

MULTIPLE VOTE SYSTEMS

Toxin or Tonic for Political Polarization?

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ABSTRACT

We examine the mechanical effect of a multiple-vote, proportional representation electoral system on party vote share in n dimensions. In one dimension, Cox (1990) has proven that such a system is centripetal: it drives parties to the center of the political spectrum. However, as populism has swept across Western Europe and the United States, the importance of multiple policy dimensions has grown considerably. We use simulations to examine how a multiple-vote PR system could alter electoral outcomes in four different European democracies: Germany, Romania, Belgium, and the Netherlands. Using this approach, we find that the system acts centripetally only when a centrist party actually exists. If a political system is sorted into ideological clusters at opposite corners of the ideological space, such a system rewards centrality among extremist clusters, not centrality more broadly. These findings suggest that the existing configuration of parties in a country can alter or even subvert the aims of electoral reforms.

I. INTRODUCTION

Modern electoral competition has become more complicated with the emergence of new issue dimensions (most notably, immigration and economic inequality, but also environment, globalization, institutional efficiency, etc.). It has also become more unpredictable, as the success of Donald Trump in the U.S. and Emmanuel Macron in France (among other examples) were considered hopeless longshots only a year (and sometimes less) before their victories in two major Western democracies. It becomes clear that our understanding of a series of issues, such as voters' preference formation, relation between electoral systems and voting, as well as analyses of voting on the basis of one dimensional models (Downs 1957) has to be reevaluated.

The goal of this paper is to examine the effect of one particular electoral system (a multiple vote system with proportional representation) that can produce centripetal forces on the party system of a country, and examine the specific conditions under which this result can be obtained. While the formal difference of this electoral system seems small (provide voters with multiple votes, and therefore multiply their choices), the substantive difference is fundamental: it is thought to break down "party identification," since it permits voters (if they want) to use multiple criteria to select among parties, therefore enabling them not to "identify" with any one party in particular. We will show how this lack of identification combined with the fact that, most of the time, one's second or third choice will be as close as possible to their initial preference (single peaked preferences) lead to a party system where centrist parties prevail, and political debate becomes less polarized. We also provide conditions under which this kind of result may not prevail, and demonstrate how parties could respond to such an environment.

II. MULTIPLE VOTE SYSTEMS IN THEORY AND PRACTICE

Multiple Vote Systems in Theory

Electoral systems have been shown to affect not only the number of parties (Duverger 1951) but also their positions in the political spectrum (Cox 1990). With respect to the latter, Cox (using a one-dimensional policy space) has demonstrated that multiple votes create centripetal forces inside the political system. More specifically, when the number of candidates is small enough relative to the number of voters per voter, and when cumulation (i.e., allowing a voter to cast all of her votes for one candidate) is not allowed, centripetal forces will predominate and candidates and parties will be drawn to the center of the political spectrum.

Though Cox's results are subject to a series of assumptions about voters, candidates, and the policy space, they provide a theoretical framework for understanding why a polity might choose to implement a multiple vote system as a means for combatting political polarization. Cox's results are not the only (nor the first) to suggest that multiple vote systems moderate candidates, however. Indeed, the "approval voting" literature has also suggested that multiple vote systems could

advantage moderate candidates and, in the American context,¹ weaken (and potentially destroy) the two-party system (Brams and Fishburn 1978). Under approval voting, voters receive n votes that they may or may not choose to use on different candidates in an election (cumulation is prohibited). The practical effect of this system, its proponents (e.g., Brams and Fishburn 2007 [1980], Kellett and Mott 1977) argue, “would probably be to give comparatively more support to moderates” (Brams and Fishburn 1978: 840). Consequently, such proponents have in the past argued that the major parties in America should adopt approval voting as their primary-election voting system, because “most delegates find [moderates] acceptable,” while “extremists [...] are only acceptable to ideological factions in their party” (840).

Multiple Vote Systems in Practice: Past and Present

The centripetal forces inherent to multiple vote systems help to explain why variants of the multiple vote system have been adopted in a wide variety of settings for thousands of years. In ancient Greece, for example, some scholars have argued that the Spartans’ “acclamation vote” served as an early form of approval voting, as voters were allowed to shout in favor of more than one candidate for the *Gerousia* (Girard 2010). Though certainly quieter than the Spartan vote, papal elections from the late thirteenth to the early seventeenth century also took a form that resembled approval voting. According to this voting system, cardinals had the option of voting for more than one papal candidate (and/or cast additional votes if there was no majority winner in the first round of voting). Ultimately, the pairing of this system of voting with a 2/3rds qualified majority threshold created long vacancies in the papacy, which ultimately led to the voting system’s demise. However, as Colomer and McClean (1998) argue, the system did encourage the election of largely unobjectionable popes, which helped to address longstanding tension (and even violence) within the Church.

Political entities today have also adopted versions of the multiple vote system. Most notably in the American context, the states of Washington and California have adopted the so-called “top-two” primary system, in order to combat polarization. Under the top-two primary, candidates from all parties are consolidated into a single party, wherein voters select their most-preferred candidate. The top two vote-getters from this primary round then advance to the general election—regardless of their partisan affiliations. Consequently, candidates from the *same political party* may compete against one another in the general election. This novel system first arose in Washington in the mid 2000s, as a response to a court decision to dismantle Washington’s long-standing “blanket primary.” The blanket primary arose in the 1930s as a response to political parties exerting undue influence over farmers and other private citizens (Shea 1984). It functioned similarly to the top-two primary, in that voters could cast a primary election vote for candidates of any party they pleased. However, same-party competition in the general election was impossible, because the top vote-getters from *each* party (and not overall) were the candidates to advance to the general election.² When California

¹ For which the early approval voting proponents were writing.

² See https://www.sos.wa.gov/elections/blanket_primary.aspx for more information.

copied this primary election system in 1996, the Supreme Court struck down the system (*California v. Jones*, 2000). Washington responded by creating and implementing the top-two primary a few years later. While the aims of the system were many, one aim was to advantage centrist candidates for office. The need for such a system arose in part from the states' similar political geographies: both states both possess relatively large, liberal cities along the western coast and rural conservative territory inland. Given that all legislatures in America are elected via geographic districts in first-past-the-post elections, this sort of geographical polarization carries with it the distinct possibility of heightened political polarization in the legislature.

The top-two primary addresses the challenge of partisan-homogenous districts by leveraging the votes of the "out-party" in the district. In most American states, voters may cast votes for members of one party in the primary election. Thus, in a majority-Republican district, for example, the primary political competition lies in the primary election: once a candidate wins the Republican primary, she can expect to win the general election. Because the median of the Republican party is likely further away from the center of the political spectrum than the median general-election voter, candidates for office are arguably more extreme than they might otherwise be without a primary election. Under the top-two primary, *all candidates* (from all parties) enter a *single* first-round or "primary" election, within which voters select who they believe should advance to the general election. The top two vote-getters then move on to compete in the general election, even if they are of the same party. In particular partisan-imbalanced districts, such a system is expected to allow for same-party competition in the general election, allowing "out-party" voters to elect the more moderate of the two candidates. For instance, in the Republican-district example highlighted above, Democrats would no longer "waste" their votes on a Democratic candidate who could not possibly win. Rather, they can thrust their support behind the more moderate Republican, joining forces with moderate Republican voters to elect this candidate.

Though not a multiple vote system in the most traditional sense, the top-two primary does indirectly grant each voter two votes. It also releases voters from official attachments to a particular party's candidates. Some evidence suggests that the top-two primary moderates a legislature. Grose (2014), for instance, finds that legislators in California elected under the top-two system exhibit more moderate tendencies. Crosson (2017) finds mixed support for the idea that same-party general-election competition in Washington and California is associated with moderate general-election winners. While few quantitative studies focus on the influence of the blanket primary in Washington specifically, high-ranking officials in Washington have credited the system with delivering Washington a more moderate political climate than demographically similar states (Crosson 2017).

Other modern entities have also either proposed or adopted versions of multiple-vote systems. According to a review on approval voting success and failure by Brams and Fishburn (2010), some five professional societies have adopted some version of multiple votes system. These include the Mathematical Association of America, the American Mathematical Society, the Institute for Operations Research and Management Sciences, the American Statistical Association, the Institute of Electrical and Electronics Engineers, the Society for Judgment and Decision Making, the Social Choice and Welfare Society, the International Joint Conference on Artificial Intelligence, and

the European Association for Logic, Language and Information, the Econometric Society, and the National Academy of Sciences. While elections in these societies may not be exactly ideological or high stakes, Brams and Fishburn find that the multiple vote systems appear to advantage candidates who enjoy support from a large cross-section of the societies' memberships.

Theoretical and Practical Challenges for Current Multiple Vote Literature

While previous implementations of multiple vote systems have encountered some success in terms of electing broadly supported, moderate candidates, they nevertheless face limitations in both theory and practice. First, while studies like Cox's proves in one dimension that multiple vote systems can draw candidates to the center of the political spectrum, he (nor anyone else to date) does not offer a proof in n dimensions. This stands as a challenge to the multiple vote system, as a second or third dimension can change the definition of "moderate" in a political system and create possibilities for candidates to be quite close to each other in one dimension and disperse in another.

Perhaps the most relevant example in contemporary politics lies in the current populist movements across the United States and Western Europe. Indeed, while populists lie to the far right of the political spectrum on cultural issues, they nevertheless often support interventionist policies in economy. In the United States, for example, top advisers to President Donald Trump have expressed strong support for spending on infrastructure, while nevertheless maintaining culturally rightist positions on religion and immigration. Similarly, in Great Britain, populists have maintained an anti-Muslim posture while at the same time driving the Brexit campaign and a swell of anti-free-trade rhetoric. In short, the rise in popularity of populist ideas has muddied the neat left-right distinction implied by unidimensional models. As we find, this can present challenges for the effectiveness of multiple votes systems.

In addition to the problem posed by multidimensionality, current literature (and practice) on multiple vote systems focuses almost exclusively on first-past-the-post style elections. That is to say, the effects of multiple votes on a system of proportional representation, both in theory and in practice, remains relatively unknown. This is problematic in a few important regards. First, while multiple votes systems have been found to be centripetal forces within electoral systems, some work has suggested that proportional representation leads to centrifugal behavior in a political system (see, for example, Dow 2001). In spite of this tension, few studies have explored how these opposing forces might interact,³ particularly in the approval voting literature. We examine how these electoral features interact mechanically.

Given these challenges to the current theory and practice of multiple vote systems, we focus in this paper on the mechanical consequences of adding n issue dimensions and a proportional voting mechanism to a multiple vote system. In doing so, we find that multidimensionality and proportional representation create some situations wherein multiple vote systems act centripetally,

³ Cox considers how multiple votes and PR interact in the unidimensional case, finding only small differences between results in plurality and PR systems.

just as the current literature predicts. However, we also uncover conditions under which a multiple vote system can accentuate the centrifugal nature of proportional representation.

III. A MULTIDIMENSIONAL, MULTIPLE VOTE MODEL WITH PROPORTIONAL REPRESENTATION

Voting System Design

Tsebelis (2014) has proposed a multiple vote electoral system, which includes both proportional representation and multiple votes. In this study, we examine this system: a rank-list style proportional voting system with m votes per voter. Under this system, voters may cast up to m votes in total, with a maximum of one vote per party. In other words, even if a voter strongly prefers one party to the next best option, she may not cast a second or third vote for that preferred party. However, if she strongly dislikes all other options besides her most preferred party, she can opt against casting more than one ballot. Thus, voters may cast any number of votes they desire, with a maximum of m and a minimum of 1 (that is, all abstainers are assumed to have already been removed). In our implementation of this system, the ballot entities are conceived of as parties (although one could imagine implementing a similar system with actual candidates, instead of parties).

According to this model, parties receive the same proportion of representation in the legislature as they receive as a proportion all votes cast. In our multiple vote case, this proportion is not as straightforward as the single-vote case. In our system, representation is allotted by

$$P_i = \frac{V_i}{m * N - A}$$

where P_i is the legislative proportion earned by party i . V_i is the total number of votes cast for party i , m is the number of votes allotted to each voter in the system, and N is the total number of voters. A is an important term in this fraction, as it signifies the total number of abstentions present in an election. As noted above, voters can choose against casting multiple votes, if they deem options outside of their party to be unacceptable. Thus, the inclusion of this term is necessary for calculating the actual proportion of total votes cast.

Modeling Assumptions and Mode of Analysis

To examine how multidimensionality and proportional representation impact the centripetal nature of multi-vote systems, we create a voting simulation in **R**, using the electoral system defined above. Simulation is necessary in this context, because of our interest in multidimensional issue spaces. That is, because of the problem of cycling, offering traditional analytic proofs in n dimensions is impossible. Instead, we run simulations and examine the results that obtain for various parameters specifications.

To proceed with the simulation, we created a customizable function in **R** that implements the aforementioned multiple-vote PR system in the following way. First, the user specifies several system-wide parameters of interest. These include both the number of votes m allotted per voter and the total number of voters N in the political system. The user must also define the ideal points of each party i in each issue dimension d . The function generalizes to any number of parties and dimensions, on the condition that the user provides an ideal point estimate for every party in each dimension.

Beyond these parameters, there are several other user-defined parameters of note, including one related to the abstentions, that relate directly to the voting decision rules programmed into the model. In the model, voters vote “rationally,” on the basis of ideological proximity: that is, voter $n \in N$ casts each vote on the basis of the following decision rule:

$$\operatorname{argmin}_i (||n - i||^d)$$

where $||*||^d$ represents the Euclidean distance in d dimensions between voter n 's and party i 's ideal point. As noted earlier, voters may vote for each party only once, rendering our system a de facto rank-list-style ballot. It is important to note that the d dimensions of conflict are defined endogenously to the party. In other words, if the party does not take a position on a particular issue, this issue dimension does not influence the distance score between the party and the voter. This allows for the possibility of single-issue parties.

Because voters are prohibited from casting multiple votes for their top choice, they are not obligated to make use of all their vote choices m . Instead, voters will only cast a vote for a party if and only if the following condition obtains:

$$||n - i^-||^d < a$$

where i^- refers to the nearest available party and a refers to a user-defined range of acceptability. In other words, once the distance between voter n and the remaining parties exceeds the user-defined range of acceptability a , voter n will stop casting votes. If the user is not interested in restricting voter behavior in this way, a can be easily set to a very large number.

Finally, to render our model more “realistic,” we incorporate a term that we denote as “rationality” or r . Like a , m , N , d , and i , r is a user-specified parameter that represents the probability that voter n knowingly selects the party closest to her. In other words, with some probability $1-r$, voters act “irrationally” and do not select the party closest to them. In these cases, the voter casts her vote randomly to one of the available parties. While this parameter adds noise to our results, we believe it is a useful way to relax the strictly proximity-based, rationalist account of voting inherent to the model's implementation.

Simulation Procedure

The simulation proceeds by first transforming a matrix of party shares into a society of voters. Because multidimensional ideological estimates do not exist for entire citizenries, we begin first with a user-specified list of proportions of the legislature held by each party. From these proportions, the simulation creates a vector of length N with voter identities and ideal points equal the proportions and ideological locations of the legislative parties. In other words, if Parties X, Y, and Z occupied 20, 30, and 50 percent of the legislature, respectively, then a 10-person society would include 2 citizens who identify with Z, 3 who identify with Y, and 5 who identify with X. As a simplifying assumption, the ideal points of these citizens would be equal to the ideal points of the parties with which they identify.

After generating this vector of voters, the algorithm calculates the Euclidean distance between all voters and all parties, and assigns a first-vote vector on the basis of proximity to each voter. Following the first choice of voting, the subsequent choices are subject to the acceptability parameter. Distances between voter n and party i are ordered from smallest to largest, and the total number of n and i combinations less than a are counted as votes to the relevant party, with probability r . With probability $1-r$, voter n selects a party randomly (with equal probability for each available party). Once this process occurs for all voters, votes are tabulated for each party and representation is allotted accordingly.

In this paper, we base our simulations on actual countries, using the classification of party systems generated by Laver and Benoit (2015). They present an exhaustive division of party systems into 5 basic categories. These categories hinge largely upon the number of parties in a system, as well as how dominated a party system is by a single party or group of parties. Therefore, these classifications are directly relevant to the application of our proposed electoral system: indeed, if party systems provide no viable alternatives for voters in a multiple-vote setting, then the application of our electoral system may have little to no influence on outcomes, particularly in the short-term. Consequently, we proceeded by classifying all legislative seat distributions in Western Europe according to the typology detailed by Laver and Benoit. Legislative seat distributions for these countries were taken from the most recent available seat distributions listed in the Laver and Benoit replication data.

After generating these classifications, we chose four European democracies—Germany, Belgium, the Netherlands, and Romania—for our simulations. We selected the four listed countries because they represented the only party systems (“C” and “E,” under Laver and Benoit’s typology) under which a proportional representation, multiple vote system could operate effectively. Under Type “A,” for instance, our multiple vote system should not be expected to be effective, because such systems exhibit a single legislative party that makes all major decisions (including decisions over electoral policy). A similar logic applies to B and B* Types, which have also have a dominant party (but must rely upon one or two smaller parties in order to form a governing coalition). Finally, we also remove Type D party systems, because they are “top-two” dominant systems—meaning that no viable third party is available for voters in an n -vote setting. We therefore are left with Type C

(“Top-Three” party systems) and Type E (“Open” systems). Germany and Romania serve as examples of Type C, and the Netherlands and Belgium serve as examples of Type E.

To generate ideological positions for each party, we rely upon data from the Manifesto Project (manifestoproject.wzb.eu). The project provides high-dimension data on party ideology, based on the contents of party manifestos. For our four countries, the Manifesto Project provides ideological positions on 21 dimensions, all of which were used in our simulations. Once the parties of the selected countries were matched to the Manifesto Project data, our algorithm could measure n dimensional Euclidean distances between our generated voter populations and the locations of each of the parties. Given the high dimensionality of the data, providing visual representation of the parties’ ideal points is impossible. However, as we present our results, we ultimately present ideological moderation as each party’s distance from the multidimensional median⁴ of the distribution of voters. We define these measures more precisely in the results section.

IV. RESULTS

Our interest lies in whether the n vote system is in fact centripetal: does it appear to reward parties at the center, at the expense of parties on the extremes? We thus present our results as a comparison between the n vote cases and the classic, one-vote system of proportional representation: which parties gain (and lose) as a result of the n vote system? Insofar as centrist parties do better, we call the system centripetal, and insofar as the system rewards extreme parties, we call it centrifugal. In general, we present results using the vector of marginal medians--i.e., the vector of all unidimensional medians—as our measure of moderation. For robustness, we also calculated results using the Euclidean or geometric median as our measure of centrality, a measure of centrality that selects a point in n space that minimizes average n dimensional Euclidean distance from each point in the distribution. While we do not present those results here, they are substantively similar to the results shown here.

Table 1 presents results from simulations pooled across all countries. In addition to pooling across country, these models pool across levels of acceptability (in this case, $a = 8, 10,$ and 12), and number of votes (2 and 3). Rationality is set at $m = 80$ percent. Because of this high level of aggregation, these results are somewhat difficult to interpret. However, they do lend initial support for the idea that, even in multiple dimensions and under proportional representation, multiple vote systems can advantage moderate parties. Indeed, as distance from the multidimensional median increases, vote share decreases.

[TABLE 1 HERE]

In Model 1, the outcome variable is total vote gain/loss for each party under all n -vote scenarios, compared to its share of the total vote under a normal one-vote system. Using this measure, one can see that distance from the marginal median is negatively associated with vote share: that is, the more central a party, the more votes it gains on average compared to its one-vote outcome. However, in this model, larger parties also lose more votes in the n vote case than in the

⁴ More specifically, we measure the marginal median; see Puri and Sen (1971).

one-vote case. This is due to the fact that cumulative voting is not allowed under this system. Indeed, because voters from large parties cannot vote twice for their own party, the large party's voting bloc goes to a smaller party, while a comparatively smaller set of voting blocs can choose to cast their votes for the larger party. For this reason, we use a different outcome variable, *Percent Vote Change*, in Model 2. In this model, all vote gains/losses are reported as percentages of the party's initial vote share, in order to account for the inherent "disadvantage" faced by large parties. In spite of this change, the results remain largely unaffected: parties that are more centrally located are more likely to benefit from an n vote system on average.

Although these results are suggestive, they tell only part of the story. Indeed, further investigation into results for each country demonstrates that, while multiple vote configurations often advantage moderate parties, they do not always do so. Figures 1a and 1b present these results at three different levels of acceptability a . In Figure 1a, Type C countries (Germany and Romania) are subject to a two- and three-vote system, and in Figure 1b, Type E countries (Netherlands and Belgium in our case) countries are subject to a two-, three-, and four-vote system (with Belgium also being subject to a five-vote system, because of its larger number of parties).

As Figures 1a and 1b depict, moderate parties in the Type C countries of Germany and Romania generally see improvements in their vote outcome under n votes. For German and Belgium, results look largely the same for all combinations of acceptability a and number of votes. In Germany, the result is driven largely by the second most moderate party, which makes a great deal of gains by exchanging votes with the most moderate (and largest) party, the Christian Democrats. In Romania, the result is driven primarily by the most moderate party, which benefits from multiple votes across specifications.

A similar result plays out in the Type E country of Belgium. There, the first three most moderate parties see gains in the n vote cases, whereas the most extreme parties do quite poorly. This result weakens, however, when acceptability grows—particularly as the number of votes increases. This result is intuitive: indeed, as the number of votes goes up, the greater the opportunity for more extreme parties to benefit from proximate parties. This benefit, however, is moderated by the range of acceptability: if an extreme party is extreme enough and lies far away from other parties, the acceptability parameter disallows voters from casting votes for the extreme party. For this reason, the trend line in the graphs with higher acceptability is flatter (although still decidedly negative).

Although the multiple vote system operates as expected in Germany, Romania, and Belgium, the opposite is true in the Netherlands. There, more extreme parties tend to do *better* than moderate ones under some conditions—exactly the opposite aim of the multiple vote system. In order to investigate this finding, we further interrogated the preference locations of the parties in each of the countries. Because preferences are measured in many dimensions, however, direct visual investigation was impossible. We therefore executed a factor analysis on the 21-dimension preferences, in order to plot them in two dimensions. Figure 2 depicts parties' reduced, two-factor preferences by country.

[FIGURE 2 HERE]

The preferences shown in Figure 2 suggest an explanation for the outcome heterogeneity apparent in our four countries: when a party system is polarized—that is, when parties are located in clusters that are far apart from one another—the multiple vote system lacks a party to attract votes from the extremes. Instead, parties exchange votes within ideological clusters, exacerbating—not alleviating—preference polarization in the legislature. Under such a preference configuration, a different sort of centrality is rewarded: cluster-specific centrality.

Netherlands provides an example of this phenomenon. As Figure 3 demonstrates, Parties 2, 4, 8, and 9 are clustered in the bottom left, while 1, 3, 7, and 10 are clustered at the upper right. Under the simplest multiple-vote system (two votes with unlimited acceptability), such a configuration implies that Parties 5 and 6 are both too far away from these clusters to receive any votes from outside their own party—depicted by the number of circles surrounding the parties. This occurs despite the fact that Party 6 is one of the closest to the marginal median. In the upper righthand corner, Party 7 receives support from voters in Parties 3 and 6. While Party 7 registers as fairly moderate, the more extreme Party 3 also benefits from the multiple vote system, receiving support from voters in Party 7. A similar dynamic also unfolds in the bottom left-hand corner. There, Parties 2 and 8 benefit heftily from the multiple vote system: not only do their second votes go to each other, but they also receive support from voters in Parties 4 and 9, respectively. This outcome occurs in spite of the fact that 2 and 8 are among the furthest from the multidimensional median. Indeed, because of their central location within their ideological cluster, 2 and 8 benefit from the multiple vote system, in the absence of a truly centrist party.

[FIGURE 3 HERE]

Of course, this dynamic does not always occur, so long as such a centrist party does in fact exist. In our simulations, for example, Belgium behaves entirely differently than does the Netherlands. As shown in Figure 3, two parties—Parties 9 and 10—are located close to the multidimensional median. While some less-centrist parties do receive additional support under the multiple vote scenario, 9 and 10 benefit directly. Indeed, while Party 10 draws support from voters in Parties 1 and (the extremist) Party 7, Party 9 draws support from voters in Parties 2 and 5. Party 2, another centrist party, also benefits from the multiple vote system, receiving support from Parties 3 and 9. In contrast, extremist parties like Party 7 or Party 8 receive no support outside of their own partisan voters. This result suggests that the emergence of a centrist party located close to the multidimensional median may revert the Dutch case to the Belgian case. In fact, in practice, the existence of a multiple vote system may induce political entrepreneurs to create such a party.

Taken together, these results suggest limitations to the multiple vote system. When coupled with proportional representation, the mechanical effect of a multiple vote system is to reward *proximity*, and not necessarily *centrality*. If parties are already distributed somewhat uniformly or normally across ideological space, centrist parties can gain handsomely from multiple vote systems. However, if parties are organized into strong ideological clusters, the centripetal nature of multiple votes is localized. Indeed, parties that are centrally located *within* poles receive additional support, even if they are located far from the center of the political system.

It is important to note here that these results describe only the *mechanical* effect of multiple vote systems, and not necessarily the strategic effect. Were actors viewed as strategic, voters could

thrust their support behind more extreme parties (instead of more proximate ones), in order to improve bargaining leverage in government. Similarly, parties could change their ideological location, in order to relocate more centrally and increase their vote share. However, examining the mechanical effect of multiple vote systems is important for a number of reasons. First, it demonstrates that such systems should not be expected to behave identically in all countries, as the system will be introduced into existing ideological distributions that differ considerably. Second, the strategic nature of voters and parties could be constrained for a wide variety of reasons. First, voters may have personal, social, or cultural misgivings about voting for an extreme party (like, say, a fascist or communist party). Second, parties are constrained in their ability to adjust their ideological positions in a rapid fashion. Indeed, activists within the party would likely resist such changes, and voters may respond poorly to drastic changes in the ideological “brand” associated with the party. Thus, while future research may account for important strategic considerations faced by voters and parties, understanding the basic mechanics of a multiple-vote, proportional representation system uncovers important features of such a system under different ideological distributions.

V. CONCLUSIONS

In this paper, we have demonstrated the mechanical effects of the introduction of multiple votes. Let us now turn to the most likely long-term effects of such a system.

With respect to voters, the number of alternatives increases exponentially. Indeed, if we permit voters to have number of votes equal to half the number of parties, the number of choices is:

$$\sum_{i=1}^{\frac{N}{2}-1} \binom{N}{i} + 1$$

where N equals the total number of parties in a country. This increase of choices is likely to reduce the number of abstentions (since it eliminates abstention from indifference (e.g., Plane and Gershtenson 2004). Indeed, a voter who does not know if she should vote for party A or B in a multiparty system may now vote for both. Moreover, she may do so without confronting the cognitively taxing task of ranking candidates: all votes in this setting are “worth” the same.

With respect to parties, the obvious result is that their number will multiply (since there is no reason for any political entrepreneur not to create their own party and try their chances, particularly given that they can reasonably expect many second or third votes from major parties around them). In order to reduce this tendency, strict rules of which parties are allowed to compete should be enforced (for example, parties have to exist 6 months before the election, and a large number of signatures is required for the creation of a new party). These restrictions will enable voters to know the positions of the parties in competition, and choose them according to their preferences.

With respect to the party positions, we showed that centrist parties are privileged in a multiple vote system, except for the cases where party clusters emerge in large distance from each other (like the case of Netherlands in our examples). Still, when the system is applied several times,

the *emergence* of a centrist party located close to the multidimensional median is likely, because political entrepreneurs will understand the potential for success of such a party.

Perhaps the most important consequence of such a voting system (although not directly demonstrated in this paper) is the promotion of a critical attitude of voters vis a vis parties, as opposed to an identification attitude. Instead of voters trying to find a party to identify with, they can be more critical and express their preferences more fully (if they so wish). This result carries with it both pros and cons. On one hand, party identification fulfills a variety of positive societal functions, such as increasing voter turnout, serving as a policy evaluation heuristic, and encouraging other types of political participation (see Dalton 2016 for a review). However, as Lavine, Johnston, and Steenbergen (2012) and others have underscored, intense partisan identification can lead to narrow-mindedness on the part of partisans. Indeed, such identifications may lead partisans to disregard important and informative information that does not confirm their partisan biases. Doing so could empower demagogic leaders or create partisan informational asymmetries and fracture a society according to partisan identifications. Regardless of whether a weakening of identification is a positive or negative externality, such a possibility is an important possible implication of the proposed electoral system, beyond the potential moderating effects examined here.

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