

Was Duverger Correct? Single-Member District Election Outcomes in Fifty-three Countries

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In districts where only one seat is contested, the electoral formula (plurality or majority) should be a major determinant of the number of parties that receive votes. Specifically, plurality rule should generate two-party competition while other institutional arrangements should generate electoral fragmentation. Yet tests of these propositions using district-level data have focused on a limited number of cases; they rarely contrast different electoral systems and have reached mixed conclusions. This study analyses district-level data from 6,745 single-member district election contests from 53 democratic countries to test the evidence for Duverger's Law and Hypothesis. Double-ballot majoritarian systems have large numbers of candidates, as predicted, but while the average outcome under plurality rule is generally consistent with two-party competition, it is not perfectly so. The two largest parties typically dominate the districts (generally receiving more than 90 per cent of the vote), and there is very little support for parties finishing fourth or worse. Yet third-place parties do not completely disappear, and ethnic divisions shape party fragmentation levels, even under plurality rule. Finally, institutional rules that generate multiparty systems elsewhere in the country increase electoral fragmentation in single-member plurality districts.

'The simple-majority single ballot system favours the two-party system... this approaches most nearly perhaps to a true sociological law'.¹ 'The simple majority system with second-ballot and proportional representation favours multi-partism'.² These two statements, described by Riker³ as Duverger's Law and Duverger's Hypotheses, respectively, form the basis of institutional research on the origins of party systems.⁴ Yet there is considerable controversy about whether Duverger is actually correct.⁵ As one prominent recent study

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¹ Maurice Duverger, *Political Parties* (London: Methuen Press, 1954), p. 217.

² Duverger, *Political Parties*, p. 239.

³ William H. Riker, 'The Two-Party System and Duverger's Law: An Essay on the History of Political Science', *American Political Science Review*, 76 (1982), 753–66.

⁴ Matthew S. Shugart, 'Comparative Electoral Systems Research: The Maturation of a Field and New Challenges Ahead', in Michael Gallagher and Paul Mitchell, eds, *The Politics of Electoral Systems* (New York: Oxford University Press, 2005), pp. 25–56; Rein Taagepera, *Predicting Party Sizes: The Logic of Simple Electoral Systems* (Oxford: Oxford University Press, 2007).

⁵ See recent dissenting views in Brian J. Gaines, 'Duverger's Law and the Meaning of Canadian Exceptionalism', *Comparative Political Studies*, 32 (1999), 835–61; Brian J. Gaines, 'Does the United Kingdom Obey Duverger's Law?' in Bernard Grofman, André Blais and Shaun Bowler, eds, *Duverger's Law of Plurality Voting: The Logic of Party Competition in Canada, India, the United Kingdom and the United States* (New York: Springer, 2009), pp. 115–34; Pradeep Chhibber and Ken Kollman, *The Formation of National Party Systems: Federalism and Party Competition in Canada, Great Britain, India,*

concludes, ‘Duverger’s Law ... is also a “law” that seems to be more notable for its exceptions than its application ... The persistence of third, and especially fourth, parties in these [plurality] systems [shows] the prediction of two parties is not really so robust’.⁶ The inability or unwillingness of voters and parties to conform to the strategic incentives generated by the electoral system potentially calls into question the degree to which institutions affect political behaviour.

Yet the pessimism regarding Duverger’s Law is based on relatively limited empirical evidence. Duverger’s predictions should only strictly hold at the district level because national level electoral outcomes combine district-level strategic calculations with the aggregation of preferences across districts,⁷ but district-level studies of electoral outcomes are rare compared to national-level studies.⁸ District-level studies of Duverger’s Law have been limited to examinations of either a single country⁹ or at most four countries: Canada, India, the UK and the United States.¹⁰ Because of the limited geographic scope of these studies, we do not know whether countries that seem to diverge from Duverger’s predictions represent a general pattern or not. Multi-country studies of district-level outcomes in single-member districts (SMDs) are slightly more common when analysing mixed electoral systems, but even these studies are limited in their scope and most do not compare mixed systems with outcomes under pure plurality.¹¹

In this study, I test Duverger’s propositions that electoral fragmentation levels in SMDs will vary according to the electoral formula used for determining the winner and that pure plurality rule will produce districts dominated by two parties, with insignificant support for parties finishing third or worse.¹² To do so, I analyse data from a cross-section of

(*Fnote continued*)

and the *United States* (Princeton, NJ: Princeton University Press, 2004); Richard Johnston and Fred Cutler, ‘Canada: The Puzzle of Local Three-Party Competition’, in Grofman, Blais and Bowler, *Duverger’s Law of Plurality Voting*, pp. 83–96.

⁶ Bernard Grofman, André Blais and Shaun Bowler, *Duverger’s Law of Plurality Voting: The Logic of Party Competition in Canada, India, the United Kingdom and the United States* (New York: Springer, 2009), p. 2.

⁷ Gary W. Cox, *Making Votes Count: Strategic Coordination in the World’s Electoral Systems* (Cambridge: Cambridge University Press, 1997).

⁸ Matthew M. Singer and Laura J. Stephenson, ‘The Political Context and Duverger’s Theory: Evidence at the District Level’, *Electoral Studies*, 28 (2009), 480–91.

⁹ Gaines, ‘Duverger’s Law and the Meaning of Canadian Exceptionalism’; Gaines, ‘Does the United Kingdom Obey Duverger’s Law?’; Benjamin Reilly, ‘Party Politics in Papua New Guinea: A Deviant Case?’ *Pacific Affairs*, 72 (1999), 225–46; Rekha Diwakar, ‘Duverger’s Law and the Size of the Indian Party System’, *Party Politics*, 13 (2007), 539–61; Jeffrey D. Grynviski, ‘The Impact of Electoral Rules on Factional Competition in the Democratic South, 1919–48’, *Party Politics*, 10 (2004), 499–519; Johnson and Cutler, ‘Canada: The Puzzle of Local Three-Party Competition’.

¹⁰ Chhibber and Kollman, *The Formation of National Party Systems*; Grofman, Blais and Bowler, *Duverger’s Law of Plurality Voting*.

¹¹ Robert G. Moser, *Unexpected Outcomes: Electoral Systems, Political Parties, and Representation in Russia* (Pittsburgh: University of Pittsburgh Press, 2001); Robert G. Moser and Ethan Scheiner, ‘Mixed Electoral Systems and Electoral System Effects: Controlled Comparison and Cross-National Analysis’, *Electoral Studies*, 23 (2004), 575–99; Steven R. Reed, ‘Duverger’s Law is Working in Italy’, *Comparative Political Studies*, 34 (2001), 312–27; Misa Nishikawa and Erik S. Herron, ‘Mixed Electoral Rules’ Impact on Party Systems’, *Electoral Studies*, 23 (2004), 753–68; Karen E. Cox and Leonard J. Schoppa, ‘Interaction Effects in Mixed-Member Electoral Systems: Theory and Evidence From Germany, Japan, and Italy’, *Comparative Political Studies*, 35 (2002), 1027–53.

¹² Singer and Stephenson, ‘The Political Context and Duverger’s Theory’ shows that changes in district magnitude affect the number of parties that receive votes in 58 democratic countries. While in that study

6,745 district-level election contests conducted in SMDs in fifty-three democratic countries. While the top two parties in an average country gain over 90 per cent of the vote, I cannot reject the null hypothesis that support for parties finishing third or worse equals zero, leaving third parties that could potentially serve as spoilers in the overall contest for the seat (even if most are not viable contenders themselves). Yet the exclusive use of plurality rule generates outcomes that are significantly closer to two-party competition than does majority rule or plurality rule in combination with other electoral arrangements that support small parties. Thus most voters and parties seem to behave strategically in the way institutional theories assume.

EXPECTED OUTCOMES IN SINGLE-MEMBER DISTRICTS

The linkage between two-party competition and plurality rule in single-member districts (also known as first past the post/FPTP) anticipates strategic behaviour by voters, donors and candidates in response to the mechanical¹³ effects of this electoral formula. Short-term instrumentally rational voters, concerned only about affecting the outcome of the current legislative race, will prefer to cast a vote for a viable party rather than risk wasting their vote on a party that is unlikely to win.¹⁴ Strategic elites who expect their party to be out of the running for a seat may thus see few incentives to enter the race in that district, or may choose to join a larger party.¹⁵

Strategic behaviour by voters, parties and donors under plurality rule should therefore generate a very specific kind of party system if all voters and elites are perfectly strategic.

(*Note continued*)

we explore variations in district magnitude and hold the electoral formula relatively constant, here I hold the district magnitude constant and focus on the effect of changes in electoral formula.

¹³ The mechanical effect refers to the translation of votes into seats. The relationship between the electoral system, the effective number of parties receiving votes nationally and the effective number of parties winning seats in the legislature has been widely studied (e.g., William Clark and Matt Golder, 'Rehabilitating Duverger's Theory: Testing the Mechanical and Strategic Modifying Effects of Electoral Laws', *Comparative Political Studies*, 39 (2006), 679–708; Kenneth Benoit, 'District Magnitude, Electoral Formula, and the Number of Parties', *European Journal of Political Research*, 39 (2001), 203–29). At the district level, however, the mechanical effect does not vary across single-member districts. All SMD seats will be won by exactly one party no matter the electoral context, formula or distribution of vote.

¹⁴ Jerome H. Black, 'The Multicandidate Calculus of Voting: Application to Canadian Federal Elections', *American Journal of Political Science*, 22 (1978), 609–38; Geoffrey Evans and Anthony Heath, 'A Tactical Error in the Analysis of Tactical Voting', *British Journal of Political Science*, 23 (1993), 131–7; Michael Alvarez and Jonathan Nagler, 'A New Approach for Modelling Strategic Voting in Multiparty Elections', *British Journal of Political Science*, 30 (2000), 57–75; Paul R. Abramson, John H. Aldrich, Matthew Diamond, Abraham Diskin, Renan Levine and Thomas J. Scotto, 'Strategic Abandonment or Sincerely Second Best? The 1999 Israeli Prime Ministerial Election', *Journal of Politics*, 66 (2004), 706–28; Jennifer Merolla and Laura B. Stephenson, 'Strategic Voting in Canada: A Cross Time Analysis', *Electoral Studies*, 26 (2007), 235–46. If the assumption about the objective of voting is relaxed to allow for the possibility of protest or other strategic vote choices, the logic fails (Shaun Bowler and David J. Lanoue, 'Strategic and protest Voting for Third Parties: The Case of the Canadian NDP', *Political Research Quarterly*, 45 (1992), 485–99.). The theory also assumes that voters are aware of the realistic chance that their preferred party has of winning; this is not always the case (André Blais and Mathieu Turgeon, 'How Good are Voters at Sorting Out the Weakest Candidate in their Constituency?', *Electoral Studies*, 23 (2004), 455–61).

¹⁵ John Aldrich, *Why Parties? The Origin and Transformation of Political Parties in the United States* (Chicago: University of Chicago Press, 1995); André Blais and R.K. Carty, 'The Psychological Impact of Electoral Laws: Measuring Duverger's Elusive Factor', *British Journal of Political Science*, 21 (1991), 79–93.

The top two parties should dominate the race and receive nearly all the votes, while parties in third or worse place should see their support dwindle towards zero. An additional implication of this strategic behaviour is that small district magnitudes can prevent the expression of multiple cleavages and reduce the fragmentation of party systems in divided societies,¹⁶ although Dickson and Scheve suggest that this is not universally true.¹⁷

Duverger contrasted plurality rule with electoral formulae that were less restrictive. Since multimember districts (under proportional representation (PR) or single non-transferable vote (SNTV)) allow multiple parties to win seats, there are fewer incentives to abandon small parties. Increased district magnitude should be associated with increased electoral fragmentation if there are sufficient cleavages to maintain multiple parties. District-level data confirm this hypothesis.¹⁸

A similar effect is hypothesized to follow the adoption of double-ballot majoritarian systems in SMDs. The possibility of a run-off increases the number of potentially viable parties. In addition, small parties can use the first round of the election to demonstrate their strength to the larger parties that are seeking their endorsement in the second round, while voters can use their first round vote to send a message to the larger parties.¹⁹ As voters and elites become less focused on identifying viable parties in the first round, the incentives to abandon non-viable candidates or to withdraw from the race are reduced, leading to electoral fragmentation. Thus if a district's magnitude is held constant at a single seat, plurality rule is predicted to be associated with two-party competition while double-ballot majoritarian rule should lead to multi-party competition.

These outcomes, however, are contingent upon other factors that shape the way in which voters and elites respond to the political arena. Even Duverger notes that '[plurality rule] works in the direction of bipartism; it does not necessarily and absolutely lead to it in spite of all obstacles. This basic tendency combines with many others which attenuate it, check it, or arrest it'.²⁰ Specifically, subsequent scholars have proposed that plurality rule might not lead to two-party competition if certain conditions that underlie the strategic-voting model are not met.

First, theories of strategic voting assume that voters and parties are only responding to cues at the district level. Yet districts are 'embedded' in a larger political context that may undermine these strategic incentives.²¹ For example, parties that have a significant electoral presence elsewhere in a country may have incentives to compete in districts in which they might not be competitive in order to show their strength and build party institutions. Moreover, the organizational costs of building a national party would have

¹⁶ Clark and Golder, 'Rehabilitating Duverger's Theory'; Singer and Stephenson, 'The Political Context and Duverger's Theory'.

¹⁷ Eric Dickson and Ken Scheve, 'Social Identity, Electoral Institutions, and the Number of Candidates', *British Journal of Political Science*, 40 (2010), 349–75. Though this effect can only suppress cleavages within a district, multipartyism along regional cleavages is still possible across districts.

¹⁸ Singer and Stephenson, 'The Political Context and Duverger's Theory'.

¹⁹ André Blais and Indridi Indridason, 'Making Candidates Count: The Logic of Electoral Alliances in Two-Round Legislative Elections', *Journal of Politics*, 69 (2007), 193–205; Charles S. Bullock III and Loch K. Johnson, *Runoff Elections in the United States* (Chapel Hill: University of North Carolina Press, 1992); Jae-Jae Spoon, 'Evolution of New Parties: From Electoral Outsiders to Downsian Players – Evidence from the French Greens', *French Politics*, 5 (2007), 121–24.

²⁰ Duverger, *Political Parties*, p. 228.

²¹ Bernard Grofman, Sung-Chull Lee, Edwin Winckler and Brian Woodall, *Elections in Japan, Korea and Taiwan under the Single Non-Transferable Vote: The Comparative Study of an Embedded Institution* (Ann Arbor: University of Michigan Press, 1999).

already been paid, making it relatively easy for such a party to build a local infrastructure. At the voter level, if institutional arrangements elsewhere in a country are conducive to the formation of a multiparty system, then voters may be exposed to information about other parties competing nationally and their platforms and form allegiances to these parties that reduce their incentives to vote strategically. Moreover, the presence of multiple parties nationally may make it more difficult to separate the viable candidates from the also-rans at the local level. Thus a local two-party result may be weakened if a two-party system has not also evolved nationally and if the national party system 'contaminates' local electoral concerns.

The literature on contamination of electoral considerations is strongest in the case of mixed electoral systems. Small parties in SMDs are potentially subject to the same strategic pressures as they are under 'pure' plurality rule. In fact, the Duvergerian ability to reduce electoral fragmentation is one reason why mixed systems are implemented instead of PR.²² Yet since the presence of multimember districts (MMDs) elsewhere in the country is expected to result in a multiparty system nationally, many scholars of mixed electoral systems argue that 'contamination' from the MMD tier increases the number of parties that are competing and winning votes in the plurality tier.²³ Incentives for strategic voting may also be especially weak under compensatory mixed-member proportional (MMP) rules, in which the outcome of the SMD races does not affect the overall distribution of seats within the legislature, except in the case of overhang seats.

There is also the potential for contamination in countries that use PR or SNTV but have some districts in which only one seat is awarded (usually when districts correspond to political divisions and there are regions with relatively small populations). The party with the most votes will win the seat under all PR formulas (be it highest averages or largest remainder) or SNTV. Thus Duverger's Law suggests that in these districts, only two parties should receive votes. Yet for parties competing elsewhere in the country that have already invested in building a campaign organization and ideological appeal, there are few costs to also running in small districts in order to cement their reputation as a national party.²⁴ Thus in countries with variance in district magnitude, large districts may contaminate the SMD contests, resulting in more parties receiving votes than in similar countries that exclusively use plurality rules.

Legislative results may be contaminated in presidential systems if legislative organizations are secondary to the pursuit of the presidency.²⁵ Most studies that analyse the interaction of presidential and legislative electoral systems consider how plurality election rules for the

²² Reed, 'Duverger's Law is Working in Italy'; Matthew S. Shugart and Martin Wattenberg, *Mixed-Member Electoral Systems: The Best of Both Worlds?* (Oxford: Oxford University Press, 2001); Ethan Scheiner, 'Does Electoral System Reform Work? Electoral System Lessons from Reforms of the 1990s', *Annual Review of Political Science*, 11 (2008), 161–81.

²³ Erik S. Herron and Misa Nishikawa, 'Contamination Effects and the Number of Parties in Mixed-Superposition Electoral Systems', *Electoral Studies*, 20 (2001), 63–86; Nishikawa and Herron, 'Mixed Electoral Rules' Impact on Party Systems'; Cox and Schoppa, 'Interaction Effects in Mixed-Member Electoral Systems'. Compare with Moser and Scheiner, 'Mixed Electoral Systems and Electoral System Effects'. An additional complication in mixed systems is that parties have incentives to run candidates in plurality districts to increase support for the ticket in the PR tier.

²⁴ Burt L. Monroe and Amanda G. Rose, 'Electoral Systems and Unimagined Consequences: Partisan Effects of Districted Proportional Representation', *American Journal of Political Science*, 46 (2002), 67–89; Singer and Stephenson, 'The Political Context and Duverger's Theory'.

²⁵ David J. Samuels and Matthew S. Shugart, 'Presidentialism, Elections and Representation', *Journal of Theoretical Politics*, 15 (2003), 33–60.

presidency (which reduce the number of viable presidential contenders) create coat-tails that reduce incentives for legislative fragmentation in PR systems, especially if elections are concurrent.²⁶ Yet in considering legislative institutions that should reduce electoral fragmentation, one should consider presidential elections that generate fragmented election coat-tails. In countries where presidents are elected by two-ballot majority, the presence of multiple contenders for the presidency may raise awareness of multiple parties and encourage candidates to run under their banner, creating coat-tails even in SMDs that increase legislative fragmentation.

Federalism is another institution that may change the strategic incentives facing voters and parties at the district level.²⁷ Political and fiscal decentralization leads to the creation of regional parties and a decrease in party system nationalization.²⁸ The existence of subnational offices, and the resources they control, creates incentives for groups to organize and mobilize votes at that level.²⁹ The result is a fragmented national electoral system that may contaminate district-level calculations, especially as regional parties may then have incentives to run candidates nationally to establish themselves as national parties.³⁰ Several studies have argued that decentralization is the most likely explanation for why Canada and India diverge from two-party competition.³¹ Yet Chhibber and Kollman and Singer and Stephenson find no effect of decentralization on the number of parties receiving votes at the district level.³²

Moving beyond institutions that may contaminate strategic incentives, voters may not wish to vote strategically if they have strong ties toward a party (or strong animosity toward dominant parties). Strong ethnic divisions, for example, may increase legislative fragmentation by making it harder for voters to desert their group for a larger party, since ethnic identities shape political behaviour.³³ However, much of the extant evidence suggests that restrictive electoral systems suppress social cleavages.³⁴

Strategic voting may also be rare in new democracies. The incentives generated by the mechanical effect might not be fully understood by citizens or politicians in new democracies due to a lack of information and experience.³⁵ Moreover, many new democracies lack polls

²⁶ Matthew S. Shugart and John Carey, *Presidents and Assemblies* (New York: Cambridge University Press, 1992). However, see Singer and Stephenson, 'The Political Context and Duverger's Theory'.

²⁷ Ignacio Lago and Jose Montero, 'Coordination Between Electoral Arenas in Multilevel Countries', *European Journal of Political Research*, 48 (2009), 176–203.

²⁸ Gary W. Cox, 'Electoral Rules and Electoral Coordination', *Annual Review of Political Science*, 2 (1999), 145–161; Chhibber and Kollman, *The Formation of National Party Systems*.

²⁹ Chhibber and Kollman, *The Formation of National Party Systems*; Dawn Brancati, *Peace by Design: Managing Ethnic Conflict through Decentralization* (Oxford: Oxford University Press, 2009).

³⁰ E.g., Johnston and Cutler, 'Canada: The Puzzle of Local Three-Party Competition'.

³¹ Gaines, 'Duverger's Law and the Meaning of Canadian Exceptionalism'; Rekha Diwaker, 'Duverger's Law and the Size of the Indian Party System', *Party Politics*, 13 (2007), 539–61.

³² Chhibber and Kollman, *The Formation of National Party Systems*; Singer and Stephenson, 'The Political Context and Duverger's Theory'.

³³ Dickson and Scheve, 'Social Identity, Electoral Institutions, and the Number of Candidates'.

³⁴ Octavio Amorim Neto and Gary W. Cox, 'Electoral Institutions, Cleavage Structures, and the Number of Parties', *American Journal of Political Science*, 41 (1997), 149–74; Cox, *Making Votes Count: Strategic Coordination in the World's Electoral Systems*; Clark and Golder, 'Rehabilitating Duverger's Theory'; Singer and Stephenson, 'The Political Context and Duverger's Theory'.

³⁵ Moser, *Unexpected Outcomes*; Rein Taagepera, 'Designing Electoral Rules and Waiting for an Electoral System to Evolve', in Andrew Reynolds, ed., *The Architecture of Democracy: Institutional Design, Conflict Management, and Democracy in the Late Twentieth Century* (New York: Cambridge University Press, 2002), pp. 248–265; Raymond M. Duch, 'A Developmental Model of Heterogeneous Economic Voting in New Democracies', *American Political Science Review*, 98 (2001), 895–910.

or previous electoral histories to inform voters about which candidates and parties are competitive.³⁶ If voters are unable to coordinate around a set of viable candidates, then low district magnitudes may not suppress party fragmentation.³⁷ Moser and Scheiner, for example, show that SMD seats in mixed systems are substantially more fragmented in the new democracies emerging from the former Soviet bloc than in established democracies.³⁸ Singer and Stephenson also suggest that small district magnitudes are less likely to suppress electoral fragmentation in new democracies.³⁹

PREVIOUS DISTRICT-LEVEL STUDIES

The literature on electoral systems informs hypotheses about how the electoral formula (plurality or majority) will affect the outcome of SMD elections and identifies contexts that may impinge on the strategic incentives that underlie those relationships. Testing these hypotheses requires (1) district-level election returns from (2) a variety of countries and contexts. However, to date there are no district-level studies that fully meet these criteria.

Several district-level studies assess outcomes in plurality systems. Gaines, Johnson and Cutler, and Diwaker argue that district-level outcomes in Canada, India and the UK, respectively, deviate significantly from the two-party ideal.⁴⁰ Chhibber and Kollman study district-level outcomes under plurality rule in four established democracies (the United States, the UK, Canada and India) and find that in an average district, the effective number of parties receiving votes was 2.08 (2.28 if the United States is excluded).⁴¹ However, in more than 18 per cent of districts the effective number of parties was more than 2.5, and 4 per cent had an effective number of parties greater than 3. Thus they conclude that:

focusing on the means and modes in the data leads one to conclude that Duverger's Law works well in my countries, while focusing on the deviations around those means and modes leads to the conclusion that there are important and systematic exceptions to Duverger's Law.⁴²

Grofman *et al.*'s review of the evidence from the same four countries reaches an even more pessimistic conclusion, as their conclusion that it is 'a "law" that seems to be more notable for its exceptions than its application' indicates.⁴³ Yet Singer and Stephenson evaluate outcomes under plurality rule in a larger set of countries and find that the effective number of parties receiving votes under plurality rule is almost exactly 2, which suggests that Duverger's Law might be better supported when analysing a

³⁶ Moser, *Unexpected Outcomes*.

³⁷ Singer and Stephenson, 'The Political Context and Duverger's Theory'.

³⁸ Moser and Scheiner, 'Mixed Electoral Systems and Electoral System Effects'.

³⁹ Singer and Stephenson, 'The Political Context and Duverger's Theory'.

⁴⁰ Gaines, 'Duverger's Law and the Meaning of Canadian Exceptionalism'; Gaines, 'Does the United Kingdom Obey Duverger's Law?'; Johnson and Cutler, 'Canada: The Puzzle of Local Three-Party Competition'; and Diwaker, 'Duverger's Law and the Size of the Indian Party System'.

⁴¹ Pradeep Chhibber and Ken Kollman, 'Party Aggregation and the Number of Parties in India and the United States', *The American Political Science Review*, 92 (1998), 329–42; Chhibber and Kollman, *The Formation of National Party Systems*.

⁴² Pradeep Chhibber and Ken Kollman, 'Party Aggregation and the Number of Parties in India and the United States', p. 53.

⁴³ Grofman, Blais and Bowler, *Duverger's Law of Plurality Voting*. It is worth noting that most of the chapters in this book do not analyse district-level outcomes but instead look at the number of parties nationally or strategic-voting patterns, thus testing Duverger's underlying mechanism but not his basic prediction.

broader sample.⁴⁴ Moreover, without a larger sample it is impossible to conclude whether federalism increases deviations from two-party competition or plurality presidential elections reinforce it.

Multiple district-level studies have also been conducted within mixed electoral systems. Reed argues that the imposition of a mixed electoral system in Italy has reduced electoral fragmentation, especially in the plurality tier, in which parties have formed explicit electoral alliances.⁴⁵ Moser and Scheiner assess district-level outcomes in fifteen mixed systems and find that while the SMD tier has fewer parties and lower levels of disproportionality than the PR tier (though the size of the gap is much smaller in non-institutionalized party systems), the average effective number of candidates in an SMD district was 4.11, fairly far removed from two-party competition.⁴⁶ Finally, Cox and Schoppa calculate average district fragmentation levels for Germany, Italy and Japan and argue that the average effective number of parties they find in the SMD tiers (2.64) is larger than the average effective number of parties in plurality elections in the four countries Chhibber and Kollman study as well as New Zealand (2.24).⁴⁷ This is the only previous study I am aware of that compares district-level outcomes from mixed and ‘pure’ plurality systems. However, they do not test whether these means are statistically different from each other. Singer and Stephenson contrast SMD outcomes in countries using FPTP and PR systems (finding higher levels of fragmentation in the latter), but do not compare FPTP with double-ballot or mixed systems.⁴⁸

To date, there have been no multi-country studies of district-level outcomes in legislative contests contested under double-ballot majority systems, although single country studies exist.⁴⁹ Yet studies of presidential elections disagree over whether majority rule increases the number of candidates⁵⁰ or not.⁵¹

A few studies have examined Duverger’s Law and explored the issues of contamination from other electoral systems. However, since these studies have analysed only a limited number of countries, it is unclear whether the deviations from two-party competition in India, Canada and the UK also occur in the larger set of countries that use FPTP. Since previous studies do not cover different electoral system we also do not know whether the deviations from two-party rule documented in mixed systems are larger than the deviations from two-party rule that may exist in plurality systems. Finally, there are no systematic studies of whether majoritarian electoral systems in fact generate multiple parties at the district level. This study seeks to fill these empirical gaps.

EVALUATING DUVERGER’S LAW

Duverger’s Law proposes that plurality rule should lead to two-party competition. The most common way to test this proposition is to directly model the number of parties that

⁴⁴ Singer and Stephenson, ‘The Political Context and Duverger’s Theory’.

⁴⁵ Reed, ‘Duverger’s Law is Working in Italy’.

⁴⁶ Moser and Scheiner, ‘Mixed Electoral Systems and Electoral System Effects’.

⁴⁷ Cox and Schoppa, ‘Interaction Effects in Mixed-Member Electoral Systems’.

⁴⁸ Singer and Stephenson, ‘The Political Context and Duverger’s Theory’.

⁴⁹ Mark P. Jones, ‘Racial Heterogeneity and the Effective Number of Candidates in Majority Runoff Elections: Evidence From Louisiana’, *Electoral Studies*, 16 (1997), 349–58.

⁵⁰ Mark P. Jones, ‘Electoral Laws and the Effective Number of Candidates in Presidential Elections’, *Journal of Politics*, 61 (1999), 171–84; Matt Golder, ‘Presidential Coattails and Legislative Fragmentation’, *American Journal of Political Science*, 50 (2006), 34–48.

⁵¹ Cox, *Making Votes Count*.

receive votes. A commonly used measure is Laasko and Taagepera's effective number of parties receiving votes in each district, which weights parties according to their size.⁵² The expectation from Duverger's theory is that plurality rule should have districts with an effective number of parties of approximately two, while majoritarian rule should produce a larger effective number of parties. Yet the effective number of parties receiving votes has been criticized as a test of Duverger's Law, because multiple levels of electoral fragmentation can generate the same effective number of parties.⁵³ Thus when using the effective number of parties as the indicator of two-party competition, the question becomes: What range of values constitutes two-party competition? Taagepera argues that countries with effective numbers of parties between 1.5 and 2.5 are consistent with Duverger's Law.⁵⁴ Chhibber and Kollman use a similar standard.⁵⁵ Yet this range includes a wide variety of outcomes that may or may not be considered equivalent to two-party competition.⁵⁶

Duverger's Law can be more directly operationalized as a prediction that the two largest parties should dominate the electoral competition, while support for other parties should converge to nothing.⁵⁷ If the two largest local parties truly dominate the district, then the top two parties together should receive around 100 per cent of the vote. In other words, if Duverger's Law is *strictly* correct, support for the third-place party and any subsequent parties should not be significantly different from 0 per cent. To test this intuition, I model the amount of support gained by all candidates finishing third or worse in a district.⁵⁸ No attention was paid to whether these parties performed well in other

⁵² Marku Laakso and Rein Taagepera, 'The "Effective" Number of Parties: A Measure with Application to West Europe', *Comparative Political Studies*, 12 (1979), 3–27. The effective number of parties (ENP) = $1/\sum V_i^2$ where V_i is the share of the vote received by party i for all i parties in that district. In districts where independent candidates sought votes, each independent was treated as his or her own party. Usually I was able to include results for all parties, but in a few cases (mainly in the data compiled from Caramani), the results contained a residual 'other' category, usually comprising parties that received less than 1 per cent of the vote. In these cases, I approximated the final distribution of the votes by calculating the ENP if all the 'other' votes had been won by parties that received exactly 1 per cent of the vote. Alternative methods of correcting incomplete results, such as Taagepera's method of bounds, yield essentially the same estimates (Rein Taagepera, 'Effective Number of Parties for Incomplete Data', *Electoral Studies*, 16 (1997), 145–51).

⁵³ Grofman, Blais and Bowler, *Duverger's Law of Plurality Voting*.

⁵⁴ Taagepera, *Predicting Party Sizes*, p. 103.

⁵⁵ Chhibber and Kollman, *The Formation of National Party Systems*.

⁵⁶ For example, a distribution of votes across three parties in which the winner receives 39 per cent of the vote, the second-place party 38 per cent and the third-place party 13 per cent yields an effective number of parties of 2.5. A district where the top three parties receive 57, 23 and 20 per cent of the vote, respectively, also qualifies as a two-party competition under this standard. Yet both of these scenarios imply that there is a substantial third candidate in the district (even if in the second case, strategic coordination by the two losing parties could not have changed the outcome).

⁵⁷ While the empirical tests focus on the support for parties finishing third or worse, I supplement the discussion by looking at the distribution of votes for parties finishing first and second as well. This approach follows the advice of Taagepera, *Predicting Party Sizes*, p. 106 to differentiate whether FPTP yields distributions of the vote of '52-48 or 50-40-10'. I do not have a specific hypothesis about support for first- and second-place parties because Duverger's Law does not have any implications for cases in which there is only demand for one party in a district (Clark and Golder, 'Rehabilitating Duverger's Theory'). In other words, Duverger's Law can be satisfied when support for the second-place party ranges from 0–50 per cent as long as the winning party gets the rest of the votes in the district.

⁵⁸ Gaines, 'Duverger's Law and the Meaning of Canadian Exceptionalism'. The distributions of these various dependent variables are graphed in the online appendix.

regions or not (that is, if they are third parties nationally or regional parties) because Duverger's Law is expected to be a function of local viability.

There are two other ways to operationalize Duverger's theory that small parties get no support under plurality rule. The first approach is to calculate Cox's Second-First Loser (SF) ratio, a ratio of support of the second runner-up to the first runner-up in a district.⁵⁹ Under pure two-party competition this ratio should equal 0, as support for the third-place party dwindles to nothing; the worst-case scenario for Duverger is an SF ratio of 1, in which the two parties are equal in size.⁶⁰ The SF ratio, however, does not consider deviations from two-party competition in which multiple small parties combine to capture significant portions of the vote. Thus this study introduces a new measure, the Third-First Loser (TF) ratio, which is the ratio of the votes for all parties finishing fourth (or third runner-up to use Cox's nomenclature) or worse to the votes for the first runner-up. Again, under Duverger's Law this measure should equal 0.⁶¹

The other empirical hypotheses under investigation test whether the use of multimember districts elsewhere in the country contaminates the strategic incentives and causes deviations from two-party competition, and whether double-ballot rules generate multiparty competition. If Duverger's hypothesis regarding double-ballot systems is correct, support for parties finishing third or worse should be both greater than zero and larger than under pure plurality. Similar outcomes may be expected if the district-level calculations are contaminated by other institutional configurations, if ethnic loyalties are preventing strategic voting or if electoral institutions have less impact in new democracies.

Cases and Data

I analyse district-level electoral returns from SMD contests for national-level legislative elections held in fifty-three countries between 1994 and 2008,⁶² using one election from each country.⁶³ Since the effect of electoral institutions and other formal rules may be weaker in non-democracies,⁶⁴ the analysis was restricted to countries ranked by Freedom House as 'fully free', or which received a score of 5 or higher on the Polity IV scale at the time of the election. These fifty-three countries vary greatly in size, level of development and political history.

⁵⁹ Cox, *Making Votes Count*.

⁶⁰ Cox, *Making Votes Count* considers cases with an SF ratio of 1 to be potential exemplars of a non-Duvergerian equilibrium, in which voters do not know which party is in third place and thus should be abandoned. However, the key point for this analysis is that such a scenario does not correspond to a two-party competition.

⁶¹ Several contributors to Grofman, Blais and Bowler, *Duverger's Law of Plurality Voting* argue that another indicator of strategic coordination failure by voters and elites is if support for third place or worse parties is greater than the margin between the first- and second-place parties. In districts where small parties gained more support than the victor's margins, strategic coordination by all small party supporters could potentially have changed the race's outcome. This is equivalent to modelling whether the winning party received 50 percent of the vote or not. This kind of outcome should be relatively rare under the strategic outcome Duverger envisions. I have thus also analysed this question and present the results in the online appendix.

⁶² The 2010 British election was more fragmented than was the 1997 election used in this dataset, but the substantive conclusions do not change if we use the 2010 elections instead (see the online appendix).

⁶³ I exclude Papua New Guinea from the analysis because it is such a large outlier from the dominant pattern in other countries using the same system, even after controlling for other factors (Reilly, 'Party Politics in Papua New Guinea'; Singer and Stephenson, 'The Political Context and Duverger's Theory').

⁶⁴ Harris Mylonas and Nasos Roussias, 'When Do Votes Count? Regime Type, Electoral Conduct, and Political Competition in Africa', *Comparative Political Studies*, 41 (2008), 1466–91.

Approximately half of the data draws on the archives compiled by Caramani *et al.*, the University of Essex, and Adam Carr.⁶⁵ Data from the other twenty-seven cases were compiled from official election results posted online (sources are listed in the online appendix). In countries using PR or mixed electoral systems, I only collected the results from the SMDs. For double-ballot majority systems, I collected data from the first round of elections. The resulting dataset includes single-member electoral contests from 6,758 districts.

Our primary interest is in differences across electoral formulas, the analysis includes dummy variables for majoritarian, PR/SNTV and the type of mixed system in use to test whether outcomes in these contexts significantly vary from plurality rule. In making these distinctions, there are two countries in the dataset that use mixed systems and majoritarian rules for their single-member contests (Lithuania and Hungary) and one country in which majority rules are used in both single-member and multimember districts (Kiribati). These cases are assigned a value of 1 for all electoral systems that apply.⁶⁶

In addition to contamination from other electoral institutions, elections for national or subnational offices may contaminate processes at the district level. I therefore include dummy variables that are assigned a value of 1 if legislative elections were held concurrently with a presidential election held under plurality or majoritarian rules, following Shugart and Carey's finding that only concurrent presidential elections affect the legislative party system.⁶⁷ I also control for whether or not a country is federal, using data from the Database of Political Institutions.⁶⁸

Duverger's Law implies that plurality rule can suppress ethnic cleavages. To test this proposition, I use Alesina *et al.*'s measure of ethnic fragmentation; it assesses a country's linguistic diversity by coding the probability that two people selected at random will speak different languages.⁶⁹ I use this data instead of other measures of ethnic fragmentation because it has the widest coverage.⁷⁰ The drawback of this measure (and all other ethnicity

⁶⁵ Daniele Caramani, *Elections in Western Europe since 1815: Electoral Results by Constituencies* (New York: MacMillan, 2000); Dawn Brancati, *Constituency Level Elections Dataset*, <http://www.cle.wustl.edu/>; Ken Kollman, Allen Hicken, Daniele Caramani and David Backer, Constituency Level Elections Archive, <http://www.electiondataarchive.org/>; www2.essex.ac.uk/elect/database/database.asp; www.psephos.adam-carr.net

⁶⁶ I have also run the analysis excluding these three countries, and the substantive results do not change. All variables that are significant at conventional levels when they are included are significant when they are excluded.

⁶⁷ Shugart and Carey, *Presidents and Assemblies*. I have run models with controls for the president's electoral system in non-concurrent elections and find no effect.

⁶⁸ Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh, 'New Tools in Comparative Political Economy: The Database of Political Institutions', *World Bank Economic Review*, 15 (2001), 165–76. Taagepera, *Predicting Party Sizes* shows that countries with more seats in their parliament tend to have more parties winning seats and votes overall in the country because these seats create opportunities for niche interests to be represented. Thus one could expect that as the number of districts increases, cross-district contamination would also increase. I have run the models with a control for the number of districts and find no evidence that it affects electoral fragmentation.

⁶⁹ Alberto Alesina, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat and Romain Wacziarg, 'Fractionalization', *Journal of Economic Growth*, 8 (2003), 155–94.

⁷⁰ Stoll (Heather Stoll, 'Social Cleavages and the Number of Parties: How the Measures You Choose Affect the Answers You Get', *Comparative Political Studies*, 41 (2008), 1439–65) argues that some operationalizations of ethnolinguistic fragmentation are more strongly associated with electoral fragmentation than others are. Specifically, she finds only a weak association between Alesina *et al.*'s measure and the number of parties receiving votes nationally. However, in their district-level study, Singer and Stephenson ('The Political Context and Duverger's Theory') find that Alesina *et al.*'s measure is

measures commonly used in cross-national work) is that it focuses on the national level and does not take local patterns in ethnic concentration into account. Yet while district-level social data would be ideal, it does not exist in a comparable format (or frequently at all) for more than a handful of countries.⁷¹

To test whether party system fragmentation will predominate in new democracies despite plurality electoral systems, I follow Singer and Stephenson and add a dummy variable that takes the value of 1 if the country became a democracy after 1989.⁷² I also add a variable that controls for ex-Soviet states following Moser and Moser and Scheiner, who have shown that ex-Soviet mixed systems differ from other mixed systems due to their lack of party system institutionalization.⁷³

Finally, differences in population size are cited as a potential reason why election outcomes in Canada, India and the UK may diverge from patterns in smaller countries.⁷⁴ Large countries might have more parties competing because they have more diverse political arenas and issue agendas or more heterogeneous populations, thus generating a greater number of parties nationally that will contaminate strategic evaluations in specific districts. Thus I control for the log of the population in each country to test whether Duverger's Law is more likely to apply in small countries.

This is a multilevel model: the dependent variables are measured at the district level but the independent variables are all measured at the national level. This specification corrects for clustering in the standard errors, while specifying that the tests of the national-level hypothesis reflect the degree of freedom that the limited number of country cases implies.⁷⁵

ANALYSIS

Outcomes under Pure Plurality

The first question is whether pure plurality rule generates two-party competition. Table 1 models the electoral patterns in the twenty-two FPTP countries. To facilitate the interpretation of the results, the models are estimated with the population and ethnicity measures at their overall grand means. Thus the constant describes the outcome for a unitary, established democracy with an average population size and level of ethnic

(*F*note continued)

associated with increases in the number of parties receiving votes in large districts, and that its effect is similar to that of other indices (e.g., Fearon's or Roeder's).

⁷¹ Amorim Neto and Cox, 'Electoral Institutions, Cleavage Structures, and the Number of Parties', p. 168; Jones, 'Racial Heterogeneity and the Effective Number of Candidates in Majority Runoff Elections', pp. 350–1; Singer and Stephenson, 'The Political Context and Duverger's Theory', p. 484.

⁷² Singer and Stephenson, 'The Political Context and Duverger's Theory'.

⁷³ Moser, *Unexpected Outcomes*; Moser and Scheiner, 'Mixed Electoral Systems and Electoral System Effects'.

⁷⁴ Grofman, Blais and Bowler, *Duverger's Law of Plurality Voting*, p. 10.

⁷⁵ Marco R. Steenbergen and Bradford S. Jones, 'Modeling Multilevel Data Structures', *American Journal of Political Science*, 46 (2002), 218–37; Christopher J. Anderson and Matthew M. Singer, 'The Sensitive Left and the Impervious Right: Multilevel Models and the Politics of Inequality, Ideology, and Legitimacy in Europe', *Comparative Political Studies*, 44 (2008), 564–99. The models are estimated with robust standard errors because of heteroskedasticity concerns. This approach is appropriate in models in which the primary interest is in the level 2 predictors and there are a large number of countries (Cora Maas and Joop Hox, 'Robustness Issues in Multilevel Regression Analysis', *Statistica Neerlandica*, 58 (2002), 127–37) – conditions that this model satisfies.

TABLE 1 *Multilevel Model of Election Outcomes under Plurality Rules*

	Effective number of parties receiving votes	% third or worse parties	SF ratio	TF ratio
Constant	2.203‡ (0.272)	0.071† (0.023)	0.155† (0.047)	0.116 (0.126)
Concurrent plurality presidential election	0.089 (0.510)	0.053 (0.057)	0.189 (0.104)	0.087 (0.236)
New democracy	-0.311 (0.420)	-0.043 (0.049)	-0.048 (0.088)	-0.181 (0.195)
Federal country	0.124 (0.407)	0.043 (0.040)	0.124 (0.089)	0.059 (0.189)
Ln(population)	0.038 (0.055)	0.007 (0.006)	0.014 (0.013)	0.008 (0.026)
Ethnic divisions	0.939 (0.654)	0.126 (0.102)	0.109 (0.187)	0.624* (0.303)
National variance component	0.406‡	0.009‡	0.031‡	0.087‡
District variance component	0.370‡	0.008‡	0.061‡	0.081‡

Note: SF ratio: share received by the third-place party/share received by the second-place party; TF ratio: combined share received by all parties finishing fourth or worse/share received by the second-place party.

Multilevel OLS regression, standard errors in parentheses

*p < 0.05; †p < 0.01; ‡p < 0.001

Countries n = 22; districts n = 3,207 in all models

fragmentation, allowing us to directly evaluate Duverger's Law regarding an 'average' country.⁷⁶

The predicted effective number of candidates receiving votes in a plurality district is 2.20 – within the 1.5–2.5 range that much of the previous work on Duverger considers two-party competition. Underlying this effective number of parties is an expectation that in district-level contests in an average country, the winning candidate will get roughly 56 per cent of the vote, the second-place candidate will get 36 per cent, the third-place party will get 5 per cent and any remaining candidates will combine for roughly 2 per cent. The top two parties combine to win between 92 and 93 per cent, leaving few votes available for small parties.

Yet these small parties do not completely disappear. The second column of Table 1 tests whether the estimated 7 per cent that goes to parties finishing third or worse is significantly greater than the value of 0 that a strict interpretation of Duverger's Law requires, and rejects the hypothesis that all the votes go to the top two parties. This failure of small parties to disappear is driven by support for the third party; thus the average ratio of support for third parties to second-place candidates is 0.15, also significantly greater than zero at conventional levels.

Previous work on Duverger's Law has documented the continued support for third-place candidates in Canada, India and the UK, despite plurality rule.⁷⁷ Thus the results in

⁷⁶ Since none of the countries in this sample combine plurality electoral rules with majoritarian presidential rules, there is no control for majoritarian presidential elections in this model.

⁷⁷ E.g., Gaines, 'Duverger's Law and the Meaning of Canadian Exceptionalism'; Diwaker, 'Duverger's Law and the Size of the Indian Party System'; Grofman, Blais and Bowler, *Duverger's Law of Plurality Voting*.

Table 1 beg the question of whether they are being driven by these three large countries; perhaps Duverger's Law is better supported in the other nineteen countries in this sample. Analysis in the online appendix shows that support for third parties does tend to be larger in these three countries than in the rest of the sample.⁷⁸ However, even in the other nineteen countries, support for parties finishing third or worse is significantly greater than zero, as is the SF ratio.

In general, the results in Table 1 reject the null hypothesis implied by a strict interpretation of Duverger's Law that third parties dwindle completely to zero. These findings suggest that not all candidates and voters are instrumentally responding to the short-term strategic incentives of district competition. Yet the strength of third-place parties should not be overestimated. The average third-place party is not close to winning a seat (it trails the average winning party by more than 50 per cent of the vote). Instead, their main electoral impact is as spoiler candidates. In 996 districts (or 31 per cent of the sample) the winning candidate got less than 50 per cent⁷⁹ of the votes, and the margin between the top two candidates was less than the support for the third-place candidate in that district.⁸⁰ In these districts, supporters of also-ran candidates could potentially have swung the election if they had preferred the second-place party to the winner.

In the passage quoted in the introduction, Grofman *et al.* argue that in addition to not completely eliminating third parties, in many plurality countries there are substantial fourth-place candidates whose continued support violates Duverger's Law. Yet while the evidence in Table 1 is consistent with the claims about significant third-place candidates, there is less evidence that fourth-place candidates are garnering significant support at the district level. In a country with an average level of ethnic fragmentation, they are predicted to receive only around 2.5 per cent of the vote; the hypothesis that the TF ratio is 0 cannot be rejected. Even in Canada, the UK and India, where support for candidates finishing fourth or worse totals to 5 per cent on average (and yields a TF ratio of 0.18), this support is not significantly greater than zero, given the wide amount of variance associated with the estimates. In the average plurality country, the little electoral fragmentation that exists is in the form of a third candidate.

An additional implication of Duverger's Law is that strategic voting should prevent the expression of ethnic cleavages. Previous work at the national⁸¹ and district⁸² levels that pooled data from various electoral systems is consistent with this hypothesis. The data in this sample, however, suggest that ethnically divided countries may differ in their electoral

⁷⁸ Moreover, the model provides no evidence in the initial specification that size or federalism raises fragmentation generally in FPTP countries, so we cannot attribute the different outcomes in Canada, India or the UK to these characteristics.

⁷⁹ Grofman, Blais and Bowler, *Duverger's Law of Plurality Voting* uses the standard of whether votes for parties outside the top two parties were greater than the margin of victory to identify districts in which strategic voting potentially could have swung the election (which is equivalent to asking if the winner got a majority of the vote) and thus to diagnose coordination failures. However, this only defines an upper limit on the number of cases in which strategic behaviour could change the outcome. In some of these cases, small party voters may have been indifferent between the top two or preferred the winner, meaning that strategic behaviour would have left the outcome unchanged.

⁸⁰ The third-place party was only bigger than the margin between the top two parties in 1.4 per cent of American districts, but could have swung the election in 30 per cent of the districts in Canada, 36 per cent of the districts in the UK, 43 per cent of the districts in India or Zambia, and 75 per cent of the districts in Nepal.

⁸¹ Clark and Golder, 'Rehabilitating Duverger's Theory'.

⁸² Singer and Stephenson, 'The Political Context and Duverger's Theory'.

fragmentation, although these differences are not large enough to be fully captured by modelling the effective number of parties. Instead, the TF ratio is significantly increased by ethnic fragmentation. In divided societies, support for both of the top two candidates drops, and while support for the third-place candidate increases somewhat, the largest increase is in the support for parties finishing fourth or worse. Again, the divergence from Duverger's Law should be kept in perspective – the TF ratio is insignificant when ethnic divisions are at their mean, which implies that while ethnic divisions prevent some strategic consolidation among losing candidates, in most societies plurality rule is associated with very little support for parties finishing fourth or worse. However, in very divided societies such as Canada (ethnicity = 0.71, TF = 0.32, parties = 2.68) or Zambia (ethnicity = 0.78, TF = 1.0, parties = 3.70), the combined support for these various losing candidates becomes substantial. This result suggests that voters in very divided societies may spread their support among multiple parties finishing fourth or worse instead of consolidating into a single electoral vehicle.

In general, then, the results in Table 1 present a mixed evaluation of Duverger's Law in these twenty-two countries. The top two candidates win at least 90 per cent of the vote in most countries, and there is little support for parties outside the top three except in the most ethnically divided societies. Yet third parties exist: they are large enough to potentially swing the election in many cases, and ethnic divisions are not completely suppressed. So while two parties do seem to dominate under plurality rule, that domination is not complete.

Outcomes under Majority Rule

Table 2 adds election outcomes from single-seat contests under other electoral arrangements to test whether elections held under other electoral rules generate higher levels of fragmentation. Elections conducted under majority rule strongly diverge from two-party competition. The average leading party at the end of the first round received 43 per cent of the vote, while the second-place party received 26 per cent. Small parties thus have space to gain significant support under majoritarian rules. The significant SF ratio reflects third-place parties receiving about 10 per cent of the vote, roughly double what they receive under plurality rules. The big difference between plurality and majority systems, however, is that parties that finished fourth or worse combine to receive 21 per cent of the vote in the latter system, which yields a predicted TF ratio of around 1: parties finishing fourth or worse combine to get nearly as much support as the runner-up candidate. The model predicts that the effective number of parties in an average country under majority rule equals 3.8, a dramatic increase in fragmentation relative to plurality rule. Thus while plurality rule does not perfectly approximate two-party competition, it is much closer to that ideal than is majority rule.

Outcomes under PR, Mixed Systems and Other Arrangements that Might Contaminate Strategic Choices

The data in Table 2 show that while pure plurality elections do not perfectly reflect the two-party ideal, when plurality contests are held alongside other electoral contests the outcome moves even further away from two-party competition – which is consistent with the contamination hypothesis. The deviations from two-party competition in mixed systems and under PR, however, are substantially smaller than those associated with majority rule. The first three parties in SMDs in PR countries, for example, are predicted

TABLE 2 *Multilevel Model of Election Outcomes in Single-Member Districts, Controlling for the Age of Mixed Systems*

	Effective number of parties receiving votes	% third or worse parties	SF ratio	TF ratio
Constant	2.101‡ (0.126)	0.067‡ (0.019)	0.140‡ (0.037)	0.075 (0.066)
Majority system	1.318‡ (0.347)	0.196‡ (0.035)	0.295‡ (0.050)	0.670† (0.214)
PR	0.576* (0.258)	0.097* (0.037)	0.169* (0.069)	0.191 (0.105)
Mixed-member majority system in established democracy	-0.050 (0.242)	-0.012 (0.036)	-0.060 (0.088)	-0.069 (0.120)
Mixed-member proportional system in established democracy	0.447* (0.221)	0.113† (0.033)	0.208* (0.077)	0.183 (0.121)
Mixed system in a former Soviet state	2.307‡ (0.632)	0.246‡ (0.058)	0.242† (0.072)	1.201† (0.398)
Mixed system in other new democracy	0.434 (0.322)	0.081 (0.048)	0.172* (0.068)	0.259 (0.226)
Concurrent plurality presidential election	0.433 (0.369)	0.061 (0.054)	0.146 (0.099)	0.247 (0.176)
Concurrent majority presidential election	2.236‡ (0.318)	0.240‡ (0.035)	0.304‡ (0.052)	1.254‡ (0.205)
New democracy	-0.339 (0.240)	-0.032 (0.033)	0.017 (0.059)	-0.207 (0.126)
Federal country	0.415 (0.213)	0.060* (0.028)	0.151* (0.051)	0.204 (0.117)
Ln(population)	0.019 (0.036)	0.004 (0.005)	0.003 (0.009)	-0.001 (0.016)
Ethnic divisions	0.398 (0.627)	0.063 (0.086)	0.043 (0.144)	0.398 (0.285)
National variance component	0.468‡	0.009‡	0.027‡	0.127‡
District variance component	0.640‡	0.008‡	0.057‡	0.190‡

Note: SF ratio: share received by the third-place party/share received by the second-place party; TF ratio: combined share received by all parties finishing fourth or worse/share received by the second-place party.

Multilevel OLS regression, standard errors in parentheses

* $p < 0.05$; † $p < 0.01$; ‡ $p < 0.001$

Countries $n = 53$; Districts $n = 6,745$ in all models

to receive 51, 32 and 9 per cent, respectively, with another 8 per cent going to other parties, generating an effective number of parties of 2.68. The 17 per cent of the vote that goes to parties finishing third or worse, the SF ratio (0.32) and the TF ratio (0.27) are all higher than under plurality rule.⁸³ Thus PR elections elsewhere in the country move SMDs away from pure two-party competition, consistent with Monroe and Rose and Singer and Stephenson.⁸⁴

⁸³ The TF coefficient is significant at 0.05 in the results presented in online appendix 9; it is significant at the 0.10 level here.

⁸⁴ Monroe and Rose, 'Electoral Systems and Unimagined Consequences'; Singer and Stephenson, 'The Political Context and Duverger's Theory'.

The results in Table 2 also demonstrate that SMDs in mixed systems deviate from the two-party ideal. In compensatory MMP systems, parties finishing third or worse combine for 19 per cent; the third-place party receives 9 per cent and all other small parties combine for 10 per cent. This result holds true even if attention is restricted only to MMP systems in established democracies.

The results for mixed member majoritarian (MMM) systems, however, differ across types of democracies. On average, small parties tend to have more success in MMM systems than under pure plurality.⁸⁵ Yet Moser and Moser and Scheiner propose that electoral fragmentation in SMD tiers only differs from two-party competition in new democracies, specifically in the former Soviet bloc countries where parties are not institutionalized.⁸⁶ Thus in Table 2 I differentiate mixed systems in new democracies countries from mixed systems elsewhere. Specifically, mixed systems in established democracies (Germany, Japan, Italy, etc.) are differentiated from those in former Eastern bloc countries (such as Albania, Ukraine, etc.) and those in other new democracies (Thailand, Mexico and Lesotho) because Moser and Scheiner previously examined post-Soviet cases, and so we do not know if all new democracies have the same divergent outcome.

As Moser and Scheiner have previously shown, mixed systems in former Eastern bloc countries diverge significantly from both plurality outcomes and the two-party ideal. The predicted effective number of parties (nearly four in the average SMD) suggests that Eastern bloc plurality tier elections may be even more fragmented than the extreme fragmentation under majority rule. Winning candidates only receive about 43 per cent of the vote on average, and while the third-place party receives 7 per cent of the vote, the largest deviation from two-party competition comes in the form of parties that finish fourth or worse but combine to win nearly 24 per cent, generating a very large TF ratio.

Support for the contamination hypothesis differs, however, between types of mixed systems within the rest of the sample. The SF ratio is significantly higher in new democracies using mixed rules, but the effective number of parties and total support for parties finishing third or worse do not significantly diverge from pure plurality. Thus there is less evidence that being a new democracy *per se* increases electoral fragmentation. Nor are outcomes in established MMM systems significantly different from those under plurality rule. Thus fragmentation under MMM is restricted to East European cases.

What explains the difference in electoral fragmentation between MMP and MMM systems? There are two potential explanations. First, parties and elites may have greater incentives to behave strategically in countries where the SMD races are important to the overall composition of the legislature, whereas in MMP the PR tier determines the overall composition of the legislature (except in the case of overhang seats), so voters may feel less pressure to abandon small parties. Secondly, the PR tier in many MMM systems may not be fragmented enough to contaminate voters' calculations. The effective numbers of parties getting votes at the PR level is 3.7 in Japan, 2.98 in Mexico, 2.96 in Lesotho and 2.37 in Thailand; in Italy, the parties had explicitly pacted and formed coalitions to prevent competition in the SMD.⁸⁷ In contrast, the MMP cases all have effective numbers of parties in the PR tier above 4.17 except for Wales, which has an effective number of parties receiving votes of 3.77. Thus the contamination effect might be larger in MMP

⁸⁵ See online appendix 9.

⁸⁶ Moser, *Unexpected Outcomes*; Moser and Scheiner, 'Mixed Electoral Systems and Electoral System Effects'.

⁸⁷ Reed, 'Duverger's Law is Working in Italy'.

cases because their PR tier is more fragmented. Unfortunately, the cross-sectional data in these tables do not separate these possibilities; they merit examination in future studies.

Moving beyond legislative institutions, the electoral system used to select the president affects legislative fragmentation. If legislative elections are held concurrently with elections for the president under majority rules, support for parties finishing third or worse increases substantially. Just as in the cases of majoritarian legislative elections, this increase is driven by the rise in support for parties finishing fourth or worse. Plurality rule does not seem to further arrest electoral fragmentation in either the pure plurality cases in Table 1 or the complete sample.

The results in Table 2 also provide some evidence that federalism changes the distribution of votes. While federalism has a negligible effect on pure plurality countries (consistent with the results from Chhibber and Kollman and Singer and Stephenson, who only examine these kinds of SMDs), federalism significantly increases both the support going to the third-place party and the SF ratios in the larger sample.⁸⁸ In these countries, support for the average runner-up party drops by about 6 per cent and is split among the other losing candidates, as voters fail to perfectly consolidate behind the first loser. The presence of regional parties may thus change strategic calculations at the margins if other institutions are favourable to small parties.

In general, the results from MMP systems, PR districts, federalism and concurrent presidential elections are consistent with the contamination hypothesis, while only the results from MMM districts deviate from it. Outcomes beyond the district do influence strategic calculations within it. Yet the size of the contamination effects is substantially smaller than is the effect of majority rules (at the legislative and presidential levels) that spur fragmentation among multiple candidates.

Finally, previous work by Singer and Stephenson evaluates data from districts of varied sizes and finds that electoral institutions are less likely to constrain election outcomes in new democracies.⁸⁹ We find little evidence for that hypothesis, with the exception of the former Soviet bloc states. Specifically, among pure plurality countries (which include no former Soviet countries), Duverger's Law holds equally well in new and established democracies. Singer and Stephenson's different finding may reflect the fact that most of the new democracies in their sample were East European democracies. Moreover, this finding implies that the fragmentation in the former Soviet bloc cannot be completely attributed to the newness of their party system; other less institutionalized party systems have not demonstrated equal levels of fragmentation.

CONCLUSION

While there is an extensive literature on electoral systems and their effects, few studies investigate Duverger's theory at the appropriate level – the district – or compare across system types. The results presented here rectify this gap in the literature and both reinforce and raise questions about these prominent institutionalist hypotheses. As Duverger originally predicted, results under plurality rule are much more likely to be dominated by two large parties than are contests conducted under majority double-ballot rules. Yet, strictly speaking our analysis confirms that this dominance is not complete.

⁸⁸ Chhibber and Kollman, *The Formation of National Party Systems*; Singer and Stephenson, 'The Political Context and Duverger's Theory'.

⁸⁹ Singer and Stephenson, 'The Political Context and Duverger's Theory'.

Local third parties do exist, and extreme ethnic fragmentation generates small parties – which is true even outside the three large countries that have received the most attention from scholars as exceptions to Duverger's Law.

The results in Table 2 also suggest that district-level outcomes are not wholly driven by district-level factors, but are affected by competitions elsewhere in a country or for other levels of government. Thus while studies of electoral outcomes initially moved the unit of analysis from the nation to the district, one may need to more generally consider whether there is feedback between the number of parties nationally and the number of parties locally.⁹⁰ Two-party competition at the national level reinforces strategic voting in the district. Countries in which third parties have established a hold in some parts of the country, in contrast, may be more likely to move further away from Duverger's Law locally as candidates consider this party a viable electoral vehicle and voters are exposed to its message.

Previous work on Duverger's Law has focused on Canada, India and the UK. While this study finds that third parties exist in other plurality countries, these three countries diverge further from Duverger's predictions than other countries do. The results presented above and in the appendix suggest that their electoral fragmentation is not driven by their large populations, level of decentralization or lack of plurality presidential elections, because these factors are weakly related to support for small parties generally and these countries are fragmented even after these factors are controlled for. These three countries each have significant regional variations in their party system that allow substantially more parties to receive votes nationally than in the average district.⁹¹ The success of these local third parties may create psychological openings for other candidates to challenge the two locally dominant parties elsewhere and provide resources and exposure to their message that can convince voters that these parties may be viable. The growth of third-party candidates in some parts of a country may thus contaminate the results elsewhere. While the cross-sectional data used here cannot test for this possibility,⁹² outcomes in Canada, India and the UK approximate the predicted outcomes in a contaminated plurality district under MMP or PR (although parties finishing fourth or worse have less success in all three countries) while remaining much less fragmented than outcomes under majority rule.⁹³ Further work on Duverger's Law may thus want to more fully model how voters are affected by national-level dialogues and campaigns and how the choice to enter a race is affected by perceived levels of success for third parties elsewhere.

So was Duverger right or not? These results further confirm that Duverger's Law is not a true law, even outside of Canada, India or the UK, and that district-level processes do not completely dominate voters' and politicians' calculations. Yet in most countries, plurality rule is closer to two-party competition than any other system. This conclusion becomes apparent when contrasting outcomes across SMD systems, which most previous district-level studies of Duverger have not done. Pure plurality reduces the number of candidates that receive votes in a district such that the top two candidates get over 90 per

⁹⁰ Monroe and Rose, 'Electoral Systems and Unimagined Consequences'.

⁹¹ Chhibber and Kollman, *The Formation of National Party Systems*.

⁹² A cross-sectional correlation between the number of parties winning votes/seats nationally versus locally may reflect a feedback loop, or may be the result of extrapolating district-level electoral fragmentation onto the national level.

⁹³ Support for the first, second, third and remaining parties averages 46-30-11-12 in MMP districts, 46-30-12-11 in PR districts and 49-30-13-7 in Canada, India and the UK.

cent of the vote, which rarely happens in other systems.⁹⁴ Even if Duverger's prediction is not strictly correct, strategic behaviour by elites and voters under plurality rule does seem to reduce legislative fragmentation in a way that penalizes small parties and approximates two-party competition. Therefore, while Duverger's Law is not strictly a law, it is a stronger tendency than much recent work has made it out to be.

⁹⁴ The top two parties receive 90 per cent or more of the vote 72 per cent of the time in plurality elections outside of Canada, India and the UK, compared to 32 per cent of the time in mixed systems, 18 per cent of the time in Canada, India and the UK, and less than 1 per cent of districts under majority rule.