Primary Election Systems and Representation

Elisabeth R. Gerber
University of California, San Diego

Rebecca B. Morton
University of Iowa

We examine how differences in the institutions that regulate candidate nomination procedures, specifically direct primary election laws, affect the types of candidates elected in nonpresidential American elections. We hypothesize that in more closed primary systems, control over candidate nominations by ideological extremists will translate into a higher likelihood that extreme candidates win in the general election. We hypothesize that in more open systems, participation by a wider spectrum of the electorate means that candidates must appeal to more moderate voters, leading to the election of more moderate candidates. Using pooled cross-section time-series regression analysis, we find that U.S. representatives from states with closed primaries take policy positions that are furthest from their district's estimated median voter's ideal positions. Representatives from states with semi-closed primaries are the most moderate. We conclude that the costs of strategic behavior created by electoral institutions have important consequences for electoral outcomes.

1. Introduction

In recent years, several American states have changed or considered changing their procedures for nominating candidates for elected office.[1] In 1984, for example, the Connecticut Republican Party changed its bylaws to permit independents to participate in its previously closed primaries. After the Supreme Court ruled in *Tashjian v. Republican Party of Connecticut* [479 U.S. 208 (1986)] that the state's interest in requiring a closed primary was insubstantial, the state legislature passed legislation allowing the parties to permit participation by independents in their primaries.[2] More recently, California

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1. In this research we consider nominations to offices other than the presidency. Presidential nominations are characterized by a unique sequential state-by-state nomination process. Nominations via direct primary to congressional, state legislative, state executive, and local offices are characterized by common procedures which we describe below.

2. Ironically, after the Tashjian decision, the Republican Party removed the questionable provision from its bylaws and at the time of this writing, none of the state's major parties have opted to allow independents to participate in their primaries.

voters passed the Open Primary Act of 1996 by direct voter initiative, replacing the state's restrictive closed primary with a more open variety. All of these changes have attracted vigorous legal scrutiny and scholarly debate, and at the time of this writing, the constitutionality of California's most recent changes (and by implication, Alaska's and Washington's primary election systems) is still unresolved.[3]

Proponents and opponents of these changes in primary election laws agree that their consequences are likely to be profound.[4] Some of the consequences of these changes are easy to predict. For example, few doubt that opening nomination procedures to previously excluded nonpartisans will increase mass participation in the nomination process. Other consequences, however, are more difficult to anticipate. For example, will more open nominations induce candidates to compete for the electoral center, thereby producing more centrist elected representatives, or will they create opportunities for partisan mischief, allowing party adherents to "spoil" the other parties' nominations and leading to the election of extremist representatives? Further, even when proponents and opponents agree on what the electoral consequences of changes in election laws will be, the normative implications of those changes are often unclear. Are voters made better off by, for example, increased participation? Are the parties made better off? Are some voters or groups made better off than others?

Much of the ongoing debate over the likely consequences of changing a state's primary election laws results from the virtual absence of any systematic analyses of candidate nomination procedures. The literature that does exist focuses on how party organization influences the choice of nomination procedures (Ranney, 1975; Eldersveld, 1982; Jewell, 1984; Epstein, 1986); on the roles of the media, voter information, and candidate characteristics in presidential primaries and caucuses (Aldrich, 1980; Bartels, 1988); on the effects of presidential primary election systems on voter behavior, particularly crossover voting (Wekkin, 1988; Southwell, 1991); and recently on the effects of primary systems on the election of U.S. senators (Grofman and Brunell, 1997). Together these studies inform our understanding of some aspects of candidate nominations, especially presidential nominations. However, none of these existing works provide a systematic analysis of the electoral consequences of nonpresidential candidate nominations.

In this research we empirically examine how differences in candidate nomination procedures in nonpresidential elections affect one important aspect of election outcomes: the relationship between winning candidates' policy positions and their constituencies' preferences. In other words, we study how primary election systems affect the representation of citizen preferences. We

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3. California adopted a blanket primary similar to that used in Washington and Alaska. See below for a description of the blanket primary.

4. But see Riker (1983) who argues that since institutions are themselves the product of social choices, their independent effects on political outcomes (especially stability) are likely to be minimal in the long run.

focus on "dyadic" representation—the extent that the positions of a single representative reflect the preferences of his or her district—because it reflects the primary legislator–citizen relationship in a system of single member district representation. Dyadic representation is in contrast to collective representation, which refers to the extent that an individual's or group's preferences are represented by the entire policy-making body (see Weissberg, 1978).

We analyze the representational consequences of the most common mechanism for nominating nonpresidential candidates in the United States: direct primaries. Primaries come in several varieties, depending upon how they restrict participation by the electorate. A primary is considered *open* if participants either do not need to declare party affiliation as a prerequisite to participating in a primary election or may do so on election day. Two variants of the open primary are *blanket* primaries, in which voters receive a single ballot listing all candidates from all parties and may participate, office by office, in all or some of the parties' primaries; and *nonpartisan* primaries, in which voters choose among candidates in a primary regardless of the party membership of the candidate or the voter.[5] A primary is defined as *closed* if participation is limited to voters who declare their affiliation to the party a specified period prior to the election.[6] Within the broad category of closed primaries, states exhibit varying degrees of "closedness," depending upon the comprehensiveness of the preregistration requirement. A primary is defined as *semi-closed* if new registrants are allowed to both register and choose their party on the day of the primary or if independents are allowed to participate.[7] Table 1 reports the primary system used to nominate candidates from state legislative and executive and federal legislative offices for the 50 states.

We expect institutional differences in primary election systems to influence the positions of winning candidates. In the following two sections we review a body of theoretical and empirical work that forms the basis of our research. The analyses imply several empirically testable hypotheses about the effects of the degree of closedness of primary systems on the types of candidates elected. In particular, we hypothesize that in closed primary systems, the likelihood of extreme general election winners is highest. In more open primary systems,

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5. A major difference between blanket primaries and nonpartisan primaries is that in blanket primaries, the top vote receiver from each party becomes the party's general election nominee, while in nonpartisan primaries, the top vote receiver in the primary wins the seat outright if he or she receives over 50% of the primary vote. Otherwise the top two vote receivers, regardless of party, meet in a runoff election. This raises the possibility that two candidates from the same party may meet in the runoff. In its recent decision in *Foster v. Love*, 96-670, the Supreme Court ruled that the timing of these nonpartisan elections, but not their structure per se, is unconstitutional.

6. Unlike the Court-imposed 30 day maximum registration deadline for voting in a general election [see *Dunn v. Blumstein*, 405 U.S. 330 (1972)], party registration deadlines vary in length from 10 days in Nebraska and New Hampshire to a year in New York (Bott, 1990).

7. During the period under study, 10 southern states also used runoffs when no candidate received a majority in the primary. See Gerber, Morton, and Rietz (1994) for an analysis of runoff requirements.

Table 1. Primary System Type, U.S. States, 1990

State	Primary System	State	Primary System
AL	Open	MT	Open
AK	Blanket	NE	Closed
AZ	Closed	NV	Closed
AR	Open	NH	Closed
CA	Closed	NJ	Semi (independent)
CO	Closed	NM	Closed
CT	Closed	NY	Closed
DE	Closed	NC	Closed
FL	Closed	ND	Open
GA	Open	OH	Open
HI	Open	OK	Semi (new and independent)
ID	Open	OR	Semi (new)
IL	Open	PA	Closed
IN	Open	RI	Semi (independent)
IA	Open	SC	Open
KS	Closed	SD	Closed
KY	Closed	TN	Open
LA	Nonpartisan	TX	Open
ME	Semi (independent)	UT	Open
MD	Semi (new)	VT	Open
MA	Semi (independent)	VA	Open
MI	Open	WA	Blanket
MN	Open	WV	Closed
MS	Open	WI	Open
MO	Open	WY	Open

Source: Bott, 1990.

the likelihood of moderate winners is higher. We then present empirical tests of our hypotheses. Analyzing data from a series of recent U.S. congressional elections, we find that representatives elected under closed primary systems do not as accurately reflect our estimates of the median voter's preference in their districts as do legislators elected under more open primary systems. We find that representatives elected under semi-closed primary systems most accurately reflect their district's median voter's preference. These results are robust to a variety of alternative empirical specifications.

Our research has important theoretical, political, and practical implications. From a theoretical perspective, understanding the dynamics of primary elections will provide insight into how these and other multistage elections function. From a political perspective, changing a state's election laws means shifting the balance of political power, giving an advantage to some interests at the expense of others. In other words, it creates winners and losers. Understanding who wins and who loses under different election laws allows us to better anticipate these political dynamics. And from a practical perspective, studying election laws will help the courts and policymakers better design institutions to achieve socially desirable outcomes.

2. Primary Voter Preferences and Candidate Positions

2.1 Closed Primaries

Most American elections are three-stage electoral processes. In the first stage, voters affiliate themselves or register with a particular party. In the second stage, voters choose a party nominee from the subset of candidates running in their party's primary. In the third stage, voters choose between the party nominees. A number of models have considered how this multistage electoral process affects candidate positions (Coleman, 1971, 1972; Aranson and Ordeshook, 1972; Wittman, 1977, 1983, 1991; Aldrich, 1983; Aldrich and McGinnis, 1989).[8] In these models, there are typically two parties, each of which field two candidates who compete in closed party primaries. Party members choose between the candidates in their primary, and the winners of each party's primary meet in the general election. These parties are assumed to be dominated by members or party elites who have preferences over policy, that is, they seek electoral victory in order to enact their preferred policies. Accordingly, we refer to this literature as the "party elite" literature.[9] This assumption of policy-motivated party members is in contrast to the Hotelling–Downsian assumption of party competition in which parties instrumentally choose policy positions strictly for the purpose of achieving electoral victory (Hotelling, 1929; Downs, 1957).

In the party elite theory, party members are assumed to have policy preferences that are distinct from the preferences of nonmembers. Preferences of the members of each party are also assumed to diverge from those of members of the other party, with the ideal policy position of each party's median member located on opposite sides of the ideal point of the median voter in the electorate. Candidates for office choose policy positions in the primaries "as if" they are maximizing the expected utility of the median voter in their party rather than the expected utility of the median voter in the electorate. When there is some uncertainty about the general election outcome, the expected utility of the party's median voter may be maximized by a position that diverges substantially from the ideal point of the median voter in the general electorate.[10]

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8. Most of these works model electoral competition in a unidimensional policyspace. Wittman (1983) generalizes the basic multistage model to a multidimensional policy space. To obtain divergence results in multiple dimensions, however, additional assumptions about the underlying utility functions and candidates' election probabilities are required.

9. By "party elites" we mean committed members of the party. This may include caucus activists, party leaders, and regular members who affiliate with the party. Party elites, by our definition, are in contrast to primary voters who participate in party activities (including primaries) not because of a strong attachment to the party but rather because of transient or strategic interests.

10. Note that in these models, candidates will only diverge from the general electorate median voter's ideal point if there is uncertainty about the general election outcome. If, conversely, candidates know all aspects of the game for certain, they can anticipate the general election outcome and maximize the expected utility of the party's median voter by maximizing its probability of winning in the general election, that is, by converging to the general electorate median voter's ideal point. These models typically assume that the source of uncertainty is the ideal point of the general electorate median voter due to variations in turnout or some nonpolicy candidate characteristics that are revealed between the candidate nomination stage and the general election (see Aranson

Thus, as a consequence of divergent party member policy preferences combined with uncertainty about the general election outcome, candidate positions in the multistage model do not converge · ⌐ the ideal point of the Hotelling–Downsian median voter in the general electorate.[11] Their positions are instead a function of the ideal point of the median voter in their party's primary. Thus the further the ideal point of the median voter in a party's primary from the general election median voter, the more extreme the position of that party's nominated candidate.[12]

A key assumption in these models of multistage elections is that the position of the median voter in a closed primary is likely to diverge substantially from the position of the median voter in the general electorate. Several studies together provide empirical justification for this assumption. One set of studies suggests that voter participation in closed primaries is lower than in open primaries, ceteris paribus. For instance, Jewell (1984) shows that voter turnout in gubernatorial primaries from 1952 to 1982, as a percentage of party vote in the subsequent general election, is lower in closed primaries than in open primaries, even after controlling for other institutional and election-specific factors that can affect turnout. This result suggests that of the set of voters who may vote for a party's nominee in the general election, the subset that participates in choosing that nominee in the party's primary is smaller in closed than in open primaries.

A second set of studies shows that voters with strong partisan ties are much more likely to participate in political activities than are other voters. For example, Beck and Sorauf (1992) note that in 1988 total voter turnout was approximately 50%, but for strong partisans it was over 80%.[13] A third body of work establishes that one group of party elites—convention delegates and caucus participants—have more extreme issue positions than the general electorate. Buel and Jackson (1991) review studies of national convention delegates that consistently show that these delegates hold more extreme views, with Democrats substantially more liberal and Republicans more conservative, than the average voter. Abramowitz, Rapoport, and Stone (1991) study participants at the 1988 Iowa caucuses and the 1984 Iowa, Michigan, and Virginia caucuses and show that these participants are significantly more extreme than the general

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and Ordeshook, 1972; Wittman 1977, 1983, 1991; Aldrich, 1983; Calvert, 1985; Aldrich and McGinnis, 1989; Londregan and Romer, 1993).

11. Morton (1993) shows in laboratory elections that when such uncertainty exists, policy divergence does indeed occur.

12. These models use the party elite approach to explain the observed policy divergence of the two parties. It should be noted that there are also a number of theoretical voting models in which parties or candidates are primarily motivated by electoral considerations and policy divergence occurs. In those models, equilibria may exist with parties or candidates choosing divergent policy positions under a variety of assumptions and conditions (see, for example, Palfrey, 1984; Bernhardt and Ingberman, 1985; Austen-Smith, 1987; Morton, 1987; Cameron and Enelow, 1992; Feddersen, 1992; Ingberman and Villani 1993).

13. See Beck and Jennings (1979, 1984) and Abramson, Aldrich, and Rhode (1991) for additional studies of partisan political participation.

electorate. Together these studies suggest that voters who participate in closed primaries are likely to be a subset of the electorate with strong partisan ties and extreme policy preferences. This implies that the ideal point of the closed primary election median voter is likely to diverge substantially from the ideal point of the general election median voter. By competing for their parties' nominations, then, candidates nominated in closed primaries are expected to be more extreme than candidates nominated in other primary systems.

2.2 More Open Primaries

While most existing theoretical and empirical analyses of primary elections assume closed primaries, we can apply the logic of those analyses to generate hypotheses about voter preferences and candidate positions in other primary systems as well. The key insight of the extant theory is that primaries affect the identity of the median voter in the parties' primaries by constraining voter participation. When only party members with extreme policy positions participate in the nomination process, as in the theoretical analyses described above, the preferences of the median voter in a party's primary can diverge substantially from the preferences of the median voter in the general electorate. When nonmembers, independents, and/or new voters participate in the nomination process, the preferences of the median voter in a party's primary may be closer to the preferences of the median voter in the general electorate.

Primary system rules affect the identity of the median voter in the parties' primaries by affecting the cost to voters of engaging in particular forms of strategic behavior. Specifically they affect the ease with which voters can engage in crossover voting (i.e., voting in the primary of a party with which the voter does not normally identify). Crossover voting can either be "sincere," in which voters vote for their most preferred candidates in the other party, or "strategic," in which voters vote for less preferred candidates whose nomination would provide a strategic advantage to a more preferred candidate in their own party.[14] When voters engage in sincere crossover voting, moderates from the other party cross over and move the primary electorate median voter's position closer to that of the general electorate median voter. When voters engage in strategic crossover voting, extremists from the other party cross over. The effect of strategic crossover is more difficult to anticipate. If a relatively small number of voters engage in strategic crossover, the ideal point of the median voter in that party's primary becomes more moderate, but if strategic crossover is substantial, the median voter in the party's primary electorate becomes more extreme.

We expect the closedness of a primary system to affect voters' costs of en-

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14. Our definition of sincere crossover voting allows for voting for the most preferred candidate whose ideal point is closest to the voter's and voting for a candidate whose ideal point is further from the voter's but whose electoral prospects are better. Both of these forms of sincere crossover voting are distinguished from strategic crossover voting for a candidate the voter hopes will lose in the general election.

gaging in crossover voting. In closed primaries, both types of crossover voting are costly since voters must resolve to participate in a given party's primary a fixed period before the election and register as a member of that party. The "cost" of crossover voting for closed primary voters, then, involves the difficulty of anticipating his or her strategic opportunities long before the election and reregistering in the other party. We therefore expect closed primary voters to participate on the basis of their underlying partisan affiliations rather than the immediate electoral circumstances. To the extent that members of the parties are ideologically distinct, we therefore expect the ideal point of the primary electorate median voter in closed primaries to reflect the ideological positions of the party's elite and to diverge substantially from the ideal point of the general electorate median voter. In semi-closed primaries, crossover voting is less costly for voters who affiliate with one party but are either not registered or are registered as independents. Those voters can participate in either party's primary without precommitting to that party, thereby making the cost of both forms of crossover voting quite low.[15] Which form of crossover voting dominates in semi-closed primaries therefore depends on the ideological positions of independents and new voters. To the extent that these potential crossover voters are close to the ideological center, we expect them to engage largely in sincere crossover voting. To the extent that independents and new voters are ideological extremists, we expect them to engage largely in strategic crossover voting. Although survey evidence suggests that there is substantial heterogeneity among independent voters, especially between "Pure Independents" and partisan leaners, most pure independents are, by a variety of measures, ideologically moderate (Keith et al., 1992). We therefore expect these potential crossover voters to engage most often in sincere crossover voting in semi-closed primaries, and for their behavior to move the ideal point of the primary electorate median voter closer to the ideal point of the general electorate median voter. In open primaries, voters can engage in crossover voting by choosing a party on election day without incurring the costs of reregistering with the other party. However, crossover voters are constrained to participate only in that party's primary. This constraint may reduce the attractiveness (i.e., raise the opportunity costs) of both sincere and strategic crossover voting for one race since voters cannot then vote for candidates of their own party in other races. We therefore note the possibility for both sincere and strategic crossover voting in open primaries but cannot anticipate, on the basis of our theory, which will be more important. Finally, in blanket and nonpartisan primaries, the costs of both types of crossover voting are lowest since voters can choose in which primary to participate in the voting booth (i.e., they need not incur the costs of reregistration) and can switch parties race by race (i.e., the opportunity costs of crossover voting are low). Again, however, we cannot anticipate which type of crossover voting will dominate voter behavior.

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15. As in closed primaries, however, voters who are registered with a party must change their registration prior to the election.

A number of studies have attempted to measure crossover voting directly. Ranney (1975), Adamany (1976), Hedlund, Watts, and Hedge (1982), Hedlund and Watts (1986), and Wekkin (1988) all examine voting behavior in Wisconsin's presidential primaries, with differing conclusions about the extent to which such crossover voting occurs.[16] These studies, however, focus on only one state and are therefore unable to demonstrate that crossover voting is substantially greater in open primary states than in closed primary states. Jewell (1984) compares limited survey data on voter behavior in open and closed primary states and concludes that while voters seem more likely to identify with a party in a state with closed primaries, "[t]he available evidence does not support the assumption that many voters frequently shift between primaries in open-primary states."[17] Finally, Southwell (1991) finds the prevalence of "strategic voting" to be about the same in closed, semi-closed, and open primary states.[18]

3. Hypotheses

The theoretical results summarized above can be restated as a series of empirically testable hypotheses about the consequences of primary system type on election outcomes.

- H_0: Primary election system has no relationship to the policy positions of general election winners.
- H_1: Closed primary systems will produce more extreme general election winners, relative to their constituencies' general election median voter, than more open primary systems.

The main hypothesis is that closed primaries will produce general election winners whose policy positions diverge substantially from their district's general election median voter. We hypothesize that in the most closed systems, winning candidate positions will be most extreme, and that in more open systems they will be more moderate. However, given the different costs of crossover voting created by the various semi-closed, open, blanket, and nonpartisan primary election systems, the relationship between closedness and extremity may not be linear. Since we expect sincere crossover voting to dominate in semi-closed primaries, we expect the primary electorate median voter to be closer to the general electorate median voter in those primaries compared to closed primaries and for those voters to vote for the most moderate candidates in their

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16. As Wekkin (1988) notes, some of the differences in results are a consequence of variations in the methods used to measure crossover voting. He argues that independents who have partisan leanings are often not counted correctly. He also points out that measuring crossover vote as a percent of the entire primary vote understates its impact on a particular primary since such voting tends to be one-sided.

17. Jewell notes that there is evidence of voter shifting in Alaska and Washington, which have blanket primary systems.

18. Southwell differentiates between "positive strategic voting," in which a voter votes for a less preferred candidate because her most preferred candidate's chances of winning are low, and "negative strategic voting," in which a voter votes for a less preferred candidate in the primary to increase the chance of her most preferred candidate facing the weakest possible opponent.

primaries. Hence we expect the most moderate winners (relative to the district's general election median voter) to be elected from semi-closed systems. Since the costs of both sincere and strategic crossover voting in open, blanket, and nonpartisan primaries are low, it is possible that strategic crossover voting may negate some of the moderating effects of sincere crossover voting. We therefore expect winners elected from those systems to be more moderate than winners elected from closed primary systems, but perhaps not as moderate as semi-closed winners.

- H_2: Semi-closed primary systems will produce the most moderate general election winners.
- H_3: Open, blanket, and nonpartisan primary winners will be more moderate than closed primary winners.

4. Data Analysis

We test hypotheses H_1, H_2, and H_3 with data from U.S. congressional elections from 1982 to 1990. The variable of interest is the policy position of the winning congressional candidate, $Winner_{it}$, from each congressional district i, $i = 1$ to 435, at time t, $t = 1$ to 5. For each of the i districts at each election, we estimate $Winner_{it}$ as the winning candidate's ADA score averaged over the 2 years immediately following the election, corrected for abstentions.[19] We chose this time period because the district lines were constant throughout as a result of the 1982 redistricting and no states significantly changed their election laws during this period.

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19. There are numerous ways to measure representatives' policy positions. Perhaps the two most widely used measures are ADA scores (voting indices constructed by the Americans for Democratic Action) and NOMINATE scores [constructed with Poole and Rosenthal's (1985) Nominal Three-step Estimation Procedure]. Several scholars have argued that NOMINATE scores are preferable to ADA scores as measures of legislators' policy positions because they are based on a formal spatial model (Poole and Rosenthal, 1985), account for a great deal of variance in roll call votes (Cox and McCubbins, 1993), are based on a large number of roll call votes (Cox and McCubbins, 1993), and are comparable across years (Groseclose, Levitt, and Snyder, 1998). While we agree that NOMINATE scores may be preferable in some applications, we believe ADA scores are at least as appropriate for our current purposes, for several reasons. First, ADA scores are deliberately constructed to reflect a single liberal–conservative dimension. The purpose of the ADA scores is to rate each representative's "liberalness." Hence the ADA bases its scores on a set of votes that are selected specifically because they deal with left–right issues. NOMINATE scores, by contrast, are constructed from the full set of (nonunanimous) roll call votes and so, to the extent that other policy dimensions underlie a legislature's agenda, the resulting scores naturally pick up more dimensionality. Furthermore, to the extent that these additional dimensions are not strictly orthogonal to the primary left–right dimension, our estimates of the first dimension will be biased. Second, many of the criticisms commonly made of ADA scores do not apply to our application. Most importantly, as Jackson and Kingdon (1989) argue, ADA scores may be inappropriate measures of legislator ideology in statistical models explaining roll call voting behavior. In the analysis that follows, we use the ADA scores as our *dependent* variable, so we need not be concerned about introducing bias by explaining votes with votes. Third, while the distributional properties of ADA scores may be problematic, particularly arbitrary scaling, such issues are relevant for all other voting indices, including NOMINATE scores. Fourth, we are able to treat abstentions agnostically by removing them from the ADA's calculations (see Francis et al., 1994).

We employ a multivariate model that provides the framework for testing H_1, H_2, and H_3 against H_0 while controlling for other factors that may affect candidate positions. Conceptually the model allows us to directly estimate the proximity of winning candidates' policy positions to estimated voter preferences in their districts and to compare this relationship for general election winners elected under different primary systems. We hypothesize that winning candidate positions in elections with closed primaries will be extreme relative to the district's (general election) median voter. We hypothesize that the positions of winners from open, nonpartisan, and blanket systems will be more moderate relative to the general election median voter, and that the positions of winners from semi-closed primaries will be the most moderate.[20]

Formally, we describe the base empirical model as follows:

$$|WinnerIdeol_{it}DistrictIdeol_i| = \alpha_0 + \alpha_1 Semi_i + \alpha_2 Open_i$$
$$+ \alpha_3 NP/Blanket_i + u_{1it} \tag{1}$$

$WinnerIdeol_{it}$ is the winning congressional candidate's ADA score, corrected for abstentions, as described above. $DistrictIdeol_i$ is an estimate of district i's median voter's policy position. We operationalize $DistrictIdeol$ as the average of the percent in the district voting for Mondale in 1984 and for Dukakis in 1988. $DistrictIdeol$ therefore measures the district's ideological composition as the percent of liberals in the district.[21]

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20. Our cross-sectional approach to estimating the effects of primary election systems on the extremity of legislator policy positions has several advantages over alternative approaches. Perhaps most importantly, none of the states instituted significant changes in their primary election laws during this period (except Connecticut, but as explained in footnote 2, the parties chose not to use semi-closed primaries after the state allowed them). Thus we are able to treat the effects of those institutions as strictly exogenous. The main disadvantage of our approach is that there may be other sources of cross-sectional variation in the extremity of legislator policy positions that we inadvertently omit from our analysis, leading to potential omitted variables bias. Of course, however, such omissions will affect our inferences about the effects of primary election laws only if the omitted variables are also correlated with the state's electoral institutions (Gujarati, 1995:204–7). An alternative approach to estimating the effects of primary election systems is to compare the relationship between legislator positions and constituency preferences before and after states changed their primary election laws. While this time-series approach has the advantage of eliminating the possibility of cross-sectional variation in legislator policy positions across states, it has two important disadvantages. From a theoretical perspective, we can no longer treat electoral institutions as exogenous. In fact, since many of the same factors are likely to affect both institutional change and the nature of representation in a state, unbiased estimation would require modeling the process of institutional change explicitly. And from a practical perspective, few states actually changed their nomination procedures in the way required to test our theory (i.e., from closed to open, open to closed, etc.). Rather, most of the changes in candidate nomination procedures that states have implemented since their initial adoption of direct primaries have involved other restrictions on participation (especially verbal pledges of allegiance), changes in ballot access laws, and uses of conventions and endorsements.

21. By averaging the percent in each district voting for Mondale in 1984 and Dukakis in 1988, our measure of district ideology is less sensitive to election-specific fluctuations in district voting behavior than a single election's percentage. As a proxy for the district's median voter's ideology, our operationalization requires that the distribution of voter preferences in each district is roughly symmetric and single peaked. Our approach is comparable to the approaches taken by Erikson and

The independent variables in the base model include three dummy variables designed to capture the effects of the primary system. The dummy variables indicate whether the state uses semi-closed primaries, open primaries, or non-partisan or blanket primaries.[22] The excluded category is the closed primary. Therefore the dummy variables are interpreted as the change in the dependent variable for states with each of the three primary systems, relative to the effect of having a closed primary. Thus if more open systems lead to more moderate winners, the distance between the winner and the median voter will be less (i.e., the signs will be negative) on *Semi*, *Open*, and *NP/Blanket*. If semi-closed systems produce the most moderate representatives, as hypothesized, the magnitude of the negative coefficient will be largest on *Semi*.[23]

4.1 Estimation Procedures

Several factors complicate estimation of Equation (1). Most significantly, although *WinnerIdeol* and *DistrictIdeol* are both bounded by the range [0, 100], it is readily evident that the two variables follow very different distributions. *WinnerIdeol*, measured as a winning candidate's ADA score in the following

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Wright (1993) and Kenny and Morton (1993) to estimating state voter preferences from state vote returns. Other approaches to estimating aggregate voter preferences in the political science literature include employing aggregate state demographics as proxies of state voter ideology (Matsusaka, 1995) or estimating state voter preferences directly from survey data (Gerber, in press). While estimating district voter preferences from survey data would provide a more direct approach than proxying them from district vote returns, existing surveys lack an adequate sampling framework for drawing inferences about aggregate voter preferences in different districts.

22. Since the number of congressmen elected under nonpartisan, blanket, and the three varieties of semi-closed primaries are small, we combine the observations from nonpartisan and blanket primary states, and from the three types of semi-closed primary states, respectively. Note that by comparing the relationship between the ideology of winning candidates and their districts from different primary systems, our implicit dependent variable is whether candidates with moderate positions relative to their district's median voter are more likely to prevail in districts with open versus closed primaries. Our data are not sufficient for testing hypotheses about intraparty competition under different nomination rules. In other words, we are unable to test whether candidates with more moderate positions relative to the other candidates from their own party are more likely to prevail in districts with open versus closed primaries. This second question requires data on losers' ideological positions, which are available only on an ad hoc basis, such as when a loser is eventually elected in a subsequent election. As interesting as the question of intraparty competition is, it does not address the immediate concern of this article.

23. Of course, it is possible that some of the effects picked up by the primary system dummy variables may be due not to the independent effects of the state's primary system on representative's policy positions, but rather to the fact that states with moderate voters may elect moderate representatives and adopt more open primary election systems. In other words, the estimated relationship between institutions and policy positions may be spurious. While election laws may be partially endogenous, we note two factors that justify our treatment of electoral institutions as largely exogenous. First, citizen preferences vary a great deal among states with similar primary systems. In other words, it is not just states with moderate voters, for example, that adopt open primaries—open primary states may have moderate or extreme voters. Second, we are interested in the relationship between representatives' positions and voters' positions. Therefore, even if there were some relationship between voter preferences and primary systems, this relationship would not necessarily translate into a closer (or weaker) correspondence between voter preferences and the representatives they elect.

term, follows a strongly bimodal distribution with one mode at the lower end of the range and one mode at the higher end of the range. *DistrictIdeol*, measured as the average of the district's Mondale and Dukakis votes, exhibits a single, highly skewed mode. The relationship between the two variables is therefore likely to be inherently nonlinear, and so standard assumptions about normality of the errors are clearly violated. The possibility also exists that one of the variables is truncated or both are truncated at different points.[24] Further, the means of the two distributions are at different points.[25]

To reduce the possibilities of bias or incorrect inferences due to violations of the standard regression assumptions, we generalize our specification to allow *WinnerIdeol* and *DistrictIdeol* to be related nonlinearly. To capture this potential nonlinearity, we remove the absolute value from the dependent variable, move *DistrictIdeol* to the right-hand side of the equation by adding it to both sides, and add second- and third-order polynomial terms. This polynomial specification allows us to estimate the relationship between *WinnerIdeol* and *DistrictIdeol*, accounting for potential nonlinearities introduced by the distributions of the two variables. Thus if the relationship between *WinnerIdeol* and *DistrictIdeol* is characterized by a second-order polynomial, we will estimate a significant effect on the second-order term. If it is captured by a third-order polynomial, we will estimate a significant effect on the third-order term as well.

Table 2 reports preliminary OLS regression estimates for the relationship between *WinnerIdeol* and *DistrictIdeol*, *DistrictIdeol*^{2}, and *DistrictIdeol*^{3} on the full dataset. The data are stacked such that each observation represents one district in one election, with a maximum of $435 * 5 = 2175$ observations.[26] In each estimation, the dependent variable is *WinnerIdeol*$_{it}$. The three columns report three alternative specifications of the relationship between *WinnerIdeol* and *DistrictIdeol*.

The bivariate relationship between *WinnerIdeol* and *DistrictIdeol* reported in column 1 is strong, positive, and significant. *DistrictIdeol* plus the constant together account for 44% of the variance in *WinnerIdeol*. The second-order effects estimated in column 2 are also strong and significant, while the addition of the third-order effects does little to improve the model. On the basis of this preliminary analysis, we limit our polynomial specification of the relationship between *WinnerIdeol* and *DistrictIdeol* to a second-order polynomial.

While solving the problem of nonlinearity between *WinnerIdeol* and *DistrictIdeol*, moving *DistrictIdeol* (and *DistrictIdeol*^{2}) to the right-hand side of the equation creates another problem: directionality. Recall that the original dependent variable, $|WinnerIdeol - DistrictIdeol|$, was expressed as an absolute value. This allowed us to measure deviations from the districts' median voter's

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24. Many legislators are clustered at the endpoints with ADA scores of 0 (very conservative) or 100 (very liberal). However, if there is diversity in ideology among legislators at the endpoints (that is, some legislators with scores of 100 are actually more liberal than others), then assigning all the same score may attenuate the variance in distance measures.

25. The mean of *WinnerIdeol* is 51.34; the mean of *DistrictIdeol* is 43.61.

26. The actual number of observations is fewer (2170) because of missing data.

Table 2. Regression Coefficients Relating Winner's ADA Score and District's Average Vote for Mondale 1984 and Dukakis 1988, U.S. Congressional Districts, 1982–1990

Independent Variable	DV = *Winner/deol*	DV = *Winner/deol*	DV = *Winner/deol*
Constant	−35.34**	−133.36**	−92.12**
	(2.14)	(5.86)	(17.18)
District/deol	1.99**	6.06**	3.46**
	(.05)	(.23)	(1.05)
District/deol^2		−.04**	.01
		(.00)	(.02)
District/deol^3			−.0003**
			(.0001)
R^2	.45	.52	.52
N	2171	2171	2171

** $p < .05$, two-tailed test.
Standard errors in parentheses.

ideal points in either direction with a single distance measure. By removing the absolute values to allow for the polynomial specification, however, it is now possible that deviations in either direction will cancel out, leading to the appearance of no relationship. Therefore, to capture these directional effects, we estimate the model two different ways. First, we note that most Democrats' ADA scores are greater than their districts' estimated median voter's ideal point, and that most Republicans' ADA scores are less than their district's ideology scores. This allows us to capture directionality by simply adding a variable to indicate the winner's party (scored 1 for Democrats, -1 for Republicans) and to interact the independent variables of interest with this party variable, as in Equation (2).

$$WinnerIdeol_{it} = \beta_0 + \beta_1 DistrictIdeol_i + \beta_2 DistrictIdeol_i^2 + \beta_3 Party_{it}$$
$$+ \beta_4 Semi_i * Party_{it} + \beta_5 Open_i * Party_{it}$$
$$+ \beta_6 NP/Blanket_i * Party_{it} + u_{2it} \qquad (2)$$

Interpretation of the coefficients in Equation (2) is as follows. The coefficients on *DistrictIdeol, DistrictIdeol^2*, and *Party* establish the baseline relationship between the average representative's ADA score from each party and his or her district's ideology in a closed primary state. The coefficients on *Semi, Open*, and *NP/Blanket* reflect the average deviation from this baseline relationship for representatives in each primary system. Negative coefficients on *Semi, Open*, and *NP/Blanket* are interpreted as indicating less policy divergence in those systems from a member's district ideology—in a negative direction for Democrats and in a positive direction for Republicans. Positive coefficients on *Semi, Open*, and *NP/Blanket* indicate more policy divergence.

While Equation (2) solves the problems of nonlinearity and directionality, there remain several problems with the estimates it produces. Most importantly, the specification of Equation (2) masks differences in the effects of primary sys-

tems on Democratic and Republican members of Congress. These differences may arise due to organizational differences in the parties, national partisan forces, and idiosyncratic features of each party's candidates. To account for potential partisan differences, we next estimate Equation (3) separately for Democratic and Republican winners:

$$WinnerIdeol_{it} = \gamma_0 + \gamma_1 DistrictIdeol_i + \gamma_2 DistrictIdeol_i^2$$
$$+ \gamma_3 Semi_i + \gamma_4 Open_i + \gamma_5 NP/Blanket_i + u_{3it} \qquad (3)$$

Interpretation of the *DistrictIdeol* coefficients is comparable to that for Equation (2). We interpret the primary system coefficients as follows. For Democrats, negative coefficients on *Semi*, *Open*, and *NP/Blanket* mean that Democrats elected under those systems are more moderate (conservative) than Democrats elected under closed primaries. For Republicans, positive coefficients on *Semi*, *Open*, and *NP/Blanket* mean that Republicans elected under those systems are more moderate (liberal) than their closed primary partisan counterparts.

Given the panel nature of the data, with multiple time observations from each cross-sectional unit (congressional district), we employ an estimation procedure that allows us to test and correct for likely features of the error structure in the data. In particular, we estimate Equations (2) and (3) with the pooled cross-section time-series estimation procedure in Stata 5.0 that allows for both serially correlated and cross-sectionally heteroscedastic (but independent) errors across observations (i.e., we allow both between and within district random effects).

4.2 Results

Table 3 reports the pooled cross-section time-series regression estimates for Equation (2). All of the regression analyses in Tables 3 and 4 use *WinnerIdeol* as the dependent variable. The first column of Table 3 reports pooled regression estimates of a baseline model using *DistrictIdeol*, *DistrictIdeol*^{2}, *Party*, *Semi*, *Open*, and *NP/Blanket* as the independent variables. Subsequent columns add independent variables to control for other potentially important factors.

In the base model in the first column, the positive significant effect on *DistrictIdeol* indicates that members of Congress elected from more liberal districts have higher ADA scores and those elected from more conservative districts have lower ADA scores. The negative coefficient on *DistrictIdeol*^{2} shows that these effects taper off at higher levels of *DistrictIdeol*. The positive coefficient on *Party* shows that Democrats have much higher ADA scores than Republicans. Finally, the significant negative coefficients on *Semi∗Party*, *Open∗Party*, and *NP/Blanket∗Party* are consistent with hypothesis 1, indicating that representatives from semi-closed, open, nonpartisan, and blanket primary systems are more moderate than representatives from closed primary systems.

Columns 2 and 3 add independent variables to control for other factors that may also affect a winner's ideology. Column 2 adds a dummy variable indicating whether the state uses runoffs in addition to their other primary election institutions. While the extant theory described in this article does not address the effects of runoffs directly, there are several reasons to believe that runoffs

Table 3. Pooled Cross-Section Time-Series Regression Coefficients Relating Winner's ADA Score and Primary System Type, U.S. Congressional Districts, 1982–1990

Independent Variable	DV = *Winnerldeol*	DV = *Winnerldeol*	DV = *Winnerldeol*
Constant	−31.90**	−28.43**	−28.82**
	(8.45)	(8.10)	(8.09)
Districtldeol	2.46**	2.39**	2.41**
	(.33)	(.32)	(.32)
Districtldeol²	−.01**	−.01**	−.01**
	(.00)	(.00)	(.00)
Party	26.62**	29.32**	30.19**
	(.75)	(.80)	(.84)
Semi∗Party	−7.66**	−9.34**	−9.53**
	(1.36)	(1.35)	(1.43)
Open∗Party	−2.68**	−2.63**	−2.44**
	(.99)	(.97)	(.98)
NP/Blank∗Party	−9.07**	−5.00*	−4.81*
	(2.60)	(2.58)	(2.57)
Runoff∗Party		−8.95**	−3.96*
		(1.01)	(2.10)
President∗Party			−1.55**
			(.40)
OpenSeat∗Party			2.10
			(.81)
South∗Party			−5.87**
			(2.11)
NewEngl∗Party			−2.63
			(1.79)
Overall R^2	.75	.77	.77
N	2170	2170	2170

** $p < .05$, two-tailed test; * $p < .10$, two-tailed test.
Standard errors in parentheses.

may further affect the types of representatives elected. First, runoffs are used primarily in the South, where both voters and their representatives have historically been more conservative. To the extent that *DistrictIdeol* fails to capture some of the distinctiveness of the American South, *Runoff* may compensate. Second, runoffs are widely believed to create advantages for majority candidates, who may be more conservative than their minority challengers.[27]

The significant negative coefficient on *Runoff∗Party* shows that members of Congress elected in primary systems with runoffs are, indeed, more moderate.

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27. See Bullock and Johnson (1992) for a review of the empirical literature on runoffs and an opposing viewpoint.

In addition, including *Runoff*Party* decreases the size of the *Open*Party* and *NP/Blanket*Party* coefficients and increases the relative size of the *Semi*Party* coefficient, consistent with hypotheses 2 and 3.

Column 3 adds variables to capture features of the individual elections and other regional factors. We see that representatives elected in presidential election years are more moderate while those elected from open seats are more extreme. Representatives elected from the South are more moderate, even after we control for whether the state uses runoffs. The addition of these independent variables leaves the primary system coefficients largely intact, slightly reducing the (negative) effects of *Open*Party* and *NP/Blanket*Party* and slightly increasing the (negative) effect of *Semi*Party*.

Table 4 reports the pooled cross-section time-series regression estimates separately for Democrats and Republicans. The estimates in column 1 show that Democratic members of Congress elected under semi-closed, open, nonpartisan, and blanket primaries are more moderate (conservative) than Democrats elected under closed primaries. The effects of *Open* and *NP/Blanket* are substantively meaningful and statistically significant. However, the negative effect of *Semi* is not significant. When we add controls for whether the state uses runoffs, whether the member was elected in a presidential election year or from an open seat, and whether the district is in the South or New England, the effect on *Open* and *NP/Blanket* remain negative and the effect on *Semi* becomes significant.[28] For the most part, then, the results for Democrats are consistent with hypotheses 1 through 3, although those members elected from nonpartisan and blanket primaries are more moderate than expected.

Columns 3 and 4 report comparable estimates for Republican members of Congress. The estimates in column 3 show that Republican members of Congress elected from semi-closed primary systems have more moderate (liberal) ADA scores than their closed primary counterparts. However, those elected from open, nonpartisan, and blanket primary states have more extreme (conservative) ADA scores, on average, contrary to expectations. The negative effect on *Open* persists even once we control for runoffs, election-specific variables, and region, while the effect on *NP/Blanket* becomes positive (as expected) and significant. Finally, the effect on *Semi* is large, positive, and significant, as hypothesized, but smaller than the effect on *NP/Blanket*.[29]

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28. In the full model for Democrats (column 2), we also include a dummy variable for Washington state. Exclusion of this variable leaves the coefficients largely unchanged, but the effect of *NP/Blanket* is not significant. Similarly, in the full model for Republicans, we include a dummy variable for Louisiana.

29. To test the robustness of our results, we reran the analysis using the winning candidate's W-NOMINATE score (first dimension) as the dependent variable. In both the combined and separate party analyses, the primary system variables were all the same sign and relative magnitude as in the analysis presented in Tables 3 and 4. Only one primary system was statistically significant by traditional standards, however, suggesting that the NOMINATE scores contain more variability in individual legislator voting behavior than the ADA scores. Complete results of the supplemental analyses are available by request from the authors.

Table 4. Pooled Cross-Section Time-Series Regression Coefficients Relating Winner's ADA Score and Primary System Type, Democrats and Republicans, U.S. Congress, 1982–1990

Independent Variable	Democrats		Republicans	
	DV = WinnerIdeol	DV = WinnerIdeol	DV = WinnerIdeol	DV = WinnerIdeol
Constant	−36.57**	−2.14	16.29	23.45
	(12.79)	(11.11)	(18.49)	(16.94)
DistrictIdeol	3.75**	2.62**	−1.13	−1.35
	(.47)	(.40)	(.94)	(.86)
DistrictIdeol^2	−.02**	−.02**	.03**	.03**
	(.00)	(.00)	(.01)	(.01)
Semi	−.39	−6.72**	13.12**	9.05**
	(3.00)	(2.79)	(3.18)	(2.98)
Open	−7.10**	−3.03*	−4.18**	−3.03*
	(2.11)	(1.82)	(1.89)	(1.77)
NP/Blank	−13.81**	−13.69**	−.83	12.13**
	(5.17)	(5.98)	(4.63)	(5.74)
Runoff		−8.58**		−3.97
		(3.62)		(3.85)
President		−3.53**		−1.40**
		(.51)		(.51)
OpenSeat		1.97*		−1.38
		(1.16)		(.96)
South		−12.80**		−.54
		(3.68)		(3.70)
NewEngl		10.19**		21.55**
		(3.66)		(3.74)
WA/LA		15.57*		−20.70**
		(8.46)		(8.28)
R^2	.39	.55	.37	.48
N	1302	1302	868	868

**p < .05, two-tailed test; *p < .10, two-tailed test.
Standard errors in parentheses.

5. Conclusions

We find strong support for the hypothesis that U.S. representatives from states with closed primaries take more extreme policy positions, relative to their district's median voter, than representatives from states with more open primaries. We take this as evidence that primary election laws systematically affect the types of candidates elected and the choices they make once in office.

Not all closed primary systems are created equal, however. Our results indicate that semi-closed primary systems that allow new voters or independents to participate in the candidate nomination process produce Republican winners

whose positions are more liberal and Democratic winners whose positions are more conservative than their closed primary counterparts. This pattern suggests that incentives may exist for semi-closed primary voters to register strategically as independents in order to participate in whichever party's primary affords a better opportunity to affect the general election outcome. This possibility has real practical implications. Several states are now considering or have just adopted changes in their primary election laws. Our research illustrates that the important feature of a system is not just whether it is nominally open or closed; rather, the specific institutional details of the system may be critically important.

Not all open primaries are created equal, either. Our results indicate that nonpartisan and blanket primaries produce the most moderate general election winners from both parties. We interpret this result as compelling indirect evidence that while both strategic and sincere crossover voting are possible in these very open primary systems, sincere crossover by moderate voters dominates and leads to the election of moderate candidates from both parties. This conclusion is consistent with preliminary analyses by Alvarez and Nagler (1997) which show minimal levels of strategic crossover voting.

Our results also have implications for subsequent theoretical analyses of multistage electoral processes. They underscore the importance of modeling the institutional details of election systems and the effects those institutions have on voter and candidate incentives in both the registration and voting stages.

Finally, while our research demonstrates that differences in primary election laws can have significant effects on the types of candidates elected, it is unclear which primary system is desirable from a normative point of view. That is, the empirical results support the conclusion that candidates closer to the median voter are more likely to be elected in districts with semi-closed, open, nonpartisan, and blanket primary systems. Thus if closeness to the median voter is viewed as desirable, then open primaries are preferable to closed primaries. However, in districts in which important groups have preferences different from the median voter, more open primaries may lessen the probability of these voters' preferences receiving representation.

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