*se*	*n*
Model I 1950 – 1956	**0.0614**	**0.0121**	0.0003	**0.4183**	**-0.0675**	**0.0176**	-0.0002	0.3167	0.0726	43
	0.001	*0.047*	*0.961*	*0.000*	*0.034*	*0.028*	*0.602*	*0.005*		
Model I 1956 – 1962	**0.0641**	0.0101	0.0082	**0.4350**	-0.0392	**0.0187**	-0.0005	0.2831	0.0699	43
	0.001	*0.100*	*0.237*	*0.000*	*0.185*	*0.022*	*0.224*	*0.011*		
Model II 1950 – 1956	**0.0628**	**0.0112**	-0.0023		**-0.0716**	0.0087	0.0003	0.7689	0.0732	39
	0.001	*0.069*	*0.763*		*0.028*	*0.421*	*0.623*	*0.000*		
Model II 1956 – 1962	**0.0640**	0.0089	0.0038		-0.0412	0.0076	0.0001	0.7659	0.0733	39
	0.002	*0.169*	*0.643*		*0.188*	*0.542*	*0.867*	*0.000*		

* Tobit coefficients for list-wise deleted data. In boldface, parameter coefficients statistically significant at the 0.05 level. In italics the corresponding p-values.

Table XII

Tobit Estimates on List-wise Deleted Databases, Testing for *Ballot*

Dependent Variable: *cohesion*

	Valuectrl	*articul*	*ideofac*	*regime*	*cabinet*	*ballot*	*M*	*constant*	*se*	*n*
Model I 1950 – 1956	**0.0583**	**0.0137**	0.0001	**0.3837**	**-0.0676**	0.0476	-0.0002	0.3642	0.0750	43
	0.003	*0.031*	*0.992*	*0.000*	*0.040*	*0.083*	*0.663*	*0.001*		
Model I 1956 – 1962	**0.0580**	0.0112	0.0077	**0.3965**	-0.0371	0.0462	-0.0005	0.3478	0.0728	43
	0.004	*0.083*	*0.294*	*0.000*	*0.227*	*0.085*	*0.280*	*0.001*		
Model II 1950 – 1956	**0.0620**	0.0118	-0.0027		**-0.0719**	0.0208	0.0004	0.7783	0.0738	39
	0.002	*0.063*	*0.721*		*0.029*	*0.499*	*0.467*	*0.000*		
Model II 1956 – 1962	**0.0621**	0.0091	0.0028		-0.0408	0.0147	0.0002	0.7818	0.0737	39
	0.003	*0.172*	*0.723*		*0.194*	*0.645*	*0.679*	*0.000*		

* Tobit coefficients for list-wise deleted data. In boldface, those parameter coefficients significant at the 0.05 level. In italics the corresponding p-values.

Table AI

Adequacy / Confidence Scores for Variables in the Model

	1950 – 1956		1956 – 1962	
	Mean A/C score	**N**	**Mean A/C score**	**n**
cohesion	5.4468	47	5.2553	47
cabinet	8.6065	61	8.6065	61
votestrength	8.2459	61	8.3833	60
candcent	7.1730	52	7.1153	52
articul	6.9833	60	6.9500	60
ideofac	6.3793	58	6.5517	58
Valuectrl	7.7692	52	7.7884	52
leadcent	7.2075	53	7.2075	53

Table AII

Correlation between A/C Score for *cohesion* and Explanatory Variables

	1950 – 1956	**1956 – 1962**
cabinet	-0.0035	-0.0480
votestrength	-0.0162	0.0887
articul	0.1176	0.2167
candcent	0.1517	0.1682
leadcent	0.0458	0.1480
ideofac	-0.0209	-0.0073
regime	0.1394	0.1194
Valuectrl	0.0554	0.1544
M	-0.1129	-0.0782
rank	-0.0931	0.0297

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