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**Electoral Systems and the Art of
Constitutional Engineering:
An Inventory of the Main Findings**

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I Introduction

Electoral system choice, especially the distinction between proportional representation systems (PR) and plurality or majority forms of electoral rules, is widely regarded by political scientists as one of the three fundamental institutional decisions made by a democratic polity (the two other key elements of choice being presidentialism vs. parliamentarism, and unitary vs. federalized government).¹ Choice of electoral systems and other electorally related decisions (e.g., about number of districts, timing of elections, basis for apportioning seats, the nature of the redistricting process, etc.)² can be directly linked to a variety of other aspects of the political system such as the number of parties; the degree to which minor parties or minority points of view come to be represented; the degree of descriptive representation by gender, race, religion, and so forth; bias in the way in which some parties have their vote shares translated into set shares relative to other parties with the same vote share;

¹ See e.g., Lijphart (1984). However, elsewhere it has been argued (Grofman, 1996c) that there are several other elements of constitutional choice (in particular, (4) the basis of citizenship (e.g., citizenship by blood vs. citizenship by mutual choice) and (5) whether or not the constitution proclaims that citizens possess positive rights (e.g., the right to an education or to health care) and not merely protections for rights such as free speech) that are at least as important for the politics of a nation.

² The Introduction to Grofman and Lijphart (1986) identifies nearly two dozen aspects of electoral system choice, including rules for candidate eligibility, types of restrictions on the nature of campaigning, campaign finance rules, and procedures for ensuring the honesty of the ballot count. Despite the potential importance of fine tuning such as the actual mechanisms and standards for drawing distinct boundaries (see e.g., various essays in Grofman et al., 1982; Cain, 1985; Mair, [1986]/1994; Grofman, 1990; Courtney, MacKinnon, and Smith, 1992; Butler and Cain, 1992; Grofman, 1998) our principal focus here is on the basic aggregation rules for translating votes into seats (see e.g., Taagepera and Shugart, 1989).

the likelihood of single-party governments; cabinet durability; incentives for localistic or parochialistic attitudes on the part of legislators; electoral responsiveness of the legislature to changes in voter preferences; conflicts between president and legislature; and so on. In sum, electoral systems matter.

Electoral systems are currently a hot topic in political science, with the "third wave" of democratization having produced a large number of new (or "renewed") democracies.³ Electoral and other results from these new democracies provide a fertile avenue for new research, especially since the number of electoral system variants available for study has increased at the same time as there has been the increase in the number of practicing democracies from which data can be obtained.⁴ Because of the availability of data from more than one country using the same (or nearly the same) electoral system as well as data permitting district-level within-nation comparisons, and because of the relatively easy availability of longitudinal data sets for the long-term democracies for at least the fifty-year post-WWII period,⁵ electoral systems research lends itself naturally to genuinely comparative research following the *tnt* principle (comparisons across types of (electoral) systems, across nations or other political sub-units, and across time).⁶

Electoral systems generate quantitative data (e.g., about party vote shares and seat shares) that is readily amenable to quantitative analysis.

³ Much of the best work on electoral systems appears in the journal *Electoral Studies*, which came into being a little over a decade ago.

⁴ The best sources for an inventory of electoral system use around the world are Reynolds and Reilly (1997) and Cox (1997). Because the major variations in electoral systems are relatively well known and have been fully described elsewhere (e.g., Rae, 1971; Reeve and Ware, 1992; Taagepera and Shugart, 1989; Reynolds and Reilly, 1997; Cox, 1997; Farrell, 1997), given space constraints we will not attempt to review those basic definitions here, but will assume that readers are familiar with the distinctions among, say, plurality, list PR, STV (the single transferable vote), limited voting systems such as SNTV (the single non-transferable vote), cumulative voting, the German double-ballot added-member system (which imposes overall proportionality), and other double-ballot mixed systems (e.g., that in Japan or Russia) whose separate PR and SMD components are not linked in any way.

⁵ Hard copy versions of detailed election results for established democracies are available in sources such as Mackie and Rose (1991 et seq.), with current election results reported in journals such as *Electoral Studies* and an annual special issue of the *European Journal of Political Research*. Increasingly, data for a majority of democratic polities is available on-line. In particular, the Lijphart Archives, directed by Gary Cox at University of California, San Diego, <http://dodgson.ucsd.edu/lij/> now offers election data at the district level (as well as at the national level) from elections around the world.

⁶ The notion that comparative research can be phrased in terms of the *tnt* principle is due to A. Wuffle (cited in Grofman, 1999a), but the idea is certainly not original to him. Indeed, Wuffle (personal communication, April 1, 1992) recalls having heard this same general idea being advocated by David Easton nearly thirty years ago (cf. Przeworski and Teune, 1970).

With only some exceptions most of the obvious dependent variables to study (e.g., number of parties, disproportionality of votes to seats results) lend themselves to unambiguous operationalization.⁷ Electoral systems analysis also lends itself to modeling because we may reason in an intuitive way about how certain structural properties of electoral systems (e.g., electoral system type, district magnitude, etc.) will impact other variables of interest (e.g., the number of parties who gain seats in the legislature).⁸ Furthermore, in the electoral arena it does not seem especially problematic, even to the most hide-bound of political scientists, to try to develop models with a rational choice component to them. Political actors are likely to be attentive (at least in an intuitive way) to the same institutional features of electoral systems that the analyst is seeking to model insofar as those features can impact their electoral chances or political careers.

While as a matter of political reality electoral systems are hard to change, they are more open to change than most other key institutional practices, especially since, in many countries, electoral systems choice is not constitutionally embedded, but allows for change by legislative action.⁹ Thus, of the three “fundamental” political choices identified by

⁷ Of course, there are a number of far from trivial issues of operationalization even about matters that would seem to be obvious, like how many parties there are. What about parties that are essentially regional wings of one party (e.g., the CDU and the CSU in Germany) but that, nonetheless have distinct names even though they never contest one another and always are in (or out of) governing coalitions as a unit? Should we look at only those parties that gain seats? Should we use some (arbitrary) threshold to exclude “minor” parties from our analyses? To deal with the counting issue, Laakso and Taagepera (1979) propose that we take into account party vote or seats shares in terms of what they call the “effective” number of electoral and the “effective” number of legislative parties. Their answer (which is a variant of the Hirschman-Herfindahl index familiar to economists) has been widely accepted by political scientists. Similarly, there are at least two main contenders for a measure of disproportionality of electoral results. One is the coefficient of deviation, most closely associated with the names of Loosemore and Hanby (1971), which had become the standard measure in the literature. The other is Gallagher’s more recently proposed (1991) least-squares measure, which has already begun to win converts – beginning with Arend Lijphart. But these are essentially technical questions which need not concern us here. We should note, however, that in general we will use the Laakso-Taagepera effective number of parties, which equals one over the sum of the party vote shares, whenever we talk about the “number” of parties.

⁸ Moreover, certain electoral constraints (e.g., on the maximum number of parties that can gain representation, a constraint set by the size of the assembly) allow us to appeal to basic statistical principles (e.g., about the properties of bounded distributions) to derive testable inferences.

⁹ We don’t know exactly how many countries have electoral rules that are constitutionally embedded and thus especially resistant to change, but it is a minority of countries. Even countries that reference the electoral rules in their constitution rarely do so in a very detailed way. For example, South Africa’s Constitution simply talks about the use of a proportional method of election (Reynolds, 1996). The U.S. Constitution does not specify

Lijphart (1984), electoral system choice appears to be the easiest to change. Therefore, to the extent that we can identify clear probable consequences of electoral system choice, it may be possible to implement desired changes.

In looking to choice of electoral system, the three-fold distinction between proportional, semi-proportional, and majoritarian/plurality systems is standard in the literature on electoral systems (e.g., Grofman, 1975; Taagepera and Shugart, 1989). Here we argue that it must be rethought.

First, we must distinguish between how electoral systems operate in principle to achieve proportionality and how systems operate in practice. The first is based on theoretically derived properties of electoral system like the threshold of representation and the threshold of exclusion (Lijphart, 1986), thresholds that tell us the minimum expected vote share needed to gain a seat and the maximum expected vote share which is still not large enough to guarantee at least one seat, respectively. The second is based on what, in reality, those thresholds are. In general, small parties often achieve representation with considerably fewer votes than would seem to be required by the threshold of representation, and the "effective" threshold of exclusion is usually a lot lower than its theoretical value (Rein Taagepera, work in progress). Moreover, in judging the expected proportionality of any electoral system we must also take into account complications such as national thresholds that exclude parties that fail to receive a certain proportion of the total vote.

Our second challenge to the usual classification of electoral systems in terms of their expected proportionality is quite different, and even more fundamental. Elsewhere (Grofman, 1996b; Bowler and Grofman, 1997; Grofman, 1999b) we have argued that, while proportionality is important (e.g., in affecting system legitimacy and the number of political parties), it is not necessarily the most important feature of an electoral system (see also Carey and Shugart, 1995). If we focus on other considerations that we have previously talked about, for example, the extent to which an electoral system provides options to voters to choose among candidates as well as among parties (which affects strength of party systems) or the differences in electoral systems in terms of the incentives for local-

the election method for members of Congress other than to say it will be by popular vote. Even the details of the electoral college method for electing the president are actually a lot more open than is commonly thought. In particular, even though, at present, all states implement the rule that the candidate who wins a plurality of the state's popular vote wins all of the state's electoral college votes, in fact states are free to choose any method they like to select presidential electors. Rein Taagepera (personal communication, February 1997) has noted that in long-term democracies that have had recent changes of electoral system (France in the 1980s, twice; New Zealand, 1993; Japan, 1996; Italy, 1993) constitutional change was not required.

ism or particularism, then we end up with quite different ways to view the question of which electoral systems are most alike.

For example, in the usual classification STV (single transferable vote) and list PR are on one end of the continuum (most proportional), while bloc vote plurality is at the other end (least proportional) and a system like SNTV (single non-transferable vote) is in the middle. However, if we classify systems according to the degree to which they are likely to strong and disciplined political parties, then, *ceteris paribus*, list PR is at one end, but now STV may look a lot more like SNTV than it does list PR, because both STV and SNTV allow for intra-party competition when a party nominates more candidates within a constituency than its voting strength in the electorate will permit success to, and this normally gives rise to party factionalism. Moreover, under closed list PR, the party apparatus has control over candidate placement (and thus likelihood of electoral success) which gives the party a lot of clout in disciplining errant legislators by holding over them the threat of denying them renomination (or at least placing them so low on the list that their chances of victory are much reduced). Similarly, if we classify systems according to the degree to which they foster localistically oriented representatives, then STV may look a lot more like SNTV or even a single-member district (SMD) than it does list PR, since the success of a candidate depends entirely on having enough *personal support* among voters in the local constituency – which sensitizes the candidate to local concerns. In these systems, running on the stronger party label may help, but it is not the whole story, and it is the local preferences among candidates that are decisive.

II Classic Propositions of the Electoral Systems Literature

Until quite recently, the literature on the political consequences of electoral laws emphasized three effects:¹⁰ first and foremost, the way in which electoral systems impact on the proportionality of the translation of party shares of the vote into party seat shares in the (national) legislature; second, the impact of election rules on the number of parties; and third, the stability of political regimes, especially as measured by the longevity of governing cabinets. Key propositions with respect to each domain may be summarized (in what we might think of as “classic comic book,” i.e., oversimplified form) as follows:

First, PR systems are more proportional in their translation of votes into seats than plurality/majority systems, and the most important single variable affecting degree of proportionality in PR and semi-PR systems is what has been called district magnitude, generally denoted M , the

¹⁰ See e.g., Rae (1971), Grofman (1975), Lijphart and Grofman (1984), Grofman and Lijphart (1986), Taagepera (1986), Taagepera and Shugart (1989), and Lijphart (1994).

number of seats per district (Sartori, 1968; Taagepera and Shugart, 1989; Lijphart, 1994). For fixed M , more fine-tuned differences among PR systems are captured by the *threshold of representation* and the *threshold of exclusion*. The latter is the smallest vote share a party might receive and still obtain representation (under the most favorable circumstances); the latter is the largest vote share a party might receive and still be denied representation (under the least favorable circumstances). For most PR systems, the threshold of representation is roughly inverse to M .¹¹ However, certain forms of list PR¹² are more advantageous than others to smaller/larger/mid-sized parties (Gallagher, 1992).¹³

Second, with respect to the number of parties, Duverger's Law states that plurality-based elections¹⁴ in single-member districts¹⁵ will generally result in two-party politics. In contrast, Duverger's Hypothesis states that proportional election systems generally give rise to multi-party politics.¹⁶ An important further generalization of Duverger is the claim that, *ceteris paribus*, the larger the district magnitude, M , the greater will be the number of political parties (Sartori, 1968).

Duverger posits that his "Law" operates through two factors. On the one hand, plurality elections have a very high threshold of exclusion (1/2) and thus non-majority parties may be frozen out completely, while small parties are unlikely to win representation even if more than two parties compete. This is what Duverger calls the "mechanical effect." On the other hand, voters who see their first choice having little or no chance of victory might be expected to vote (eventually) for the more preferred

¹¹ Values of these thresholds are given for most of the common electoral systems in use in Grofman (1975) and in Lijphart (1986), which corrects an error in the Ste. Lagüe formula given in the earlier work. Taagepera (personal communication, February 1997) has suggested using an index value that is the average of these two thresholds.

¹² The most important formulae for list PR are D'Hondt, Ste. Lagüe, and "largest remainder." These correspond, respectively, to the Jefferson, Webster, and Hamilton rules for apportioning the U.S. House of Representatives (Balinski and Young, 1982).

¹³ The literature on proportionality as a function of party size (see esp. Taagepera and Shugart, 1989) draws on derived quantities such as "advantage ratio" (denoted A , the ratio of seat share to vote share for a given party) and B (the break-even vote share value such that above that value of the "index of advantage" is greater than 1, i.e., the point at which larger parties come to be overrepresented).

¹⁴ The British call such elections, "first past the post," commonly abbreviated FPTP. We will stick to the American usage.

¹⁵ A "single-member district" (SMD) is one from which a single representative is elected. Similarly a "multi-member district" (MMD) is one from which more than one representative is to be elected.

¹⁶ Duverger's ideas are contained in Duverger (1954). The distinction between Duverger's Law and Duverger's Hypothesis is due to Riker (1982, reprinted as in Grofman and Lijphart, 1986). Downs (1957), operating in apparent ignorance of Duverger's work, proposes something very close to Duverger's Law. Riker also traces still earlier scholarship anticipating Duverger's assertions. See also Duverger (1986), Sartori (1986), Taagepera and Shugart (1989), Lijphart (1994), and Feddersen (1992).

of the two major parties. This is what Duverger calls the "psychological effect." Clearly, too, potential candidates of small parties might be deterred from running when they realize that their party has no realistic chance of victory, and financial and other campaign support for candidates with no realistic chance of victory would be inhibited.¹⁷ Downs (1957) provides a somewhat different argument for why single-member district competition should create two-party competition. If there is a single dimension of ideological competition, in an extension of the famous median voter argument, Downs shows that three-party politics tends to be unstable in that the pressures toward convergence toward the views of the median voter will tend to squeeze out the center party.

Third, with respect to cabinet durability, nations with two parties have the longest-lasting cabinets, and generally speaking, the greater the "effective number" of parties, the lower is cabinet durability (Dodd, 1976; see recent literature review in Grofman and van Roozendaal, 1997). Thus, combining Duverger's Law and Hypothesis with these results, we get the claim that nations using plurality-based elections in single-member districts will generally have more stable cabinets than nations using PR in large, multimember districts, that is, that cabinet stability will be inverse with M .

Note that stating each of the three basic propositions of the classical electoral systems literature in terms of M allows us to see linkages among these propositions that might not otherwise be apparent. We show those links in Figure 1.

As we see, because each is oppositely signed with respect to M , we expect that cabinet stability and proportionality of election results will be inversely related to one another. The seeming incompatibility of the two criteria of proportionality and stability has been the single most salient feature of the normative debate over electoral systems (Introduction to Lijphart and Grofman, 1984). Advocates of PR have trumpeted its proportionality and concomitant "fairness" of representation. Advocates of single-member district elections have argued that PR makes likely the election of "extremists"¹⁸ and argued, more generally, for the incompatibility of PR and stability of policymaking (see e.g., the various essays in Lijphart and Grofman, 1984; cf. the extended discussion in Reynolds and Reilly, 1997; Farrell, 1997).

We find that the PR versus plurality debate is largely misguided.

¹⁷ Ongoing work by a student of Grofman's (Collet, 1997) on minor party candidates in the United States shows that almost all of them run knowing that their party (and they) have no chance for victory. Collet's study considers in some depth the motivations of these candidates.

¹⁸ We will look at the linkages between electoral system type and the ideological dispersion of representatives later in this essay.

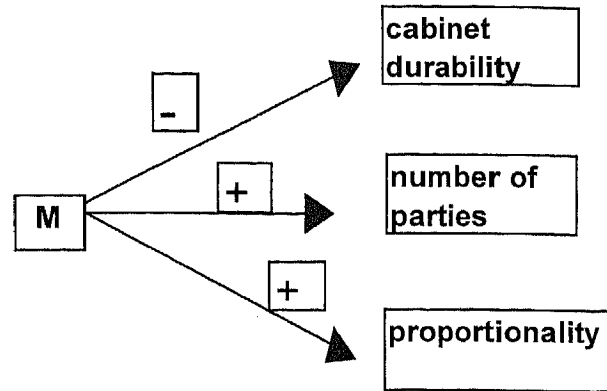


Figure 1. Hypothesized links between district magnitude M and various political consequences of electoral laws.

First, any simple-minded polar opposition between PR and plurality is mistaken because we can better think of electoral systems as organized along a continuum (according to M) than in terms of a dichotomy. Also, there are various systems that show that PR versus plurality is a false dichotomy, for example, limited voting and various types of mixed systems design that combine PR and plurality elements (such as the added member system in Germany and in the countries that have recently copied the German mixed system to a greater or lesser degree: Italy, New Zealand, Albania, Russia, Japan, etc.). Even within PR, as noted earlier, a good case can be made that the difference between the STV form of PR and list PR is more significant than the difference between STV and SMD plurality (Grofman, forthcoming b). Moreover, each of the three classic propositions laid out in Figure 1 is in need of some important qualifications.

Proportionality

While PR systems are, in general, more proportional in their translation of aggregate party vote shares into legislative seat shares than plurality systems, we must be careful not to exaggerate the magnitude of the differences. Indeed, we may actually initially get very high disproportionality of seats to votes in new democracies that adopt PR with a high district magnitude!¹⁹ The disproportionality result stated in Figure 1

¹⁹ This happened in a number of the Eastern European and Baltic nations (e.g., Estonia and Russia) in the 1990s.

implicitly assumes that we are comparing across district magnitudes while holding party system (and electoral system) constant. Yet, in new democracies, the number of parties that contest elections will also rise with M and it will take time (perhaps quite a lot of time) for a weeding out of parties to occur. If most of these new parties generally fail to meet the (empirical) threshold of representation at the district level (or some national level threshold), it is quite possible that 20 percent (or an even higher proportion) of the vote may end up wasted, thus producing considerable disproportionality of vote share to seat share among the set of parties as a whole.

For SMD plurality elections Cox (1997) identifies certain non-Duvergerian equilibria that permit more than two parties to compete in situations where expectations about which party will come in third are not clear. Similarly, Cox shows that a proliferation of small parties competing for the M th seat is possible under list PR in situations where there can be no clear expectations about which of these parties will be victorious. This suggests that the full effects of electoral systems may not occur immediately, since it may take time for key actors to realize the nature of the behaviors that constitute optimizing strategies in the new system (Reed, 1990).²⁰

On the other hand, in long-established two-party systems as in the United States, where it is rare that one party's vote share for the House or Senate falls below 40 percent, disproportionality may not be that large (see, e.g., Brady and Grofman, 1991b; Brunell, 1997). Over the past several decades, the relationship between seat share (S) and vote share (V) in the U.S. House is given by

$$S/(1-S)^a [V/(1-V)]^{1.7}$$

Thus, in the United States a party with, say, a 0.55 vote share, will end up with a 0.59 seat share in the House – not that far from proportionality. Moreover, if we look over a series of elections, since parties may well alternate in power, in two-party systems the long-run disproportionality between seats and votes when these are cumulated over a large number of elections may be very small, indeed.²¹

²⁰ In the Japanese electoral context, Michael Theis (e-mail communication, SSJ-Forum: RE "Electoral System Reforms and Political Behaviour," June 15, 1995) observes that implications of 1994 electoral law change will not be immediate: "extant parties and individual incumbents and *koenkai*-based campaigning" introduce stickiness. He also makes the more general point that "new institutionalist" models should never assume that politics is a "frictionless market."

²¹ The British geographer Peter Taylor (1984) refers to this long-run seats–votes proportionality in stable two-party systems as "proportionality of tenure."

Duverger's Law and Hypothesis

Similarly, there are a number of problems with Duverger's Law and Hypothesis in the form they are customarily stated. Are we to take the Law to apply to individual districts or to the nation as a whole?²² Two-party competition at the district level can generate far more than two-party competition nationally if the same two parties do not compete in all the districts. With the notable exception of the United States, no nation using single-member district-plurality elections actually has only two major national parties! Indeed, we believe that no nation other than the United States actually has only two-party competition even at the constituency level. Ought we not try to take into account ethnic or other cleavage lines that might create regional bases of strength for some parties (Amarin and Cox, 1997; cf. Eckstein, 1988/1992)?²³

Moreover, even within a given single-member district, the lines of argument that would appear to necessitate two-party competition in that district are suspect. In the United States in a significant number of congressional districts the incumbent runs unopposed because the demographic features of the district, combined with party loyalty, make one party a sure winner. Cox (1997) makes the strong argument that both Duverger's Law and Duverger's Hypothesis should generally be taken as upper bounds, such that we can expect *no more than* (an "effective" number of) $M + 1$ party lists or candidates.

Also, national level outcomes and outcomes in other districts may affect the nature of competition in individual districts. Operating within the standard Downsian framework, Shvetsova (1997) has shown that when parties must pick a single ideological position and campaign under the banner of that position throughout the country, the fact that the ideological distribution (and the location of the median voter) varies from constituency to constituency makes it possible for third parties to find winning locations in some constituencies.²⁴ On a related note, while there may be a wasted-vote effect that acts to shrink support for regionally based parties if it becomes apparent that they will never have significant national influence, the fact that parties have zones of control in some

²² Similarly, if we have k districts of size M each, do we expect to get, say, $M + 1$ parties competing nationally, or ought we to expect many more given the possibility of different sets of $M + 1$ parties competing in different districts? Recent, as yet unpublished, work by Rein Taagepera (personal communication, February 1997) addresses this question.

²³ The geographic distribution of partisan support is a key intermediating factor that shapes the extent to which electoral institutions (or changes in them) affect outcomes, especially electoral fairness in the translation of votes into seats (Gudgin and Taylor, 1979; Taylor, Gudgin, and Johnston, 1986).

²⁴ Cf. Grofman, Koetzle, McDonald, and Brunell 2000.

areas of the country makes it more likely that they will have the resources and the motivation to continue to compete even in areas where it initially appears their candidates have little chance. Moreover, the effects on party competition of the electoral system used to elect the national parliament may be intertwined with the effects of other political institutions such as the rules for choosing a president and the election cycles for both presidential and provincial elections (Shugart and Carey, 1992). For example, sometimes parties may choose to compete in certain legislative elections solely for the purpose of providing additional incentives to attract their supporters to the polls to vote in other contests.

Even more generally, Duverger's Law and Hypothesis attributes great weight to electoral effects, yet Taagepera and Grofman (1985) claim that, for well-established democracies, the number of political parties is better predicted by the number of issue cleavages in the society than by its electoral laws – although they recognize the potential for reciprocal causality. Amarin Neto and Cox (1997) make the argument that ethnic cleavage lines and district magnitude impact in a multiplicative fashion on the number of parties.²⁵ Only if there are both facilitative electoral institutions *and* a large number of potential cleavages should we expect to see a large number of parties. This analysis has been replicated by Caul, Taagepera, and Grofman (1998). Moreover, changes in election systems may give rise to equilibrating forces that moderate the consequences of the changes as voters, candidates, and parties adapt their behavior to the new institutional environment in ways that compensate for the changes, so as to partially restore significant elements of the status quo ante (Shugart, 1992; Christensen and Johnson, 1995).

Also, we must be very careful that we are comparing apples and apples. As noted previously, a given electoral law can have very different consequences as a function of its average (or effective) district magnitude. Similarly, failure to take into account national vote thresholds in which parties that fail to receive certain national vote shares (e.g., 2% or even 5%) are denied district-level representation will often lead to serious errors in estimating electoral system effects on both the proportionality of votes to seats conversions and the incentives for party proliferation (Reynolds and Grofman, 1994; Grofman, 1999c). Moreover, many electoral systems have a variety of subtleties, such as complex tiering arrangements for applying allocation rules of full or partial proportionality. Failure to take into account such complications can give rise to quite misleading comparisons across election systems. This is especially true when we are looking at mixed systems. For example, some Japanese journalists writing of the recent reform of the Japanese

²⁵ See also Cox (1997).

electoral rules that replaced SNTV with a mix of list PR and SMD constituencies for elections to the lower chamber of the Diet have suggested that the SMD component of the system will be the driving force and that we should expect Japan to become a two-party system. In our view that is absurd. The two components of the system will interact in a complex way and the eventual outcome will probably be something close to what might be expected from small-district PR, but which parties will emerge strengthened and which weakened may depend more upon events exogenous to the reform (such as which party is best able to take advantage of voter concerns about political corruption) than upon the change in electoral law.²⁶ Also, results will depend upon the geographic distribution of party strength.

Cabinet Stability

Finally, when we look at the relationship between electoral system type and stability of political institutions, it is important to recognize that the link between electoral system type and cabinet durability while strong is far from perfect. When we look at the set of parliamentary democracies, which lack a fixed term of office, some multiparty democracies were quite stable in terms of cabinet duration. Perhaps even more importantly, we must be careful not to overweight the importance of cabinet duration. As Carol Mershon (1994), and many others, remind us, the appearance of instability in countries like Italy must be taken with several grains of salt. During the post-WWII decades, when Italian cabinets were toppling left and right with remarkable rapidity, the same core of politicians was returning to office again and again, and the Christian Democrats were almost never out of power. Moreover, Schofield's re-analysis of European Party Manifestos data shows that the Christian Democrats occupied a near-core position in Italian policy space which gave them great power even when they were in coalition governments (Schofield, 1995).

III Other Consequences of Electoral System Choice

We shall not try to go beyond our summary discussion of the three central propositions of the traditional electoral systems literature we gave above.²⁷ Instead, we wish to briefly turn to a variety of other vari-

²⁶ The recent Japanese electoral change is also a good example of how actors can be surprised by the outcomes of given reforms. The Japanese Socialist Party expected to benefit from the change. So far, they have been major losers.

²⁷ Lijphart (1994) offers a near-definitive review of the empirical evidence on the three classic propositions on electoral system effects that we identified in Figure 1. His data cover all of the long-standing democracies of the post-WWII period (see also Taagepera and Shugart, 1989; Cox, 1997). Of course, new evidence on all three propositions is continually coming in.

ables strongly affected by choice of electoral law such as the nature of partisan bias, incentives for strategic misrepresentation of preferences by voters, the range of ideological points of view that will be represented in the legislature, the strength of party organizations, incentives for voter turnout, descriptive (racial and gender) representation, and incentives for localism and corruption. We shall use several of these effects to suggest alternative ways to classify electoral systems. In addition, in a subsequent section, we will briefly inventory theories to explain choice of electoral system.

Partisan Bias

The classic comparative electoral systems literature deals only with the bias imposed by electoral systems as a function of size of party. Clearly, the larger M , the better off, *ceteris paribus*, are small parties. Similarly, certain divisor rules are generally thought to favor small parties (e.g., greatest remainder), others to favor mid-sized parties (modified Ste. Lagüe) and others to favor large parties (D'Hondt).²⁸ However, for first-past-the-post countries such as the United States (e.g., Tufte, 1973), the United Kingdom (e.g., Gudgin and Taylor, 1979) or Australia (e.g., Jackman, 1994) there is an extensive literature dealing with the expected differences in disproportionality between party vote share and party seat share as a function of factors that differ across parties such as the nature of the geographic dispersion of the party's sympathizers.

In two-party political competition, there are two basic measures of the characteristics of a seats–votes curve showing the relationship between a party's vote share and its (expected) share of the seats: partisan bias and swing ratio (Tufte, 1973), each of which can be generalized to apply to the multiparty case. Here we focus on the two-party case. The swing ratio, often denoted by β , is a measure of the responsiveness of the electoral system to change in the vote. In two-party competition, the *swing ratio* is taken to be the expected size of the percentage point increase in seat-share for each percentage point increase in a party's share of the aggregate vote above 50 percent, that is, swing is analogous to a tangent to the seats–votes curve (Tufte, 1973).²⁹ Partisan bias can be thought of

²⁸ See Gallagher (1992).

²⁹ Since the publication in 1973 of Tufte's seminal article, numerous authors have approached the analysis of seats–votes relationships in two-party systems by looking at the twin concepts of partisan bias and swing ratio (see e.g., Niemi and Deegan, 1978; Grofman, 1983; Brady and Grofman, 1991a, b; Cain, 1985; King and Browning, 1987; Campagna and Grofman, 1990; Campagna, 1991; Niemi and Jackman, 1991; King and Gelman, 1991; Garand and Parent, 1991; Gelman and King, 1994a). There are several different methods for simultaneously calculating swing ratio and bias, but two are most important. The first is the log-odds method developed by Tufte (1973) and used by many subsequent authors (e.g., Campagna, 1991; Brady and Grofman, 1991a, b). The second

as the (expected) advantage/disadvantage in seat-share above/below 50 percent received by a given party that wins 50 percent of the vote.³⁰ In two-party competition, *partisan bias* is customarily taken to be the difference between the seat-share a given party with exactly 50 percent of the vote can expect to win and the seat-share that it should win if both parties were treated equally by the electoral rules, i.e., a seat share of 50 percent (Tuft, 1973).

It is well known (Gudgin and Taylor, 1979; Johnston, 1981; Brady and Grofman, 1991b) that, in two-party competition, swing ratio is largely a function of the number of competitive districts. Similarly, it is well known that partisan bias is also, at least in part, a function of the asymmetry in the distribution of partisan voting strength across constituencies (Gudgin and Taylor, 1979; Johnston, 1981; Taylor, Gudgin, and Johnston, 1986; Brady and Grofman, 1991b). In particular, if one party wins most of its seats by disproportionately large vote shares and loses most of the seats it loses by relatively narrow vote shares, while the reverse is true for the other party (or parties), then partisan bias exists against the first party. Such bias may have been caused by intentional gerrymandering or by an "accident" of geography. Any districted system is potentially subject to partisan biases.

Building on earlier work such as that of Rydon (1968) and Jackman (1994), in recent work by the senior author (Grofman, Brunell, and Koetzle, 2000), it is shown that the partisan bias that arises because of differences in the distribution of party voting strength across constituencies³¹ that creates differences between each party's share of "wasted votes" is only one of the three basic ways in which an electoral system may manifest partisan bias. The other two ways to create partisan bias are (a) through malapportionment – that is, differences in population across districts (see Baker, 1955; Rydon, 1968; May, 1974; Yamakawa, 1984; Jackman, 1994),³² and (b) through differences in

is the averaging technique developed by King and Gelman (1991) and instantiated in the computer program JudgeIt used by those authors (Gelman and King, 1994a, b) and by a number of others (e.g., Garand and Parent, 1991).

³⁰ Customarily, in two-party competition, both swing ratio and the distributional aspect of partisan bias is estimated at a (hypothetical) vote share of 50 (Tuft, 1973), or for a range of vote shares relatively near to 50 percent and symmetrically distributed around that point. Gelman and King (1994a, b), estimate values over the 0.45 to 0.55 vote share range. Swing ratio and bias can also be specified at any point on the seats–votes curve or averaged across any range of points (Grofman, 1983), but we shall neglect such complications here. In a two-party contest, the bias for party A is simply the negative of the bias for party B.

³¹ This distribution (and thus partisan bias) may be manipulated through purposeful gerrymandering (see e.g., Owen and Grofman, 1988; Grofman, 1990).

³² Clearly, the concept of malapportionment needs to be defined with respect to some basis. In the United States, unlike most other democracies, apportionment is on the basis of total population (persons) rather than on the basis of citizen population or potentially

turnout rates across districts (Campbell, 1996).³³ However, neither malapportionment³⁴ nor unequal turnout, per se, generate partisan bias; it is only when population or turnout differences across districts are linked to the distribution of party voting strength that we get partisan bias.

While distributional effects, malapportionment effects, and turnout effects are not, in general, uncorrelated, we can conceptually separate them by imagining three ideal types. In the first, all districts are equally populated³⁵ and the same proportion of voters turn out in each (or, at least constituency population and turnout are uncorrelated with the distribution of party voting strength at the constituency level), but the distribution of voting strength across districts is such that one party's victories are costlier than the others in terms of winning its seats by larger vote shares, on the average. In the second, all districts are equally populated (or, at least district population is uncorrelated with distribution of party voting strength at the constituency level) and the distribution of mean partisan voting strength across districts does not generate any partisan bias, but one party's voters do tend to turn out at a lower level than do voters of the other party. In the third case, while the distribution of mean partisan voting strength across districts does not generate any partisan bias, and each party's voters tend to turn out at the same rate as do voters of the other party (or, at least, turnout is uncorrelated with distribution of party voting strength at the constituency level), now districts are not equally populated and the differences in population across districts is related to the partisan distribution of voting

eligible electorate (e.g., citizen voting age population) or registered voters or past turnout. Obviously, the choice as to the basis for apportionment can have important implications for what we conclude about the presence or absence of malapportionment (see e.g., Grofman, 1992; Scarrow, 1992). In the remainder of this chapter, except where otherwise indicated, the reader may take the word "population" as a generic term, referring to whatever may be the basis of apportioning seats in the country under investigation. Since, the actual data we analyze are from the United States, this usage should not be a cause of confusion.

³³ By turnout rate we mean the ratio of votes cast to the apportionment base in the district. Obviously, the actual number of voters will not be the same as the apportionment base. Implications of that fact for the equity of representation have been discussed by a number of authors (for a review of the U.S. debate see Brace, Grofman, and Handley, 1987; Grofman, 1993).

³⁴ While population in U.S. House districts is now almost perfectly equal within states, it is often forgotten that, across states, there can be dramatic differences in average House district size. In the 1990s apportionment, for example, the largest district in the United States had 1.7 times the population in the smallest (Grofman, 1992). Thus, despite the one-person, one-vote standard it is still quite reasonable to imagine that there might be a partisan bias in the U.S. House due to malapportionment.

³⁵ Recall that we use "population" as a generic term to refer to the basis of seat apportionment.

strength. We may think of these three examples as giving rise to pure forms of distributional, turnout-based, and malapportionment-based partisan bias.

All methods of calculating partisan bias have in common the need to specify each party's national share of the (two-party) vote as a baseline for calculating a seats-votes relationship from which bias is to be estimated. It is important to recognize that even though both P_i (party i 's vote share in each constituency averaged across all constituencies) and R_i (party i 's raw share of the total vote) can legitimately be regarded as party i 's national vote share, these two estimates of national party vote share are unlikely to be identical because they measure two different things. One, R_i , is based on *raw total votes*; the other, P_i , is based on *average vote shares at the district level*. Only if the district level turnout is totally uncorrelated with the distribution of party voting strength across constituencies (a special case of which would be that in which turnout levels are constant across all constituencies) will $R_i = P_i$. But, we know that, in the United States, for example, Democratic seats tend to have lower turnout because this, along with lower income and minority status, is a disproportionately Democratic identifier (see e.g., Campbell, 1996; Grofman, Collet, and Griffin, 1998).

Clearly, whether we use R_i or P_i as our national vote share value will directly affect our estimate of bias. Say, for example, we use P_i . If, instead, we had used R_i , the effect would simply be to displace each x element on the seats-votes curve by an amount equal to $P_i - R_i$. But, in particular, this would mean that the seat share value when party i has a national vote share of 50% would be displaced by an amount equal to $P_i - R_i$. But that is just another way of saying that *replacing P_i with R_i as our estimate of party i 's actual national vote share should (if our statistical estimation procedure were perfect) act to increase the estimated partisan bias by the amount $P_i - R_i$* . This simple link between choice of measure of national vote share and estimated partisan bias is an important observation that underpins the integrated approach to the determinants of partisan bias developed by Grofman and his co-authors.

It can be shown that R_i and P_i can be expressed in a "common language," where the difference between the two is a function of how we choose to weight constituencies. If we use P_i we are implicitly weighting constituencies equally; that is, we neglect both turnout and malapportionment effects and have only distributional effects. In contrast, if we use R_i we are implicitly weighting constituencies by turnout; that is, we incorporate turnout effects on partisan bias in addition to distributional effects. In similar fashion it becomes possible to devise an outcome measure that is weighted by the "population" in each constituency. This gives us a malapportionment-based measure, M_i . It is also possible to set up these three measures so that we can construct from them *pure mea-*

Table 1. *Three Ways of Estimating Democratic National Vote Share and Three Aspects of Partisan Bias in 1980s U.S. House and Senate Elections^a*

Year	Chamber	P_i	M_i	R_i	Pure distribut. partisan bias	Pure malapport. partisan bias = $M_i - P_i$	Pure turnout partisan bias = $R_i - M_i$
1984	House	54.9	55.0	52.5	-1.7 ^b	0.1 ^b	-2.5 ^b
1986	House	57.3	57.1	54.8	-2.6 ^b	-0.3 ^b	-2.7 ^b
1988	House	57.0	56.8	54.1	-3.4 ^b	-0.3 ^b	-2.7 ^b
1984	Senate	48.5	51.9	50.7	-0.4 ns	3.4 ns	-0.8 ns
1986	Senate	50.6	51.0	50.8	2.9 ns	0.4 ns	-0.2 ns
1988	Senate	53.2	53.3	52.9	-0.2 ns	0.1 ns	-0.4 ns

Source: Grofman, Koetzle, McDonald, and Brunell (2000).

^a Positive values of bias are pro-Republican.

^b Significant at the 0.01 level or less.

asures of the three key effects: distributional, malapportionment, and turnout by appropriate subtractions. To illustrate the method we reproduce as Table 1 a table from Grofman, Koetzle, McDonald, and Brunell (2000) that shows the magnitude of the three sources of bias for several recent House and Senate elections in the United States. We see from Table 1 that the magnitude of partisan bias is relatively small and often not statistically significant. In the House the main effect is that turnout-related bias (cheap seats) favored the Democrats. In the Senate, remarkably, the vast differences in population among the states did not translate into statistically significant partisan bias.

Strategic Calculations and Incentives for Strategic Misrepresentation of Preferences

Cox (1997) is the definitive study to date of the calculations on the part of voters, candidates, and parties as to optimal choice under a variety of electoral arrangements. In general, Cox views electoral institutions in game-theoretic terms and looks for equilibrium strategies, emphasizing the importance of being able to develop a stable set of expectations as to outcomes. We will not try to do justice to the richness and sophisticated modeling of his analyses here but merely offer a few quick very general summaries. With respect to nomination strategies, Cox shows that under certain election rules, such as SNTV, parties will be especially sensitive to their voting strength and be concerned not to divide their vote too thinly. With respect to voter choice, Cox reviews the literature

on strategic incentives for failing to vote for one's most preferred choice and shows that, in some systems (such as plurality) these incentives can be quite strong when one's first choice has no realistic chance of being elected and it matters to the voter whether his second-best alternative will defeat his third-best alternative. Cox also considers potential for manipulation and strategic voting in more complex electoral systems such as STV and the German double-ballot system. For the latter, for example, Cox reviews evidence showing that strategic voting is taking place in which voters cast their PR ballot sincerely while they cast their constituency-level ballot for their next most preferred party – one with a chance of winning the plurality election in the constituency. Moreover, Cox shows that, because of a national 5 percent threshold showing required before any party can gain seats, coalitional concerns can motivate strategic voting in Germany even in the PR component of the system when some voters whose first loyalty is to whichever party is expected to be in coalition with the FDP (the small liberal party) switch to vote for the FDP when that party is threatened with falling below the 5 percent threshold.

The Range of Ideological Points of View That Will Be Represented in the Legislature

The bulk of the literature on the ideological consequences of electoral system choice follows Downs (1957) in positing a single dimension of ideological competition. The classic Downsian result, the median voter theorem for two-party competition, is in our view taken far too seriously by most economists and even many political scientists. As a number of authors (e.g., Rowley, 1984; Grofman, 1996b) remind us, the Downsian convergence result holds only when a large number of assumptions are satisfied.³⁶ When we modify those assumptions convergence under two-party competition to the views of the median voter is no longer to be expected. In the United States there is undeniable evidence for continued party differentiation (Poole and Rosenthal, 1984; Grofman, Griffin, and Glazer, 1990; Shapiro et al., 1990) even though the range of ideological variation among major party candidates in the United States may be much more limited than that in many other countries. As one of us has argued elsewhere, we must acknowledge Downsian centripetal pressures toward centrist politics while at the same time recognizing the major forces that push in a centrifugal direction, such as the role of activists and (in the United States) the role of party primaries. A veritable cottage industry has grown up in the last decade or so creating

³⁶ See Romer and Rosenthal (1979) for discussion of evidence about median voter effects in non-partisan settings.

models that give us two-party divergence even in a single dimension.³⁷ Here we will confine ourselves to a brief look at how nomination rules can impact convergence, focusing on the U.S. experience. We will review two models, that of Aranson and Ordeshook (1972) and that of Coleman (1971, 1972), as further developed by Owen and Grofman (1995).³⁸

In the Aranson and Ordeshook model, candidates are assumed to develop expectations about the probability of victory in the primary election (P1) and the general election (P2) as a function of the policy position they associate themselves with, and are posited to choose a spatial location so as to maximize $P1 \times P2$. The Aranson and Ordeshook (1972) model of two-stage election processes makes candidate choices the focus of their modeling. In contrast, in the Coleman (1971, 1972) model, the focus is on voter motivations. In the Coleman model some (or all) voters in the primary election are concerned with the likelihood that the primary victor will be able to win the general election as well as with that candidate's policy position, and choose among candidates accordingly. Roughly speaking, he assumes that voters maximize a function that can be thought of as the benefit derived from selecting a party representative whose location is close to their own ideal point discounted by the likelihood that such a candidate will be elected in the general election. Both models assume that candidates must be consistent in adopting an ideological position in the general election that corresponds to the views they espouse in the primary.

Both models give rise to an expectation that, under most circum-

³⁷ Approaches offered to explain candidate and party divergence include the role of ideologically committed party activists and interest groups, who are a major source of campaign resources (Aldrich, 1983; Baron, 1994; cf. Morton, 1993); candidates who have policy preferences that they wish to see implemented and not just a desire to win election (Wittman, 1983; see also Wittman, 1973, 1977); directional rather than proximity-based voting (Rabinowitz and Macdonald, 1989; Merrill, 1993; Merrill and Grofman, 1997); discounting of candidate positions (Grofman, 1985; Merrill and Grofman, 1998); multiple dimensions of issue competition (Schofield, 1995); non-policy-related motivations for candidate support such as those that give rise to reputational effects and incumbency advantage or to partisan bias (Bernhardt and Ingberman, 1985; Feld and Grofman, 1991; Adams, 1996); and strategic calculations such as concern for future entry (Brams, 1980; Palfrey and Erikson, 1994; cf. Brams and Merrill, 1991) or policy balancing across multiple contests (Alesina and Rosenthal, 1995). See the review of this literature in Grofman (1994). For more general reviews of the literature on spatial party competition inspired by Downs, see Enelow and Hinich (1984, 1990) and Grofman (1993, 1996a).

³⁸ Both the Aranson and Ordeshook and the Coleman works have largely been neglected in the subsequent literature. Coleman's work first appeared in an early issue of *Public Choice*, shortly after the journal changed its name from *Papers on Non Market Decision-Making*, at a time before many libraries subscribed to this subsequently well-known journal. The 1972 articles of Coleman and Aranson and Ordeshook are book chapters in an excellent edited volume that deserves to be far better known, but that was published by a firm that shortly thereafter went out of business.

stances, the primary winners can be expected to be located between the overall median voter and the median voter in their party. Owen and Grofman (1995) introduce a parameter into the Coleman model that taps the extent to which voters are oriented toward having a candidate who is able to win the general election versus concerns about ideological proximity. In general, in their model, candidate positions will be closer to the party median than to the overall median, and there are conditions under which a party may "paint itself into a corner ideologically" and remain a minor party.³⁹ In particular, they show that when we have an incumbent located at a centrist position, rather than Downsian convergence to the center by the nominee of the other party, we often will get divergence because voters of the "out" party will be uninterested in electing a "tweedledee" candidate of their own party.⁴⁰

When we look at formal results on ideological placement in multi-party competition on a single dimension for $M > 2$ there are a number of results that suggest, for list PR elections, we either do not get equilibria or we get "funny" kinds of equilibria such as those with two parties that are virtual clones of one another located at each of several equally spaced focal points or even the completely non-realistic result of pure convergence (Cox, 1987, 1990; Shepsle, 1994; cf. Robertson, 1975; Sugden, 1984; Greenberg and Weber, 1985; Myerson and Weber, 1993). Neither of us knows this literature well enough to judge the extent to which these results are a product of the unidimensionality assumption or of other features of some of the models, such as positing a uniform distribution of voters' ideological locations on the dimension. More realistic results have been obtained recently by taking actual distributions of voter ideal points (in one or two dimensions) and then seeing what kinds of party locations seem to be implied by those distributions and how strong the incentives are for particular parties to move strategically from their "own" concentration of voters in order to improve either their vote share or their chance to be part of a winning coalition (Merrill, 1994; Nixon et al., 1995; Schofield, Sened, and Nixon, 1997; Schofield et al., 1997). We regard this work as particularly promising.

In looking at the empirical evidence, there seems little doubt that, for list PR, the larger the M the greater, *ceteris paribus*, is the likelihood that parties whose support is located at the fringes of the ideological space (or whose support comes from a minority of the electorate who attach especially high salience to some distinct issue dimension) will be able to gain representation (see also Cox, 1990, 1997). Schofield, Sened, and

³⁹ Owen and Grofman (1995) also show that a party whose supporters are more ideologically concentrated can generally be expected to do better.

⁴⁰ In the United States for example, President Clinton is often criticized by ideologues of his own party who assert that "if [the party members] wanted a Republican they would have voted for one."

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Nixon (1997: 14) conclude their paper with the observation that “policy convergence does not occur in any known multiparty system.” This fact has led some authors to suggest that in SMD districts “politics” is fought out at the constituency level, with the outcomes determinative of a party majority in the legislature and thus of policy; while PR systems leave political conflicts to be resolved by the legislature (or at least by cabinet coalitional bargaining) because the legislators under PR reflect a greater range of ideological (and other) diversity.

Strength of Party Organizations and the Nature of Within-Party vs. Cross-Party Competition

Certain election systems, notably SNTV and STV, generate a great deal of intra-party competition. Indeed, Gallagher (1997) shows that, under STV, Irish members of the Dail are more likely to be defeated by someone from their own party than they are by a member of the opposition. SNTV has been argued to lead to very factionalized politics since candidates seek support from particular wings of the party in their campaigns, with more representatives being nominated in some instances than the party will be able to elect (Cox and Rosenbluth, 1994; Grofman, 1996b, 1999b). In contrast, closed-list PR strengthens the hand of the central party organization that is responsible for the ordering of the party list.⁴¹ Various other systems are intermediate in their incentives for strong party organizations (Katz, 1980). Classifying systems according to the extent to which they can be expected to foster strong parties is an alternative to classifying according to the usual PR-plurality continuum and results in creating proximacies that are often quite different from those defined in terms of an expected degree of proportionality test (see Table 2 later in the discussion section).

One other feature of multi-member district systems using some form of PR or semi-PR rules such as cumulative voting or limited voting worth calling attention to is that minorities within a region may achieve representation that they would not get if SMD were used instead.⁴² This may enhance the likelihood of cross-party coalitions centering around issues of particular interest to a given region.

⁴¹ In a closed-list system nothing voters may do can change the order of candidates on a party's list. Some countries (e.g., Finland) have open or partly open list systems that allow voters to affect this ordering and thus which of the party's candidates will get chosen if the full slate is not elected (see e.g., Ames, 1995; Cox, 1997, for more details).

⁴² In Illinois, when cumulative voting was used for the state legislature, the two major parties sometimes agreed to limit their nominations to two candidates in various three-member districts so as to assure minority-party representation in each district, even when the dominant party might have won all three seats. Of course, in some of these

Incentives for Voter Turnout

An obvious extension of the Downsian analysis of the link between competition and turnout would suggest that electoral systems that increase the likelihood that the average voter's vote will be decisive will, *ceteris paribus*, induce higher turnout. Similarly, we would expect that electoral rules that increase the ideological range of candidates/parties who are competing will also increase turnout. Thus, we would expect that, *ceteris paribus*, turnout in PR systems should be higher than in non-PR systems. This claim has been empirically tested by Blais and Carty (1990) and Mudambi, Navarra, and Nicosia (1996), who find higher turnout in PR systems, even when other controls have been introduced.

Descriptive (Racial and Gender) Representation

Women. There is a considerable body of evidence, both cross-sectional and longitudinal, and general consensus among students of electoral systems, that, *ceteris paribus*, large-magnitude districts whether in list PR or semi-PR election systems or even in plurality (bloc) voting systems will tend to increase the representation of women relative to similar electoral rules with a smaller *M*. The basic notion is that large districts permit the parties to nominate a diverse array of candidates, whereas single-member districts provide incentives to parties to nominate only candidates from the dominant group in the party (which usually is overwhelmingly male or predominantly of one ethnic persuasion, at least in terms of party activists). For example, Rule (1997: figure 2) shows that among long-standing democracies ($N = 27$), list PR systems average far higher in women's representation in the national legislature over the period 1988–93 (average = 19.2%) than do SMD countries (average = 8.5%).⁴³ However, this same generalization requires an important modification with respect to plurality systems when we consider racial or ethnic minorities. Because racial or ethnic minorities, unlike women, can be (and often are) geographically concentrated, drawing multi-member districts may submerge these minorities if the voting rule is plurality, since the majority group may be able to elect all the members in the district, whereas the drawing of single-member dis-

instances the candidate of the minority party was a "stooge" for the other party, whose members controlled the nominating process for both parties in the district (Sawyer and MacRae, 1962; Brams, 1975).

⁴³ STV in Ireland generates only 12% women's representation, and SNTV in Japan comes in at a minuscule 2.3%. These both are, however, systems with relatively small district magnitude (around 4 for Ireland, somewhat over 3 for Japan), but it is clear that cultural factors also play a role.

districts may permit concentration of minority voters into districts that thus become winnable by minority candidates (Grofman, 1993; Grofman and Davidson, 1994; Grofman, 1998).

Alternatively, women or ethnic or racial minorities may be guaranteed representation by way of quotas.⁴⁴ These quotas may either be imposed by the government or by the internal rules of the parties themselves.

In Nepal 5 percent of the single-member district candidates must be women. The PR systems of Belgium and Namibia require parties to field a certain number of women candidates. In Italy, women now must make up 50 percent of the candidates listed on any PR ballot, in Argentina the requirement is for 30 percent women, and in Brazil it is 20 percent. Similar rules have also been proposed elsewhere, such as for the Indian Lokh Sabha. Of course, parties may try to avoid the implications of such quotas by concentrating their women candidates toward the bottom of the list, where they are unlikely to be elected, or placing them in constituencies where they have no chance of victory. However, some laws specifically deal with this issue; for example, in Argentina there is the extra proviso that women must be placed in winnable positions and not just at the bottom of a party's list.

Political parties adopting their own informal or formal quotas for women as parliamentary candidates has become the most common mechanism used to promote the participation of women in political life throughout the world, but this mechanism has been used, until recently, almost entirely only by parties on the left: for example, by the African National Congress in South Africa, the Partido Justicialista and the Union Civica Radical in Argentina, Conscience of the Fatherland in Bolivia, the PRD in Mexico, the labor parties in Australia and the United Kingdom, and throughout Scandinavia. The use of women-only candidate short-lists by the Labour Party at the 1997 United Kingdom elections was also entirely responsible for doubling the number of female MPs, from 60 to 119.

Party list PR systems are conducive to the adoption of gender quotas and are linked to other contextual variables that are conducive to women's representation, such as a history of left government. While electoral system type (PR vs. plurality) is an important independent predictor of the level of women's national parliamentary representation in the 1970s and the 1980s; by the 1980s, the existence of quota rules became a more important predictor of women's electoral success in the developed democracies. However, strength of left government is the single strongest predictor in both decades (Caul, 1999).

⁴⁴ Quotas are often defended as transitional mechanisms to lay the foundation for a broader acceptance of women's representation.

Minorities

Reserved seats are one way of ensuring the representation of specific minority groups in parliament. Parliamentary seats are reserved for identifiable ethnic or religious minorities in countries as diverse as Jordan (Christians and Circassians), India (secluded tribes and castes), Pakistan (non-Muslim minorities), New Zealand (Maori),⁴⁵ Colombia (black communities), Croatia (Hungarian, Italian, Czech, Slovak, Ruthenian, Ukrainian, German, and Austrian minorities), Slovenia (Hungarians and Italians), Taiwan (the aboriginal community), Western Samoa (non-indigenous minorities), Niger (Taurag), and the Palestinian Authority (Christians and Samaritans). Reserved seats have also been set aside for women in Taiwan and other countries. Representatives from these reserved seats are usually elected in much the same manner as other members of parliament, but are often elected only by members of the particular minority community designated in the electoral law.⁴⁶ While it is often deemed to be a normative good to represent small communities of interest, structures that give rise to a representative parliament "naturally" rather than through legal obligation are clearly to be preferred.⁴⁷

Some ethnically heterogeneous societies took the concept of reserved seats to its logical extension. With each defined community having its own electoral roll and electing only members of its own group to parliament. However, most communal-roll arrangements were abandoned after it became increasingly clear that communal electorates, while guaranteeing group representation, often had the perverse effect of undermining the path of accommodation between different groups.⁴⁸ The only example left of which we are aware is Fiji. There, the native

⁴⁵ In New Zealand, Maori electors can choose to be on either the national electoral roll or on a specific Maori roll, which elects five Maori MPs to Parliament. In New Zealand under the new electoral law, the 1996 election generated more than twice as many Maori elected "normally" than the handful who were elected via reserved seats. Thus, there are pressures to do away with the separate Maori rolls.

⁴⁶ Another possibility is the best-loser system used in Mauritius, in which the highest-polling losing candidates from a particular ethnic group are awarded some parliamentary seats in order to balance overall ethnic representation.

⁴⁷ Quota seats may breed resentment on the behalf of majority populations and shore up mistrust between various cultural groups. Moreover, parliamentarians elected from reserved or special seats may be marginalized from real decision-making responsibility.

⁴⁸ In India, for example, the separate electorates that had existed under colonial rule – for Muslims, Christians, Sikhs, and others – were abolished at independence, although some reserved seats remain in order to represent scheduled tribes and castes. Similar communal-roll-based systems used at various times in Pakistan, Cyprus, and Zimbabwe have also been abandoned. In each of these cases, the issue of how to define members of particular groups, and how to distribute electorates fairly between them, has been strewn with pitfalls.

Fijians have retained majority control of the legislature despite being a population minority by a combination of communal rolls (Fiji, Indian, other) and deliberate malapportionment. This system is under attack (Reilly, 1997).

Another way to (over-)represent certain minorities is to over-represent regions where these groups are concentrated. In essence this is the case in the United Kingdom, where Scotland and Wales have more MPs in the British House of Commons than they would be entitled to if population size alone were the only criterion. Electoral boundaries can also be manipulated to serve this purpose. The Voting Rights Act in the United States has been alleged (wrongly in our view) to require the drawing of grotesque districts for the sole purpose of creating majority Black or Latino or Asian-American constituencies. (Grofman, 1998). However, the Voting Rights Act, properly construed, is aimed simply to protect minority influence against unconstitutional vote dilution in which minority populations are (deliberately) fragmented or submerged (see Karnig and Welch, 1982; Grofman, Migalski, and Noviello, 1986; Grofman, Handley, and Niemi, 1992; Grofman and Davidson, 1992; Davidson and Grofman, 1994; Grofman and Davidson, 1994).

Incentives for Localism

Incentives to cultivate a personal vote through particularistic appeals vary significantly across electoral system types (Cain, Ferejohn, and Fiorina, 1987; Carey and Shugart, 1995; McCubbins and Rosenbluth, 1995).⁴⁹ Here we emphasize a new measure of electoral incentives for localism that one of us has recently developed (Grofman, 1999b).

We will use the letter e to refer to the number of voters who voted for a given candidate or party, and E to the *mean* value of electoral constituency size in a legislature. In candidate-centered systems e is simply the vote received by the candidate; in closed party-list systems we take e to be the vote received by the party list in the district. In STV systems calculating e is more problematic but we will take the expected e for STV to be (somewhat more than) one Droop quota.⁵⁰

If we assume that all seats are equally apportioned in per capita terms, for a fixed legislative size L , it is very important to appreciate the fact that E can be expected to be a monotonically increasing function of mean district magnitude for some candidate-centered systems (e.g.,

⁴⁹ Myerson (1993a, b), in closely related work, has looked at the impact electoral incentives may have on incentives for corruption.

⁵⁰ While a Droop quota elects a candidate, candidates who lack strong first-place support rely on second-place, third-place, etc. ballots transferred after other candidates have won or been dropped, so that it becomes a matter of chance exactly which of the "excess" voters voting for winning candidates would be transferred to them.

plurality bloc voting), since if we, say, cut the number of constituencies in half, thus doubling M , E can also be expected to (roughly) double. However, E is a near constant function of M for some other candidate-centered systems (e.g., STV), since if we cut the number of constituencies in half, the population-weighted threshold of exclusion is $1/2(M + 1)$ as compared to $1/(2M + 1)$, and the ratio of the two thresholds, $(2M + 2)/(2M + 1)$, stays reasonably close to one even though it increases slightly. Lastly, E can be an increasing function of M for some electoral systems (e.g., closed party list systems), since for closed party list systems increasing district size will increase E , albeit (for a given M) the increase in size of E will generally be lower under closed party list systems than under plurality bloc voting because increasing district size will also permit some groupings whose size or lack of geographic concentration was not sufficient to permit them to win seats when M was low, to do so now.⁵¹

Looking at E suggests a new way to array electoral systems in terms of their consequences for localism (see Table 2 in the next section). What is especially interesting about this classification scheme is that, for a fixed L and for a fixed M , plurality bloc voting is at one extreme (with a high E value) and other candidate-centered systems like SNTV and STV are at the other (with a low E value), while closed list PR is in the middle, with its exact location on the spectrum depending upon the distribution of voting strength across voting blocs. More even in voting strength are the groups the more closed list PR will look like SNTV and STV in terms of expected E value (i.e., $E = 1/(M + 1)$); while if the distribution of voting strength is such that some groups are much larger than others, the E value for closed-list PR will more closely resemble that for the plurality bloc voting case (i.e., $E = 1/2$).

Interactions among Elections of Different Types

Some of the most interesting material in Cox (1997) deals with the strategic calculations involving interaction of elections at different levels of

⁵¹ For example, consider three voting blocs, with bloc A having 4/7 of the vote, bloc B having 2/7+ and bloc C having 1/7- of the population. Let $L = 8$. If we have two 4-seat districts then, in each, under closed list D'Hondt PR, if each bloc's voting strength is proportionally the same in each district as it is overall, then bloc A will win 3 seats (each with an e value of 4/14 of the national vote) and bloc B will win 1 seat (with an e value for that seat of 2/14 of the national vote); while bloc C will win no seats. Thus, E will be $1/4 (= (3 \times 4 + 1 \times 2)/(4 \times 14))$. If we have only one 8-seat district, then bloc A will win 5 seats (each with an e value of 4/7 of the national vote), bloc B will win 2 seats (each with an e value of 2/7 of the national vote), and bloc C will win 1 seat (with an e value of 1/7 of the national vote). Now E will be $25/56 (= (5 \times 4 + 2 \times 2 + 1 \times 1)/(8 \times 7))$. The E ratio in the two cases is 1.78.

government, such as whether elections for president and legislature are or are not simultaneous (see also Shugart and Carey, 1992).

IV Explaining Choice of Electoral System

We may divide explanations of electoral system choice (including decisions leading to the demise of electoral systems) into four types.

First and foremost we have the standard public choice model in which preferences for electoral systems are based on the expected outcomes under those systems⁵² and the actual choices are the result of the interaction of preferences and power.⁵³ Various authors have emphasized the importance of uncertainty in this process of seeking political advantage. Parties whose strength is widely distributed but the depth of whose support is far from certain are likely to hedge their bets by opting for PR; on the other hand, parties that are geographically concentrated or parties that may be dispersed but which can expect to have a majority (or near majority) of the vote can be expected to prefer SMD. Perhaps even more importantly, in the so-called third wave of democratization, whenever electoral systems are negotiated in the midst of civil war (or threat thereof) PR is far and away the most likely outcome (Mozaffar, 1997), even in anglophone nations and even in situations when one dominant party might impose a preference for an SMD system which would guarantee itself virtually undisputed control of the national parliament (e.g., the ANC in South Africa: Reynolds and Grofman, 1994). In this context it is useful to note that, in many of these new democracies of the past decade National Conferences including participation from leading political actors and NGOs have been the forum for the negotiation of new electoral rules (Mozaffar, 1997; cf. Geddes, 1995, 1996).⁵⁴

Second, we have what we may think of as a "standard operating procedure" model that attributes electoral system choice either to cultural legacies (e.g., anglophone nations in Africa largely chose SMD; francophone African countries inevitably adopted list PR or the (French) two-round system), or to diffusion (e.g., at present the German added-member system is currently undergoing a mini-boomlet both in terms of recent adoptions and in terms of nations where it has major proponents: Lancaster, 1997).

⁵² As John Ferejohn (personal communication, 1971) once aptly put it, "Preference for outcomes conditions preferences for institutions."

⁵³ For example, in Russia, after the breakup of the Soviet Union, President Yeltsin could, in effect, dictate the rules for the election of the new Russian legislature. Indeed, his preferences became determinative.

⁵⁴ It is also worth noting that choice of electoral systems appears closely linked to other aspects of constitutional design (see esp. Lijphart's 1984 discussion of the features of the Westminster model vs. the consensus model).

The third explanation for electoral system choice, related to the second, is inertia. As my colleague, A. Wuffle, recently put it (personal communication, April 1, 1997): "Inertia is the strongest force for change – it's against it." Or, as Taagepera and Shugart (1989: 218) put it: "Familiarity breeds stability." In the major Western European democracies, just as party cleavages were said to have been frozen for a long time, so too were the major elements of electoral system choice (with the notable exception of France). However, recently we have seen major changes in electoral system in countries as diverse as Italy and New Zealand, and electoral system reform is even on the British agenda and not just a continuing topic of politically irrelevant agitation for the 100+ year old British Electoral Reform Society.

The fourth explanation for choice of system is that inquiring minds, steeped in the wisdom of the electoral system literature, debating the pros and cons of electoral systems in the abstract (behind a Rawlsian veil of ignorance), seek to make normatively appropriate choices. Of course, there are no known cases where this model fits the data.

V Discussion

The combination of quantitative data, a limited number of (mostly) well-defined variables, opportunity for comparative analysis, and potential for both statistical and rational choice insights means that we ought to be able to develop good models in the electoral systems area. Still, we should not be overly impressed with formal models of electoral system equilibria if these produce results that are too widely at variance with observed reality. Moreover, although simple-minded vote maximization is a good first cut in modeling the incentives of candidates and parties, real understanding requires us to appreciate subtleties such as prospects for coalition (e.g., the German or Israeli case), relative advantage with respect to potential chief competitors (e.g., the Japanese case), and even concerns for legitimacy of outcomes (e.g., the South African case).

On the normative level, what is clear is that there are multiple "reasonable" criteria that can be used in evaluating electoral system choice, and thus no definitive answer is possible as to which electoral system is best. Most importantly, however, even the basic way of classifying electoral rules according to their expected degree of proportionality⁵⁵ misses the point that proportionality is only one aspect or consequence of electoral system choice.⁵⁶ We do not wish to suggest that the PR-versus-plurality continuum is not significant, but we would wish to argue that

⁵⁵ In the standard approach, STV and list PR are taken as the two pure forms of PR, with semi-proportional systems treated as in the middle on the PR vs. plurality divide but tending toward the PR side as judged by their degree of proportionality of result (Grofman, 1975).

⁵⁶ See earlier discussion.

the distinction among electoral systems between systems in which voters cast their votes for individual candidates (regardless of whether or not those candidates have an attached party label) and those in which voters' only choice is to vote for a party⁵⁷ is at least as important as that between PR versus plurality when it comes to considerations of constitutional engineering. Similarly, we would argue that incentives for localism are important elements of electoral system choice.

Note that a focus on different types of consequences gives rise to quite different ways of grouping the four main groups of electoral systems (plurality or plurality bloc voting, SNTV and cumulative voting, STV, and list PR) in terms of their similarity to one another – as shown in Table 2 (reproduced from Grofman, 1996b).

In one of these (the standard PR-versus-plurality continuum), plurality is at one end and list PR and STV are at the other, with SNTV and cumulative voting in the middle; in one (candidate-centered politics versus party-centered politics), SMD plurality, STV, SNTV, and cumulative voting are all together, with closed party list PR at the other end, and open list PR as an intermediate category; in the third (small electoral constituencies systems versus large electoral constituencies), one end of the continuum is plurality bloc voting, but now systems such as STV and SNTV anchor the other end, and closed list PR, remarkably, is an *intermediate* category.⁵⁸

⁵⁷ This classification is somewhat different than that given in Bogdanor (1985: 11), although the underlying ideas are closely related. Carey and Shugart (1995) offer a similar, but much more elaborated, electoral system classification scheme in a paper that we believe is destined to become a classic. They propose a continuum of electoral systems in terms of the incentives that each provides to “cultivate a personal vote.” They rank systems in terms of four variables: (a) lack of leadership control over access to ballot or ballot position, (b) degree to which candidates can be elected independent of the vote shares of co-partisans; and (c) whether the voters possess a single intra-party vote as opposed to multiple intra-party votes or a single party-level vote, and (d) district magnitude, m . They treat these variables as dichotomous and weigh the first three factors equally to arrive at a composite index. Contrary to the claim in Lancaster (1986), Carey and Shugart (1995) reach the conclusion that higher district magnitude actually increases incentives for clientalism in what they call “personal vote” seeking systems, even though it decrease such incentives in party-list systems or other systems with a great deal of centralized party control over the nomination process. Grofman (1999b), while generally sharing their views about the contingent effects of m on localism argues that we can make this idea more precise by expressing the incentives for “personal voting” in terms of E (mean electoral constituency size) rather than m (district magnitude), since the relationship between E and M will depend upon the type of election system. He argues that we can get a more fine-tuned analysis by estimating personal-vote incentives as a function of (average) e , because e is a quantitative rather than qualitative variable (albeit strength of party control over the nomination process might still need to be treated as some type of polychotomy).

⁵⁸ Of course, these are theoretically derived expectations as to placement. In particular, it would be important to look at how different electoral systems actually differ in their value of E .

Table 2. *Three Continua of Classification*

	Continuum		
	Most	Intermediate	Least
PR versus plurality (Proportionality)	list PR STV	SNTV cumulative voting mixed systems	plurality bloc voting
Candidate-centered Politics vs. party- centered politics (candidate focus)	SMD plurality STV SNTV cumulative voting	open list PR mixed systems	closed-list PR
Large electoral constituencies systems vs. small electoral constituencies (particularism, <i>E</i>)	bloc voting (plurality)	closed list PR mixed systems	STV SNTV cumulative voting SMD plurality

Source: Grofman (1996).

Still a fourth continuum might be developed were we to try to classify electoral systems according to the difficulty voters or parties have in developing optimal strategies (see e.g., Cox, 1987, 1997).

A fifth continuum along which electoral systems might usefully be differentiated is in terms of incentives toward conciliation. It is often taken for granted that the proportionality of an electoral system is a measure of its openness to the representation of extreme points of view, but that is too simplistic. Systems like STV and list PR may, for a given M , be roughly identical in their proportionality but may have quite different consequences for extremist politics, for instance, in terms of their degree of encouraging intra-party as opposed to inter-party competition and in terms of E , expected mean electoral constituency size.

Yet another continuum that has been suggested might be called "opaqueness." Edwin Winckler (personal communication, June 1995) has argued that "Japanese and Nationalist elites chose SNTV because it is an electoral system that is singularly open to manipulation from behind the scenes, thereby reducing their risks from democracy." In like manner, some systems are easier to understand than others, with single-member district plurality high in terms of its seeming transparency.⁵⁹

⁵⁹ We emphasize *seeming* transparency, because a critical feature of plurality elections, namely the way that plurality elections translate votes into seats (e.g., the balloon effect that tends to sharply advantage the largest party, the suppression effect on seat share for minor parties whose votes are not regionally concentrated) is unlikely to be understood by the average voter.

From the standpoint of constitutional engineering, we believe that these and other alternative ways of classifying electoral systems⁶⁰ can provide us at least as many insights into the real political consequences of electoral laws as the standard PR-versus-plurality classification with its emphasis on proportionality as the sole criterion of interest.⁶¹ However, election systems cannot be understood as operating in a vacuum. Their effects are mediated by other aspects of political institutions and political culture, as well as past history and the resistance of institutions once in place to change (Grofman, 1999a). Indeed, essentially identical electoral rules may give rise to rather different types of outcomes in different political settings.⁶²

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⁶⁰ Of course, as noted earlier, subtle variations in electoral rules may also have non-trivial consequences.

⁶¹ For very similar views see Reed, 1994; Carey and Shugart, 1995.

⁶² For example in Australia STV operates more like list PR than it does in Ireland because most Australian voters cast a "party-ticket" vote - partly because they are required to express their preferences for *all* candidates lest their ballot be invalidated (Bowler and Grofman, 1997). Similarly, SNTV systems can behave rather differently in Taiwan and in Japan (Grofman, 1999c).

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