Who Joins? How Party Organizations Shape Membership and Electoral Outcomes

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Note to AP seminar participants at UC Berkeley: This paper is based on a chapter from my comparative book manuscript, *Inside Parties*. I will focus on the model and its implications for the U.S. case in the presentation. Comments welcome.

After winning the U.K. Labour Party's first-ever all-member leadership election on September 12, 2015, Jeremy Corbyn made a case for internal party democracy while thanking his supporters.

> So thank you to my fellow candidates and to the thousands of Party members who attended the hustings events all over the country. It's quite amazing that every one of them was completely full; standing room only while many, many other members and supporters were not able to get in to them. That is a tribute to our Party, all the candidates, both for Deputy Leader and for Leader - and the way in which our members want passionately to engage in the debate and be able to influence Party policy and make our Party more inclusive, more democratic and their membership better listened to in the future.

The following year, the Canadian Liberal Party's new leader and recently-elected Prime Minister ushered sweeping reforms through his party at their summer convention. One of the most contested changes Justin Trudeau successfully championed made Liberal Party membership free for any Canadian. Like Corbyn, Trudeau touted open elections as a democratic reform. But skeptics saw it as a way to strip power away from party delegates by giving uninformed, marginal supporters a rubber stamp on the leadership's agenda.

In a news interview, NDP national director Karl Belanger said "It's paradoxical that this [Liberal] proposal is coming from the top, not the membership," Mr. Bélanger said. "That's not the way we operate in the NDP. Grassroots mean you let the grassroots decide and come up with proposals."

Meanwhile, the Austrian ÖVP was in the midst of choosing its leader. The popular Minister of Foreign Affairs, Sebastian Kurz, was everybody's favorite choice to unite the party after a disastrous presidential election the year before and the resignation of their leader. Using this leverage to his advantage, Kurz told the party he would only take on the position of leader if he could single-handedly write the party's national candidate list. A special convention was held to approve this change in statutes and elect the party leader, and Kurz assumed office with 98.7 percent of the convention's support in May of 2017.

As these examples illustrate, party leaders give considerable attention to shaping members' roles in important party functions, such as selecting the party's leader or parliamentary candidates. Too much power for voters may interfere with the leader's ability to quickly respond to voters' demands. Too little power may hurt the party's image as a democratic institution.

Current research has also begun to more seriously consider the role of party institutions. Recent studies acknowledge that internal party democracy may have important consequences for voter participation and party positioning (Kernell, 2015; Schumacher, de Vries, and Vis, 2013). With some exceptions, like the ÖVP example above, parties are increasingly offering regular party members the power to elect the party leader, nominate candidates for parliament, or propose amendments to the party's platform. These changes may significantly alter the electoral landscape.

At the same time, research on party members has broadened our understanding of why people join parties. A number of surveys conducted over the past decade target members within specific parties or countries (e.g., Pedersen et al., 2004; Saglie and Heidar, 2004; Young and Cross, 2002). These studies find that people join parties for a variety of reasons (e.g., Scarrow, 2015). Many individuals are motivated to join in order to further their career or meet current politicians. Others want to contribute to the party's election campaign by attending rallies and donating time and money. And a third group is primarily motivated to join by a desire to influence the party's position or candidate pool by attending meetings, voting in internal elections, or serving as delegates to party congresses.

While both of these burgeoning literatures contribute to our understanding of party organization, they are largely independent of one another. Studies examining members' incentives to join parties typically focus on individual-level attributes, such as education, partisanship, or attitudes toward civic engagement. If these studies look at context, they tend to focus on features of the electoral environment that do not vary across parties within the same system. At the same time, research on party democratization tends to argue that rule changes alter the *power* of a party's members without considering the effect on incentives to join, and thus the *make up* of a party's membership.

To my knowledge, no one has provided a formal theory linking party institutions and membership. Doing so is important for three reasons. First, the process is inherently complex. Individuals who vote for a party may be more likely to join it if they can exert influence – especially if their ideal policy position does not perfectly match that of the parties they are considering joining. In turn, party members who can exert sufficient influence may significnatly alter the position of the party. This cycle may repeat itself, and it is not inherently obvious where and whether an equilibrium level and distribution of party members exists.

Second, it is important to create testable hypotheses grounded in theory. Perhaps much of the individual-level heterogeneity previously observed can be explained best by understanding party institutions. Future research will allow us to more closely link empirical regularities with party organizations.

Third, it is critical to study party organizations and membership at this time when so many parties are considering opening up their decision making to ordinary party members. As leaders tout the inclusive benefits of decentralized organizations, it is important for political scientists to understand the effects of different organizations on democratic representation.

This paper begins to address these issues by presenting a spatial model of membership. Citizens decide whether or not to join one of several political parties. (They can abstain from joining.) Joining a party may be costly, so parties offer members two different types benefits to joining. Selective benefits, such as a subscription to the party newsletter or opportunities to meet members of parliament, have no direct effect on government policy. But they may be less appealing to members whose policy positions' are not aligned with those of the party. Instrumental benefits do affect government policy. Joining a party may affect its popularity among voters or alter its position, which can then impact election outcomes.

This structure has the important implication that *the motivations to join parties will be different for different types of parties*. Parties that offer nonpolicy selective benefits will be most attractive to voters whose positions align closely with those parties. Parties that offer instrumental benefits may however be more attractive to voters who are positioned farther from the party. The types of benefits a party offers will shape the set of party members, which will then shape the position of a party.

The model has three primary predictions. First, when members have no influence on government policy they are most likely to join parties that offer high selective benefits and are positioned close to them. Individuals perfectly aligned with the party have the highest probability of joining, and this probability decreases with movement away from the party.

Second, I examine the case where members influence government policy. Here again members are more likely to join when selective benefits are high or when parties are close. But now potential members are also more likely to join when they are positioned far from the government. Joining a party may allow a member to indirectly influence policy, so those farthest away have the greatest incentive to participate. In these cases, the probability of joining is asymmetric around the party's position. And under certain conditions, the addition of government influence implies that individuals have incentives to join parties that are not closest to them.

The third set of predictions concerns variation in parties according to the degree to which selective benefits are tied to members' positions. In some parties, a member may only have incentives to join if they are very close to the party. For example, a party may give out paraphernalia with the party logo, or invite members to party gatherings - benefits that less-aligned members may prefer not to have. In contrast, other parties may offer benefits that convey to all members - such as the ability to influence the party, meet members of parliament, or further one's career. The model shows that when parties' positions reflect those of their members, there is a trade-off for party leaders to offering benefits tied closely to their position. On the one hand, these benefits attract only those supporters who are closely aligned and loyal to the party, meaning that the party's position does not deviate far from the vote-maximizing position. On the other hand, such benefits attract fewer members. Members mobilize voters, and having fewer people join may decrease overall turnout.

The rest of the paper proceeds as follows. The next section presents descriptive evidence of variation in membership location using survey data from the European Social Survey from 2002 to 2010. This motivates the study of party-level variation in membership incentives by showing that members are not simply random draws from a party's set of voters. This section also describes survey data that shows a significant share of members join parties because they believe they can influence the party – an assumption that is crucial in the following model. After these empirical motivations, I present the model of party membership and derive the implications described above. Third, I use a computational analysis to examine the dynamic relationship between party positions, membership, and vote share. I conclude by discussing further extensions to the model and as well as highlighting a number of empirical applications.

Two Empirical Motivations

Variation in Conditional Distributions of Party Members

This section presents empirical evidence motivating the model. Because the theory argues that the set of members should differ according to a party's internal organization, it is helpful to first show that indeed the conditional distribution of members does vary across parties – even within the same country.

The European Social Survey (ESS) from 2002, 2004, 2006, 2008, and 2010 asked respondents if they were a member of a political party. This is one of the only large-scale cross-national surveys that asks about membership. The ESS also asks individuals to place themselves on a left-right scale ranging from 0 to 10. Figure 1 presents a series of graphs showing the probability of joining different political parties, given respondents' ideal points. The dotted lines represent parties' positions, estimated as the mean placement by respondents.[1]

As we can see, the location of party members relative to party locations varies across parties - even within the same country. Take Great Britain 1997, for example. The Labour Party's position appears to be at the center of the conditional distribution of members. Individuals are most likely to join the party if they are positioned at its location, and less so as they move away to either side. The Conservatives, by contrast, disproportionately recruit members from positions to the right of their party.

It is important to note that some of the parties presented here have as few as 20 members. This is a small number to base an entire distribution on. These graphs are simply included to show that there is suggestive evidence of variation in member support by party.

[1] Unfortunately, the ESS does not ask individuals to place parties on the same left-right scale. Instead I locate each party using the mean placement of that party among respondents in the Comparative Study of Electoral Systems (CSES) survey closest to the ESS survey.

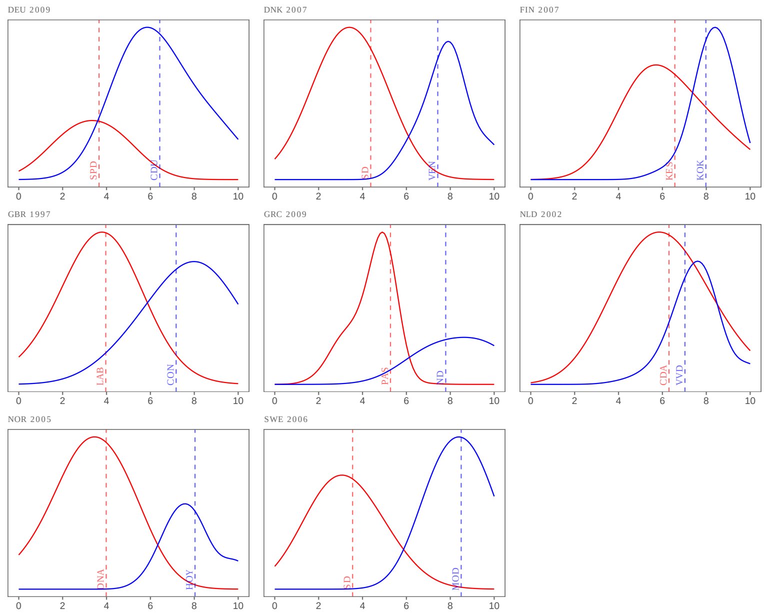

Figure 1: The probability of joining political parties, given respondents' ideal points.

Reasons to Join

The second empirical regularity I examine concerns members' motivations to join parties. Rational choice voting models demonstrate that any single individual's chance of being pivotal is vanishingly small. Instrumental reasons should not motivate people to vote. The same could be said about joining a party as a member.

However, survey data consistently show that many individuals turn out to vote for programmatic reasons. These include individuals who act strategically in other ways – for example, voters are more likely to turnout in closer elections (**?**). Group-based models provide one potential explanation (**?**). In one class of these models, leaders mobilize groups of voters with similar ideological preferences to theirs (e.g., **????**). In another, voters decide whether or not to turnout by comparing the payoffs of the different outcomes if everyone with the same preferences as them took the same action (**???**).

Publicly-available surveys of members that ask at least one question about reasons for joining have been conducted in Belgium, Canada, Denmark, and Norway. Each survey is different, and sometimes different questions are asked of differing parties in the same country. I read through the questions in each survey that asked about members' motivations to join the party, and coded each as *Personal or Social*, *Solidarity*, or *Programmatic*. Programmatic incentives refer to those where individuals wanted to change something about the party – be it a local candidate or the party manifesto. Table 1 presents the distribution of preferences for every party that I found available data. (Details of the questions and coding are in the table notes.)

As the figures in Table 1 reveal, many members state that they decided to join a party for programmatic or instrumental reasons. In over half of the parties, more than 1/3 of members cited these reasons as highly important behind their decision to join. Members may or may not be rational, and they may or may not employ a group-based decision calculus when deciding how to vote. But it is clear that they report believing that they can affect the party's position by joining as a member.

It is also worth noting significant variation in the reasons members state for joining. As the model predicts below, we would expect these reasons to be related to both a person's proximity to the party they join as well as the benefits that party (and its competitors) offer for joining.

A Model of Party Membership

The following model examines the choice among citizens to become a member of a political party. Each person can choose to join any party or not, but they may not join multiple parties. Joining a party offers instrumental and intrinsic benefits. But these benefits may come at a cost to participation. Citizens weigh relative costs and benefits

	Personal/Social	Solidarity	Programmatic
Canada NDP	1.31	88.81	27.44
Canada CPC	1.84	85.25	42.36
Canada BQ	4.07	87.99	39.57
Belgium Eco	4.21	21.98	73.8
Canada Lib	6.67	74.2	45.73
Norway FRE	8.8	42.13	49.07
Norway Hoy	15.95	31.87	52.2
Denmark DF	18.32	98.69	9.72
Belgium CD&V	26.04	54.92	19.04
Norway DNA	33.47	30.65	35.89
Belgium VLD	37.11	35.05	27.83
Belgium PS	41.81	28.86	31.98
Denmark Kon	45.71	92.27	22.18
Denmark Ven	48.88	92.94	13.6
Denmark SD	61.2	88.8	24.61

1. There is one survey for the four parties of Canada. The questions regarding incentives give people 8 reasons and ask them to indicate if each reason was ``not at all important", ``somewhat important", or ``very important". The percentages in this table correspond to people mentioning ``very important" in at least one social/personal incentive, answering ``most important" in at least one solidarity incentive, and answering ``very important" in at least one programmatic incentive.

2. In the Belgium survey for CD\&V and VLD, people were allowed to select up to three reasons for joining the party. The percentage here corresponds to the first reason given.

3. In the Belgium survey for PS the questions for incentives ask people to indicate if each of the reasons given (11 reasons) ``did not play at all", ``had little influence", ``played", or ``strongly played" a role. The percentages here report the percent of people that indicated ``strongly played" in at least one personal reason, the percent of people who indicated ``strongly played" in at least one solidarity reason, and the percentage of people who indicated ``strongly played" in at least one programmatic reasons.

4. In the Belgium survey of Ecolo, people are asked to select one reason out of nine. Here we have the percentage of people who selected a personal/social reason, the percentage of people who selected a solidarity reason and the percentage of people who selected a programmatic reason.

5. In Denmark the survey asked, when you joined the party, which were your main reasons? Select up to four. These are clearly not in any order of importance. Here I computed the percentage of people who selected at least one personal/social reason, at least one solidarity reason, at least one programmatic reason.

6. In Norway the question indicates the most important reason for joining the party. The percentages correspond to the sum of percentages of all the personal/social reasons, the sum of percentages of all the solidarity reasons given in the questionnaire, and the sum of percentages of all the programmatic reasons given in the questionnaire.

Table 1: The motivations of party members.

in choosing their behaviors.

More specifically, citizens' utility depends on two outcomes: government policy and membership, denoted by superscripts G and M, respectively. Each individual i holds an ideal point denoted as x_i along a single dimension. Each party, p, also holds a position along this dimension, z_p, as does the government, G. The utility for person i is

$$U(i) = U^G(i) + U^M(i), \tag{1}$$

where

$$U^G(i) = -(x_i - G)^2 \tag{2}$$

and

$$U^M(i) = \begin{cases} 0 \text{ if } M(i) = 0 \\ b_i - \alpha(x_i - z_p)^2 \text{ if } M(i) = p. \end{cases} \tag{3}$$

The $M(i)$ term in equation 3 represents person i's choice to become a member. Its value equals the party an individual joins, where not joining corresponds to a value of zero.

The b_i term represents the net benefits and costs to membership that are independent of a party's position and the effect of joining on government policy. This term may be positive or negative. Positive components of the b term may include meeting a member of parliament, while negative components may include the monetary cost of joining a party.

The $\alpha(x_i - z_p)^2$ term represents nonpolicy benefits that depend on a party's position. As someone becomes farther from a party, the benefits they receive from joining that party decrease. Thus we can think of the b term as the nonpolicy benefits (minus costs) someone receives if they hold a position identical to that of the party, and the $\alpha(x_i - z_p)^2$ term as the discount in those benefits as they move farther away.

The value of G may depend on a citizen's choice to become a member; thus, in weighing the decision to join or not a citizen considers not only the changes in $U^M(i)$, but also the effect on G. Specifically, I assume that joining a party has a mobilizing effect on that party's supporters. Members increase vote share by door-knocking and canvassing during campaigns, through word-of-mouth in social networks, and by helping the party fund paid advertising with membership fees.

Government policy, G, is assumed to equal the sum of the policy positions for each party, weighted by π_p, a function that is (weakly) increasing in vote share: $G = \sum_1^{N_p} z_p \pi_p$. Note that this includes, but does not necessitate, the possibility that party weights are proportional to vote share. In countries where most governments are single-party majorities, such as in the U.K., we might expect government policy to be closest to the ideal point of the winning party. However, as long as the government's policy is somewhat affected by the vote share of different parties (e.g., by increased attention to environmental issues when Green parties perform well), this assumption should hold. Indeed, because the model actually depends on *expected* government policy, this function may accurately reflect a citizen's estimate of their contribution. In sum, joining a party leads to a shift in government policy toward the position of the party a person joins. As shown below, this assumption does not imply that the government always moves toward the position of the joining member.

Partisan Probabilities

Let us start by examining the probability that an individual i with ideal point x_i prefers joining a party p located at z_p to not joining a party at all. Let $G(m_p)$ denote the position of the government when there are m_p members of party p, and let $G(m_p{+}1)$ denote the position of the government when one additional individual joins party p. As discussed above, by joining a given party, the individual is in effect moving the government in the direction of that party: $|z_p - G(m_p + 1)| \leq |z_p - G(m_p)|$. If i does not join a party, she receives utility

$$U(i) = -(x_i - G(m_p))^2. \tag{4}$$

If i joins party p, she receives

$$U(i) = -(x_i - G(m_p + 1))^2 + b_i - \alpha(x_i - z_p)^2. \tag{5}$$

Thus, i will join some party if there exists a party p for which

$$-(x_i - G(m_p + 1))^2 + b_i - \alpha(x_i - z_p)^2 + U^V(i) > -(x_i - G(m_p))^2. \tag{6}$$

Rearranging terms this becomes

$$b_i > (x_i - G(m_p + 1))^2 - (x_i - G(m_p))^2 + \alpha(x_i - z_p)^2. \tag{7}$$

Letting F_b denote the cumulative distribution of b, the probability that the intrinsic benefits minus costs, b_i, exceed the right hand side of (7) given x_i, is

$$\begin{aligned} P_p(x_i) &= P(i \text{ prefers joining } p \text{ to not joining a party}|x_i) \\ &= 1 - F_b\left((x_i - G(m_p+1))^2 - (x_i - G(m_p))^2 + \alpha(x_i - z_p)^2\right). \end{aligned} \tag{8}$$

To simplify the notation, let

$$X(x_i) = (x_i - G(m_p+1))^2 - (x_i - G(m_p))^2 + \alpha(x_i - z_p)^2, \tag{9}$$

so (8) becomes

$$P_p(x_i) = 1 - F_b\left(X(x_i)\right). \tag{10}$$

Because P_p is decreasing in X, any change that causes X to decrease will increase the probability P_p of preferring membership in party p to non-membership. I collect these factors and their effect on P_p in the following proposition.

Proposition 1. *The probability $P_p(x_i)$ that an individual with ideal point x_i prefers joining party p to not joining a party increases when, all else equal,*

- *the distance between the individual ideal point x_i and the position of the government $G(m_p+1)$ after joining decreases,*
- *the distance between the individual ideal point x_i and the position of the government $G(m_p)$ before joining increases,*
- *the rate, α, of decrease in intrinsic benefits with distance between the individual ideal point x_i and the position of the party z_p, decreases,*
- *the distance between the individual ideal point x_i and the position of the party z_p decreases, and*

- *the probability of receiving greater net intrinsic benefits from joining increases (i.e. a first-order stochastic dominance shift in the net intrinsic benefits distribution F_b).*

The proof follows immediately from taking the partial derivatives of (9) and (10).

Holding the position of the prior government fixed, people are increasingly likely to join a party as the resulting government shifts closer to their ideal point. Similarly, holding the resulting government fixed, the farther away the initial government, the greater the apparent (or perceived) instrumental benefit of joining a party on government policy.

Proposition 1 confirms our intuition that, all else equal, decreasing α, decreasing the distance between an individual and the party, or increasing b all increase the intrinsic benefits to membership, and thus raise the overall likelihood of joining.

The following proposition characterizes the shape of P_p.

Proposition 2. *The probability that i prefers joining party p to not joining any party, $P_p(x_i)$, is symmetric around the point*

$$x_p^* = \frac{G(m_p + 1) - G(m_p) + \alpha z_p}{\alpha}, \tag{11}$$

and citizens with ideal point x_p^* have the maximum probability of preferring party p over not joining a party.

Proof. $X(x_i)$ is a quadratic function of x_i, with quadratic term αx_i^2. Because $\alpha > 0$, $X(x_i)$ has a unique minimum, x_p^*, and is symmetric around that point. Since $P(i \text{ joins } p|x_i) = 1 - F_b(X(x_i))$ is decreasing in X, the minimum of X maximizes $P(i \text{ joins } p|x_i)$.

Taking the derivative of $X(x_i)$ with respect to x_i gives

$$X'(x_i) = 2(x_i - G(m_p + 1)) - 2(x_i - G(m_p)) + \alpha 2(x_i - z_p). \tag{12}$$

Setting this equal to zero and solving for x_i we have,

$$\begin{aligned}
0 &= 2(x_i - G(m_p + 1)) - 2(x_i - G(m_p)) + \alpha 2(x_i - z_p) && (13)\\
0 &= x_i - G(m_p + 1) - x_i + G(m_p) + \alpha x_i - \alpha z_p && (14)\\
0 &= -G(m_p + 1) + G(m_p) + \alpha x_i - \alpha z_p && (15)\\
-\alpha x_i &= -G(m_p + 1) + G(m_p) - \alpha z_p && (16)\\
x_i &= \frac{G(m_p + 1) - G(m_p) + \alpha z_p}{\alpha}. && (17)
\end{aligned}$$

□

Note that Proposition 2 implies that when $G(m_p) = G(m_p + 1)$, the probability of preferring party p to not joining a party is symmetric around the party position z_p. If $G(m_p) \neq G(m_p + 1)$, the assumption that joining a party shifts government policy in the direction of that party implies that if $z_p < G(m_p)$ then $G(m_p + 1) < G(m_p)$, and if $z_p > G(m_p)$ then $G(m_p + 1) > G(m_p)$. Substituting these inequalities into the equation for x_p^* implies that if $z_p < G(m_p)$ then $x_p^* < z_p$, and conversely if $z_p > G(m_p)$ then $x_p^* > z_p$. In other words, when joining a party moves the government's position towards that party, citizens on the opposite side of the party from the government are most likely to join. Moreover, the distance between the party position z_p and the symmetry point x_p^* is

$$|x_p^* - z_p| = \left| \frac{G(m_p+1) - G(m_p) + \alpha z_p}{\alpha} - z_P \right| \quad (18)$$
$$= \frac{|G(m_p+1) - G(m_p)|}{\alpha}. \quad (19)$$

Thus, the extent to which the symmetry point differs from the position of the party increases as: (i) the effect of joining the party on government increases and (ii) the rate α at which benefits decline with distance from the party decreases. A number of examples are illustrated in the *Party Distributions* section below.

Partisan Regions

The inequality in equation (7) implies that i prefers joining party p to not joining any party. If (7) is satisfied for only one party, then i will join that party. If more than one party satisfy (7), then p will join the party that maximizes their overall utility, shown in equation (1).

Suppose that both p and q satisfy (7). Then i will prefer joining party p to joining party q if

$$(x_i - G(m_p+1))^2 + b_i - \alpha(x_i - z_p)^2 > (x_i - G(m_q+1))^2 + b_i - \alpha(x_i - z_q)^2. \quad (20)$$

All of the quadratic terms on the left- and right-hand side of (20) cancel, leaving a linear inequality. Thus, there is a cut point c_{pq} so that individuals with ideal points on one side of c_{pq} prefer party p and those on the other side prefer party q. I derive the specific cut point in the following proposition.

Proposition 3. *If $G(m_p+1) - G(m_q+1) + \alpha(z_p - z_q)$ is positive, then individuals with ideal point*

$$x \geq \frac{G(m_p+1)^2 - G(m_q+1)^2 + \alpha(z_p^2 - z_q^2)}{2(G(m_p+1) - G(m_q+1) + \alpha(z_p - z_q))} \tag{21}$$

will prefer party p to party q.[2] *If $G(m_p+1) - G(m_q+1) + \alpha(z_p - z_q)$ is negative, then individuals with ideal point*

$$x \leq \frac{G(m_p+1)^2 - G(m_q+1)^2 + \alpha(z_p^2 - z_q^2)}{2(G(m_p+1) - G(m_q+1) + \alpha(z_p - z_q))} \tag{22}$$

will prefer party p to party q.

Note that if $G(m_p+1) = G(m_q+1)$ then the cut point reduces to the usual midpoint $\frac{z_p+z_q}{2}$, and potential members simply prefer the closest party. In particular, if joining a party has no effect on the government position, all individuals prefer the party closest to their ideal point. Similarly, if $\alpha = 0$, implying that net intrinsic benefits to membership are equal across parties, then the cut point reduces to the midpoint of the resulting government positions, $(G(m_p+1) + G(m_q+1))/2$.

Let X_{pq} be the set of citizen ideal points where joining p is preferred to joining q, and let $X_p = \cap_{q \neq p} X_{pq}$ be the set of ideal points where joining party p is preferred to joining any other party.

What leads to a smaller or larger region of partisans of a given party? Assume for the moment that there are only two parties, p and q, and without loss of generality $z_p < z_q$.[3] In this case, the government's position after an increase in one member for party p must be less than or equal to the government's position after an increase in one member for party q, so $G(m_p+1) - G(m_q+1) \leq 0$. Therefore, $G(m_p+1) - G(m_q+1) + \alpha(z_p - z_q) < 0$, and thus the cut point between partisans of p and q is given by

[2]Note, throughout I use *prefer* to mean weakly prefer.

[3]Examining the case of only two parties does not limit the applicability of the analysis because the results can be applied inductively to all pairs of parties.

(22).

What happens to this cut point as $G(m_p+1)$ moves further to the left? That is, when joining party p has a greater impact on the resulting government. To understand this dependence, think of the cut point in (22) as a function,

$$c_{pq}(x) = \frac{x^2 - G(m_q+1)^2 + \alpha(z_p^2 - z_q^2)}{2(x - G(m_q+1) + \alpha(z_p - z_q))}, \tag{23}$$

evaluated at $x = G(m_p+1)$. This function has three critical points: a vertical asymptote at $x = G(m_q+1) - \alpha(z_p - z_q)$, and two points where the first derivative is zero. Taking the derivative of (23) with respect to x, setting it equal to zero, and solving for x gives two solutions:

$$x = G(m_q+1) - \alpha(z_p - z_q) \pm \sqrt{\alpha(z_p - z_q)(-2G(m_q+1) + z_p + z_q + \alpha(z_p - z_q))}. \tag{24}$$

Under the assumption that $z_p < z_q$, the vertical asymptote is to the right of $G(m_q+1)$ and thus to the right of $G(m_p+1)$. The "plus" solution is to the right of the asymptote, and thus also to the right of $G(m_p+1)$. Therefore, the only critical point relavent to understanding the dependence of c_{pq} on $G(m_p+1)$ in this case is the "minus" solution in (24). Call the "minus" solution of (24) $G(m_p+1)^*$.

If $G(m_q+1) < (z_p+z_q)/2$, that is if $G(m_q+1)$ is to the left of the midpoint between the two party locations, then $G(m_p+1)^*$ is to the right of $G(m_q+1)$ and thus also to the right of $G(m_p+1)$. In this case, c_{pq} is monotonically increasing for all values of x between p and $G(m_q+1)$. In other words, if the government location after joining party q is to the left of the midpoint between p and q, p captures the maximal region of partisans if $G(m_p+1)$ is as far to the right as possible, i.e. as close to $G(m_q+1)$ as possible.

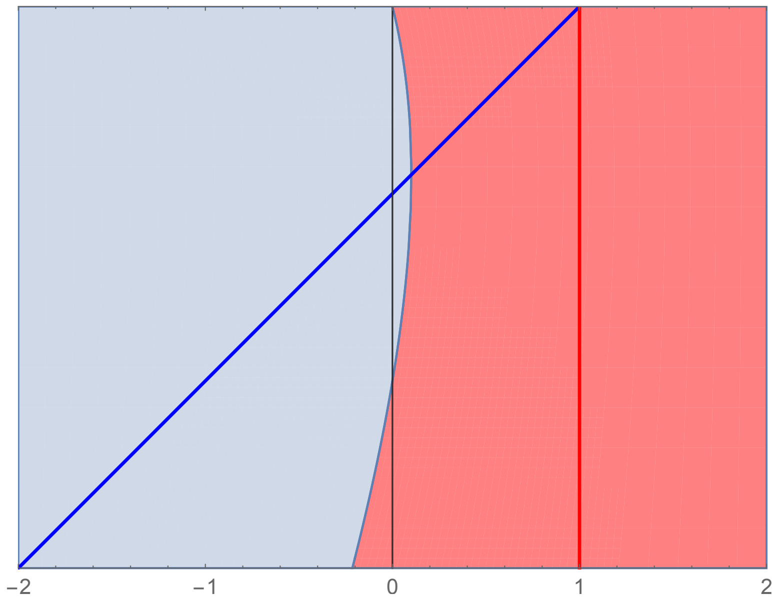

Figure 2: Regions in which partisans affiliate with party p (blue, on the left) and party q (red, on the right) as $G(m_p + 1)$ varies (blue line). In this plot $z_p = -2$, $z_q = 2$, and $G(m_q + 1) = 1$ (red line).

If $G(m_q+1) > (z_p+z_q)/2$, that is if $G(m_q+1)$ is to the right of the midpoint between the two party locations, then the critical point $G(m_p+1)^*$ lies between p and $G(m_q+1)$. For values of x less than $G(m_p + 1)^*$, c_{pq} is increasing; when $x > G(m_p + 1)^*$, c_{pq} is decreasing. The implication is that when $G(m_p + 1) < G(m_p + 1)^*$, any changes that move $G(m_p + 1)$ further to the left will also move the cut point to the left, decreasing the range of potential partisans of party p. But, when $G(m_p+1) > G(m_p+1)^*$, moving $G(m_p + 1)$ further to the left will move the cut point to the right, increasing the range of potential partisans of party p. Party p captures the maximal ideological region of partisans when $G(m_p+1) = G(m_p+1)^*$. Plugging the equation from (24) for $G(m_p+1)$ into the cut point function (23) shows that at this point, $c_{pq} = G(m_p + 1)^*$.

For example, suppose that the parties are located at $z_p = -2$ and $z_q = 2$, and one additional party q member results in $G(m_q+1)=1$, and let $\alpha=1$. Then

$$c_{pq}(x)=\frac{x^2-1}{2(x-5)}. \tag{25}$$

Figure 2 shows the resulting regions in which partisans affiliate with p (blue) or q (red) as $G(m_p+1)$ (blue line) is varied from equal to $G(m_q+1)$ at the top of the plot, to equal to z_p at the bottom. At the top of the plot, where $G(m_p+1)=G(m_q+1)$, partisans simply affiliate with the closest party, and the cut point equals the midpoint between the two parties at zero. Moving down the plot, as party p begins to shift the government to the left, some partisans who are closer to party q nevertheless choose to affiliate with party p because doing so brings the government closer to their ideal point. Party p captures the maximal ideological region when $G(m_p+1)=G(m_p+1)^*=c_{pq}$, which happens where the blue line intersects the boundary between the blue and red regions. When $G(m_p+1)$ is sufficiently far to the left, near the bottom of the plot, some partisans who are closer to party p choose to affiliate with party q because their ideal point is closer to $G(m_q+1)$ than to $G(m_p+1)$.

I summarize these results on partisan regions in the following proposition.

Proposition 4. *Suppose that $z_p < G(m_p+1) < G(m_q+1) < z_q$.*

- *If $G(m_q+1) < (z_p+z_q)/2$, then the cut point between partisans of p and q is increasing in $G(m_p+1)$, so p captures the maximum region of partisans if $G(m_p+1)$ is as far to the right as possible.*

- *If $G(m_q+1) > (z_p+z_q)/2$, the cut point between partisans of p and q is increasing in $G(m_p+1)$ when $G(m_p+1) < G(m_p+1)^*$, and decreasing in $G(m_p+1)$ when $G(m_p+1) > G(m_p+1)^*$. Party p captures the maximum region of partisans if $G(m_p+1)=G(m_p+1)^*$, and at this point the cut point between partisans of p*

and partisans of q equals $G(m_p + 1)^*$.

Party Distributions

Let $f_x(x)$ denote the probability density of citizen ideal points, and let N denote the total number of citizens in the population. Then the expected membership of party p is given by

$$E[m_p] = N \int_{X_p} P_p(x) f_x(x) dx, \tag{26}$$

or equivalently,

$$E[m_p] = N \int_{-\infty}^{\infty} I_{X_p}(x) P_p(x) f_x(x) dx, \tag{27}$$

where $I_{X_p}(x)$ is an indicator for whether or not $x \in X_p$.

The following examples illustrate the combined effect of the results from the previous two sections on the conditional probability distribution

$$P(\text{join party } p | x_i) = I_{X_p}(x) P_p(x). \tag{28}$$

This conditional probability distribution is denoted as $M_p(x_i)$.

Figure 3 shows $M_p(x_i)$ and $M_q(x_i)$ for two parties located at $z_p = -2$, $z_q = 2$, with the initial government position at $G = 0$. Both plots show the cut point between the partisan regions located at 0. The difference between the left and right panels of Figure 3 illustrates the change in $M_p(x_i)$ and $M_q(x_i)$ as the effect on government changes. In the left panel, joining either party has no effect on the resulting government's position, and thus by Proposition 2, P_p is symmetric around the party position. In the right panel, joining the party moves (or potential members *believe* joining the party moves) the government towards the party position .3 units. This has two effects. First, the symmetry point from Proposition 2 moves away from the government position. Second,

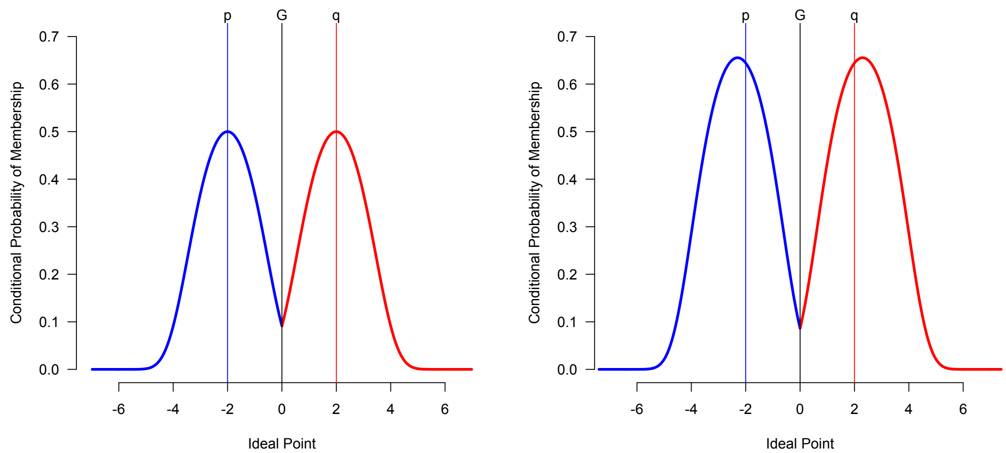

Figure 3: The conditional probability of joining party p (blue) or party q (red) given x_i. In the left panel, joining the party has no effect on the government position. In the right panel, joining the party moves the government .3 units towards the party position.

for most ideal points, following the first bullet of Proposition 1, the probability of joining the party increases. It is difficult to discern in the figure, but for ideal points x_i with $|x_i| < .15$, the conditional probability of joining has actually decreased slightly, again in line with the first bullet of Proposition 1. For citizens with these ideal points, the government after joining is closer in the left panel than in the right panel.

Figure 4 depicts the two conditional distributions $M_p(x_i)$ and $M_q(x_i)$ for the same parameters as Figure 3, but now the initial government position is at $G = 1$. When joining the party has no effect on the government position, as shown in the left panel, the conditional partisan distributions are the same as in Figure 3. But comparing the right panels of Figures 3 and 4 shows how this new government position increases the incentives to join party p and decreases the likelihood of joining party q. The reason is that individuals near party q are already relatively satisfied with the position of the government, so they have lower incentives to join in order to change policy. Conversely,

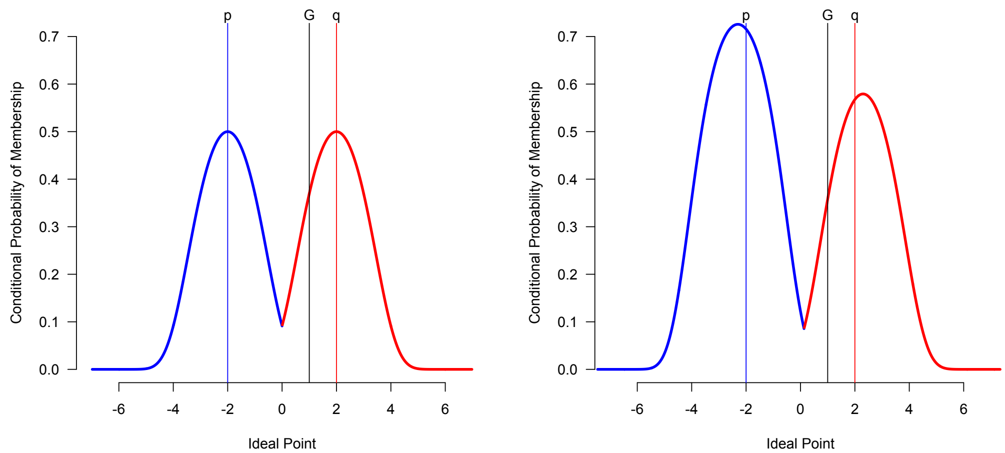

Figure 4: The conditional probability of joining party p (blue) or party q (red) given x_i. In the left panel, joining the party has no effect on the government position. In the right panel, joining the party moves the government .3 units towards the party position.

individuals on the left are now relatively unsatisfied, and thus their incentives to become members increase.

Figure 5 depicts the two conditional distributions $M_p(x_i)$ and $M_q(x_i)$ for the same parameters as Figure 3, but now the mean of the distribution of intrinsic benefits to membership, F_b, has increased by 3. Following the final bullet of Proposition 1, this increases the conditional probability of joining the party for any given ideal point.

Figure 6 illustrates the case of three parties. Parties p and q have the same locations as in the previous examples, but now there is a left party, g, with $z_g = -4$. The left panel again shows the case when joining the party has no effect on government. In this case, the shape of the conditional distributions for each of the three parties is the same, with the only difference being that the proximity of parties g and p mean that these parties split the potential members on the left. In the right panel, potential members of the left party have greater incentives to join than those of the two centrist parties

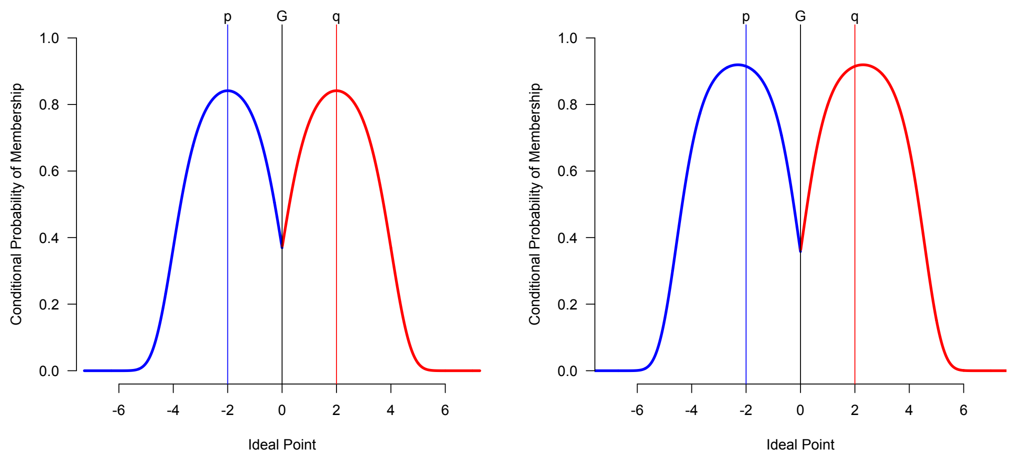

Figure 5: The conditional probability of joining party p (blue) or party q (red) given x_i. In the left panel, joining the party has no effect on the government position. In the right panel, joining the party moves the government .3 units towards the party position. The mean of the intrinsic benefits distribution has been increased from Figure 3.

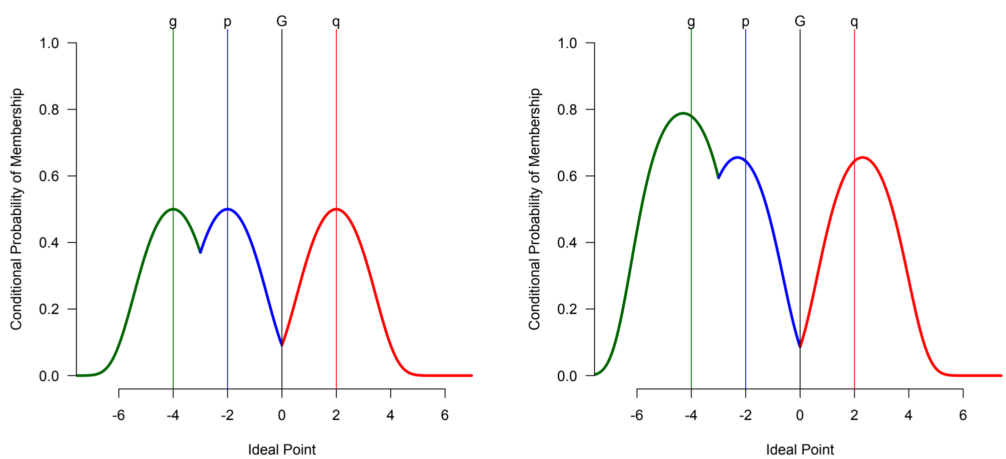

Figure 6: The conditional probability of joining party g (green), p (blue), or party q (red) given x_i. In the left panel, joining the party has no effect on the government position. In the right panel, joining the party moves the government .3 units towards the party position.

because they are farther from the government position. Keep in mind, however, that this does not mean that g will be the largest party because the distribution shown is *conditional* on x_i. In most countries, the voter distribution diminishes as ideal points become more extreme, so even though individuals near the left party are more likely to join than those the same proximity to the centrist parties, there are likely fewer citizens located there. Notice that in both panels, the presence of the third party does not affect the probability of affiliating with party p or party q for individuals that are still located within the partisan region for those two parties. These individuals prefer party p or q to party g, and so for them the relevant comparison is between joining and not joining; party g is an "irrelevant alternative."

Equilibrium

The analytic and computational results in the previous three sections include, in many cases, a calculation on the part of potential members regarding the effect of their membership on the government's position. If the effect of an individual joining the party is realized, this will change the decision calculus of other potential party members. Potential members will continue to update their decisions decisions until some equilibrium is reached. Or, to think of it another way, an individual considering whether or not to join the party may anticipate not only the direct effect on government, but also the indirect effect that this has on the membership decision of other potential members, as well as the downstream effect those potential members have on other potential members, and so on. The results and examples of the previous section were not derived conditional on being at equilibrium, and so one may wonder how or if they apply.

A few comments are in order. First, one interpretation of the model explored above is that potential members *believe* that joining the party will affect the government, but that in reality it does not, and that potential members reasoning is not sophisticated enough to go through the iterations of calculating further downstream effects on other potential members' choices. In this case, all the results above can be taken at face value as actual model predictions at equilibrium for the given beliefs about the effect of joining on the government position.

Second, all of the propositions and comparative statics above hold for any given membership level, and thus, in particular, also hold at an equilibrium level of membership, if such an equilibrium exists. The actual distributions shown above may be out of equilibrium, but the broader qualitative observations regarding those examples should hold at equilibrium.

Third, under most conditions there exists a model connecting party membership with the government position via voter turnout that implies the existence of a unique membership equilibrium. Specifically, let v_p denote the number of votes for party p in the election. Suppose that v_p is an increasing concave function of the number of members of party p, m_p.

The vote share for party p, π_p, depends on the number of votes for party p according to

$$\pi_p = \frac{v_p(m_p)}{v_p(m_p) + \sum_{q \neq p} v_q}. \tag{29}$$

Suppose that the government position G is an average of the party positions, weighted by vote share. Then the government position G is a function of party membership:

$$G(m_p) = \left(\frac{v_p(m_p)}{v_p(m_p) + \sum_{q \neq p} v_q} \right) z_p + \sum_{q \neq p} \left(\frac{v_q}{v_p(m_p) + \sum_{q \neq p} v_q} \right) z_q. \tag{30}$$

If the current membership of party p is m_p and an individual i considers joining the party, in addition to the intrinsic costs and benefits of joining, she must also consider the effect of joining on government policy. If she joins, the new number of votes for party p is $v_p(m_p+1)$ and the resulting government position is

$$G(m_p+1) = \left(\frac{v_p(m_p+1)}{v_p(m_p+1) + \sum_{q \neq p} v_q} \right) z_p + \sum_{q \neq p} \left(\frac{v_q}{v_p(m_p+1) + \sum_{q \neq p} v_q} \right) z_q. \quad (31)$$

Concavity of $v_p(m_p)$ implies that the change in government position $G(m_p+1) - G(m_p)$ is decreasing in m_p. Let the best response function $BR(m_p)$ be the expected number of members joining the party based on current party membership m_p. Because as m_p increases, the resulting marginal change in government due to one additional member goes down, and, as seen in Figure 3, a smaller effect on the government's position creates lower incentives for membership leading to lower expected membership levels, $BR(m_p)$ will typically be a decreasing function of m_p.[4] Thus, $BR(m_p)$ will have a unique fixed point, and that fixed point is an equilibrium level of membership. Again, all of the propositions and qualitative observations presented above apply at this equilibrium.

Party Inclusiveness

Some parties are more inclusive than others. I model inclusiveness as a reduction in α, where α_p is now party specific. Figure 7 illustrates the effect of reducing α for one of two parties. (Here, $\alpha_p = 2\alpha_q$.) As shown, reducing α broadens party q's support. And as derived in equation (18), reducing α shifts the symmetry point of q's conditional partisan distribution farther from the party's position when joining has an effect on government (right panel). Thus, the model predicts that more inclusive parties will

[4]The qualifiers "generally" and "typically" are necessary here because one can construct pathological examples where most of a party's members are closer to the government's current position than they are to the party's position in which it is possible for larger shifts towards the party position to reduce expected party membership.

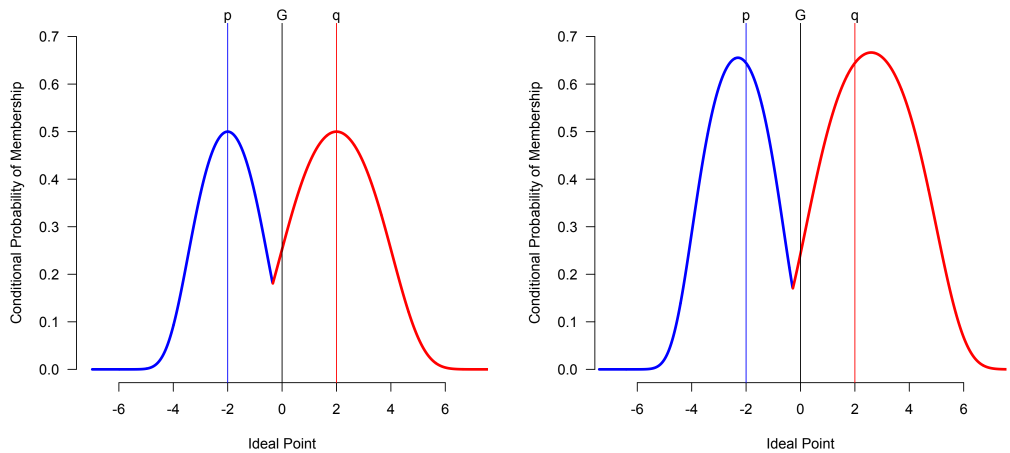

Figure 7: The conditional probability of joining party p (blue) or party q (red) given x_i. In the left panel, joining the party has no effect on the government position. In the right panel, joining the party moves the government .3 units towards the party position. Party p has $\alpha_p = 1$, while party q has $\alpha_q = .5$.

have a wider membership base that is centered away from the government.

While reducing α increases a party's membership size, its effect on the *make up* of that membership could negatively impact the party. Suppose that members have the power to select candidates, vote on the party manifesto, or otherwise influence party policy. Then, having a more extreme membership base could lead a party to adopt a suboptimal position and lower its vote share (even as its membership increases).

Even in cases where members have little institutionalized influence, party members surely impact public perceptions of the party's location, even if outspoken members' views conflict with those of the party leadership. Lowering α might increase a party's vote share through the increased mobilization that comes with increased membership, but it could also hurt a party at the poles by resulting in an ideological position (or perceived position) that is out of step with the electorate. Whether the benefits of increased turnout outweigh the potential costs of a shift in party position will depend on two factors: how membership translates to votes and the overall distribution of citizens' ideological locations. These tradeoffs are illustrated below.

To understand the feedback effect between members' and parties' positions, I simulate a sequence of affiliation decisions and party positioning adjustments. In each round, individuals choose which party to affiliate with (or to not affiliate at all), according to the model developed above. But now, each party responds to its membership by shifting its (perceived) position to the location of the median member.[5] Voters choose the party nearest their ideal point, and the government position is updated to the vote-share-weighted average of the party positions. The simulation then moves on to the next round; members affiliate, parties shift, voters vote, and so on. This series of updates can be thought of in two ways: first, as simulations of an actual sequence of elections; or, second, as a sequence of internal calculations about the downstream effects of an individual's actions (e.g. "If these people join the party, then the new party position would be here, then these people would vote, then the government would be here, so then these people would join the party, ...") In the latter interpretation, the steady state of the dynamic simulations is a Bayesian Nash equilibrium.

To illustrate the effect of moving to the equilibrium of this dynamic process, I first examine the result under the same parameters as Figure 3. Figure 8 shows the party and government locations, the conditional distribution of party members (left panel), and the distribution of voters (right panel) at the steady state when both parties have α set to one. The initial party positions are $z_p = -2$ and $z_q = 2$. Citizen ideal points are assumed to be distributed normally with mean zero and standard deviation five. At the steady state shown, both parties have diverged somewhat from their initial locations in response to their members; $z_p = -3.9$ and $z_q = 3.9$. Both parties have

[5]McGann 2002 also explores the implications of a model in which party positions adapt to the position of their median member.

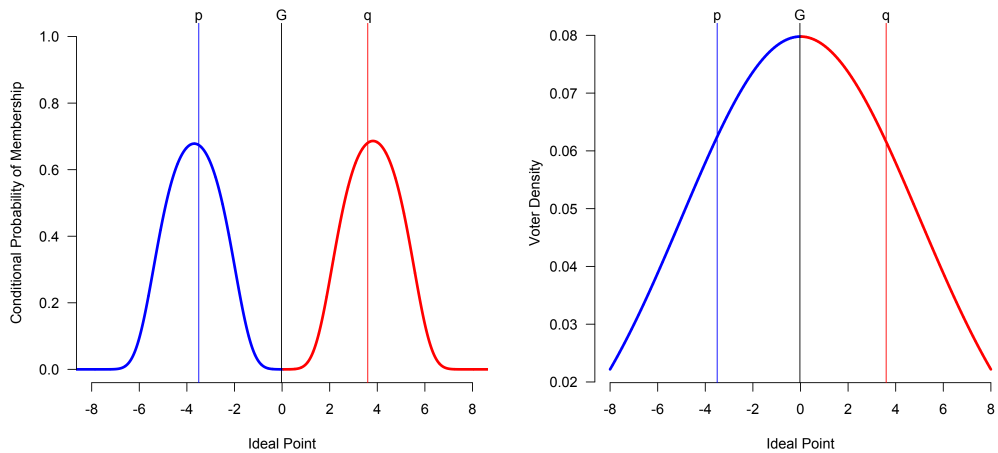

Figure 8: Left panel: The conditional probability of joining party p (blue) or party q (red) given x_i after 100 rounds of simulation (approximately steady-state). Right panel: The distribution of voters with voters for party p in blue and voters for party q in red.

roughly equal membership levels and equal votes shares.

Figure 9 illustrates the effect of differing levels of inclusion. Now, party p has $\alpha_p = 3$, so party members adhere closely to the party position. Party q has $\alpha_q = .5$, broadening its appeal. The result is that party q attracts more and more ideologically diverse members than party p. At equilibrium party q has nearly twice the membership of party p. But, this increased membership comes at a cost: party q's members have pulled the party to a more extreme position resulting in a loss of vote share. At the steady state, party p is located at -3.1 while party q is at 4.5. As a result, party p captures 54% of the vote when vote choice is determined solely by proximity. Of course, if membership also translates into votes, some or all of the votes q has lost due to poor positioning might be recovered through increased mobilization. Because party q has many more members than party p, if membership has a strong mobilizing effect, then party q's inclusive strategy may be electorally advantageous despite its

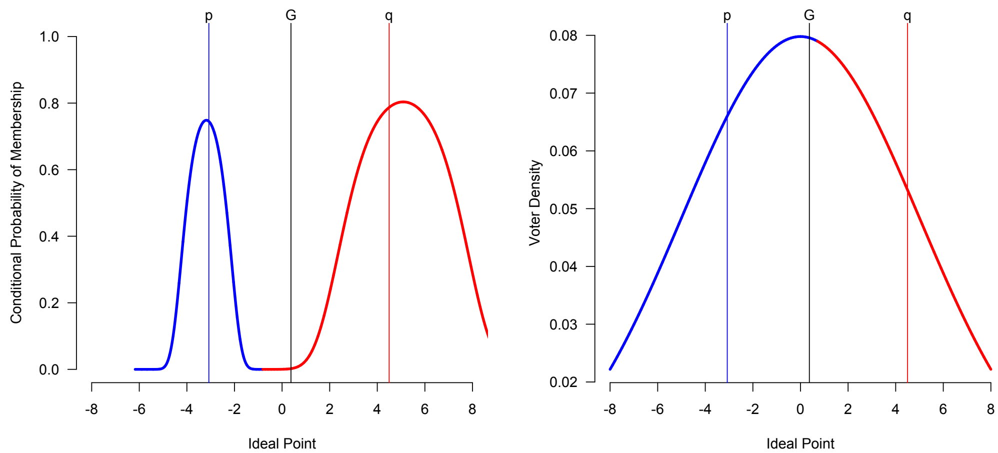

Figure 9: Left panel: The conditional probability of joining party p (blue) or party q (red) given x_i after 100 rounds of simulation (approximately steady-state). Right panel: The distribution of voters with voters for party p in blue and voters for party q in red. Party p has $\alpha_p = 3$ and party q has $\alpha_q = .5$.

poor positioning.

Conclusion

Previous research has characterized party members as cheerleaders, ideological activists, or simply regular voters. But the literature offers little explanation for variation among members in terms of their motivations for joining or behaviors once they become members. Some studies cite individual-level heterogeneity as one explanation. For example, supporters of leftist parties may tend to be more instrumentally motivated because grass-roots inclusiveness is part of their core beliefs about political organizations. This may be the case, but in order to fully understand party members – and their potential effect on party locations and electoral outcomes – it is important to identify party, as well as the individual, factors affecting membership. Members must be integrated into studies of party organization in order to full understand party positioning.

This paper presents a theoretical model examining how party organizations shape membership. Specifically, I focus on the form of benefits that parties offer to voters. Beyond the initial model explaining variation in membership, I examine how membership may feedback to affect party positions and electoral success.

Future research will extend the model in several key ways. First, I plan to explicitly model parties' choices of which and how many benefits to offer voters. Second, I seek to include a stage where voters from inclusive parties can directly affect the party's position. Third, the model will compare the effects of different organizational structures for interior parties (those with viable parties on either side) with extreme parties (those that have no viable party to one side).

In addition, it will be important to test varying implications of the model down the line. In order to do so, I must look more systematically at the relationships between party benefits, inclusiveness, and member distributions examined in the motivation section. Using data on membership fees and selective incentives may allow us to test the degree to which parties target benefits to those individuals who are closest to them versus increase the incentives for less-aligned supporters to join.