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Perspectives on the Comparative Study of Electoral Systems

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Abstract

This article considers the potential to use knowledge of expected electoral system effects to engage in electoral engineering. The review focuses on contributions made in the past dozen or so years and is limited to five specific questions: How do electoral systems affect (*a*) the proportionality of seats–votes relationships, (*b*) party proliferation, (*c*) the ideological nature of party competition, (*d*) voter turnout, and (*e*) the degree of match between the preferences of citizens and the policy choices of the government?

INTRODUCTION

Before the publication of Douglas Rae's seminal *Political Consequences of Electoral Law* (1967), there was a paucity of research on electoral rules, and much of that research was polemic in tone or involved very abstract work on social choice aspects of voting procedures. Since then, the study of electoral rules has become a central area of research within comparative politics—one whose importance has continued to grow in recent decades. In particular, as emphasized by Htun & Powell (2012a, p. 4):

> Scores of political scientists have worked as consultants on missions to aspiring democracies designing new institutions and to established ones contemplating electoral reform. They have offered "crash courses" on electoral design to help policy makers and other stakeholders make informed decisions. Political scientists have advised policy makers and other stakeholders about the consequences of adopting particular configurations of electoral rules and regulations in specific places and at specific times and offered recommendations to improve democratic performance in individual countries.

The study of electoral systems naturally lends itself to empirical analysis because many of its central variables, such as vote shares and seat shares, are quantitative in nature. As the field matures, the study of electoral systems has been enhanced because (*a*) there are many more countries with a history of democratic elections to study; (*b*) new data sources, such as the Comparative Study of Electoral Systems (CSES) project, have provided a mix of election data, survey data, and information about the political context in which elections were held; (*c*) there are now archives of election data available at the level of individual constituencies, not just aggregated at the national level; (*d*) the use of analytic tools, such as game theory, and of advanced statistical techniques has become more common; and (*e*) the number of scholars involved in the subfield has grown enormously, paralleling the dramatic growth in political science outside the English-speaking world.

For elections, we have quantifiable data over a multitude of cases, with substantial variation in both dependent and independent variables of interest, as well as some long-run time-series data with many observations. These data allow us to test our theories. We can make before-and-after comparisons to study the consequences of changes in electoral laws in real-world settings, and we can do experiments to examine electoral law effects.[1] For these reasons, electoral systems research has been a showcase for the best of political science. Indeed, electoral systems research is probably the subfield with the greatest immediate potential to justify calling the study of politics a science; it shows that political scientists can establish useful empirical generalizations and theories that are not time and country bound. Electoral systems research is the converse of New York City as described in the song "New York, New York": If political science can't make it there, it can't make it anywhere.

The IDEA (Institute for Democracy and Electoral Assistance) handbook on electoral system design, in its various editions (e.g., Reynolds et al. 2005), provides basic information about voting rules around the world, as well as national case studies on the effects of electoral system choices

[1] Carey & Hix (2012) emphasize the limits on our ability to use cross-sectional or pooled cross-sectional data to establish causality. As A. Wuffle once put it (personal communication, Apr. 1, 1986), "Getting at causality with cross-sectional data is like trying to tell time with a stopped watch." Three attempts to deal with this issue are the use of natural experiments that involve a before-and-after comparison of electoral rule changes (Giannetti & Grofman 2011), the use of matching methods (Persson & Tabellini 2005, ch. 5), and the use of experimental methods. I call the reader's attention to experimental work involving comparisons with the two-round election rules used in France (e.g., Balinksi & Laraki 2010, Blais et al. 2013, Baujard et al. 2014; various chapters in Dolez et al. 2011), as well as the work of the MEDW EuroVote project (**http://eurovoteplus.eu/**) jointly organized by the University of Montreal and McGill University. EuroVote gathered data from 28 European countries in which voters were asked to vote using three different forms of proportional representation.

(see also Golder 2005, Reynolds & Steenbergen 2006). A number of other books and book chapters in the past decade or so have provided overviews and/or detailed country studies (Colomer 2004, Norris 2004, Gallagher & Mitchell 2005, Klingemann 2009). More recently, the American Political Science Association (APSA) commissioned papers by some leading political scientists to review the state of the art in selected topics in the electoral systems subfield, resulting in the 2012 *Report of the APSA Presidential Task Force on Electoral Rules and Democratic Governance* (Htun & Powell 2012b).

I identify five different research traditions within the electoral systems subfield (Grofman 2011), although of course the lines between these different approaches often blur: social choice theory, mainstream empirical research, rational choice and game-theoretic models, the social physics perspective, and the embedded systems approach.

Some social choice approaches, in the spirit of Arrow (1963 [1951]), seek to characterize voting rules in axiomatic form or study normative properties of voting rules, e.g., responsiveness to changes in underlying voter preferences, or likelihood of choosing a candidate who can receive a majority over all other candidates in head-to-head contest (known in this literature as Condorcet efficiency). Other scholars employing a social choice approach are concerned about the structure of individual preferences, e.g., the extent to which preferences have a particular form of unidimensionality known as single-peakedness or satisfy other domain restrictions. Other social choice scholars take a particular set of assumptions about the distribution of voter preferences and assess the likelihood that different voting methods will yield the same outcome (Saari 2008).

Mainstream empirical research seeks to measure the effects of particular electoral rules, cross-nationally or across different units in the same polity, by techniques such as regressing an outcome variable, e.g., (effective) number of political parties or measures of proportionality of seats–votes relationships, against electoral system features and some set of control variables (see, e.g., Lijphart 1994, Norris 2004). Mainstream empirical research is characterized by both country-specific studies and large-scale data analysis of both survey and aggregate data at the cross-national level.

Rational choice modeling emphasizes strategic behavior by voters and candidates/parties, making extensive use of game theory. Customarily, results in rational choice models are in the form of theorems about how electoral system effects, in equilibrium, are determined by the incentives different rules provide for the behavior of voters and parties/candidates under different assumptions about the motivations we ascribe to voters, and the utility functions (office seeking, policy seeking, or some combination thereof) we ascribe to parties/candidates (see e.g., Cox 1997). However, a "soft" form of rational choice modeling draws on the underlying ideas of behavior driven by incentives and constraints without the formalism of theorem proving.

The social physics approach, associated with the work of Rein Taagepera (see Taagepera & Shugart 1989, and especially Taagepera 2007, 2008) is inspired by statistical thermodynamics in physics. It does not attempt to predict the effects of electoral rules in individual political units but seeks instead to precisely model effects on average. Although Taagepera has had a number of coauthors, he is the driving engine behind the social physics agenda, and his work, inspired by his beginnings as a physicist, is essentially *sui generis*.

The term embedded systems was introduced by Grofman (1999), but this is only a recent label for an old and frequently used approach. The hallmark of the embedded systems approach in electoral systems research is the notion that electoral system effects can be fully understood only within the context of the overall constitutional, social, and party systems in which they are embedded.

In each of these five areas, important new work has been done in the past decade. Because one review cannot do justice to this vast and burgeoning literature, I focus on what, in the social choice literature, would be called vote aggregation mechanisms as my key independent variable. Vote aggregation mechanisms are the rules that specify how the support for a candidate or party recorded on the voters' ballots gets translated into wins and losses. Vote aggregation is only one

aspect of election design, albeit arguably the most important one. Grofman & Lijphart (1986), for example, identify nearly two dozen different aspects of electoral rules, including rules affecting candidate selection processes, campaign finance regulation, and rules about permissible campaign advertising. However, it is only the rules for vote aggregation that I refer to here when I talk about "electoral system" effects. As a further means to limit the scope of this article, I make no attempt to cover the whole field of electoral systems research, and largely limit myself to five research questions—questions that have long been central to the electoral systems literature.

In the concluding section, I comment on a few very general themes in recent research: the origins of electoral system choices and changes, the independent impact of electoral rules as compared to the importance of political context, the distinction between distal and proximal electoral system effects, and the normative importance of trade-offs across multiple evaluative criteria. I also consider some recent developments in the investigation of electoral system effects, such as the use of both field and lab experiments. In summary, although I acknowledge and applaud the great strides that have been taken in our understanding of the political consequences of electoral laws in recent decades, I also sound notes of caution about the potential for electoral engineering given our present state of knowledge.

KEY PROPOSITIONS ABOUT ELECTORAL SYSTEM EFFECTS

Recent electoral systems scholarship is skeptical of a simple dichotomy between proportional representation (PR) and plurality, and this is a skepticism I share for three reasons. First, there are parallels between plurality and list PR that are largely neglected in the electoral systems literature because of the emphasis on a PR versus plurality dividing line or continuum of methods that places them at opposite poles. In particular, list PR and plurality share the property that they only focus on first preferences, not overall preference rankings (Grofman 2013, Kurrild-Klitgard 2013). Moreover, PR and plurality both allow groups with less than majority support to sometimes gain seats, and this is not true for majoritarian systems. Second, this distinction fails to distinguish among types of PR, e.g., list PR versus the single transferable vote (STV) versus the single nontransferable vote (SNTV) versus cumulative voting. Similarly, this distinction fails to distinguish between plurality and majority systems and among subtypes of each. It also neglects mixed systems, which have come to be increasingly important both as real-world choices and, for theoretical reasons, because of features that are thought to be normatively desirable (Shugart & Wattenberg 2001).

Thus, it necessary to acknowledge the complexities of electoral rules and, at mimimum, use (dummy) variables to distinguish among variants of electoral system types, e.g., open-list versus closed-list systems; mean district magnitude (i.e., number of seats per district); tiers, rules allowing pre-electoral coalitions, multistage elections (see e.g., Grofman 2008), and ranked voting methods (see e.g., Grofman & Feld 2004). However, sometimes for simplicity it is useful to summarize hypotheses about electoral system effects in tabular form using only the simple PR versus plurality dichotomy—as I do later in this review.

The electoral systems literature has traditionally focused on five key questions related to party systems and voter choice: (*a*) How do electoral systems impact the proportionality of seats–votes relationships? And, relatedly, are there patterns of bias in translating votes into seats that vary across rules, e.g., a bias against smaller parties? (*b*) How do electoral systems affect party proliferation? (*c*) How do electoral systems affect the ideological nature of party competition, e.g., the range of ideological positions represented in the legislature? (*d*) How do electoral rules affect voter turnout? (*e*) To what extent do governing coalitions or major parties take positions that can be described as centrist, and how does this affect the degree of match between the preferences of citizens and the policy choices of the government?

Other long-studied questions include: How do electoral rules affect cabinet durability and the stability of policy choices? How does electoral system choice affect the likelihood that countries will become (and remain) democratic? How does electoral system choice affect the potential for interethnic accommodation? How do electoral rules impact the extent of descriptive representation of racial or linguistic groups and of women? How vulnerable are particular electoral systems to fraud or to other forms of manipulation such as gerrymandering or malapportionment?

More recent literature continues to address these traditional questions but has also examined other electoral system impacts on governance, such as the ways in which electoral rules affect the extent of pork-barrel politics, the level of political corruption, and the extent of legislators' responsiveness to organized or less organized interests or responsiveness to consumers versus producers. There are also relatively recent theoretically derived and empirically supported claims, some most fully discussed by economists, about how electoral system choice can impact specific types of policy outcomes. Examples of such outcomes include the size of government budgets, the size of the welfare state, the tax structure as it affects inequality reduction, and the extent of trade protectionism (see Budge & McDonald 2007, Carey & Hix 2012 for political science takes on some of these issues; cf. Persson & Tabellini 2002). Moreover, there has been renewed interest in the question of electoral system origins and the reasons for electoral system change.

In the next five sections, I limit myself to the first five of the questions identified above and evaluate what we now know (or think we know) from both a theoretical and an empirical perspective. Because of space limitations, I offer only brief comments on the latter three of the five. Of necessity, I omit much recent work on electoral laws—work covering many important topics, such as ethnic and gender representation.

HOW DO ELECTORAL SYSTEMS IMPACT THE PROPORTIONALITY OF SEATS–VOTES RELATIONSHIPS?

Proportionality is only one of many dimensions on which electoral systems can be sorted. For example, Carey & Shugart (1995) point out that there are parallels between some PR and some non-PR systems if we rank them in terms of the incentives to cultivate a personal vote (cf. Grofman & Bowler 1997, Grofman 2005). Nonetheless, degree of proportionality has been the most common way in which we distinguish the effects of different voting rules.

In judging proportionality, either we may consider it in the abstract by seeking to rank electoral systems according to their *expected* proportionality, or we may look at the degree of proportionality of seats–votes relationships in actual elections. The measure most often used to characterize expected proportionality, the threshold of exclusion (TE), has been around since the early 1970s. Rae et al. (1971) define TE as the largest vote share a party can receive and still be denied any seats in the district. Using TE involves a hypothetical worst-case scenario in terms of the distribution of votes among the other parties that will minimize the given party's seat share.[2] TE values have long been known for most common voting schemes used at the parliamentary level (Lijphart & Gibberd 1977).

For M-seat districts, in pure list PR systems TE is either exactly or approximately $1/(M + 1)$. At the other end of the continuum, for simple plurality and majority systems, TE is (infinitesimally under) 1/2, regardless of M. Intermediate cases arise for limited voting, where voters have k (single)

[2]Paralleling the threshold of exclusion, there is also a threshold of representation, which is the smallest vote share a party can receive and still win a seat in the district. The threshold of representation involves a hypothetical best-case scenario in terms of the distribution of votes among the other parties that will maximize the given party's seat share.

votes to cast and there are M seats to be filled, k < M, with the M highest vote getters elected. Here TE is k/(k + M). The closer k is to M, the less proportional is the limited voting rule. Grofman et al. (2016) provide new results, including a general formula for finding TE for the very large class of scoring rules that includes the Borda rule, simple plurality, and the Dowdall rule used for elections in Nauru.

Although TE is a very important and useful concept, some caveats are in order. First, classifying rules according to their TE value collapses rules which, in other ways, are quite different. SNTV, which is limited voting in M-seat districts (M > 1) where voters have but a single vote to cast, is identical in its TE value to the D'Hondt form of list PR, namely 1/(M + 1). Indeed, TE for single-seat plurality and for multiseat plurality elections is the same. Second, TE does not directly tell us the size of the population needed to guarantee control of a seat. Rather, we must take into account the fact that districts with different values of M also have different populations (Grofman 2001). Third, TE reflects hypothetical proportionality. As Rein Taagepera (personal communication, June 4, 2004) observes, "The same electoral rules can lead to vastly different disproportionality, even in the same country and even in consecutive elections." To deal with this problem, scholars commonly calculate empirical indices of disproportionality.

For partisan elections, with v_i the vote share of the ith party and s_i the seat share of that same party, the two most common measures of overall proportionality are the Loosemore-Hanby index of distortion (Loosemore & Hanby 1971),

$$D = \frac{1}{2}\sum |v_i - s_i|,$$

and the Gallagher index (Gallagher 1991),

$$Gh = \left[\frac{1}{2}\sum (v_i - s_i)^2\right]^{0.5}.$$

The latter places less weight on disproportionalities among the smaller parties, although, for obvious reasons, the two indices tend to be highly correlated.

But even when we look at empirical indices of disproportionality, caution is warranted because what we observe vis-à-vis proportionality is after the fact. For example, if there is substantial gerrymandering, then incumbency advantage, especially in districts that have been drawn safe for one party, may reduce the likelihood of viable challengers and add support to the better-known incumbent, thus reducing the minority party's share of the vote. This warning applies especially to settings that are not fully democratic, where observed disproportionality (or observed party fragmentation) can be misleading even if there is no overt fraud in the form of ballot stuffing. For example, until the most recent election, the Singaporean opposition often contested fewer than half of the constituencies. This happened partly through coercion and partly through electoral rules that made it hard for them to finance candidacies and field the necessary multiethnic slates, but largely through the belief that it was hopeless to contest blatantly gerrymandered constituencies (Tan 2013). Thus, in Singapore, the ratio of opposition vote share to its seat share may seem less unfair than it really was, because the votes the opposition should have received were never there to be recorded.

Effects of Increased District Magnitude on Proportionality of Seats and Votes

The link between PR and proportionality is normally assumed to operate via district magnitude. Theoretically, observed disproportionality should be tied to TE, which for most voting rules decreases with increasing district magnitude M and thus it should be declining with M. But

Taagepera & Shugart (1989) show, with cross-national data at the aggregate level, that there can be compensating effects, i.e., the number of parties competing may rise even faster than M, leading to a flattening out of disproportionality as M increases. Grofman & Selb (2011) follow up on this idea using within-nation data for Switzerland and Spain. They show both empirically and theoretically that, in these PR systems, proportionality does not necessarily increase with district magnitude, or with an increase in the effective number of parties.[3]

The effect of district magnitude M can also be important for the proportionality of plurality rules, but it tends to operate in a way opposite to the expected effects of M on proportionality in PR systems. Plurality, plurality bloc voting (i.e., plurality in a multiseat setting), and plurality slate bloc voting (the last of which is a special case of the more general party slate bloc voting) each yield an expected increase in disproportionality between a party's vote share and its seat share as M increases. In plurality bloc voting, each voter has as many votes as there are seats to be filled, and the candidates with the most votes win. In plurality slate bloc voting, the choice is between party lists, which win either none of the seats or all of the seats. In the limit, when M equals all the seats in a legislature, then plurality slate bloc voting in a multiseat setting operates as a pure winner-take-all system. The exaggeration effect of multiseat plurality on the translation of votes into seats is generally greater with plurality slate bloc voting than with other forms of multiseat plurality, because this form rules out the potential for the minority party to elect *any* of its candidates if it fails to win the plurality in the district (Tan & Grofman 2014).

Longitudinal Perspectives on Proportionality

The usual way in which we judge proportionality is in terms of seats and votes in a single election. However, the political geographer Peter J. Taylor (1984) proposed the alternative concept of "proportional tenure." Basically, rather than asking how proportional are results in any given election, recognizing that there may be bias against the smaller party or parties, and also recognizing that which party is the plurality or majority winner will change over time, Taylor proposed to average vote and seat shares over a longer time period. Although we can find exceptions, it is clear that plurality-based rules as a class tend to be more disproportional than PR rules as a class. Nonetheless, thinking about proportionality in terms of proportional tenure can change substantially how we evaluate the consequences of particular electoral laws. In the United Kingdom, where electoral bias has sometimes favored the Conservatives and sometimes Labor (though always unfavorable to the Liberal Democrats), aggregating across elections reduces the apparent degree of disproportionality under first-past-the-post. Similarly, our estimates of the degree of disproportionality in outcomes in the US Congress might change once we recognize that, in earlier decades, disproportionality in seats and votes appeared to favor Democrats, while now it appears to favor Republicans.[4]

HOW DO ELECTORAL SYSTEMS AFFECT PARTY PROLIFERATION?

The central empirical proposition about the link between electoral rules and number of parties is what has come to be called Duverger's Law. This has three parts. The first asserts that plurality

[3]The effective number of parties (Laakso & Taagepera 1979) is the inverse of the Herfindahl-Hirschman index of fragmentation and can also be linked to the more familiar concept of variance (Feld & Grofman 2007). For seat share, the effective number of parliamentary parties is $1/\Sigma\, s_i^2$. For vote share, the effective number of electoral parties is $1/\Sigma\, v_i^2$.

[4]There is a useful distinction in the electoral systems literature between partisan bias and disproportionality (see, e.g., Grofman 1983). The term partisan bias refers to asymmetry across parties of their translation of seats into votes rather than proportionality per se.

COUNTING PARTIES

Although the Laakso–Taagepera (L-T) measure is the "gold standard" for counting number of parties, four recently proposed alternatives deserve mention, which, for space reasons, I cannot discuss in detail. Dumont & Caulier (2003) and Kline (2009) independently proposed a modification of the L-T index that the former refer to as the *effective number of relevant parties*. It applies the L-T formula to Banzhaf scores (Banzhaf 1965) that are derived from a game-theoretic approach to voting power. Caulier & Dumont (2010) offer a simpler measure, which is the (normalized) Banzhaf power score of the largest party stated in terms of its seat share. A third approach is that of Grofman & Kline (2012), who combine information about the seats or votes distribution of the various parties with information about where each party is located in ideological/issue space. Finally, Gaines & Taagepera (2013) offer two new ways to measure the extent to which a given seat or vote distribution reflects a two-party configuration.

facilitates two-party competition; the second states that PR fosters multiparty competition; and the third makes the same claim for the two-round majority runoff rule. In Duverger's own words (1954, p. 228): "The [first-past-the-post] electoral system works in the direction of bipartism; it does not necessarily and absolutely lead to it in spite of all obstacles. The basic tendency combines with many others which attenuate it, check it, or arrest it." One important point about Duverger's Law emphasized in all recent work is that it is intended to apply only at the level of individual constituencies. One can, for example, have two-party competition in each constituency and yet have more than two parties represented in parliament if competition is not always between the same two parties at the district level.

Although most of the evidence for the Law is based on the effective number of parliamentary parties (Laakso & Taagepera 1979) and not the actual number of parties (see, e.g., Lijphart 1994; Iversen & Soskice 2006, table 4; Clark & Golder 2006), there is no doubt that PR systems have more parties, on average, than plurality ones, no matter how we measure the number of parties (see sidebar Counting Parties).

In explaining his prediction of two-party competition for plurality elections, Duverger posited a combination of a mechanical effect (only one party can win in a single-seat constituency, and often there will be only one other party that is the main challenger) and what he called a psychological effect, to explain why, in plurality-based competition, parties other than the top two would tend to be driven out. The posited psychological effect—which I see as better characterized as an instrumental calculation by voters, generating a form of strategic voting, thus making Duverger an early rational choice modeler (of the softer form of rational choice)—is that voters desert parties with no chance of winning. Also we might expect that parties with little chance of electoral success will have trouble obtaining candidates. However, although we can readily track the effective number of parties over time, we would need to track individual parties (or the vote choices of individual voters) to demonstrate that parties that do badly actually tend to go out of business.

Duverger's Law seems to work well in generating an important contrast between plurality-based methods and PR (or the two-round ballot), but there are almost no countries with simple plurality rules in single-seat constituencies that actually have two-party competition at the district level, and even fewer with two-party dominance in national parliaments (Grofman et al. 2008a,b; Bowler et al. 2008). Moreover, we can find PR countries with very few parties (e.g., Austria, until recently) and some plurality systems with a relatively large number of parties [e.g., some of the newer democracies in Eastern Europe, especially shortly after the fall of the Soviet Union (Moser & Scheiner 2013)].

A number of authors, most notably Cox (1997), have provided reasons why, especially for plurality-based competition, we might not expect Duverger's Law to hold. These include the fact that reliable projections of expected vote share either are not available or are discounted by supporters of some parties, that there may be more than one competitor who could be regarded as the "leading" challenger to the winning party, that voters may not differentiate among parties other than lumping them into the categories of preferred and not preferred, that voter calculations and the calculations of candidates and parties may be addressed to long-term possibilities and/or message sending rather than to outcomes in the immediate election, and that parties may be playing a multilevel game in which they are looking at consequences for their probable success in other elections (sometime called contamination effects). Moreover, there may be ideological differences that allow more than two parties to continue to compete, e.g., if one party was the main challenger on the right flank and another the main challenger on the left flank, or if there were multiple issue dimensions.

Duverger does not make specific quantitative predictions about the number of parties to be expected in either PR or two-round ballot systems. Carey & Hix (2011) show that the greatest marginal gains in proportionality are likely to come as we move from $M = 1$ to $M = 2$. Work using ideas adapted from statistical thermodynamics (see especially Taagepera & Shugart 1989) makes more specific predictions about how party proliferation will be linked to district magnitude. Taagepera (2007) offers a synthesis of his lifetime of work in the social physics tradition. I list below some of his main findings with respect to number of parties and relative party sizes that apply to what he calls simple systems, i.e., systems in which all districts are the same size, the same voting rule is used in each, and there are no electoral tiers and no electoral thresholds. Here, when $M > 1$ it is assumed that we are dealing with a proportional allocation rule rather than with multiseat plurality.

$$
\begin{aligned}
p &= M^{1/2} \\
n_0 &= MS^{1/4} \\
s_1 &= 1/(n_0)^{1/2} \\
&= 1/(MS)^{1/8} \\
N &= (MS)^{1/6},
\end{aligned}
$$

where S = seats in the legislature, M = seats in the district, p = number of seat-winning parties in a district, n_0 = number of seat-winning parties nationally, s_i = seat share of the ith largest party, and $N = 1/\Sigma(s_i)^2$ = Laakso–Taagepera index of effective number of electoral parties.

Taagepera does not try to use his models to explain all variation across districts, across countries, or over time; nor he does take explained variance as his measure of success. The equations he derives are good models, in his view, if they require only a handful of theoretically linked variables and if they successfully fit the *average* behavior in a large set of observations of electoral system outcomes, where hypotheses are stated in terms of equations in which the dimensions represented on the left-hand and right-hand side are the same.

Changes in the Effective Number of Parties Over Time

We might expect that Duvergerian effects would operate to weed out parties that stood no chance of electoral victory and that, thus, over time, the number of parties would be reduced to what we might call the carrying capacity of the electoral system. However, as we have seen, Duvergerian pressures are not the only forces that are operative in the case of plurality contests, and the same is true more generally. As a consequence, when we examine nations with relatively constant electoral rules, we can observe considerable variation in the effective number of parties.

Even the United States had, in much earlier times, more than two political parties, although the present two-party constellation is more than 150 years old (Bowler et al. 2008). When we turn to Canada, we find similar variation but no long-term trend toward two-party competition. Winer et al. (2014) show that, from roughly 1867 until 1898, the graph of the effective number of parliamentary parties in Canada appeared to be converging toward two. However, from the Great Depression through World War II and the Korean War, the average effective number of parliamentary parties at the constituency level varied widely before stabilizing in the post-1960 period at a much higher level (2.6–2.7).

Two-Bloc Politics

Although most work on the number of parties looks at parties individually, especially in systems where there are pre-electoral coalition possibilities, it is also important to examine the bloc structure. Various essays in Giannetti & Grofman (2011), comparing the effects of similar but not identical electoral changes to a mixed system in Japan and Italy that took place in the early 1990s, demonstrate how even small differences in rules can make large differences in outcomes. For example, in Japan, there was a tendency toward two-party competition after the change in electoral system, and that had been a desired result. In contrast, in Italy, for nearly two decades, even after a further change in rules, we saw something like two-bloc politics, where each party bloc included a large number of parties that retained their distinct identity but campaigned jointly under a common label (Giannetti et al. 2015). Cautres et al. (2016) consider factors that may lead to two-bloc politics.

Electoral Geography Effects on Party Proliferation

Electoral geography is an important context effect that can create various forms of bias. For example, although PR can be expected to be more favorable to small parties than plurality or majoritarian systems, there are some cases—ones where voting strength of particular parties or groups is geographically concentrated—where the opposite may actually be true (Norris 2004, p. 44). Also, while the potential for gerrymandering is greater in plurality-based systems than under PR, especially when there is geographic variation in the electoral strength of different parties (see Handley & Grofman 2008), there is potential for bias even under PR, and this potential is enhanced when districts vary in magnitude.

An older literature looks at the intermediating role of racial and ethnic fragmentation on party fragmentation. Recent research has revisited this question, paying particular attention to electoral geography (see, e.g., Bochsler 2010, Kedar et al. 2014, Lublin 2014, Tan & Grofman 2015).The bottom line of this literature is that electoral geography can play a powerful role in explaining why similar rules do not have similar consequences in different polities.

HOW DO ELECTORAL SYSTEMS AFFECT THE IDEOLOGICAL NATURE OF PARTY COMPETITION?

Downs (1957) demonstrated that, under a particular set of assumptions, plurality-based two-party competition in single-member districts should tend toward Tweedledum–Tweedledee politics—a seminal contribution. In contrast, under PR in multiseat districts, we would expect a much wider ideological range among the parties gaining representation, since parties occupying a relatively extreme ideological location may nonetheless be able to gain representation.

The basic idea that the ideological range of parties gaining representation in parliament is greater in PR systems is empirically well supported, but the Downsian notion that, when there

are only two (major) parties competing, plurality-based elections lead to almost full convergence between the two party platforms is simply not true, even if it continues to be taught to undergraduates as gospel. The reason is a simple one. Theorems about electoral system effects (and Downs's convergence result is a theorem, even if not stated by Downs in symbolic notation) rest on multiple assumptions, and many of those assumptions simply do not hold in real-world settings (Grofman 2004). When they do not, then full convergence no longer applies. It is not that Downs was wrong about there being centripetal forces at work; it is that centrifugal forces are usually present as well, e.g., party activists with strong policy preferences from whom resources are needed, and party primaries that may force candidates to cater to their own electoral base. Thus, what we often get is "moderate convergence" (Adams et al. 2005). However, in the United States, there is not consistency over time in the degree of convergence of the two parties' ideological positions.

In the United States, in some time periods, the two major parties are relatively convergent in policy positions and not very far from the views of the median voter; in other time periods, the two major parties are highly divergent in policy positions, and neither is close to the views of the median voter. The pattern of oscillation between moderate convergence and extreme divergence resembles an accordion's slow movements in and out, with a time period (half-cycle length) of about 50 years between its maximal convergence and maximal divergence (see McCarty et al. 2006). Today, as at the end of the 19th century, party differentiation both at the constituency level and in Congress is extreme. Recent work has attempted to model the factors that can explain why we observe variation in ideological divergence without any change in electoral system rules (see Merrill et al. 2014 and Brunell et al. 2016a,b for more extended discussion and literature review).

HOW DO ELECTORAL RULES AFFECT VOTER TURNOUT?

The most commonly studied proposition about the relationship between electoral systems and turnout asserts that turnout is substantially higher under PR than under plurality. "Empirical evidence is overwhelming that nationwide turnout is higher on average in proportional representation (PR) systems than in countries with pluralitarian/majoritarian elections. This finding survives even when we control for other factors, such as the nature of registration procedures, weekend voting, compulsory voting, and so on, that also impact turnout" (Grofman & Selb 2011, p. 94, with internal citations omitted; cf. Franklin 2004, ch. 5).

André Blais and his colleagues (see, e.g., Blais 2006, Blais & Aarts 2006, cf. Brockington 2004) call attention to a striking observation about electoral systems and turnout: Even though, *ceteris paribus*, PR systems with many parties have higher national-level turnout than single-member district plurality systems with few parties, turnout does not increase with the effective number of parties at the national level. This is seen as a puzzle because, as the number of parties increases, so too should the likelihood that voters can find a party that is ideologically proximate to their own position,which should incline them to vote rather than abstain. Moreover, we would expect the number of parties to be correlated with district magnitude (M), and also expect that as M increased and the threshold of exclusion (TE) fell, the likelihood that some small body of voters would be able to assure the election of at least one candidate of the party of their first choice would also increase, thus increasing the incentives for turnout in a different way.

Using within-country data for two countries whose districts vary substantially with respect to the number of seats being filled, Grofman & Selb (2011) reinforce Blais's puzzle by showing that, in these PR systems, turnout does not necessarily increase with district magnitude, once we move beyond the contrast between $M = 1$ and $M > 1$; nor does turnout necessarily increase with an increase in the effective number of parties. Using a novel approach to measuring political competition that does not assume all voters have identical turnout incentives (Grofman & Selb

2009), the authors then seek to explain this puzzle by showing both empirically and theoretically that competition does not necessarily increase with district magnitude (Grofman & Selb 2011). Moreover, they emphasize the fact, noted above, that proportionality also does not necessarily increase with district magnitude past a certain point.

HOW DOES ELECTORAL RULE CHOICE AFFECT CONGRUENCE BETWEEN CITIZENS' PREFERENCES AND GOVERNMENT'S POLICIES?

Consider representative–citizen congruence. Should we expect greater congruence in PR systems than in plurality ones? If we really thought that plurality systems converged to the preferences of the median voter, and that, when we had single-seat plurality elections, there would only be two parties in each district, then we would expect both parties to have identical positions matching the median in their district, and thus the majority party would be close to the median voter in the median district. Under these assumptions—ones we know, of course, to be far too simplistic—we should certainly expect greater congruence in plurality systems than in PR ones. Powell (2000) found the opposite. However, some more recent work has found that, in more recent time periods, plurality systems do exhibit greater mean congruence than proportional ones. A third claim, based on data taken from CSES Module 2 (Dalton et al. 2011, p. 176), is that PR/majoritarian systems are "about equally effective in representing the median voter." In their view, "Elections broadly produce governments that represent the position of their median citizen, and even more clearly reflect the right–left preferences of their voter," even though there have been frequent claims that the structure of the electoral system affects these relationships.

Do these contradictory findings give rise to a puzzle that needs to be explained? My answer is probably not. On the one hand, time-bound results should be expected, given our previous discussion of ideological convergence. As noted above, the degree to which parties in the United States converge in ideological terms has varied greatly over the past 100 or so years despite very little change in the formal electoral rules. In almost all PR systems, policy outcomes depend on the coalition structure of the cabinet parties, so in European parliamentary PR systems we should also expect changes over time in the degree to which governments take policy positions congruent with their citizenry. This expectation is reinforced by recognizing that recent decades have seen major changes in party constellations, involving reductions in the strength of mainstream parties and the rise of fringe parties, especially on the right. We should also note, as Golder & Stamski (2010, p. 90) point out, "Although the literature examining the relationship between ideological congruence and electoral rules is quite large, relatively little attention has been paid to how congruence should be conceptualized. . . . Results regarding ideological congruence can depend on exactly how scholars conceptualize and measure it."

SOME LAST REFLECTIONS

Figg-Newton's Three Laws (A. Wuffle, personal communication, April 1, 2003, quoted in Grofman 2007):

1. An electoral system once in place tends to stay in place, since there arise around it vested interests (most notably those who were elected under it) who are supportive of it, and suspicious of any change that may have (unanticipated) consequences (especially for them).
2. No electoral system exists in a (political) vacuum. The consequences of an electoral system are a product of the characteristics of the system (such as the *threshold of exclusion*) *and* the specific

socio-political context and political history in which it is embedded. So, no electoral system works exactly the same way twice, nor do electoral systems export the way we think they might.

3. For every reason to like an electoral system, there is a perhaps near equal and mostly opposite reason *not* to like it. Because there are multiple criteria we use to assess theoretical properties and probable effects, no electoral system is uniformly best.

The authors of the 2012 APSA report were concerned with electoral systems as a tool for electoral engineering. Thus, their report is, at least in principle, intended to allow us to draw policy implications and give advice. I offer four caveats about this prospect, following up on ideas discussed above.

First, although I believe we know far more than we did when I began writing on this topic 40 years ago, I am still skeptical as to how precise our knowledge is about electoral system effects once we move beyond what Taagepera (2007) calls simple systems to the more complex rules in actual use (where the devil is in the details). And, in the real world, we have the further complexities of contingent and contextual effects, especially electoral law's interactions with other political institutions and practices.[5] There may also be effects of past history, e.g., the kind of selection effect discussed by Colomer (2004), where the rule is chosen to fit the outcome.

In general, we need to pay more attention to electoral origins in evaluating electoral system consequences, lest we attribute to electoral systems effects that actually can be traced to forces shaping both the choice of rules and their apparent consequences (cf. Rogowski 2004, discussing ideas of Harry Eckstein). For example, in the United States and United Kingdom, we might see plurality rules and majoritarian institutions originally chosen because these nations are attached to both majoritarian and individualistic values, and maintained for reasons of both inertia and fit between value structure and electoral rule. When we confine ourselves to OECD countries, and we distinguish plurality from two-round majorities, the simple-plurality examples are all English-speaking countries. But then, if we find, say, greater social inequality in these countries than in (similar) countries with PR electoral rules, we should be very cautious about claiming that the differences are due to electoral system effects rather than political culture. Also, as Rogowski (2004) and others have noted, the results that we get for the OECD countries are not always replicable when we look at the non-OECD democracies.

Second, even if one does not accept the extreme view that electoral systems matter far less than cultural and contextual factors, one might still expect that, when we change electoral systems, we may not fully achieve the anticipated political changes unless there has been a change in the social balance of forces. Otherwise, "the empire will strike back," acting to negate the impact of the changes by proceeding with business as usual and/or making compensating adjustments in other elements of the political process. And the lingering effects of past institutions will take time to wear off (Giannetti et al. 2015). For example, Scheiner & Tronconi (2011) show that the way in which campaigns were conducted after Japan changed to a mixed system was strongly affected by the structure of campaign organization (*koenkai*) under the previous SNTV system.

Third, it is important to distinguish between distal and proximal effects. Ferree et al. (2012) make a compelling case for this in the APSA report. They argue that we need to look at mechanisms, and that, *ceteris paribus*, the longer the causal chain between an electoral law and its supposed effects, the more diluted its effects are likely to be and the harder it will be for us to detect them. All electoral system effects operate indirectly, through a complex causal chain. Electoral rules impact the nature

[5]I am a Goldilocksian with respect to methodology: You are too thick if theoretically grounded generalities never emerge, and you are too thin if you fail to appreciate case particularities (more generally, see Wuffle 2015).

Table 1 Some posited trade-offs between outcomes: plurality versus proportional rules

Plurality elections in single-seat constituencies	Proportional representation in multiseat constituencies
Single-party governments:	Coalition governments with several political parties:
decisive outcomes and greater government accountability	representation of the entire spectrum of political views; fewer "wasted" votes
direct accountability of individual politicians to their constituents	stronger and more cohesive political parties
greater political stability (?)	higher ideological congruence between government and citizens (?)
fewer ideological extremists in parliament	proportionality of seats and votes
lower budget deficits (?)	enhanced representation of women and racial and ethnic minorities
lower taxes (?)	higher public spending and thus more public goods and services (?)
	lower economic inequality (?)

of voter choice and the options available to voters. They also impact the incentives that structure party competition, which in turn affect the actual party system constellation. But, in turn, party systems have implications for whether there will be a coalition government and, if so, what its structure will be. And the party composition of the cabinet has consequences for the policies that will be implemented. Other things being equal, the farther we get away from the direct impact of electoral rules on voter choices, the more likely it is that intervening factors will dilute the impact of electoral laws.

Fourth, no electoral system can further all normatively desirable goals. If we turn to the normative goal of electoral engineering, we note good-government goals of various sorts have been proposed. Some are very general, e.g., fostering democracy, promoting "fair" outcomes in terms of proportionality and the absence of partisan bias, promoting linkages between the represented and the representatives; others are more limited but still highly normatively desirable, such as mitigating ethnic conflict or promoting the representation of women. In the APSA report, Rehfeld et al. (2012) identify more than a dozen goals we might seek an electoral rule to advance, and I do not regard that list as exhaustive. But, of course, not all these goals can be simultaneously achieved. A recurrent theme in the essays in the 2012 APSA report is the need for trade-offs among competing normatively desirable features. Trade-offs are inevitable because there is no rule that dominates on all plausible criteria, and there is no clear way to weight the various criteria in order to reach an overall ranking of rules. **Table 1** identifies some of the trade-offs regarding choice of electoral rule that are alleged in the APSA report. For simplicity, I use the dichotomy of PR rules in multiseat constituencies versus majoritarian/pluralitarian ones in single-seat constituencies, despite my view that this dichotomy is inadequate.

Claims about which I am especially skeptical I have marked with a question mark, although the most dubious claims I have simply omitted. Because of space constraints, I discuss only one of the items in the table: racial and gender representation. Here, let me simply note that, even if we focus on a single goal, such as descriptive representation, preferential rules such as quotas, reserved seats, and majority-minority seats directed toward one group may undermine the election of the other historically marginalized groups that are not targeted (Krook & Moser 2012).

A final note of caution is that electoral engineering can also be a synonym for electoral manipulation. The in-party can engineer electoral rules for its own advantage, e.g., adopting plurality slate bloc voting or other forms of party slate bloc voting and then manipulating district magnitudes to increase the size of its legislative majorities (Tan & Grofman 2015; cf. Birch 2007, 2011; Schedler 2002, 2006).

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