



Electoral contexts that impede voter coordination[☆]

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ABSTRACT

An electorate can effectively coordinate on the viable parties in its district, or a relatively large proportion of its voters may “waste” their votes on parties that fail to obtain office. Avoiding wasted votes can be more or less difficult depending on several characteristics of the electoral context. Unfortunately, many of the features of electoral contexts hypothesized to cause vote wastage have been tested piecemeal on only a handful of (non-random) cases and/or with data inappropriately aggregated to the national, rather than the district, level. Based on results from 2007 districts in 183 lower chamber elections across 21 countries, we find evidence that new electoral rules, the entry of new parties, past electoral volatility, and high district magnitudes are all likely to make coordination a challenge, with entry by new parties having the largest, most consistent effect.

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When the campaigning is over and the voting is done, seats are allocated in each electoral district. Inevitably, some parties learn that they have failed to obtain office, and their supporters may feel they have “wasted” their votes on a hopeless option. The votes wasted in districts vary with the electoral context. A simple and predictable electoral context allows voters to coordinate on viable options. An unfamiliar, erratic, or complex context may impede coordination and lead to votes being wasted on what eventually prove to be hopeless entrants. We assess whether the newness of electoral rules, variation in the menu of entrants, volatility in an electorate’s preferences over existing parties, and the intricacy of the viability assessment itself – as a result of high seat magnitudes – affect the number of votes given to hopeless parties and candidates.

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Voters have an incentive to strategically defect from their preferred party if that party’s prospects are hopeless – meaning it could not obtain a seat. Voters can maximize their utility in terms of policy by choosing the viable party – i.e. the one which has some prospect of winning – closest to their most-preferred alternative. The failure to coordinate can have unintended effects. For example, if conservative voters distribute themselves too thinly across right-of-center parties, a coordinated left may sweep to power and enact policies that are the conservative voters’ worst nightmare. After more than 100 years in power, the failure of the right to coordinate allowed the left bloc to win the mayorship of Paris in 2001 (Indridason, 2007). The U.S. presidential election of 2000 can be considered a similar instance of coordination failure. Ralph Nader’s candidacy is likely to have determined the outcome of the election. Had Nader exited the race it might have tipped the balance in favor of Al Gore in several states (Indridason, 2007).

Beyond outcomes in single elections, coordination failures can prevent the consolidation of party systems (Mainwaring, 1998) or promote dominant party systems which are normatively distressing. Riker (1976) noted that the persistence of the dominant Congress Party in India was due to the opposition’s inability to coordinate. Similarly, Pempel (1990) argued that dominant parties

were able to persist in countries such as Japan, Israel, and Sweden due to the oppositions' coordination failures. In Sierra Leone, voters' ability to finally coordinate on the Sierra Leone People's Party (SLPP) as the most viable opposition party helped pave the way to civilian politics: the fragmentation of like-minded politicians and supporters into the All People's Congress (APC), the United National People's Party (UNPP), and the People's Democratic Party (PDP) at least temporarily aided in the SLPP's ascension (Kandeh, 2008).

Coordination failure may also have had an important role to play in the surprising success of Communist successor parties in post-Soviet transition democracies. In post-transition Eastern Europe, right-of-center voters were offered a relative bonanza of new offerings, but this tended to dilute their impact by distributing their votes across many options. Due to lingering anti-Communist sentiments in most Eastern European electorates relatively fewer left-of-center parties entered the electoral arena, thereby making it easier for voters supporting leftist policies to coordinate (Bakke and Sitter, 2005; Szczerbiak and Hanley, 2006). This made it easier for Communist successor parties to gain a foothold in electorates where otherwise anti-Communist preferences dominated. For example, Communist successor parties fared best in Hungary and Poland (Grzymala-Busse, 2002), the two countries with the relatively lowest number of leftist offerings.

Our contribution to the literature is a relatively comprehensive multivariate test of the features of electoral contexts that increase the degree of coordination failure. As we discuss below, we do not explain why any given individual is likely to desert his or her most-preferred party. Instead, we explain what it is about particular election milieus that make it likely that many voters will fail to coordinate on viable parties. In order to induce variation on the features of electoral contexts hypothesized to make coordination failure more widespread, we combine existing datasets of district-level electoral results across 21 countries. The use of district-level – rather than national – data is important because it is at the level of districts that seats are allocated and, thus, the level at which voters coordinate. The scope of our study means that we observe a great deal of variation in electoral contexts and that we can draw generalizable conclusions about what leads to coordination failures. Because we employ a relatively comprehensive test of several hypothesized causes of such failures – unlike bivariate or otherwise piecemeal tests – we are able to say something about the relative substantive impact of various features of the electoral context. We find that the less experienced an electorate is with the electoral rules, the lower the stability in party entrants, the greater the volatility in an electorate's preferences on previous entrants, and the larger the number of seats to be allocated in a given race all make it more likely that voters will fail to coordinate. However, it is elites' decision to form new parties and enter electoral contests, thereby putting relatively unknown options before voters that has the greatest, most consistent impact on voting for hopeful parties.

2. The electoral context

There may be features of an electoral context which make successful voter coordination less likely. It is our reasoning that these characteristics impede individual voters' ability to assess which parties are viable. We examine four characteristics to determine their impact on coordination failure as captured by district-level electoral results: new electoral rules may lead voters to err because they have no experience with how the system translates votes into seats¹; in some contexts parties frequently enter and exit the electoral arena, giving the electorate little past performance on which to base any estimate of current viability; some electorates are more volatile than others over time, showing a lack of partisan ties to existing parties that facilitate estimating how most other voters are likely to vote; and high district magnitudes may require more precise estimates of viability as the gap between votes received by viable and unviable parties narrows. We test whether these contextual factors lead to coordination failure by voters.

To be successful, coordination must occur at the level of the district – the level at which seats are allocated. From the two largest sources of district-level electoral results, the Constituency Level Election (CLE) Dataset (Brancati, 2007) and the Constituency Level Election Archive (CLEA) (Kollman et al., 2010), we extracted data on coordination failure in 2007 districts in 183 lower chamber elections across 21 countries (see Table 1).² As others have pointed out, Duverger's logic – and the logic of those who have succeeded him including Leys, Sartori, Cox, etc. – operates at the district-level (Grofman, 2004; Clark and Golder, 2006; Singer and Stephenson, 2009). Recent advances in the construction of reliable constituency level datasets allow us to use data that meets the level at which the puzzle is posed.

We are interested in strategic coordination at the level of the voting constituency. We do not address which individual voters are most likely to engage in strategic voting. There is a rich literature looking at individual-level survey responses as a means of estimating electoral coordination. Bartels (1996) looked at the intersection of information and voting behavior at the individual level in American elections. His ideas have been carried into comparative settings by Alvarez and Nagler (2000) and Alvarez et al. (2006) who developed a model that predicts which voters will vote strategically based on a number of individual- and district-level attributes. Similarly, Blais and his coauthors have studied voters' propensity to vote strategically across several elections in Canada (Blais and Nadeau, 1996; Blais et al., 2005). Somewhat akin to models of voter turnout, these studies generally look at a number of individual-level

¹ As we will detail below, we measure both inexperience that results from significant electoral reforms as well as inexperience due to (re-) establishment of democratic rule. We examine whether they have similar effects on coordination or if learning occurs more quickly and experience is gained more rapidly in cases of reform within an existing democracy.

² For a more detailed discussion of the reasons for which these 21, and not other countries, were included in our study, please refer to Section 4 below.

Table 1
Countries in our dataset.

Country	Electoral system ^a	Years included
Australia	AV	1998–2001
Bulgaria	CLPR ^b	1997 ^c
Canada	SMDP ^d	1953–2008
Costa Rica	CLPR	1962–2002
Estonia	OLPR	1999–2003
Greece	OLPR ^e	1977–2000
Hungary	MMP ^f	1998–2006
Iceland	CLPR	1967–1999
Italy	OLPR	1958–1993
Italy	MMM ^g	1993–2001
Japan	SNTV ^h	1952–1993
Latvia	OLPR	1998–2006
Luxembourg	OLPR	1954–1999
Netherlands	FLPR ⁱ	1956–2006
New Zealand	SMD	1949–1996
New Zealand	MMP	1996–1999
Norway	CLPR	1985–2005
Romania	CLPR	2000 ^j
Sweden	CLPR	1952–2002
Switzerland	OLPR	1955–1999
Trinidad and Tobago	SMDP	1976–2002
United States	SMDP	1990–2000
Venezuela	CLPR	1968–1988

^a System in use during period observed.

^b Closed-list proportional representation.

^c Data used to construct lagged, count, and volatility variables includes years 1991–1997.

^d Single-member district decided by plurality.

^e Open-list proportional representation.

^f Mixed-member proportional.

^g Mixed-member majoritarian.

^h Single, non-transferable vote.

ⁱ Flexible-list proportional representation.

^j Data used to construct lagged, count, and volatility variables includes years 1992–2000.

covariates – such as education, party affiliation, gender, age, etc. – to predict an individual's propensity to strategically cast a ballot. Both the studies by Blais and Nadeau (1996) and Alvarez et al. (2006) focus on identifying a subset of the population who can potentially cast a strategic vote – i.e. those voters who perceive their most-preferred party to be losing in the polls. However, all these works look at single-member district plurality systems that have been in existence for decades with relatively stable party systems (and readily available survey data). Unfortunately, in order to induce variation on important characteristics of the electoral context, we must sacrifice individual-level data and measure coordination at the level of the district. In doing so, we are capitalizing on works in the tradition of Cox (1997), who systematized the well-known district-level arguments of Duverger (1967) and proposed the SF ratio as one measure of strategic voting. Individual-level behaviors have aggregate (or district-level) expressions and we offer our study as another in the line of research dealing with strategic coordination at the level of the voting constituency.

First, we will elaborate briefly on electoral coordination, or the effort to avoid wasting one's vote, and review the literature on the sources of vote wastage – specifically the impacts of inexperience with an electoral system, the entrance of new parties, past electoral volatility over existing choices, and district magnitude. We will then

offer a descriptive overview of our data, including a discussion of how best to measure electoral coordination, before employing the appropriate nested multilevel models to examine how these factors influence failures to coordinate. We conclude by discussing the relative importance of these features and the role of political elites versus the voting masses in generating coordination failure.

3. Context-level characteristics that impede coordination

Voters may need to behave tactically, defecting from their sincerely preferred candidate or party, because wasting a vote on a hopeless candidate could have dire consequences – including bringing to power a voter's least preferred option. Duverger's Law is based on this rationale as it works in single-member districts where the outcome is decided by a plurality vote (SMDP). A two-party system at the district-level tends to result as members of an electorate strategically coordinate on the one of the two viable candidates closest to their sincere preferences. Third parties are discouraged from even entering and, if they enter, they are expected to suffer defection even by voters who sincerely prefer them. Others have pointed out that coordination can and does occur in multimember districts – though the calculus may become more complex (Leys, 1959; Sartori, 1968; Cox and Shugart, 1996). In examining election results, scholars have discovered evidence of strategic voting consistently across a wide spectrum of countries – from Hungary (Duch and Palmer, 2002) to Israel (Bargsted and Kedar, 2009) to the United Kingdom (Cain, 1978). They have observed evidence of behaving tactically in elections across levels of government – from national elections (Ferrara and Herron, 2005) to municipal elections (Hseih et al., 1997). Studies ranging from empirical to formal theoretical (Ekmekci, 2009) to experimental (Kube and Puppe, 2009) to computational (Clough, 2007) have all pointed to uncertainty about the viability of political parties as a source of coordination failure.

Hypothesizing that some voters will behave strategically only follows if we can assume that they are short-term instrumentally rational – in other words, that they care primarily about the results of this election. They reason that by electing the party or candidate making the proposals they most prefer, they will help assure that eventual policy outcomes are as close to their preferred ones as feasible.³ The other assumption which must hold for an electorate to tactically coordinate – the assumption on which we focus in this paper – is that voters must have a shared sense of

³ Some (small) number of voters may stick with what they know to be a non-viable regional party, for example, because for them decentralization is the only issue that matters. Perhaps others will vote for a non-viable party in this election in hopes that their support will give it momentum for future elections, thus making it viable at a later date. Or, perhaps they reason that their expression of support for an unviable party this time will lead a viable party to adopt some of its policy positions. These exceptions noted, as long as most voters are motivated by the results of the current election, we can expect strategic or tactical coordination.

parties' or candidates' viability.⁴ Without a clear sense of viability, coordination is impossible. Voters may want to act strategically but their efforts will be riddled with errors where they lack solid information about viability. As we detail in the next section, there are electoral contexts in which we can expect voter coordination to be very successful. On the other hand, there are factors which can make successful coordination less likely because, we assume, they make assessing viability more difficult or because they call for extremely precise assessments. We seek to determine whether these factors hinder voters from tactically coordinating on viable parties.

We focus on four aspects of the electoral context that we reason will make assessing viability difficult: (1) *limited experience* with a set of electoral institutions means that the electorate may not be certain how a distribution of votes will be translated into seats; (2) the entrance of *new parties* means the electorate has no past evidence of support to use when deciding to coordinate in the present; (3) *past electoral volatility* over existing parties means that voters cannot assume that lessons drawn from the previous election are relevant to this election; and finally, (4) because increasing *district magnitude* tends to decrease the gap between the last winner and the first loser, it makes necessary ever finer coordination calculations. We now turn to a more thorough discussion of each of these explanatory variables.⁵

Electoral coordination may fail where electorates have little experience with a given set of electoral rules (Tavits and Annus, 2006; Weyden and Meuleman, 2008). Tavits (2007a), for instance, argues that “viability is determined by electoral histories. When there is very little or no electoral history,... every potential entrant is perceived as having as good a chance of winning as any other, and voters can only vote sincerely” (p. 117). In new democracies, electoral rules are also new, and their impact on converting the electorate's preferences into parties' seats is unknown, or at best, of very recent vintage. Likewise, similar dynamics could emerge after cases of significant electoral reform, although we might expect that voters in existing democracies would adapt more quickly to new rules than voters confronting new rules in new democracies. In general, however, it may simply take time for voters to learn how the interaction of electoral rules (seat allocation formulas, magnitude, etc.) and preference distributions, even where generally stable, affects the viability of particular parties.

⁴ In addition to these “substantive” assumptions, Cox (1997) points out two “technical” (pp. 76–77) assumptions that must hold: voters must have strict preferences (not ranking two options equally) and all types of voters are represented in the electorate (the winner cannot be obvious).

⁵ A number of other things – such as voters' access to independent media outlets, the availability of polling data (Clough, 2007), and variation in parties' campaign expenditures (Johnston and Pattie, 2002) – might affect voters' ability to strategically coordinate. However, most of the work in this literature is formal theoretical rather than empirical, and for good reason: collecting data on polling availability, media outlets, and campaign expenditures at the district-level across such a wide variety of countries and years is extremely difficult. Thus, these factors will not be accounted for in our empirical tests.

Examining the first three elections after a return to democracy across some cases in Eastern Europe, Dawisha and Deets (2006) find evidence that votes for parties not winning seats declined as citizens gained greater experience with extant electoral institutions. Tavits and Annus (2006) examine national-level election results in 15 Central and Eastern European countries and conclude that “the strategic behavior of voters increases with time as a result of a learning process” (p. 87). Similarly, Duch and Palmer (2002) use both electoral data and individual-level surveys from Hungarian elections in 1997 to demonstrate that voters in a newer democratic situation do indeed vote strategically, but not at rates as high as those observed in older democracies. Weyden and Meuleman (2008) collect district-level data from seven elections in Spain and another seven in Portugal and find evidence of a time effect on indicators of both individual- and elite-level strategic behavior. Finally, Singer and Stephenson (2009) note that the depressing effect of magnitude on coordination – which we discuss in more detail below – works less well in new democracies, and Moser (1999, 2001) finds that low district magnitude typically leads to greater coordination over time. These works share the logic according to which the greater the amount of experience an electorate has had with a set of rules, the easier it will be for them to assess viability and coordinate. We will examine inexperience with new rules, both after a transition to democracy and after a major electoral reform (during an ongoing democratic era).

Second, the entrance of new parties leaves an electorate with an unfamiliar set of choices (Budge, 1994). New parties broaden the range of options, thereby making it harder on the electorate to collect information about the field. Additionally, they have no past results to which they can point when claiming to have a base of support sufficient to make them viable. In one case a new entrant may earn support sufficient to garner several seats while in another the decision to enter may be met with decided indifference by the electorate. In other words, the lack of a party history makes decisions about coordination an error-filled venture.

Most of the recent work empirically investigating the relationship between new parties and strategic coordination among voters (and the implications of party and voter interactions for party system development more generally) has focused on Central and Eastern European democracies since the fall of the Soviet Union, and it does not include older party systems or the types of electoral rules common in other regions of the world. Outside Eastern Europe, Cox and Shugart (1996), while examining Japan and Colombia, make the general point that the impact of the emergence of new parties should depend on the size of the electoral market in which these alternatives spawn: it is different to have three new parties in a single-member district than it is to have the same three parties appear in a district in which 15 seats are allocated. To control for this, they advocate a more nuanced measure of new parties, namely the number of new parties as a share of the district magnitude. We use this variable to capture how the decision made by political elites to enter the electoral arena with a new banner will impact coordination.

In contexts where an electorate's preferences have been volatile across existing alternatives, those wishing to coordinate have less information than where preferences are generally stable (Sartori, 1968; Cox and Shugart, 1996) – assuming new party entry is held constant. If the electorate in general is in flux regarding its preferences, then this will decrease any individual voter's ability to assess whether or not his or her preferred party is hopeless. Gschwend (2007) calls this retrospective assessment of past elections the electoral history heuristic. He argues that the act of voting is comprised of two parts, the first being the formation of preferences and the second being the formation of expectations from past elections. Where the results of past elections have been volatile, and this volatility stems from changing preferences (rather than a changing electoral market), voters should have a harder time deciding on which parties to coordinate in the current election. The empirical work exploring this idea is sparse, however. Gschwend, for instance, only examines the 1998 election in Germany. As we detail below, we empirically tease out past volatility over existing offerings and examine its effect on casting hopeless votes – controlling for the entry of altogether new parties.

Finally, Duverger's Law captures the effect of strategic voting in single-member district plurality systems. Voters tend to defect from third parties, coordinating on the two most viable ones. The logic of strategic coordination has been extended to multimember districts as well (Leys, 1959; Sartori, 1968; Cox and Shugart, 1996; Cox, 1997). Most of the works on multimember districts point out that electoral coordination is still possible as long as district magnitude remains relatively low. Still others have shown formally that strategic voting is at least possible in districts of any magnitude (Gibbard, 1973; Satterthwaite, 1975). In practice, as district magnitude increases – and with it proportionality of seats to votes – the difference in vote shares between those gaining a seat and those failing to do so decreases. In other words, tactically coordinating requires ever more fine-grained assessments (Cox and Shugart, 1996).

Empirical investigations linking magnitude to voters' proclivity to coordinate strategically have met with somewhat mixed results. Anckar (1997) finds very little evidence that district magnitude has any impact on the number of wasted votes. However, rather than focusing on magnitude at the district-level, he relies on averaging the magnitudes of all districts within the same country and utilizes a national district magnitude as one of his main independent variables. Similarly, Abramson et al. (2009) – using survey responses in five countries – fail to find variation in strategic voting when moving from PR – grouping together districts of a variety of magnitudes into a single category – to SMDP electoral systems. On the other hand, using a cross-section of countries and district-level data, Singer and Stephenson (2009) found that high average magnitude is associated with more wastage, but it is highly conditional on a number of other factors. For example, they point out that low magnitude districts in PR systems do less to impel coordination than do the low magnitude districts that entirely make up an SMDP system. Conversely, high magnitude districts in heterogeneous societies lead to

much lower levels of coordination (greater effective number of parties) than do districts of similar magnitude in homogeneous societies. Finally, Cox and Shugart (1996), studying the cases of Japan and Colombia, find evidence that district magnitude is a statistically significant predictor of coordination failure. We will use a continuous level indicator of magnitude at the district-level to determine whether the intricacy of the viability calculation becomes such that voters increasingly select what prove to be hopeless options.

We test these hypotheses side-by-side in a multivariate model with district-level data drawn from a large and diverse array of countries. Considering these factors simultaneously is superior to piecemeal tests because we will be able to show the substantive effect of each factor while controlling for the effects of others. As we will detail below, our multilevel modeling strategy will also allow us to appropriately control for several national-level features of political systems that might affect coordination. Employing data disaggregated at the appropriate (district) level will lend valuable insight into the debate surrounding the determinants of coordination failures at the electoral stage. As we will show immediately below, our case selection allows us to gain leverage from wide variation in all our variables of interest.

4. The data

From the Constituency Level Election (CLE) Dataset (Brancati, 2007) and the Constituency Level Election Archive (CLEA) (Kollman et al., 2010) – two of the largest and most reliable sources for district-level electoral returns data – we have obtained a total of 10,764 observations of district-level electoral results. Although both datasets contain a much greater variety of countries, we have only included those for which election-districts meet four criteria: there is complete information about seat allocations (i.e., we know how many seats were at stake at each district and which parties obtained each of them); there is complete information about support obtained at the level used by the electoral system to pool votes (e.g. the party, the sub-party list, or the individual candidate); the country has been given a polity score of five or more; and the information is available for at least three elections.⁶ This last requirement stems from the way in which electoral volatility is both calculated and theorized to affect strategic coordination: first, in calculating volatility, a measure of change in support, we lose one election per district (viz. the very first one for which there is data available); then, because there is a lag in the theorized effect of volatility, we lose another observation per district. Hence, for instance, although we have data available for three elections in Romania (1992, 1996, and 2000), only the 2000 results

⁶ For instance, we were forced to exclude Colombia from our sample, because votes were pooled at the level of the list prior to 2001, and data was aggregated to the level of the party. Similarly, we were unable to include the Dominican Republic and Turkey because data on seat allocations was unavailable. Finally, some elections in countries were lost given the polity score restriction, such as the elections between 1946 and 1977 in Greece.

come into the analysis in full, carrying the information on volatility provided by the previous two elections. See Table 1 for a list of the country-years observed and the electoral system in use at that time.

5. Explanatory variables

The large amount of district-level data allows us to gain leverage on our hypotheses because we observe a great deal of variation in our variables of interest. Our sample displays cross national and longitudinal variation in the levels of Prior Electoral Experience with a given electoral system across countries, defined as the number of elections held using the same set of rules. In other words, experience grows with each successive election. We do not expect learning to continue indefinitely. As we noted above, Dawisha and Deets (2006) observed learning across three elections and Tavits and Annus (2006) observed learning across as many as five successive elections under new rules. To capture this rapid learning process, we have included a series of dummy variables to compare the races that take place after a few elections have been held in the past to instances in which (5 or) more elections have already taken place before the current one. More specifically, all our models include dummies for one or fewer; two; three; and four elections occurring prior to the one being observed, and record the trend of their corresponding coefficients.⁷ The inexperience counter resets with each major electoral reform or the establishment of electoral rules after a transition to democracy.⁸

We also see variance in the New Parties per Seat variable. Surprisingly enough, as many as 9 new parties appear in relatively recent US House elections (e.g. 1992 election in the 8th District of New Jersey), while in some Canadian elections as many as 8 new parties were observed (see, for instance, the 1993 election in the Middlesex County). More dramatically, Greece saw 15 new parties in the *Kefallentia* prefecture in 1989. These are outlying observations, however, and median values are usually low.⁹

Powell and Tucker (2009) have pointed out that Volatility can result from changes in the electoral market itself (i.e. parties entering and exiting the electoral arena), which they call Type A volatility, and volatility due to changing preferences over existing parties (i.e. voters switching

loyalty between enduring parties), which they call Type B volatility. Given our inclusion of the New Parties variable in the statistical analysis, by using the standard measure of volatility that lumps together both sources of volatility we would effectively have two (confounded) indicators of Type A volatility. As a result, our measure of Electoral Volatility includes only Type B volatility – that is, absolute changes of vote shares among parties that have contested the two elections on which volatility is being measured.¹⁰ We lag this measure by one election to reflect the fact that (past) volatility affects the amount of information available to voters at the time of the election regarding the distribution of preferences over the set of electoral alternatives. Our measurements of this type of volatility display both within and across country variations, with distributions that are, for the most part, right-skewed.¹¹

District Magnitude – the number of seats contested in a district in any given election – also presents important differences both across and within countries. A few countries only have districts of a single magnitude, typically SDMP systems, but most of our cases use districts of varying magnitudes. We will use a logged-transformed version of the variable, in order to account for the type of diminishing effects on coordination highlighted by Cox (1997).¹²

In addition to the variables of theoretical interest, we have included five country-level control variables identified by the literature as relevant to the Duvergerian coordination process – namely the degree of ethnolinguistic fractionalization; the family of the electoral system in use; whether the electoral system has a compensatory tier; whether the country is federal; and whether it is a presidential democracy.

Even in institutionally permissive systems, parties may not multiply unless they can assume distinct policy positions. As a district becomes more fractionalized, sociologically or demographically speaking, there are a greater number of identities that can be used to define distinct potential political positions (Ordeshook and Shvetsova, 1994; Amorim Neto and Cox, 1997; Clark and Golder, 2006). Thus even trailing alternatives may not be strategically abandoned if voters weigh ethnolinguistic considerations overwhelmingly. To measure ethnolinguistic fractionalization we use the index developed by Roeder (2001), and is equal to the probability that two randomly selected people belong to different ethnolinguistic groups.

That a country's electoral system should matter for district-level coordination (controlling for ethnic and social

⁷ The effect is therefore expected to be non-linear. However, the literature suggests the learning process occurs much faster than any “flattening” transformation (such as the natural logarithm transformation) tapers off. As a result, we have chosen to include these series of dummies to search for evidence of the proposed effect instead of including other, more commonly used flattening non-linear transformations.

⁸ In our empirical tests, these reasons for resetting the experience counter will be tested jointly. We also examined whether learning occurs more quickly in existing democracies that adopt new electoral rules relative to the pace at which learning occurs in new democracies. We allowed the experience counter to decline twice as fast after reform as after a transition to democracy. A model with this modified experience counter is available upon request.

⁹ Such outliers (on all independent variables) were identified and checked for problematic consequences in the estimation procedures we present in the next section using a measure of observation leverage. Because their overall impact on the estimated parameters was found to be negligible, we decided to keep them in the dataset.

¹⁰ More specifically, Type B volatility is calculated using the Pedersen Index, which is then formally defined as $V_t = 1/2 \sum_{p \in P} |s_{p,t} - s_{p,t-1}|$ where P is the set of parties running in a district at both times t and $t-1$, and $s_{p,t}$ is party p 's vote share at time t .

¹¹ Exceptions are Romania and Bulgaria, which also have the highest median volatilities in the sample. This accords with previous studies of volatility in Eastern European party systems, especially as they are compared with systems in other regions of the world (e.g. Lewis, 2000).

¹² The Netherlands represents the most extreme value, given its nation-wide-at-large district through which all 150 members of parliament are elected to office. But between 1 and 150 lie various median values for a number of countries, which often also display different magnitudes across their districts. Estonia, for instance, displays a relatively uniform distribution of magnitudes, with an inter-quartile range (IQR) of 21.5.

diversity) is also well studied. Earlier studies suggested that strategic or tactical voting would be most common under single-member district plurality (SMDP) rules, but more recent research has found that voters may also face substantial incentives to vote strategically under proportional representation (PR) as well (Adams et al., 2005; Abramson et al., 2009). We might reason that the need to be tactical would find some middle ground between the two in mixed-member systems with their dual characteristics. We control for electoral system type. We have coded the type of electoral system using a categorical variable taking one of three values (PR, SMD or Mixed-Member System).¹³

While voters' calculus regarding the need for coordination typically operates at the level of the district, the existence of compensatory tiers can influence an individual's vote choice (Cox and Shugart, 1996). For example, a voter may recognize his or her preferred party as hopeless in his or her particular district but believe that its support across districts will make it eligible for compensatory seats. In such a situation, the voter may decline to defect. Ferrara (2004) shows this logic at work in Italy. He points out that large parties may use all their votes to meet vote quotas in SMD districts, leaving smaller parties that did not win seats at the district-level to pick up seats in the PR compensatory tier. Of the countries we have included in our sample, seat allocation through compensation procedures takes place in Sweden, Italy, Iceland, Hungary, Greece and Estonia, and we use a simple indicator variable to control for its possible confounding effects.¹⁴

In turn, federalism can affect voters' strategic behavior for reasons similar to those relating to ethnolinguistic fractionalization and electoral coordination. In general, decentralization arguably incentivizes cultivating regional interests, which can result in voters eschewing seat-maximizing motivations in favor of other, less tactical considerations. While Chhibber and Kollman (2004) and Singer and Stephenson (2009) find that decentralization of political and economic power makes little difference when it comes to district-level voter coordination, it might be the case that resulting levels of fractionalization at the national-level contaminate voters' thinking at the district-level. We control for federal systems with a dummy variable.

Finally, when parties see legislative elections as less important than executive elections, they channel their campaigning efforts into gaining the presidency. This can create a coattail effect in the legislative election whereby typical levels of fractionalization in the legislative vote are

diminished as voters are basically responding to the higher stakes strategic considerations underlying the – typically plurality – presidential race rather than the legislative one (Shugart and Carey, 1992). We control for presidential systems with a dummy variable. All of these national-level characteristics have been hypothesized to have an impact on voters' choices. Our hierarchical models allow us to capture these effects while still most appropriately modeling the district-level contextual factors in which we are most interested.

6. Outcome variables

The question of how to measure whether and to what extent coordination has taken place in any given race is a matter of debate. In simple plurality single-member districts Duverger's "law" leads to the well-known local bipartism expectation. In such cases, then, the extant literature has used a measure of the Effective Number of Parties (Laakso and Taagepera, 1979), which provides a weighted measure of concentration of vote shares across parties. In multimember districts, however, the generalization of Duverger's claim is achieved by focusing on the mechanism through which the bipartism result is expected to ensue, rather than on the number of effective parties itself.¹⁵ Because such a mechanism involves strategic desertion of trailing alternatives, measures of coordination failure have concentrated on the set of losers. Of these, the most prominent measures are the share of wasted (or hopeless) votes (implemented by Singer, *in press*, among others) and the ratio of votes cast for the second loser and the first loser – or the "SF ratio" (proposed by Cox, 1997).

The term "wasted votes" is often used to refer to all votes cast for losing parties. While these votes are wasted in that they did not serve to elect a party, the votes for the first loser, following Cox's logic, do not signal a failure of the electorate to coordinate.¹⁶ Rather than wasted votes, we use instead the percentage of votes cast that went to the second largest losing party plus votes cast for the third loser plus votes cast for the fourth loser, etc. We will call these "hopeless votes."¹⁷ Despite its advantage over wasted votes, the hopeless votes measure is not free of issues. Most importantly, it is not independent of those features of the electoral system which affect proportionality (most notably district magnitude). In general, as district-level proportionality increases the shares of votes which fail to gain representation are bound to fall. As a result, a raw measure of the share of hopeless votes (i.e. a measure that omits

¹³ Australia's AV system was coded as belonging to the SMD family of formulas. Because it is the only country in our sample to use this system, any AV indicator variable would be perfectly collinear with the country random intercept estimated for Australia. However, excluding all observations belonging to this country and re-estimating the models leads to no substantive change in the results.

¹⁴ In some systems, like Greece, the percentage of seats handed out in the compensatory tier is very small, while at the other extreme, in systems like Estonia, a large proportion of members are chosen in tiers beyond the initial district. Models using the proportion of seats allocated by compensation, rather than a simple indicator of compensation or not, showed no major differences from the ones reported below.

¹⁵ This has led to the conclusion that Duverger's Law best describes an upper bound (which Cox, 1997 characterized as the $M + 1$ rules) on the number of parties, which is itself believed to be driven by more social forces.

¹⁶ Other scholars have acknowledged that all wasted votes are not created equal, because some wasted votes (as technically defined) are always cast in equilibrium. Tavits and Annus (2006) differentiate between "waste" and "hopeless" votes, and we do the same, though our operationalization of the latter term differs from theirs.

¹⁷ As we note below, our findings regarding hopeless votes hold roughly the same regarding wasted votes (a model with wasted votes as the dependent variable is provided in the Appendix).

how such shares are distributed across hopeless parties) focuses exclusively on how much wastage there is, paying little attention to how such votes are distributed across successively less viable parties. In other words, it tells us the quantity of votes that fall in the hopeless category, but it does not distinguish among instances when they are concentrated on a few parties that were close to viability or distributed across several parties, each one further from viability.

The second measure frequently used in the existing literature is the ratio between votes cast for the second losing party and first losing party.¹⁸ Ratios between the second loser and the first loser approaching 1 indicate failure to coordinate in a Duvergerian fashion, while ratios approaching 0 indicate tactical abandonment of the second loser. The rationale behind this measure is thoroughly discussed by Cox (1997), and has been used in a number of studies (e.g. Cox, 1994; Ferrara, 2004; Moser and Scheiner, 2009). Generally, its logic can be appreciated when considering the formal result according to which, in a district of magnitude M (which can be greater than 1), at most the strongest $M + 1$ parties should, in a Duvergerian equilibrium, receive all rational votes. Hence, the $M + 2$ nd party (i.e., the second loser under the most extreme circumstances, in which there is an equal distribution of votes across parties), should empirically receive a much smaller vote share than the $M + 1$ st party. And this logic extends to situations in which parties win more than one seat (so that less than $M + 1$ parties are considered suitable contestants): the difference between the vote shares of the largest party to win zero seats and the second largest party to win zero seats should be large under a Duvergerian desertion of unviable alternatives.¹⁹

The SF ratio focuses exclusively on the distribution of vote shares obtained by the first two losing parties. By doing so, it ignores the sheer quantity of hopeless votes: when over 99% of the vote goes to winners, the SF ratio can

still take any value from 0 and 1. Yet, one would be hard-pressed to say a value close to 1 should be taken to mean voters failed to coordinate on viable alternatives (Gaines, 1999; Singer, in press). In other words, although a value near zero always signals a successful Duvergerian scenario, larger values need not signal a failure to coordinate in every case. This same problem affects any measure that tries to assess coordination failures by focusing on the distribution of losing vote shares, while largely ignoring their relative size vis-à-vis that of winning parties. For example, calculating “the effective number of losing parties” gives us a clear sense of how wasted votes are concentrated or dispersed. This measure is calculated by slightly modifying the original measure devised by Laakso and Taagepera (1979), so that attention is restricted to losing parties by rescaling their share of the vote to add up to 1, or

$$\left(\sum_{i=1}^n s_i \right)^2 \frac{1}{\sum_{i=1}^n s_i^2}$$

where s_i is the vote share of the i th losing party. Using this measure, a Duvergerian equilibrium would be evidenced by values for the effective number of losing parties very close to one. Its advantage over the SF ratio is that it accounts for the distribution of votes over all losing parties, and not simply the first two among them in terms of vote shares. However, like the SF ratio, it can take very large or very small values almost regardless of the sheer percentage of votes that went to losing parties.²⁰

In general, then, no single measure of coordination failure seems free of fairly fundamental problems. In an effort to devise a better measure, we consider a linear combination of the hopeless votes measure and the effective number of losing parties – which we will hereafter refer to as the “coordination product.” By combining the two, our measure seeks to avoid the problems that stem from either focusing only on the extent of vote wasting or only on the distribution of such wastage. Given the interaction, the sheer quantity of wasted votes will be magnified when they are widely dispersed across several parties. Put differently, the dispersion of wasted votes across many parties will be given the greatest weight when relatively more votes went to losers.²¹ In order to get a more

¹⁸ A common misconception of the SF measure involves taking the ratio of the smallest party that won seats and the vote share of the largest party that did not win seats. This is not the ratio of two losing parties, and hence is not how the SF ratio is defined. Given Cox’s $M + 1$ logic, the first losing party is always viable. Another common misconception is to confound Cox’s $M + 1$ result with the construction of the SF ratio. In general, this measure is not the ratio of the $M + 2$ nd party to the $M + 1$ st, since fewer than M parties could be winning all the available seats.

¹⁹ It is worth noting that, although they track coordination in very different ways, the SF ratio and the amount of hopeless votes are not entirely independent. This is because there is a limit on the share of wasted votes; as the share of hopeless votes increases, the difference between hopeless and wasted votes (i.e. the share of votes going to the first loser) must perforce decrease. A small share for the first loser, combined with a large share of hopeless votes, means a small difference between the vote shares of first and second losers, which in turn results in systematically higher SF ratios. Consider, for example, a situation in which 50% of the votes have been cast for 3 hopeless parties (the second, third, and fourth losers) in a district which elected a representative who obtained 30% of the vote. The smallest possible SF ratio in this scenario (roughly 0.83) is obtained when all three losing parties tie for third. Now consider another scenario in which the winner obtains 60% of the vote, and only 10% is cast for hopeless parties. In this case, the lower bound on the SF ratio is 0.11, again obtained when all three hopeless parties split the 10% evenly. In general, the quantity of hopeless votes generates a sort of floor for the SF ratio.

²⁰ In addition, it is sometimes unable to judge whether or not a single party has amassed a majority of losing votes. Specifically, although values less than 2 always correspond to situations in which a party takes more than 50% of the relevant votes and values greater than 4 correspond to situations in which no single party takes more than 50% of the votes, values between 2 and 4 are indeterminate in this respect. For instance, consider the example provided by Taagepera (2007), in which six (possibly losing) parties split the shares of (possibly wasted votes) as follows: 53%, 15%, 10%, 10%, 10% and 2%. Under such a scenario, the usual ENP measure is equal to 3. In this case, however, Duvergerian coordination would not be called into question. In other words, values between 2 and 4 can ensue in cases in which a single party is clearly the one with the highest vote concentration – which is not ideal if what we wish to test is whether such a party exists (Taagepera, 2007).

²¹ Accordingly, the measure treats as equal a situation in which the effective number of losing parties is 2 and 40% of votes cast went to hopeless parties and a situation in which the effective number of losing parties increases to 4 but only 20% of votes went to hopeless parties.

complete picture of voters' coordination efforts, we will present results modeling all three measures – share of hopeless votes, the SF ratio, and the coordination product – as functions of the those context-level features that we hypothesize will impede coordination.

We have calculated the share of Hopeless Votes; the Second-to-First Loser (SF) Ratio; and the Coordination Product (interacting hopeless votes with the effective number of losing parties) for every election-district in our dataset. The first two of these variables can only take values between zero and one.²² Because of these bounds, and because their distributions display some evidence of skewness, we have decided to use logistic transformations of the Hopeless Votes and SF Ratio variables before carrying out the estimation.²³ Given the nested nature of our measurements (i.e. elections within districts, themselves within countries), we will use multilevel models with random nested effects for countries and districts to estimate the relationships between our four covariates of theoretical interest and our three measures of electoral coordination.

7. Models and discussion

Recall that we have hypothesized that the level of coordination should respond to four things, even after controlling for relevant country-level factors: how experienced the electorate is with the electoral rules; the number of new parties; volatility in preferences for existing parties; and the number of seats disputed in the district.

Failure to account for variation at the aggregate level can result in an increase of Type I errors, in which false hypotheses are nonetheless accepted for lack of evidence against them. Furthermore, it is possible that some of the variability observed *within* countries is systematically related to the districts in which each particular election takes place, perhaps through some induced time dependency at the district-level – after all, elections are rarely independent events.²⁴ Hence, we use a multilevel structure to model the lack of electoral coordination (Gelman and Hill, 2007), accounting for random intercepts at both the district- and the country-level. Because there is variation in the unobserved idiosyncratic practices in each electoral context, our random effects approach provides a suitable solution to the potential inferential problems that stem from the grouped nature of our data.

The estimated models correspond to the following definitions:

$$O_{cde} \sim N(\gamma_d + \mathbf{X}_{cde}\beta, \sigma_{cde}^2)$$

$$\gamma_d \sim N(\gamma_c + X_{cd}\xi, \sigma_d^2)$$

$$\gamma_c \sim N(\mathbf{X}_c\delta, \sigma_c^2)$$

where O_{cde} stands for the Outcome variable during election e , in district d in country c ; \mathbf{X}_{cde} is the matrix of election-district-level variables (i.e. experience; new parties; volatility; and magnitude); γ_d is a random intercept at the district-level; \mathbf{X}_{cd} is a matrix of district-specific variables (i.e. district magnitude); γ_c is a random intercept at the country level; \mathbf{X}_c is a matrix of country-level covariates (i.e. the battery of controls); and β , ξ , and δ are vectors of estimated coefficients.

The results of the estimation are presented in Fig. 1.²⁵ The black dots in the figure record the estimated partial slopes relating each explanatory variable to each of the three (transformed) response variables in our study. A dashed reference line has been drawn at zero. Dots to the right of it indicate positive partial slopes (i.e. a positive relation between the corresponding variables), which are discernibly different from zero whenever the bars attached to each dot fail to intersect the reference line. The bars attached to each dot represent 95% confidence intervals around the point estimates. Continuous variables have been standardized to a common scale (one standard deviation) and centered at their means, in order to facilitate interpretation and comparison.

Fig. 1 presents the results of estimating our models, which seem to fit the data well. More specifically, χ^2 tests indicate that the models represent significant improvements over models with simply the mean random effects for districts and countries.²⁶ Furthermore, the intraclass correlations for the random effects on districts and countries are all far from zero,²⁷ suggesting that our grouping strategy carries enough information to warrant the use of the multilevel modeling approach.

In general, the results depicted in Fig. 1 comport with our theoretical expectations. The dummy variables tracking the effect of learning display evidence of a very steep

²² In theory, in multiparty simple plurality systems such as the Canadian one, it would be possible to observe hopeless vote shares greater than 0.5. The fact that we observe something like a cap, however, seems to comply with the argument put forth by Alvarez et al. (2006), according to which the amount of strategic voting in a district is limited by the proportion of voters whose first preferences are for trailing alternatives.

²³ The logistic transformation, $f(x) = \log(1/1 - x)$, effectively removes the bounds at zero and one and maps numbers originally in that segment to the whole real line. This is appropriate because our model's predictions can lie anywhere on the real line, and failing to transform the outcome variables could result in nonsensical predictions – such as SF ratios greater than 1 or negative shares of hopeless votes.

²⁴ Random intercepts by both country and districts within them effectively allows us to account for time dependencies without resorting to usually reasonable, but still restrictive, assumptions about the nature of these dependencies, such as autoregressive processes of order 1.

²⁵ The Appendix contains Table A1, which presents the usual regression information, for those interested in the details of the estimation. A model with wasted votes as the response variable can be constructed using replication data, and is available upon request. With one exception, discussed below, the results of such a model are very similar to our model of hopeless votes.

²⁶ For the model of Hopeless Votes, the χ^2 likelihood ratio test statistic is 426.6 (which, compared to a χ^2_{13} , is clearly a highly unlikely value); similarly, the corresponding χ^2 test statistic for a likelihood ratio test comparing our model of the SF ratio to a null model (i.e. one with simply the mean random effects) is 219.2, which is also in the tail of the χ^2_{13} distribution. The test statistic for the Coordination Product model is 2691.2, and it also has the lowest AIC of the three models, rendering it preferable in terms of model fit.

²⁷ For the model of hopeless votes, they are 0.408 (for countries) and 0.387 (for districts); for the model of the SF ratio they are 0.231 (for countries) and 0.249 (for districts); and for the Coordination Product model they are 0.52 and 0.19 for countries and districts, respectively.

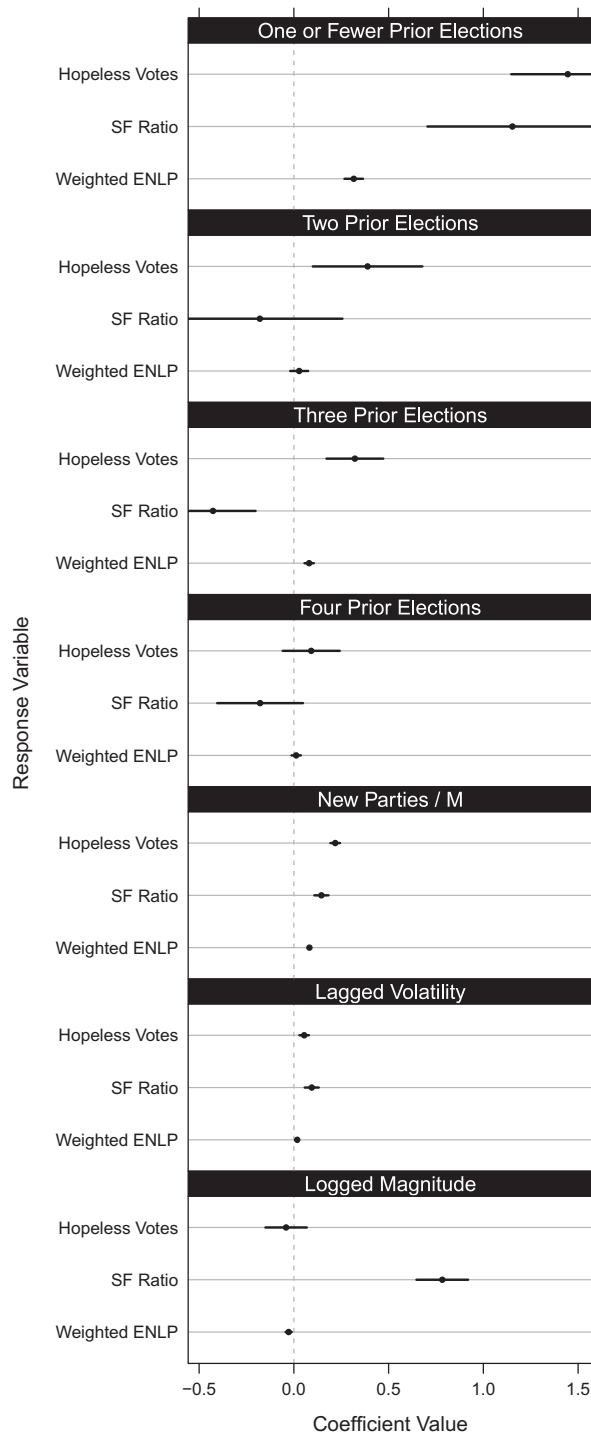


Fig. 1. Estimates of MLM models (with 95% confidence intervals), using different response variables. Variables are mean-centered and standardized.

learning curve: compared to races which take place after 5 or more elections have been conducted under the same set of rules, the first couple of elections show strong evidence of pronounced coordination issues which nevertheless subside quickly, until, by the fifth election, coordination

becomes indistinguishable from that of more experienced settings. It is also the case that a more unstable party offering in the electoral market is expected to worsen coordination. For all three outcome variables, and holding all controls constant, it is the case that a more volatile previous election results in greater coordination problems (i.e. as lagged volatility increases, so does the share of hopeless votes, the SF ratio and the Coordination Product). District magnitude presents a less clear picture – as anticipated by the differences of opinion in the extant literature. Although it does not appear to discernibly affect the share of Hopeless Votes, it has a positive and significant effect on the SF Ratio (i.e. would appear to worsen electoral coordination) and a negative and significant effect on the Coordination Product (i.e. it would appear to improve coordination).

Given that continuous covariates have been standardized, it is possible to compare across explanatory factors and gauge their relative importance for coordination. New electoral settings seem to pose the biggest problem for electoral coordination on viable alternatives. This, of course, is to be expected: prior experience is the most readily available source of information on how votes are translated into seats, and therefore on how beliefs about general support ought to be translated into viability assessments. Next on the list comes the appearance of new parties. Although District Magnitude has a larger effect on the SF Ratio, the number of new parties (relative to the district's size) has the next highest, most consistent effect on all measures of electoral coordination, followed by the effect of previous Type B volatility. Given the disparate effects it has on the various measures of coordination, district magnitude seems to have the least notable effect on Duvergerian coordination, all else equal.

Although useful for discussing general results, Fig. 1 does not provide a substantive notion of how the different measures of coordination are affected by the covariates of interest – mainly because two of our outcome variables have been transformed in ways that preclude a direct translation of coefficients into particular effects. For this reason, we now turn to a more detailed discussion of the model's predictions given changes in our explanatory variables.

Fig. 2 shows that where voters have at most 1 election of prior experience with some given electoral rules, about 15% of votes are cast for hopeless parties; the SF ratio is about 0.58, and the Coordination Product is about 0.74. In all cases, these values represent significantly worse electoral coordination than that evidenced in elections in which voters have been previously exposed to more than four uses of the same rules. After more than four elections, the percentage of Hopeless Votes is expected to drop to about 4.8%, while the SF Ratio and the Coordination Product fall to 0.36 and 0.66, respectively. In other words, in all of our models there is also clear evidence that inexperience-induced coordination failures are reduced over time, reaching stable levels after only a few exercises of the electoral system. By way of an example, for the first three elections after the re-establishment democracy in Hungary, with each subsequent election the effective number of electoral parties decreased by more than one. In

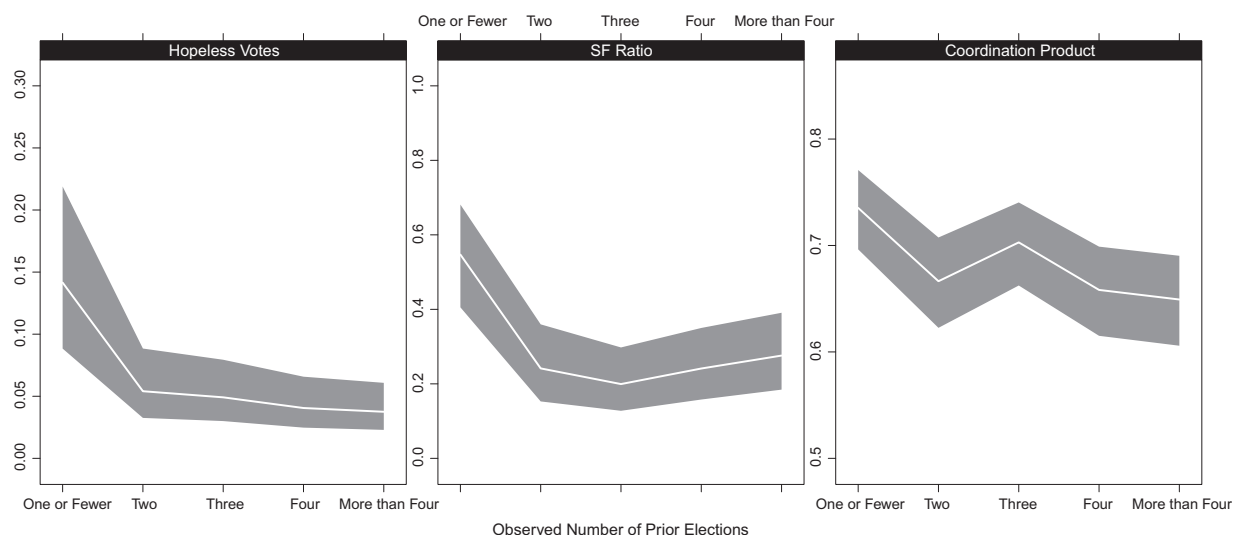


Fig. 2. Predicted values (with 95% C.I.) for experience with electoral rules.

a survey conducted just prior to the third election, 13% of the Hungarian electorate reported a willingness to switch their vote if their most-preferred party was not going to fare well in the election, a substantially larger number than just a few years before when only 6.8% said they were willing to behave strategically (Duch and Palmer, 2002). In a similar vein, after the re-establishment of free and fair elections in Greece in 1974, it only took the electorate two experiences with the translation of seats to votes before they were able to eliminate most of their votes for hopeless parties. For example, the proportion of hopeless votes cast in Lakonias in 1977 was 0.29, but in 1981 it dropped to point 0.06 and continued to decline over subsequent elections. In general then, according to our results, voters inexperienced with a given set of rules learn to better coordinate through early elections but that the learning effect then levels out.²⁸

Changes in the number of new parties (as a share of the district magnitude) display a substantively important effect on coordination, regardless of the instrument used to measure it. As Fig. 3 illustrates, holding all else constant, increasing new party entry across the observed range can drive hopeless votes to almost 27% of those cast, the SF ratio to over 0.6 (its maximum value is 1.0), and the Coordination Product to 0.91 – an almost 46% increase. The Canadian district of Vancouver East provides a nice example. In 1993, there was an abnormally high level of new party entry as a share of magnitude, with 8 new entrants. In the four elections immediately prior to 1993, there were, on average, 1.5 new entrants per election, and the election immediately preceding 1993, in 1988, saw

only 2 new entrants.²⁹ In 1993, the four-term New Democratic Party incumbent, Margaret Mitchell, saw a more than 20 percentage point drop in her support as votes were spread across 13 candidates. In 1993 the share of hopeless votes cast in Vancouver East was higher than at any point before or after in the district's history. The average share of hopeless votes in the four elections leading up to 1993 was 0.19 (also the share in the 1988 election alone) while in the four elections after 1993, the average share of hopeless votes was 0.20. In 1993, however, the share shot up to 0.33.

The effect which volatility has on electoral coordination is illustrated in Fig. 4. Higher volatility in preferences over previously existing alternatives leads to greater coordination failures in the next election, although substantively the size of the effect is not as great as those already discussed. *Ceteris paribus*, and spanning the range of observed values of lagged volatility the model predicts an increase from about 3.8% to 4.5% hopeless votes. Similarly, the full change in the observed volatility is predicted to increase the SF ratio from a value of 0.24 to about 0.39. Finally, the Coordination Product sees a small (though still statistically discernible) increase of about 5% – from 0.646 to 0.678. In the Canadian riding of Terrebonne, very high levels of vote volatility in 1984 appear to have left voters uncertain about how to vote strategically in 1988. The proportion of hopeless votes more than doubled in 1988 to 0.29. In the preceding election, both the Progressive Conservative Party and the Liberal Party had experienced dramatic changes in their level of support. In 1988, the votes were somewhat more evenly balanced between the two, but more than 25% of the district's votes went to the second and third losers. Given the substantively large effect of new party entry, it would seem that voters are more

²⁸ In the case of the SF Ratio, an upward slope after many, many elections have taken place is evident as well – suggesting the possibility that, after many elections, the electorate shows coordination problems. This, however, is probably a function of other considerations not related to the ability to coordinate, such as discontent with the established alternatives.

²⁹ In the four elections after 1993 an average of 2.5 new parties entered per election.

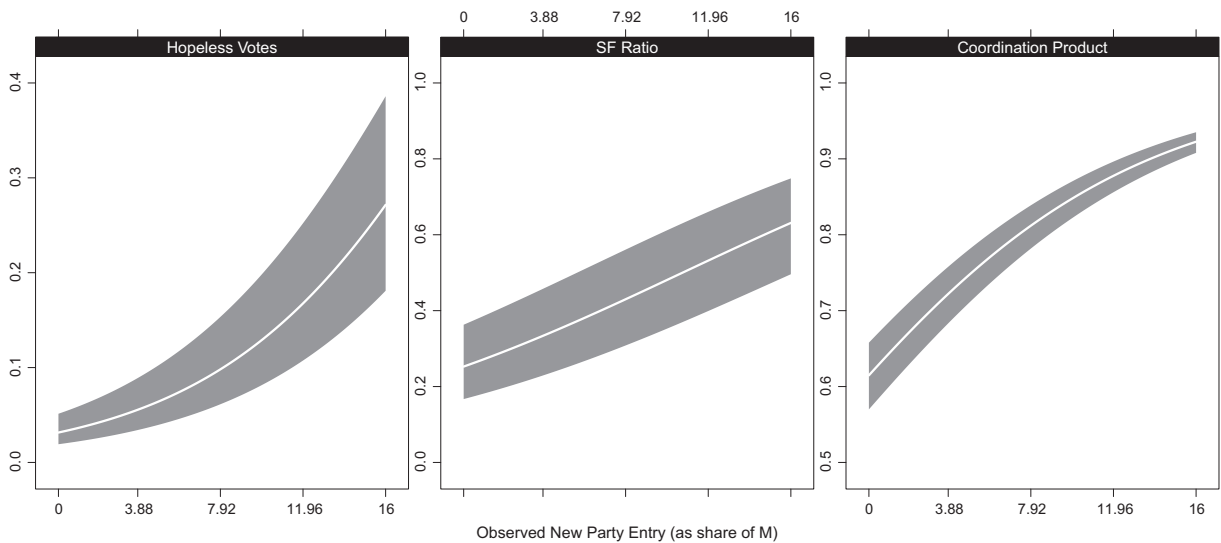


Fig. 3. Predicted values (with 95% C.I.) for new party entry (as share of M).

capable of anticipating shifting patterns of support for existing parties than they are of figuring out what to make of the prospects of entirely new entrants.

District Magnitude does not discernibly affect the amount of hopeless votes at the 95% confidence level. As is illustrated in the three panels of Fig. 5, the slope for the effect of volatility on the Coordination Product is clearly negative, taking its value from 0.67 to 0.48 as magnitude spans its observed range. It is, however, strongly and positively associated with the SF ratio (as hypothesized by Cox and Shugart, 1996). A high value of this ratio is, strictly speaking, always evidence that voters had a hard time distinguishing between losing alternatives. However, as we discussed earlier, this alone may not be a good indicator of a coordination problem – if only 5% of votes are cast for losers, this would hardly constitute evidence of an issue with Duvergerian coordination, even if that 5% was split evenly across the first and second loser. A look at some of our high magnitude districts illustrates the mathematical relationship. For example, in the Netherlands, with its single 150-seat district, we observed an SF ratio of 1.00 – its maximum possible value – in 1967, but only 1.9% of the population voted for hopeless parties. In other words, almost no one voted for a party that did not obtain representation, but those who did could not tell the second loser from the first. Less dramatically, in the Napoli-Caserta district in Italy, with a seat magnitude of 38, in 1972 0.02% of voters voted for hopeless parties while the ratio of second loser votes to first loser votes was 0.92.

Interestingly, none of our controls display discernible effects on any of our measures of electoral coordination after we have accounted for both the context-level variables of theoretical interest and the random effects associated with particular countries and districts within them.³⁰ It is

possible that we do not have enough power to discern these effects – after all, our sample has 21 countries. Further research would be required to establish whether these higher-level factors affect district-level coordination after accounting for variables at this less-aggregated level.

8. Conclusion: voters, leaders, and coordination failure

As we noted when interpreting the results of our empirical models, voter coordination is impeded during early elections under new rules, by a new and unfamiliar menu of party/candidate options, by past volatility in preferences for existing options, and in high magnitude districts where the gap between winners and loser is relatively small. Experience with a given electoral system and challenges posed by highly proportional, high magnitude districts highlight the importance of rules or institutions. New party entry and past (type B) electoral volatility highlight the dynamic relationship between elites and voters. The decision to run under a new banner is a decision made by political elites while patterns of vote choice volatility over existing options reflect decisions made by voters. As we noted above, in substantive terms, new entrants are much more responsible for high levels of coordination failure than is preference volatility among voters. It is the relationship of this decision to offer new entrants and the other determinants of vote wastage on which we focus in this conclusion.

One interpretation of these findings is that elites are most responsible for vote wastage, confounding voters for some reason. Another possibility is that elites err in terms of entry, offering new party banners that will lead to wastage, because voters are already failing to coordinate due to limited experience with new rules, where there is volatility over existing offerings, and in high magnitude districts with the greatest proportionality. We can turn to the literature on new party entry for theoretical reasoning

³⁰ When we use the continuous measure of compensatory tiers, the variable's effect is positive and statistically discernible in the model of our coordination product.

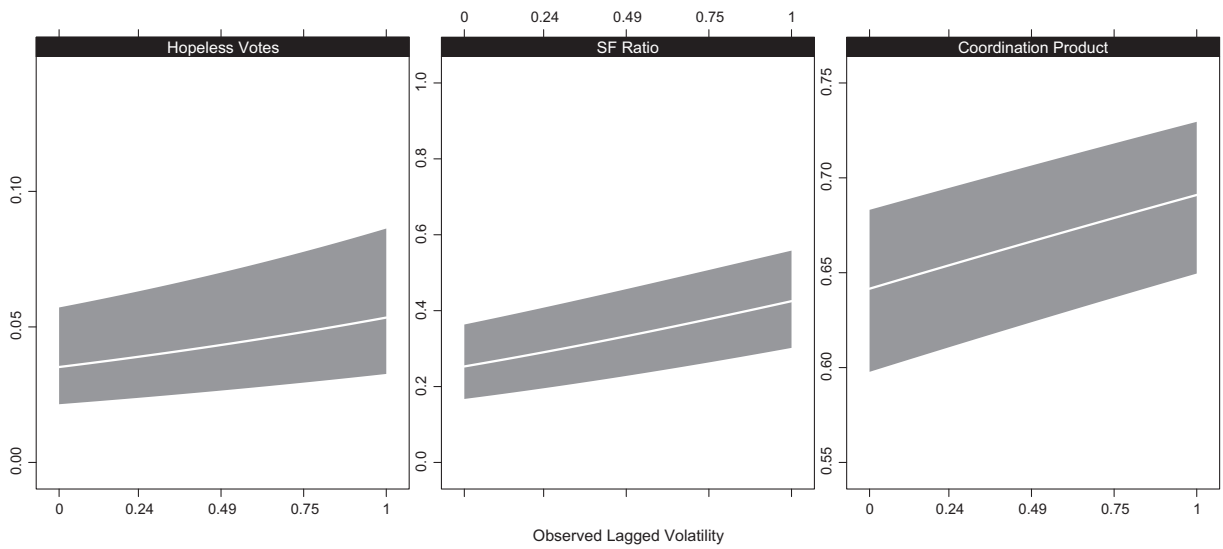


Fig. 4. Predicted values (with 95% C.I.) for lagged volatility.

as to when elites decide to put forward new offerings and to our own empirical data to determine whether new party entry is in fact a function of new rules, preference volatility, and magnitude.

One might suspect that as patterns of party support stabilize in the electorate and as voters begin to coordinate more effectively having grown accustomed to democratic institutions, party leaders would have scant hope of productively creating entirely new inroads into the electorate (Tavits, 2007a). However, as Meguid (2005) notes: “From Western Europe and North America to Australasia and Latin America, new political parties have emerged and gained popularity on the basis of previously overlooked issues” (p. 347). Certainly the recent

resurgence of far right niche parties in Western Europe stands as an example of successful new party entrance in older democracies. The argument is not that voters and party elites are not learning through the iteration of elections. Rather, there are a number of additional factors such as socioeconomic conditions (Golder, 2003), value orientations (Inglehart, 1998), and mainstream party strategies (Meguid, 2005) that can mitigate the importance of the passage of time.

Vote volatility and party system stability (i.e. the rate of turnover in party offerings and the incidence of new party entry) tend to covary empirically and a long line of scholars have argued that the two concepts are very closely linked in a theoretical sense (Roberts and Wibbels, 1999; Taagepera

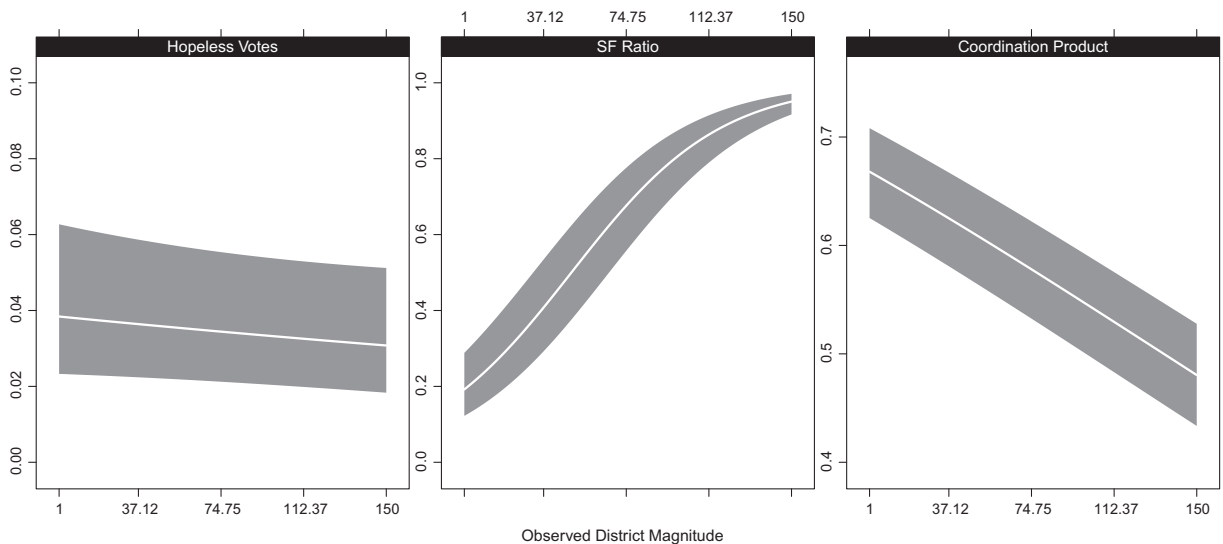


Fig. 5. Predicted values (with 95% C.I.) for district magnitude.

and Grofman, 2003). Other scholars, however, such as Mair (1997), have argued forcefully that studies of party system stability need to isolate elite-level supply considerations from voter-level demand. The empirical findings in this literature would also seem to cast some doubt on which direction the causal arrow flows, whether it is from new party entry to electoral volatility (Pedersen, 1979, for example) or the other way around (Mair, 1997, for example). Tavits (2008) attempts to make advances regarding this debate by using instrumental variable analysis to test for reverse causality, she concludes that it is actually elite entry decisions that drive electoral volatility.

District magnitude has traditionally been understood as a measure of the permissiveness of electoral laws in allowing potential new entrants to actually gain representation (Taagepera and Shugart, 1989). However, the recent empirical findings on district magnitude as a determinant of the number of parties entering an electoral race have consistently shown that this relationship demands substantial qualifications, mainly along sociodemographic lines (Ordeshook and Shvetsova, 1994; Amorim Neto and Cox, 1997; Clark and Golder, 2006). These authors note that, while parties sometimes face greater incentives to enter electoral competition as district magnitude rises, this is not uniformly true; rather, sufficient sociological divisions must exist in the district. Without the ability to mobilize support along new political issues, increasing district magnitude should not – by itself – always lead to higher levels of new party entry. Additionally, there is reason to believe that district magnitude exerts a smaller influence on elite-level decisions about party entry than do other more pragmatic considerations such as the cost, broadly conceived, of registering a new party or the prospect of winning (for reasons other than simple proportionality).

We can use the empirical data employed in our analysis above to help determine whether new party entry is a function of the confusion created by new rules, preference volatility, and high magnitudes. What Fig. 6 shows is that new party entry does not appear to be caused by the same characteristics that explain electoral coordination

failure. The three panels show scatter plots of Experience with a Set of Rules, Electoral Volatility (lagged), and District Magnitude (logged) versus New Party Entry, with corresponding regression prediction lines (in white). The relationships are tenuous in the cases of volatility and experience, and where the relationship is more obvious, with district magnitude, it is in the opposite direction of the relationship with coordination failure. Elites, then, seem to consider other factors when making the decision to enter electoral markets.

In theory, entry by a new party could decrease the amount of coordination failure, leave it unchanged, or exacerbate it. If a new party leads voters who would have wasted their votes across multiple losing parties to coordinate on it to the point that it wins representation, the decision to enter could decrease coordination failure. If, on the other hand, the new entrant collects enough votes from otherwise winning parties to gain representation without causing them to entirely lose representation, the amount of coordination failure would go unchanged despite the arrival of a new political force. Finally, if a new entrant collects some votes from otherwise winning parties but fails to gain representation, it would exacerbate coordination failure. Likewise, if it gathers enough votes from an otherwise winning party to drive it into hopeless status but some of the other party's voters fail to abandon it, their votes would be added to the total of wasted votes.

Our findings indicate that the latter scenarios are occurring – entry by new parties worsens coordination failure. If entry increases the proportion of hopeless votes, those votes must, by definition, have come from what otherwise would have been winning parties. In other words, by creating coordination problems, new parties decrease the gap between winning parties and losing parties. This means, in general, new party entrance increases the probability of the new party's chance of success in non-trivial ways. Its prospects are not better simply because the probability of winning when *not* entering is zero. They are better because votes that previously went to existing winning parties end up going to losing parties, making the proportion of votes needed

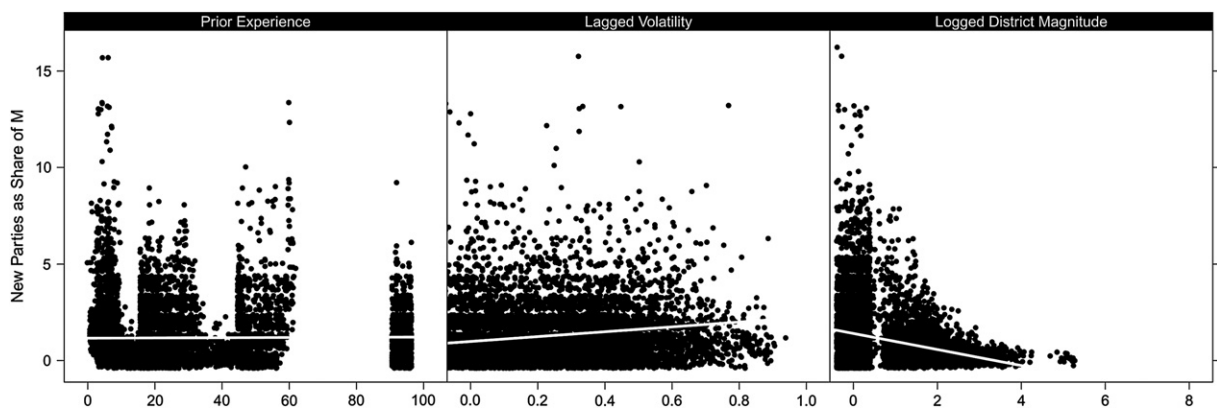


Fig. 6. Bivariate scatter plots of other explanatory variables vs. new party entry (as share of M). White lines are bivariate regression lines, depicting linear relationship between variables.

by any party to obtain a seat lower. Thus, controlling for any barriers to or costs of entering, entering a race is always better than not entering a race from the party leaders' perspective.³¹

Entry is attractive because of the coordination problems it creates and what a coordination problem implies for the number of votes needed to obtain representation. When voters fail to strategically coordinate, their preferences will be relatively under-represented among the politicians

simply a function of the other characteristics driving wastage. New party entry is driven by forces independent of its relationship to coordination failure.

Appendix. Regression table

Replication data is available at <http://solivella.wustl.edu/replication-data-and-code/>

Table A1

Multilevel (nested) model estimates of effects on logit of hopeless votes (model 1), SF ratio (model 2) and coordination product (model 3). Explanatory variables are mean-centered and standardized. Random effects are estimated for districts within countries and for countries.

	Model 1: hopeless votes		Model 2: SF ratio		Model 3: coord product	
	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error
Intercept	-1.95	0.68	-0.29	0.68	0.76	0.25
Experience ≤ 1	1.44	0.15	1.15	0.22	0.4	0.04
Experience = 2	0.38	0.14	-0.18	0.22	0.07	0.04
Experience = 3	0.28	0.07	-0.42	0.11	0.24	0.02
Experience = 4	0.08	0.07	-0.18	0.11	0.04	0.02
New parties (as % of magnitude)	0.21	0.01	0.14	0.02	0.18	0.003
Volatility (lagged)	0.05	0.01	0.09	0.02	0.026	0.003
Magnitude (logged)	-0.04	0.05	0.78	0.07	-0.13	0.013
PR electoral system	-0.64	0.66	-0.20	0.52	0.08	0.25
SMD electoral system	-0.74	0.89	-0.52	0.90	-0.04	0.34
Compensatory tier	-0.72	0.89	-0.35	0.52	-0.27	0.19
Federalism	0.37	0.59	0.02	0.60	0.2	0.22
Presidentialism	-0.64	0.5	-0.47	0.50	-0.23	0.18
Ethnolinguistic Frac.	0.01	0.34	0.28	0.35	-0.07	0.12
σ_{cde}^2	1.03		2.35		0.09	
σ_d^2	0.66		0.78		0.02	
σ_c^2	0.71		0.71		0.1	
N observations	10,764		10,764		10,764	
N districts	2007		2007		2007	
N countries	21		21		21	
AIC	33607.04		41706.04		6838.156	
Log-likelihood ratio test statistic	426.61		219.2		2691.23	

elected. As a result, policies are not as likely to reflect their desires. Coordinated voters, on the other hand, “pack more punch” – putting into office more, relative to their uncoordinated numerical weight, candidates with their preferences. However, our analysis indicates that it is in the interest of the prospective leaders of new parties to create just that type of mayhem.

In sum, using the most appropriate data across a wide array of electoral systems, we have been able to test, in a multivariate fashion, how context-level factors are substantively related to voters' inability to coordinate strategically. With three measures of coordination failure, we captured the variations in voters' ability to avoid wasting their votes across numerous districts and elections. We found that new, unpredictable, and intricate electoral contexts lead to higher levels of coordination failure, with new party entry being the most consistent predictor of vote wastage. We also showed that new party entry is not

Appendix. Supplementary data

Supplementary data associated with this article can be found in the online version, at [doi:10.1016/j.electstud.2011.09.006](https://doi.org/10.1016/j.electstud.2011.09.006).

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³¹ This helps explain the recent and counter-intuitive finding that newcomers are no less likely to succeed when voters have become experienced with the electoral rules in place and when other parties have already acquired an established position in the system (Tavits, 2007b).

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