

Are leftist or rightist voters better substantively represented? The effects of variance in district magnitude on party-voter ideological congruence

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A B S T R A C T

How does the variation in district magnitude in districted proportional representation systems affect congruence between a voter and their party of choice? I argue that voters in large-magnitude districts will have higher levels of party-voter congruence than voters in small-magnitude districts, due to stronger strategic incentives and reduced party options in small-magnitude districts. Furthermore, I argue that this relationship will be stronger among leftist voters compared to rightist voters, due to the concentration of rightist voters in rural, small-magnitude districts and leftist voters in urban, high-magnitude districts. These expectations are tested using data that from 45 elections in 12 districted proportional representation systems included in the Comparative Study of Electoral Systems (CSES). The results support the expectation that party-voter ideological congruence will be higher for voters in larger electoral districts, and lower for voters located within smaller districts. Leftist voters do appear to suffer a congruence penalty in smaller districts, whereas the congruence of rightist voters is less affected by district magnitude. An examination of the mechanisms behind this finding suggests that leftist-voters in small-magnitude districts are faced with a smaller and more right-leaning set of party options.

What determines the degree of ideological closeness between a voter and their party of choice? Ideological or policy-based representation, often conceptualized as substantive representation (Pitkin, 1967), is an important quality of democratic systems of government that has largely been examined at the aggregate, rather than individual level. Literature in this area has found that electoral systems are one of the more important determinants of ideological representation, due to both their effects on both the number of political parties that win representation (Duverger 1954; Rae 1971; Taagepera and Shugart, 1989; Cox 1997; Singer and Stephenson, 2009) and on the overall ideological leanings of the legislature (Iversen and Soskice, 2006; Döring and Manow 2017). While scholarship on the relationship between electoral systems and representational outcomes has tended to group electoral systems into majoritarian and proportional typologies (Lijphart, 1999; Cox 1997; Powell 2000, 2009; McDonald and Budge, 2005), a more recent strain of literature has established that variations within proportional representation systems also matter for representative outcomes (Monroe and Rose 2002; Kedar et al., 2016; Barceló and Muraoka 2018). Recent research has shown that variance in district magnitude within proportional representation systems can skew representational outcomes in favor of right-wing political parties. This is due to the general tendency of districted proportional representation systems to underrepresent urban, leftist parties in the legislature.

Here I shift the focus to ask how districted proportional representation systems affect a different quality of representation: individual-level

ideological representation. Specifically, I examine whether the variation of district magnitude within districted proportional representation systems affects the degree of ideological congruence between an individual voter and their party of choice in an election. Individual-level party-voter congruence is the first and perhaps most important link in the representational process. Models of representative government often begin with political parties that present different and distinct policy options to voters during elections, and voters who chose their most preferred party platform. Parties, via their policy platforms, are the vehicles by which voter preferences get translated into legislative representation. Whether voters have the means and incentives to support an ideologically close political party is therefore a fundamental building block of the representational process. Party-voter ideological congruence, measured at the individual level, also has the potential to tell us more about individual-level behavior than aggregate analyses of congruence, as the behavior of individuals is more likely to be driven by their personal political circumstances. Notably, party-voter congruence has been linked to outcomes such as satisfaction with democracy, vote switching, and political disaffection (Bakker et al., 2018, 2020; Mayne and Hakhverdian, 2017; but see also Singh et al., 2012).

In proportional representation systems that have districts of both large and small magnitudes, the degree of party-voter ideological congruence we observe is likely to depend on the magnitude of the district. In large-magnitude districts, the number of electorally viable political parties is higher, which allows voters to select the party they

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sincerely prefer on policy grounds. The lack of strategic incentives in these large-magnitude districts should have the effect of increasing party-voter congruence. In smaller districts where only the largest parties will be electorally viable, voters will choose among fewer viable party options, parties will be more likely to moderate their electoral appeals, and accurate ideological representation will likely be attenuated. Due to the tendency for leftist voters to be concentrated in large-magnitude districts, and rightist voters in small-magnitude districts, we may also observe partisan effects of districted PR in terms of party-voter congruence. Leftist voters are more likely than rightist to find their options constricted in low-magnitude districts and expanded in high-magnitude districts due to the strategic actions of voters and/or parties. In short, district magnitude should exert a stronger effect on party-voter congruence among leftist voters.

In the following sections I elaborate on the expected relationships between districted PR systems, leftist (and rightist) voters, and party-voter congruence, hypothesizing that party-voter congruence will generally be higher in larger-magnitude districts, and that this effect should be especially significant for leftist voters who tend to be geographically concentrated in large, urban electoral districts. These expectations are then tested using data from 45 elections held in 12 districted PR systems from the Comparative Study of Electoral Systems (CSES) modules. The findings consistently support the expectation that party-voter ideological congruence is higher for voters residing in districts with larger magnitudes, and that the effect of district magnitude on party-voter congruence is stronger for leftist voters. Overall, leftist voters do not appear to gain any benefit from the variation in district magnitude in terms of party-voter congruence. Rather, the degree of party-voter congruence in small districts is significantly lower among leftist voters than for rightist voters, suggesting that leftist voters in smaller districts often get punished in terms of both representation and party-voter congruence (Kedar et al., 2016). An examination of the mechanisms behind this result suggests that leftist voters in smaller districts face a reduced number of party options.

These findings contribute to the literature on electoral systems and specifically the effects of districted PR systems, as well as to the broader literature on ideological congruence. First, the results help to clarify the general relationship between electoral rules and party-voter congruence. Although scholarship on the relationship between electoral rules and party-voter congruence generally expects more proportional electoral rules to produce stronger party-voter congruence, few studies have provided evidence in support of this relationship (Dalton 1985, 2015; Belchior 2012; Rohrschneider and Whitefield, 2012). The analyses here draw on variation in district magnitude for citizens across electoral districts and provide consistent support for the expectation that district magnitude is positively related to party-voter congruence. Secondly, this research extends previous work on districted PR systems and party (i.e. vote-to-seat) representation to examine a different type of representation: ideological congruence. Finally, the results here suggest that the geographical concentration of leftist and rightist voters makes the relationship between district magnitude and party-voter congruence stronger for leftist voters than for rightist voters. Overall, the results underscore the importance of investigating the political effects that districted PR systems can have on citizen representation.

1. Electoral systems and ideological congruence

A long tradition of literature has examined the factors that encourage or discourage ideological congruence between citizens and their elected representatives, often focusing on the role played by electoral systems (Golder and Stramski, 2010; Huber and Powell, 1994; Powell and Vanberg 2000; McDonald and Budge, 2005; Blais and Bodet, 2006; Powell 2000, 2009, 2011, 2013; Golder and Lloyd 2014; Ferland 2016, 2018; Golder and Ferland 2018; Becher and Gonzalez, 2019). Despite some controversy and mixed findings about the relationship between electoral systems and ideological congruence, scholarship in this area

has largely settled on the idea that there are two different pathways toward ideological congruence for majoritarian and proportional electoral systems (e.g. Powell, 2013). For majoritarian systems, the electoral system often restricts the size of the party system so that only the two largest parties can effectively compete for office (Duverger, 1954; Cox 1997). This can make it difficult for a voter to find a party that is both a close ideological match and electorally viable, placing majoritarian systems at a disadvantage in terms of citizen congruence with the legislature. However, good ideological congruence between citizens and the government can be reached if the party that wins the election is located close to the position of the median voter (Powell and Vanberg 2000; McDonald et al., 2004; McDonald and Budge, 2005). In contrast, proportional representation systems allow voters to more easily find a party that matches their ideological preferences, generally leading to good congruence between voters and legislatures (Golder and Stramski, 2010; Powell, 2000). Things can go awry, however, in the government formation process as coalitions or minority governments can form that are ideologically removed from the preferences of the median voter. More recent research has demonstrated that party polarization has the potential to throw ideological congruence further off track in majoritarian systems compared to proportional systems (Powell, 2000; 2013).

There are clear and important variations in the relationships between electoral systems and different types of congruence (Golder and Stramski, 2010; Powell, 2011, 2013; Ferland and Golder 2021). Majoritarian systems, or restrictive electoral rules more generally, are better able to produce good aggregate-level congruence between voters and governments when the winning party is located close to the median voter. The ability of majoritarian systems to provide good aggregate-level congruence between voters and legislatures, or good individual-level congruence between voters and parties, is more questionable and will depend on the particular distribution of voter preferences, party positions, and proportionality of the vote-to-seat translation in any given election. Proportional representation systems, on the other hand, lack a reliable congruence relationship between citizens and governments because of the government formation process, but have a clear advantage when it comes to congruence between voters and legislatures. The multiparty nature of proportional representation systems provides voters with an array of party options so that they can find a close ideological match to their preferences, and the proportional translation of votes into seats ensures that the distribution of seats in the legislature will mirror the distribution of voter preferences for parties.

The congruence advantage of PR systems that comes from the proportional translation of votes into seats can also be extended to party-voter congruence at the individual-level.¹ Proportional representation systems encourage greater numbers of political parties to contest elections, compared with their majoritarian counterparts, and allow more parties access to the legislature. Thus, the logic supporting greater congruence between voters and legislatures in PR systems also suggests that overall levels of party-voter congruence should be higher under more proportional electoral rules. However, most studies that address individual-level congruence do so from a different perspective, either by examining multiple possible dimensions of congruence (Giger and

¹ Party-voter congruence is an individual-level form of congruence that is similar to the one-to-one congruence relationship discussed by Golder and Stramski (2010) between one voter and representative. However, Golder and Stramski's discussion of one-to-one congruence clearly pertains to only one political representative, not a party. However, in their discussion of many-to-one forms of representation, Golder and Stramski allow the concept of "one" representative to be defined differently ... "we can just as easily think of the "single representative" as being the policy position of a government (p.92)." In other words, the "one" here can be defined as a singular policy position. Although Golder and Stramski do not examine the individual-level conception of party-voter congruence examined here (between one voter and "one" party's policy position) it is not incompatible with how they conceptualize congruence relationships.

Lefkofridi 2014), the effect of party polarization (Carroll and Kubo 2018), or use individual-level congruence as an explanatory variable in models of satisfaction with democracy or political disaffection (Bakker et al., 2018, 2020; Mayne and Hakhverdian, 2017). Relatively few explicitly examine the relationship between electoral systems and congruence between individual voters and their representatives. While Best and Seyis (2021) find that electoral systems do affect individual-level congruence relationships between voters and their respective governments, studies that more specifically address party-voter congruence have produced mixed results. Some find positive associations between PR systems and party-voter congruence and others find no evidence of a relationship (Dalton 1985, 2015; Belchior 2012; Rohrschneider and Whitefield, 2012). Numerous factors might complicate the congruence relationship between voters and parties in PR systems, such as policy balancing (Kedar 2005) or other types of strategic behaviors, the role of issue salience (Giger and Lefkofridi 2014), multidimensionality (Belchior 2012), or any other number of influences on the vote.

Here, I focus specifically on the variation in district magnitude that occurs within districted PR systems and the potential for electoral rules, and specifically district magnitude, to shape representational relationships between individual voters and parties. This is a slightly different approach to the examination of proportional electoral rules and party-voter congruence, since it primarily draws on the variation in electoral rules, and specifically district magnitude, that occurs within countries.

2. Districted Proportional Representation and Party-Voter Congruence

Many different aspects of electoral systems can influence the proportionality of the vote-to-seat translation (thresholds, tiers, formulas, etc.) and therefore also affect the degree of ideological congruence we observe. Of these electoral system attributes, district magnitude has received the most scholarly attention because of its documented effects on the actions of voters, parties, and the proportionality of the vote-to-seat translation (Rae 1971; Taagepera and Shugart, 1989; Ordeshook and Shvetsova 1994; Cox 1997; Singer and Stephenson, 2009). What makes district magnitude an especially interesting and useful attribute of electoral systems, however, is its tendency to vary across electoral districts within a country even when other aspects of the electoral system remain constant (Singer 2015). An emerging strain of literature has used this within-country variation in district magnitude to draw attention to the political effects of districted proportional representation systems where district magnitude varies, often widely, across electoral districts. Scholarship has shown that districted proportional representation systems often work to the benefit of right-wing parties and to the detriment of the left, due to the strong correlation between population density, political preferences, and district size (Monroe and Rose 2002; Kedar et al., 2016). Urban voters tend to prefer leftist parties and reside in districts with larger magnitudes, so that their party preferences, along with the party preferences of more right-wing voters within the district, are translated proportionately into legislative representation. But in smaller districts that are often rural and skew to the right, left-wing voters and the leftist parties they prefer are underrepresented due to the stronger disproportionalities in the vote-to-seat translation. Taking all districts within a country together, the disproportionalities present in the smaller, rural, and more right-wing districts work to put leftist voters and parties at an overall disadvantage in terms of legislative representation.

More generally, this area of research harnesses the variation in district magnitude to show that the effects of restrictive or permissive electoral rules can function within districted PR systems, just as we expect them to function across majoritarian and PR systems. Even within an electoral system that employs proportional representation, districts with small magnitudes will result in greater disproportionalities in the vote-to-seat translation than districts with large magnitudes, and this

variation in the proportionality of the vote-to-seat translation across districts should have behavioral effects on the number of parties competing per district, the propensity for voters to support small or large political parties, and, ultimately, the degree of party-voter congruence we observe.

Within districted PR systems, voters in districts with smaller magnitudes should desert all but the most viable political parties in the district, irrespective of the numbers of parties that are contesting the election nationally, as votes for smaller parties will be less likely to translate into representation (Cox 1997). Conversely, in the larger districts, voters will have few incentives to behave strategically when casting their ballot, since the high district magnitude will allow for a more proportional translation of votes into seats. Thus, we can expect the number of viable competing parties to be smaller when district magnitude is low, and higher in districts with greater magnitudes. Barceló and Muraoka (2018) demonstrate that districted PR systems can produce different numbers of parties and even types of party systems across districts of different magnitude (see also Kedar et al., 2021). In addition, Singer (2015) and Singer and Gershman (2018) use variation in district magnitude within countries and over time to demonstrate the party system fragmentation responds to changes in the proportionality of the vote-to-seat translation at the district level. Districted PR systems also provide a useful look at the effects of district magnitude specifically, since other aspects of the electoral system, such as an electoral threshold or formula, tend to remain constant across electoral districts. We can therefore expect greater numbers of parties to viably compete for votes in districts with larger magnitudes compared to districts with smaller magnitudes, both across countries that employ different types of electoral systems, but also within PR systems where district magnitude varies.

The effects of the variation in district magnitude on voter and party behavior have two implications for party-voter congruence. The first is that voters in districts with larger magnitudes should have an easier time casting a ballot for an electorally viable party that matches their policy preferences compared to voters in districts with smaller magnitudes. This is due to the likely effects of district magnitude on the strategic actions of both parties and voters. In districts with smaller magnitudes, the mechanical disproportionalities in the vote-to-seat translation should produce (1) a smaller number of electorally viable parties and (2) a higher number of voters who have incentives to behave strategically and support only the most electorally viable parties in their district. Political parties may therefore opt not to contest smaller-magnitude districts where they are less electorally viable and, instead, focus their efforts on contesting elections in large-magnitude districts where there is a higher likelihood of winning a district seat. Similarly, voters in small-magnitude districts have stronger incentives to vote strategically for only the most viable political parties. Putting together the likely effects of district magnitude on both voters and parties, we can expect voters in larger districts to have a longer menu of viable party options than voters in smaller districts, and can therefore choose the party that best represents them in ideological terms.² With a lesser number of party options and stronger strategic incentives, voters in small-magnitude districts may have a harder time finding an ideologically preferred party that is also electorally viable.

It may be asking a lot of voters to engage in strategic behaviors in low-magnitude districts in districted PR systems where there is substantial variation in district size. The informational environment has been shown to play a strong role in electoral coordination (Cox 1997; Crisp et al., 2012; Ferree et al., 2014; but see also Raymond and Tromborg, 2016). In districted PR systems where there is substantial

² Notably, there is an implicit and underlying assumption there that when the menu of viable party options expands under more proportional rules, and voters have the option to vote for a more ideologically-preferred party will tend to do so.

variance in district magnitude, the informational environment may be hazy at best for those in districts with small magnitudes. It is conceivable that larger numbers of parties would contest elections even in smaller districts where they are less electorally viable because of their success in larger districts, which can make it more difficult for voters in smaller districts to discern which parties, exactly, are the most electorally viable. The examination of differences between small and large districts in districted PR systems may, therefore, be a difficult test for the relationship between district magnitude and voter-party congruence. At the same time, the comparison of differently sized districts within the same country effectively controls for national-level features of the electoral context and party system and may make it easier to parse out the effects of district magnitude on ideological congruence.

H1. Voter-party ideological congruence should be higher in districts with large magnitudes

Than in districts with small magnitudes in districted PR systems.

Should we expect districted PR systems to favor leftist or rightist voters when it comes to party-voter congruence? Prior research on the representational effects of districted PR systems has pointed to the tendency of leftist voters to be underrepresented in districted proportional representation systems (Monroe and Rose 2002; Kedar et al., 2016). This results from the fact that in contemporary Western societies, urban centers are often home to large populations of left-leaning voters, whereas rightwing voters tend to be more efficiently spread throughout less populated areas (Rodden 2010, 2019). Districts with large magnitudes are often located in left-leaning, urban areas, while districts with low magnitudes are often located in more right-leaning and sparsely populated rural areas. In small-magnitude districts, leftist voters are therefore the ones hurt by the more disproportional vote-to-seat translation, leaving them underrepresented when compared their rightist counterparts.

The correlation between voter ideology and district magnitude is also likely to impact party-voter congruence. Both leftist and rightist voters should be at a (party-voter) congruence disadvantage in districts with smaller magnitudes, and both leftist and rightist voters should be at a (party-voter) congruence advantage in districts with larger magnitudes, since party-voter congruence only captures the ideological distance between a voter and their party of choice, irrespective of whether that party receives a proportionate share of representation. However, the concentration of leftist voters in large, urban districts and the concentration of rightist voters in smaller, more rural districts introduces the potential for distortions in this relationship. Political parties are likely to adjust their strategies in response to the magnitude and constituency of a district. Smaller parties might decide not to contest districts with smaller magnitudes where there is little chance of winning a seat and, instead, focus their attention on the larger districts. If leftist voters are concentrated within urban districts with large magnitudes, smaller leftist parties may opt to only contest these larger districts, leaving a more rightward menu of parties to compete in districts with smaller magnitudes. In general, when the ideological leanings of voters are correlated with geographic location and the magnitude of electoral districts, we might expect parties' electoral strategies to reflect these conditions.

It is therefore possible that leftist voters are more affected than rightist voters by district magnitude when it comes to party-voter congruence. In districts with large magnitudes, voters across the ideological spectrum should be able to find a party that is both viable and a good ideological match. Conversely, the menu of viable party offerings may slant toward the right in districts with smaller magnitudes, making it more difficult for leftist voters in particular to choose a party that is both electorally viable and a good ideological match.

H2. The positive relationship between district magnitude and voter-party ideological congruence should be stronger (i.e. more positive) for leftist voters than for rightist voters in districted PR systems.

This relationship will be contingent on the extent to which district magnitude is correlated with the ideological preferences of voters residing within them.

In the analyses below, I therefore proceed in a stepwise fashion by first examining the correlations between urban/rural residence, leftist voters, and district magnitude, before moving on to examine party-voter congruence.

3. Data

I draw on data from five modules of the Comparative Study of Electoral Systems (CSES) to test the expectations outlined above. The CSES data is particularly useful for this purpose since it combines individual-level survey data on voting behavior and ideological placements of both parties and voters with information about the characteristics of each respondent's electoral district. In the case of districted proportional representation systems, this means that we can identify the magnitude of the district in which each individual respondent casts a ballot.³ In total, there are data from 45 elections held in 12 districted proportional representation systems included in the five CSES modules that include information on district magnitude, voting behavior, and voter and party ideological placements: Belgium, Denmark, Finland, Greece, Iceland, Ireland, Italy, Norway, Portugal, Spain, Sweden, and Switzerland.⁴ Although a form of districted PR is used in all 12 countries included here, there are many variations in other aspects of the electoral system, such as the use of upper tiers or levelling seats (e.g. Sweden), majority or plurality bonuses (Greece and Italy), electoral formula (e.g. Ireland's use of the single-transferable-vote system), ballot structure (e.g. panachage in Switzerland), and the range of district magnitude. While these variations often get in the way of making clear inferences about the vote-to-seat translation that is produced by districts of varying magnitudes, they are less problematic for exploring the effect of district magnitude on the likelihood of achieving good party-voter congruence.⁵ Across all of these different types of systems, we can generally expect the possibility of achieving good congruence between parties and voters to increase as the magnitude of the district increases. Fig. 1 displays the minimum, maximum, and average district magnitude for the respondents included in the 12 countries examined here. Within most districted PR systems there are a wide range of district magnitudes, often as small as one or two and sometimes ranging upwards of 40. In some countries, such as Iceland, Ireland, and Norway the range of district magnitude is more compressed than in others. In Ireland in particular, district magnitude ranges only from three to five. While even this small variation in district magnitude may be enough to observe changes in the incentive to support political parties across districts, there is greater room to observe differences in party electoral viability in countries such as Portugal, where district magnitude ranges from two to a high of 48.

³ While the CSES data is useful in that it records the magnitude of each respondent's electoral district, the election surveys that comprise the bulk of the data do not sample enough respondents from each electoral district to make the electoral district a viable unit of analysis. In addition, data availability excludes the following electoral districts from the analyses: Greece (2009) districts 33 and 50, Greece (2012) district 40, Ireland (2007) district 26, and Portugal (2002), districts 9 and 20.

⁴ The full list of election studies is as follows: Belgium- Flanders (2019), Belgium- Wallonia (2019), Denmark (1998, 2007), Finland (2003, 2007, 2011, 2015, 2019), Greece (2009, 2012[June], 2015), Iceland (1999, 2007, 2009, 2013, 2016, 2017), Ireland (2002, 2007, 2011, 2016), Italy (2006), Norway (1997, 2001, 2005, 2013, 2017), Portugal (2002, 2005, 2009, 2015, 2019), Spain (1996, 2000, 2004, 2008), Sweden (1998, 2006, 2018), Switzerland (1999, 2003, 2007, 2011, 2019).

⁵ The exception here is Austria. While Austria is technically a districted PR system and is included in several CSES modules, its interlocking system of electoral tiers makes analysis of lower tier results difficult and, in some cases, impossible to separate from seat distributions that occur in a higher tier.

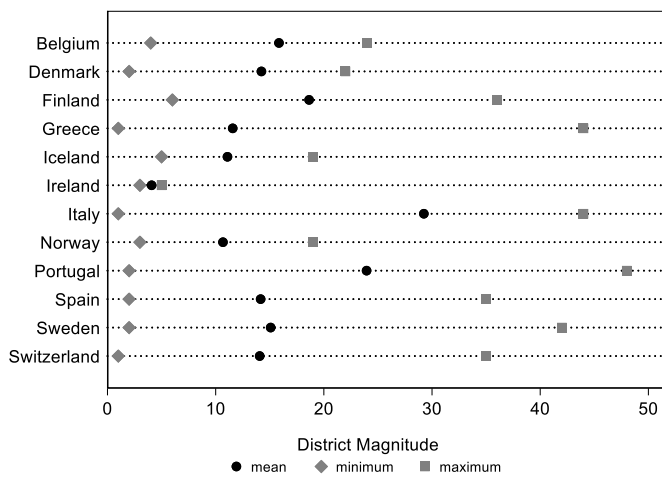


Fig. 1. Variation in district magnitude within 12 districted PR systems.

District magnitude is logged in the analyses that follow. This follows convention in the literature, and to captures the diminishing effects of district magnitude on strategic behavior as values increase above and beyond what is needed for a proportional vote-to-seat translation.⁶

Notes: Figure values reflect the summary statistics of district magnitude as they are present in the sample of data used here, so that the means reflect the mean district magnitude among respondents. As larger numbers of respondents are located in district magnitudes, mean values of district magnitudes are often larger in Fig. 1 than when calculating district magnitude as the number of legislative seats divided by the number of districts.

I calculate the degree of party-voter congruence by first identifying the party each respondent reported voting for in the last national election to the lower house of the legislature, and then taking the absolute difference between the voter’s self-placement along the 0–10 left-right scale and their preferred party’s position on the same scale and reversing the sign, so that higher values represent greater congruence and lower values represent greater incongruence.⁷ Party positions were calculated as the average left-right position of the party based upon the top 40% most educated voters included in the election study (Golder and Stramski, 2010).

Survey respondents may not always regard the left-right scale in the same manner or attribute the same meanings to different values or poles of the scale. To mitigate problems that may be caused by different respondent notions of what it means to be say, far left or far right, I employ a simplistic measure of voter ideological type that distinguishes between centrist voters that locate themselves precisely at the midpoint of “5” on the 0–10 scale, leftist voters that place themselves to the left of the midpoint (0–4), and rightist voters that locate themselves to the right of the midpoint (6–10). Notably, right-leaning voters make up a large plurality of voters included in the analyses. Approximately 44.7% of voters in the sample placed themselves on the right side of the scale, with 21.9% identifying as centrist and 33.5% locating themselves on the left of the ideological scale.

⁶ For example, a change in district magnitude from three to eight will likely have a bigger effect on proportionality than change from 25 to 30, since it is unlikely that there will be enough parties to produce severe disproportionalities in the vote-to-seat translation when district magnitude equals 25, but these disproportionalities are much more likely to occur when district magnitude equals three. See also Carey and Hix (2011) discussion of an electoral “sweet spot,” where district magnitude is high enough to provide a roughly proportional translation of votes into seats but not high enough to produce undesirably high levels of fragmentation.

⁷ Nonvoters are omitted from the analyses.

Fig. 2 presents boxplots of party-voter congruence for left, center, and right voters. Most voters, regardless of ideological placement, appear to have reasonably good levels of congruence with their parties of choice, with most voters choosing a party located within two points of their own position on the left-right scale. Aside from the less-common tendency for some, but few, leftist and rightest voters to choose parties located beyond four points away from their own location on the left-right scale, there are few discernible differences in party-voter congruence across the three categories of voters.

3.1. Are leftist voters concentrated in large-magnitude districts?

I begin with a look at the relationship between urban residences, leftist voters, and districts with large magnitudes. Previous research has documented the tendency of leftist voters to be concentrated in urban districts with large magnitudes, which leads to the expectation of H2 that district magnitude should exert a greater influence on party-voter congruence for leftist voters compared to rightist voters. Model 1 in Table 1 presents the estimates of a logit model predicting whether (1) or not (0) a respondent places themselves on the left side of the political spectrum based upon how whether the area in which they live is more urban than rural.⁸ The results confirm the expected positive correlation between urban residences and leftist voters. Model 2 presents the estimates of a OLS regression model of district magnitude on rural vs. urban residences. Again, the results confirm the expectation that larger district magnitudes are positively associated with more urban areas. Finally, Model 3 examines whether leftist voters are more likely to be located in districts with large magnitudes. This expectation is also confirmed by the presence of positive and significant relationship between the magnitude of a district and the likelihood of being a leftist voter.

In summation, the data used here reveal the expected associations between urbanity, ideology, and district magnitude. Across the 12 districted PR systems considered here, leftist voters are more likely to be geographically located in urban areas and districts with large magnitudes.

3.2. Party-voter congruence

I begin the analysis of party-voter congruence with an examination of H1, which expects a positive relationship between party-voter

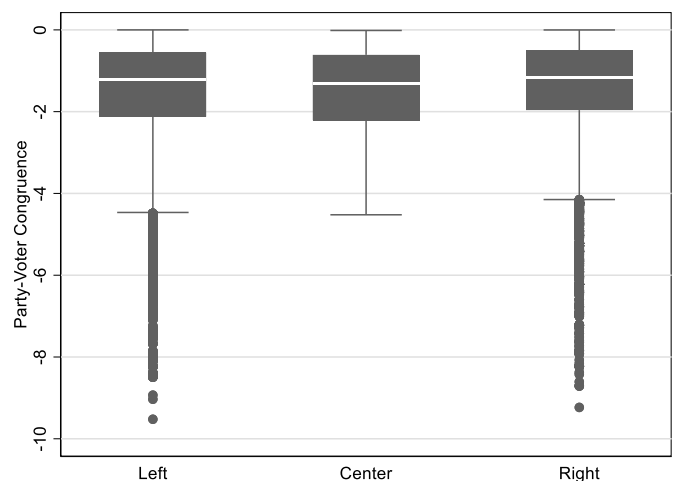


Fig. 2. Party-voter congruence for leftist, centrist, and rightist voters.

⁸ This variable takes on four values: (1) rural area or village; (2) small or middle-sized town; (3) suburbs of large town or city; (4) large town or city.

Table 1
Leftist voters, urban residences, and district magnitude.

	Model 1 DV: Leftist voter	Model 2 DV: District mag.	Model 3 DV: Leftist voter
Urban (log) District mag.	0.11*(0.02)	0.20 *(0.02)	0.09*(0.03)
Election study fixed effects	✓	✓	✓
Constant	-1.20*(0.05)	2.49 *(0.04)	-1.23*(0.08)
N	51,366	51,366	51,662

Notes: Models 1 and 3 displays logit coefficients with standard errors clustered by country in parentheses. Model 2 displays regression coefficients with standard errors clustered by country in parentheses. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries. * $p \leq 0.05$

congruence and district magnitude. Model 1 in Table 2 presents the results of a regression model of party-voter congruence on district magnitude, along with control variables to capture the age, education-level, and gender (male) of the respondent and fixed effects and clustered standard errors for election studies.⁹ Education, in particular, has been recognized as a voter attribute that encourages party-voter congruence, likely due to higher levels of political information among the more educated populations (e.g. Carroll and Kubo 2018), while age and gender are also typically associated with levels of political knowledge (Howe 2006; Fraile 2014; Ferrin et al., 2019).

In support of H1, the results of the model show a positive and statistically significant relationship between district magnitude and the degree of party-voter congruence. As the size of the district increases, party-voter congruence also increases, although the overall size of this effect appears to be rather small, suggesting a 0.04 increase in congruence for a one-unit increase in logged district magnitude.

The results presented in Model 1 support the general expectation that large district magnitudes are associated with higher levels of party-voter congruence. Does this relationship hold equally across leftist and rightist voters? Model 2 in Table 2 presents a first-cut evaluation of H2 by including a variable denoting a leftist voter. While the estimated

Table 2
Party-voter congruence in districted PR systems.

	Model 1	Model 2	Model 3
(log) District magnitude	0.04*(0.02)	0.04*(0.01)	0.01 (0.01)
Leftist voter		-0.06 (0.07)	-0.29*(0.11)
District mag.x leftist voter			0.10*(0.04)
Education	0.06*(0.01)	0.06*(0.01)	0.06*(0.01)
Age	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Male	0.03*(0.01)	0.03*(0.01)	0.03*(0.01)
Election study fixed effects	✓	✓	✓
Constant	-1.87*(0.06)	-1.85*(0.06)	-1.23*(0.08)
R2	0.03	0.03	0.03
N	51,662	51,662	51,662

Notes: Table entries are regression coefficients with standard errors clustered by country in parentheses. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries. * $p \leq 0.05$

⁹ Age is recorded as the respondent's age in years. Education is measured as an eight-category variable that ranges from 0 "none" to 7 "completion of university degree". Gender takes on a value of one for male and zero for female as recorded in the CSES data. While attributes of the electoral system other than district magnitude can affect the electoral viability of parties, and thereby also affect party-voter congruence, these tend not to vary across electoral districts and their effects are largely captured by the included fixed effects for elections. Employing a hierarchical model with random effects for election studies produces similar findings as those presented in Tables 2 and 3, and can be found in the appendix (Tables A5 and A6).

coefficient on district magnitude maintains its positive and significant relationship to party-voter congruence, the coefficient for leftist voters is indistinguishable from zero.¹⁰ Overall, it does not appear that leftist voters enjoy greater party-voter congruence. In order to further parse this relationship, Model 3 introduces an interaction term between leftist voters and district magnitude.¹¹ The estimated coefficient for district magnitude will tell us the effect of district magnitude on party-voter congruence for centrist and rightist voters, while the estimated coefficient on the interaction term will tell us the difference in the effects of district magnitude on party-voter congruence among leftist voters compared to non-leftist voters. The coefficient for leftist voters will tell us the effect of being a leftist voter when logged district magnitude equals zero, or rather, when the magnitude of the district equals one. Here, we see different effects of increasing district magnitude for leftist and non-leftist voters. For leftist voters, increasing district magnitude has a positive and significant effect on party-voter congruence. For non-leftist voters, increasing district magnitude does not appear to significantly affect party-voter congruence. Notably, the coefficient for leftist voters is negative and statistically significant, suggesting that leftist voters in single-member-districts suffer a congruence penalty compared to their rightist counterparts.¹²

In all three models, a respondent's level of educational attainment is positively associated with party-voter congruence, which may suggest that higher levels of education allow voters to select parties that are closer to them in ideological terms. Men also appear to have higher average levels of party-voter congruence than women, and no statistically significant effect of age is found on the degree of party-voter congruence.

To gain a more complete picture of the relationships between voter

Table 3
Party-voter congruence among left, centrist, and right voters.

	Left	Center	Right
(log) District magnitude	0.11 *(0.04)	-0.04 *(0.02)	0.02^ (0.01)
Education	0.08* (0.01)	0.03 *(0.01)	0.06 *(0.00)
Age	-0.00 *(0.00)	0.00 *(0.00)	-0.00 (0.00)
Male	0.02 (0.00)	-0.03 (0.02)	0.08 *(0.02)
Election study fixed effects	✓	✓	✓
Constant	-2.15 *(0.13)	-1.86 *(0.09)	-1.72 *(0.06)
R ²	0.07	0.12	0.12
N	17,288	11,304	23,070

Notes: Table entries are regression coefficients standard errors clustered by country in parentheses. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries. * $p \leq 0.05$, ^ $p \leq 0.10$

¹⁰ If the overall 0–10 scale of voter self-placements is used instead of the dichotomous leftist voter variable, initial results reveal a slight party-voter congruence advantage among more right-leaning voters. See Table A1 in the appendix. (See Table A7)

¹¹ Notably, Models 2 and 3 compare the effects of being a leftist voter with the effects centrist and rightist voters. The findings of Models 2 and 3 are unchanged if a dummy variable representing centrist voters is introduced as well, shown in Appendix table A2. The estimated coefficient for the centrist voter variable is statistically insignificant in all models.

¹² As a robustness check, I re-estimated the models in Tables 2 and 3 excluding one country at a time, and also one election study at a time. When omitting one country at a time, only the omission of Switzerland had a noticeable effect on the findings of Tables 2 and 3, where several of the estimated coefficients for district magnitude remained positive but became statistically insignificant. The effects of omitting Switzerland are likely due to the fact that Switzerland alone contributes 9258 observations to the data, which is substantially more than any other country. When individual election studies were omitted, there were no observable changes in the results.

ideological self-placement, district magnitude, and party-voter congruence, Table 3 presents the results of split-sample models for leftist, centrist, and rightist voters. Fig. 3 illustrates the relationships between district magnitude and party-voter congruence found across the three models presented in Table 3.

From these results we can see that while district magnitude positively affects party-voter congruence for both leftist and rightist voters, the effect is noticeably larger and stronger for leftist voters than for rightist voters. Leftist voters appear to be roughly half a point more congruent with their chosen parties in the largest districts compared to the smallest districts. As we know from Fig. 2, leftist voters are typically within two points of their party of choice, so the additional 0.4–0.5 points of congruence gained by being in a large district can be substantively meaningful. The effect of district magnitude is much more compressed for rightist voters, illustrating that the average degree of party-voter congruence among rightist voters in small districts is roughly on par with party-voter congruence among leftist voters in the largest districts. In other words, it appears that only the leftist voters in the largest districts can achieve the party-voter congruence levels of rightist voters in the smallest districts. Small districts appear to hurt party-voter congruence among leftist voters more than large districts appear to help them.

In contrast, district magnitude appears to negatively affect party-voter congruence for centrist voters. Although this finding stands in rough contrast to the expectation in H1 that party-voter congruence should be higher in districts with larger magnitudes, it is worth noting that H1 receives support across the entire sample of voters. In other words, there appears to be something specific about centrist voters that produces this negative relationship that may warrant additional research beyond the scope of this project.¹³ Education maintains a positive and significant effect on party-voter congruence across all three types of voters, while age appears to have a small but positive and significant effect on party-voter congruence of centrist voters, and male, right-wing voters appear to enjoy a congruence advantage over their female counterparts.

Notes: The y-axes record the predicted value of party-voter congruence over different values of (logged) district magnitude, while letting other variables vary as they do in the data. Figures were created using the results of the three models of the relationship between district magnitude and party-voter congruence presented in Table 3. The observed values of district magnitude range from one (logDM = 0) to 48 (logDM = 3.87).

4. Mechanisms: party offerings

Why do leftist voters have lower levels of party-voter congruence in districts with smaller magnitudes? As discussed above, it is likely that political parties respond strategically to differences in district constituencies by focusing their electoral appeals on the districts whether they are most competitive. In addition, prior research has shown that the menu of party options voters face in small- and large-magnitude districts is likely to differ even within the same country (e.g. Singer 2015). Here, I take a first-cut look at whether the menu of party offerings presented to

voters in districts with large magnitudes differ from party offerings presented to voters in districts with small magnitudes to see whether this can be a plausible explanation for the differences in party-voter congruence we observe, leaving it to future research to shed greater light into how party offerings and strategies may vary across electoral districts.

The CSES data provide information on the number of party lists and/or candidates contesting each electoral district, along with district-level vote shares for the top 5–9 vote-getting parties in each election. I draw on these variables to construct indicators of the numerical and ideological diversity of party offerings in each district. First, I use the number of party lists (or candidates) running in a district as recorded by the CSES team as an indicator of the number of options available to voters in a given district.¹⁴ An important limitation of this variable is that it does not capture the electoral viability of any of these parties; indeed, even a quick glance at the data reveals that the number of parties running lists in a district is higher than what would be allowed by the district magnitude (see Cox 1997). Nonetheless, if strategic incentives are at work, we may still see greater numbers of parties competing in larger districts compared to smaller districts. As a second indicator of party system size, I calculate the effective number of parties per district based on each party's vote share in each respondent's district. Since the CSES only records vote shares for a number of top-vote getting parties, I rescaled each party's vote percentage so that the total vote share received by all recorded parties in a district equaled 100%. The exclusion of smaller parties is an obvious limitation of this variable and results should be interpreted with caution, although the limited variation here should make it more difficult to find an association with district magnitude. Finally, I calculate a variable that records the average left-right position of all parties contesting a given district to assess whether the ideological offerings of parties vary across electoral district.¹⁵ Table 4 presents a series of regressions that looks at each variable's relationship with district magnitude. The direction of the estimated coefficients suggests that party offerings in districts with larger magnitudes are more numerous than those in districts with smaller magnitudes. Both the number of parties competing in the district and the effective number of parties tend to be higher in districts with larger magnitudes, even after controlling for election-specific effects. Thus, there is some support for the possibility both parties and voters are behaving strategically in response to varying district magnitudes.¹⁶ The negative sign on the estimated coefficient for district magnitude in Model 3 suggests that the average party offering becomes increasingly leftist as district magnitude increases; however, it fails to reach conventional levels of statistical significance, again suggesting that strategic behavior may be the primary mechanism at work here.¹⁷ Overall, the results do suggest that voters in districts with larger magnitudes may

¹³ Centrist voters are likely to find a relatively congruent party across districts of all magnitudes, so the negative coefficient suggests there is something about party offerings in larger districts that are pulling centrist voters away from more proximate options. It is possible that any number of things affect the votes of centrists here, such as party leaders, relevant issues, or even a lack of clarity about party positions. Centrist voters are not always as interested or informed about politics as those that take clearer leftward or rightward stances, which may make their votes more susceptible to non-policy based appeals. In the sample of data used here, there is a negative and statistically significant relationship between education and centrism; centrist voters appear to generally be less educated than both their leftist and rightist counterparts.

¹⁴ In Ireland and a few elections in Iceland the CSES data record the number of candidates per district rather than the number of party lists. The results are unchanged if these elections are excluded from the analysis.

¹⁵ Again, the CSES data does not record all left-right positions or vote shares for political parties, mostly excluding the smaller parties. This should serve to underestimate the amount of variation present in these variables and produce more conservative estimates of their relationship with district magnitude. The average total district vote percentage recorded by the CSES in the sample is 94% with a standard deviation of 6.8 There are a few cases where the total district vote percent drops to very low levels – e.g. under 50%. As an additional robustness check I re-estimated the models that included the effective number of parties excluding these observations. The findings were unchanged.

¹⁶ The precise nature of this relationship and its effects on party-voter congruence for leftist and rightist voters across varying district magnitudes is worthy of future study.

¹⁷ If the election-study fixed effects are replaced with country-level fixed effects, this coefficient is statistically significant at the 90% confidence level. This suggests that national election-specific factors relating to party competition may overwhelm district-specific strategies.

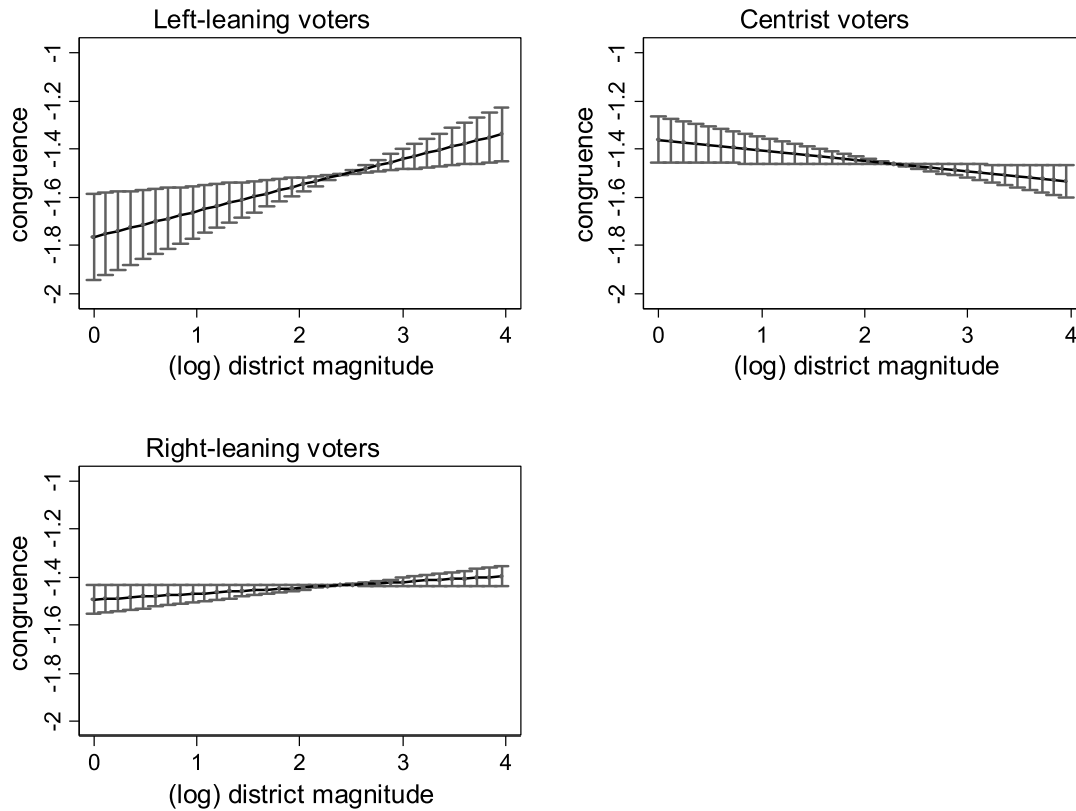


Fig. 3. District magnitude and party-voter congruence for leftist, centrist, and rightist voters.

Table 4
District magnitude and party system characteristics.

	Model 1 DV: # of parties competing in the district	Model 2 DV: Effective number of parties in respondent's district	Model 3 DV: Average left-right party in respondent's district
(log) District mag.	3.73* (1.23)	0.39* (0.13)	-0.06 *(0.04)
Election study fixed effects	✓	✓	✓
Constant	-0.68 (3.54)	4.62*(0.37)	5.12 *(0.11)
N	45,877	51,662	51,662

Notes: Table entries are regression coefficients with standard errors clustered by country in parentheses. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries.

face a more diverse and potentially left-leaning array of party offerings compared to voters in districts with smaller magnitudes.

Do these differences in party offerings translate into differences in individual-level party-voter congruence? In Tables 5 and I present the results of the same models of party-voter congruence as those presented above, this time including variables for the effective number of parties and the.

Average party left-right position in each respondent's district. I do so first by excluding district magnitude to record the effects of these variables on party-voter congruence, and then by reintroducing district magnitude to see whether its effects on party-voter congruence persist after the capturing the diversity of party offerings in each respondent's

district. After examining these relationships for all voters, I further break these into separate analyses for leftist and rightist voters. I omit the number of party lists competing in each district from these analyses due to missing observations and the fact that the inclusion of this variable in the models (presented in Table A4 of the appendix) does not affect the findings. For all voters, the effective number of parties in a respondent's district emerges as the most notable variable. Its inclusion replaces the effects of district magnitude, as may be expected because of district magnitude's effects on the number and electoral viability of parties. The average left-right party position is not significant here.

Interesting differences emerge when we separately examine leftist and rightist voters. For leftist voters, the average left-right score of party offerings in their district is negative and statistically significant, while for rightist voters this variable is statistically insignificant. This suggests that the level of party-voter congruence achieved by leftist voters, but not rightist voters, is affected by the general ideological leanings of political parties in their district. Furthermore, the significance of district magnitude on party-voter congruence among leftist voters is noticeably reduced once the ideological leaning of party offerings is included in the model. The effective number of parties once again appears to affect party-voter congruence for.

Both leftist and rightist voters, although the estimated coefficient is larger for leftist voters compared to rightist voters. Taken together, this brief examination of the mechanisms behind the relationships between district magnitude, leftist voters, and party-voter congruence suggests that the number and ideological leanings of party offerings across electoral districts appear to affect the degree of party-voter congruence of leftist voters more than the party-voter congruence of rightist voters.

Table 5
Party-voter congruence: party offerings and district magnitude.

	All voters		Leftist voters		Rightist voters	
(log) District magnitude	–	0.02 (0.01)	–	0.06 [^] (0.03)	–	0.02 (0.02)
Effective number of parties (respondent’s district)	0.06* (0.01)	0.05* (0.01)	0.12* (0.03)	0.09* (0.02)	0.04* (0.02)	0.03 [^] (0.02)
Ave. Party left-right position (respondent’s district)	–0.02 (0.03)	–0.01 (0.04)	–0.38* (0.12)	–0.37* (0.12)	0.13 (0.08)	0.14 (0.08)
Education	0.06* (0.01)	0.06* (0.01)	0.08* (0.01)	0.08* (0.01)	0.06* (0.01)	0.06* (0.01)
Age	0.00 (0.00)	0.00 (0.00)	–0.00 (0.00)	–0.00 (0.00)	–0.00 (0.00)	–0.00 (0.00)
Male	0.03* (0.01)	0.03* (0.01)	0.02 (0.02)	0.02 (0.02)	0.08* (0.02)	0.08* (0.02)
Election study fixed effects	✓	✓	✓	✓	✓	✓
Constant	–1.97* (0.19)	–2.00 (0.19)	–0.65 (0.62)	–0.74 (0.61)	–2.54* (0.44)	–2.57* (0.44)
R ²	0.03	0.03	0.07	0.07	0.12	0.12
N	51,662	51,662	17,288	17,288	23,070	23,070

Notes: Table entries are regression coefficients with standard errors clustered by country in parentheses. *p ≤ 0.05, [^]p ≤ 0.10. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries.

5. Discussion and future directions

The findings here support the existence of a positive relationship between district magnitude and party-voter congruence. Although prior findings on this topic have been mixed, they have primarily addressed the variation in electoral systems across countries. Here I draw on within-country variation in district magnitude and its effects on party-voter congruence and find a positive relationship. Voters in districts with larger magnitudes generally appear better able to achieve congruence with their party of choice than voters in smaller districts.

At the same time, the congruence advantage enjoyed by voters in large-magnitude districts does not appear to benefit leftist voters. Rather, leftist voters in small-magnitude districts appear to suffer in terms of party-voter congruence. When combined with previous literature on districted proportional representation systems, the findings here suggest that leftist voters in smaller districts are punished twice: first in terms of proportional party representation, and second in terms of substantive representation. To some extent, both sets of findings appear to be related. Party responses to the disproportionalities inherent in small-magnitude districts leave voters, and leftist voters in particular, with a more limited set of options, which then can produce lower levels of party-voter congruence. Similar to prior research, this appears to be due to the correlation between political ideology and geographic location, with the disproportionalities that limit representation occurring primarily in smaller-magnitude districts. Generally, this research builds on the existing literature that suggests the geographic concentration of left or right-wing voters means that large-magnitude districts will work to benefit left-wing voters, while small-magnitude districts will work to the benefit of right-wing voters.

Districted proportional representation systems provide an understudied opportunity to examine the effects of variation in district magnitude on political outcomes. On the one hand, the national political environment may cloud parties’ district-level propensities to win seats. On the other hand, such within-country examinations of the effects of district magnitude may be better able to separate the effects of district magnitude from all other aspects of elections that might complicate this relationship. Party and voter strategies warrant further investigation here. The analyses conducted here present only a cursory look at the variety of party offerings across districts. How parties choose to compete

and shape their electoral appeals according to district-level characteristics is an interesting and important avenue for future research to explore. There is also the question of how much voter strategies – and strategic voting in particular – matters for these findings as well.

We should also ask how these differences in party-voter congruence translate into the legislature. Although the parties included in the above analyses received legislative representation, it is likely that not all of the parties supported by voters won a seat in their district. Voters in smaller districts may have chosen congruent political parties that received legislative seats nationally while not winning any seats in their particular district. Due to the general underrepresentation of leftist parties in districted PR systems, this may have additional negative consequences of party-voter congruence among leftist voters. Finally, it is worth noting focusing on the left-right dimension may miss important variations in the relationship between voters, district magnitude, and party-voter congruence, since contemporary political conflicts are often multidimensional in nature (Belchior 2012; Giger and Lefkofridi 2014).

Overall, the findings here contribute more generally to the burgeoning literature that addresses representational variations with proportional representation systems, demonstrating that variation in district magnitude within countries can lead to differences in voter-party congruence across districts and different types of voters. The findings also speak more generally to the electoral systems literature on proportional representation and congruence, which expects greater congruence, at least at the party-voter level, when electoral rules are more proportional. District magnitude does appear to be an important and consistent determinant of party-voter congruence, although the overall effects are not always large.

Data availability

Data will be made available on request.

Acknowledgements

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Appendix

Table A1
Party-voter congruence in districted PR systems using continuous left-right self-placements

	Model 1	Model 2	Model 3
(log) District magnitude	0.04 *(0.02)	0.04* (0.01)	0.04 (0.06)
Left-right self-placement		0.03 *(0.01)	0.10 (0.04)
District mag. x L-R self-placement			0.00 (0.01)

(continued on next page)

Table A1 (continued)

	Model 1	Model 2	Model 3
Education	0.06 *(0.01)	0.06* (0.01)	0.06 *(0.01)
Age	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Male	0.03 *(0.01)	0.02 (0.01)	0.02 (0.01)
Election study fixed effects	✓	✓	✓
Constant	-1.87 *(0.06)	-2.02 *(0.10)	-2.01* (0.17)
R ²	0.03	0.03	0.03

Notes: N = 51,662 for all models. Table entries are regression coefficients with standard errors clustered by election study in parentheses. *p ≤ 0.05

Table A2

Party-voter congruence in districted PR systems controlling for centrist voters

	Model 1	Model 2	Model 3	Model 4
(log) District magnitude	0.04 *(0.02)	0.04 *(0.01)	0.01 (0.01)	0.06 *(0.02)
Leftist voter		-0.06 (0.08)	-0.29* (0.12)	-0.06 (0.08)
Centrist voter		0.02 (0.08)	0.02 (0.08)	0.24*(0.12)
DM x Leftist voter			0.10 *(0.04)	-0.10*(0.05)
DM x Centrist Voter				
Education	0.06 *(0.01)	0.06 *(0.01)	0.06 *(0.01)	0.06*(0.01)
Age	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Male	0.03 *(0.01)	0.03 *(0.01)	0.03 *(0.01)	0.03*(0.01)
Election study fixed effects	✓	✓	✓	✓
Constant	-1.87 *(0.06)	-1.86 *(0.06)	-1.78 *(0.06)	-1.92*(0.07)
R ²	0.03	0.03	0.03	0.03

Notes: N = 51,662 for all models. Table entries are regression coefficients with standard errors clustered by election study in parentheses. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries. *p ≤ 0.05, ^p ≤ 0.10

Table A3

Party-voter congruence: party offerings and district magnitude

	All voters		Leftist voters		Rightist voters	
(log) District magnitude	-	0.02 (0.02)	-	0.05 (0.03)	-	0.00 (0.02)
Effective number of parties (respondent's district)	0.05* (0.01)	0.04* (0.01)	0.11* (0.02)	0.09* (0.02)	0.02 (0.02)	0.01^ (0.02)
Number of level party lists/candidates (respondent's district)	0.00 (0.00)	(0.00)	0.01^ (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Ave. Party left-right position (respondent's district)	-0.04 (0.04)	-0.05 (0.04)	-0.39* (0.12)	-0.39* (0.12)	0.11 (0.12)	0.11 (0.12)
Education	0.06* (0.01)	0.06* (0.01)	0.08* (0.01)	0.08* (0.01)	0.06* (0.01)	0.06* (0.01)
Age	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Male	0.03* (0.01)	0.03* (0.01)	0.02 (0.02)	0.02 (0.02)	0.08* (0.02)	0.08* (0.02)
Election study fixed effects	✓	✓	✓	✓	✓	✓
Constant	-1.82* (0.24)	-1.83* (0.24)	-0.65 (0.65)	-0.66 (0.65)	-2.31* (0.44)	-2.31* (0.44)
R ²	0.03	0.03	0.07	0.07	0.13	0.13
N	45,877	45,877	15,403	15,403	20,391	20,391

Notes: Table entries are regression coefficients with standard errors clustered by country in parentheses. *p ≤ 0.05, ^p ≤ 0.10 Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries.

Table A4

Party-voter congruence in districted PR systems, excluding election studies where there is no correlation between urban residence and district magnitude

	Coef. (SE)
(log) District magnitude	0.01 (0.01)
Leftist voter	-0.28*(0.12)
District mag.*xleftist voter	0.10*(0.04)
Education	0.06*(0.01)
Age	-0.00 (0.00)
Male	0.02 *(0.01)
Election study fixed effects	✓
Constant	-1.78 *(0.06)
R ²	0.03
N	48,942

Notes: Table entries are regression coefficients with standard errors clustered by country in parentheses. *p ≤ 0.05. The excluded election studies are Ireland (2006), Finland (2015), and Denmark (2007).

Table A5
Party-voter congruence in districted PR systems, multilevel model with random effects for election studies

	Model 1	Model 2	Model 3
(log) District magnitude	0.04* (0.01)	0.04 *(0.01)	0.01 (0.01)
Leftist voter		-0.06 (0.07)	-0.29 *(0.11)
District mag. x leftist voter			0.10 *(0.04)
Education	0.06 *(0.01)	0.06 *(0.01)	0.06 *(0.01)
Age	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Male	0.03* (0.01)	0.03 *(0.01)	0.03 *(0.01)
Constant	-1.87 *(0.06)	-1.84 *(0.06)	-1.77* (0.06)
Variance component: election study	0.04 (0.02)	0.03 (0.02)	0.04 (0.02)
Chi ²	89.77	88.13	86.92
N	51,662	51,662	51,662

Notes: Table entries are regression coefficients with robust standard errors in parentheses. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries. *p<0.05

Table A6
Party-voter congruence among left, centrist, and right voters, multilevel model with random effects for election studies

	Left	Center	Right
(log) District magnitude	0.11*(0.04)	-0.04* (0.02)	0.02* (0.01)
Education	0.08*(0.01)	0.03*(0.01)	0.06*(0.01)
Age	-0.00*(0.00)	0.00*(0.00)	-0.00 (0.00)
Male	0.02 (0.02)	-0.03 (0.02)	0.08*(0.02)
Constant	-2.14*(0.13)	-1.60*(0.11)	-1.86*(0.02)
Variance component: election study	0.09 (0.02)	0.13 (0.02)	0.32 (0.28)
Chi ²	70.91	18.74	82.97
N	17,288	11,304	23,070

Notes: Table entries are regression coefficients and robust standard errors in parentheses. Data are from the Comparative Study of Electoral Systems and include 1058 districts, 45 election studies, and 12 countries. p ≤ 0.05, ^ p ≤ 0.10.

Table A7
Centrist Voters: party offerings and district magnitude.

	Centrist voters	
(log) District magnitude	-	-0.06* (0.02)
Effective number of parties (respondent's district)	0.01 (0.03)	0.04 (0.03)
Ave. Party left-right position (respondent's district)	-0.01 (0.06)	-0.02 (0.06)
Education	0.02* (0.01)	0.02* (0.01)
Age	0.00* (0.00)	0.00* (0.00)
Male	-0.03 (0.02)	-0.03 (0.02)
Election study fixed effects	✓	✓
Constant	-1.98* (0.41)	-1.91* (0.39)
R ²	0.12	0.12
N	11,304	11,304

Notes: Table entries are regression coefficients with standard errors clustered by country in parentheses. *p ≤ 0.05, ^ p ≤ 0.10.

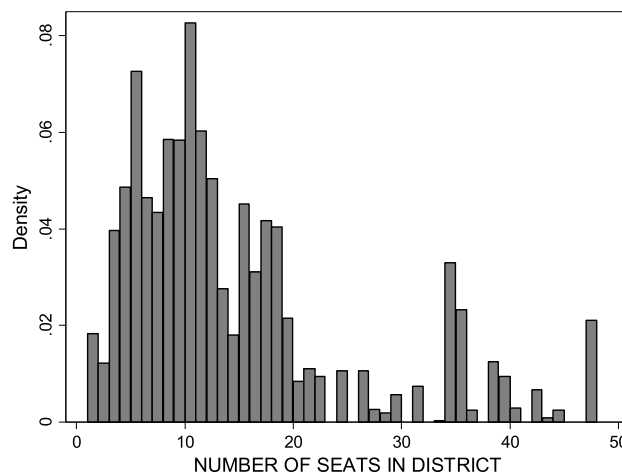


Figure A1. Values of district magnitude included in the data

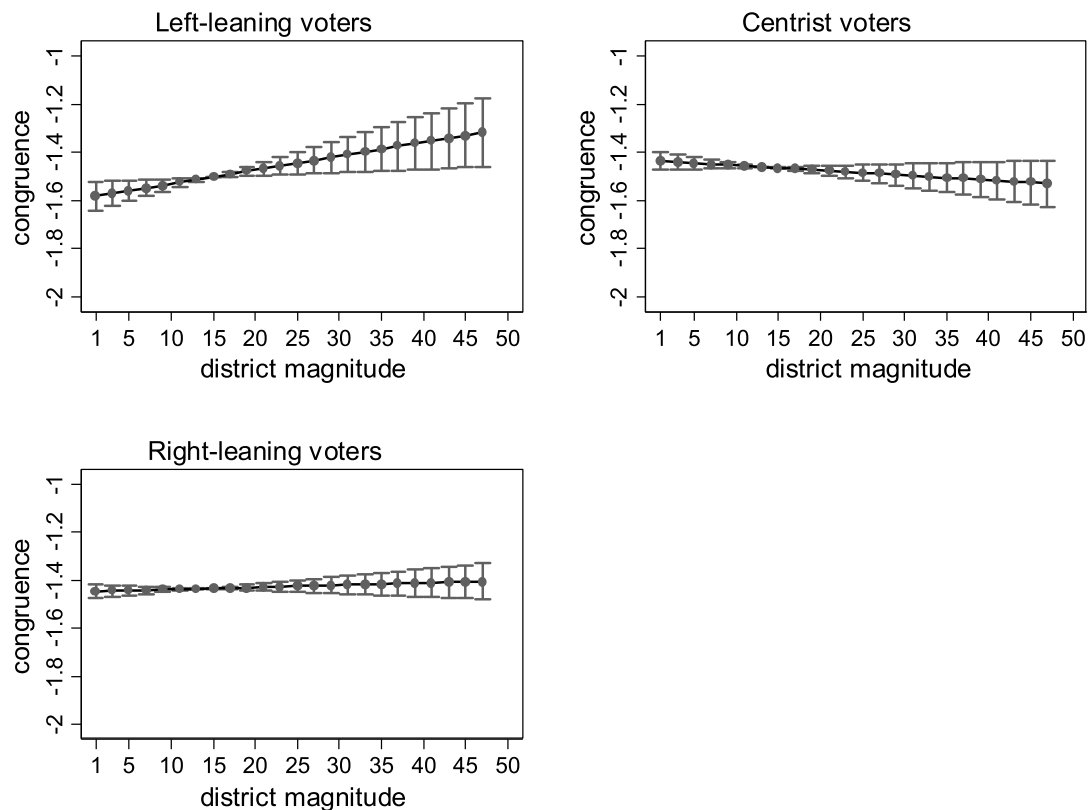


Figure A2. The effects of district magnitude on party-voter congruence for leftist, centrist, and rightist voters

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