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Position-Taking and Election Proximity in
the European Parliament

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Abstract

Parties value unity, yet, members of parliament face competing demands, giving them incentives to deviate from the party. For members of the European Parliament (MEPs), these competing demands are national party and European party group pressures. Here, we look at how MEPs respond to those competing demands. We examine ideological shifts within a single parliamentary term to assess how European Parliament (EP) election proximity affects party group cohesion. Our formal model of legislative behavior with multiple principals yields the following hypothesis: When EP elections are proximate, national party delegations shift toward national party positions, thus weakening EP party group cohesion. For our empirical test, we analyze roll call data from the fifth EP (1999-2004) using Bayesian item response models. We find significant movement among national party delegations as EP elections approach, which is consistent with our theoretical model, but surprising given the existing literature on EP elections as second-order contests.

Balancing Competing Demands: Position-Taking and Election Proximity in the European Parliament

Party leaders are often considered agents of their parliamentary party faction. Backbenchers grant leaders power to solve collective action problems both within the parliament and the electorate — a requirement for successful passage of legislation and reelection (Cox, 1987; Cox and McCubbins, 1993; Aldrich, 1995). Although members of parliament (MPs) benefit from disciplined, highly cohesive parties, political institutions, such as electoral systems, may create incentives for individual MPs to deviate from the party line to cultivate a personal vote (Carey and Shugart, 1995; Carey, 2007). To prevent MPs from straying too far, the leadership is given tools to punish rogue backbenchers and reward those who toe the line. However, the party leadership must exercise caution when using these tools, as they may jeopardize electoral chances of individual MPs by forcing them to take positions at odds with those who elected them. When staking out a party position, the leadership must weigh the electoral benefits of a unified party label against the possibility of losing votes in regions with underlying ideologies at odds with the party position (Arnold, 1990). Moreover, the costs and benefits to party leaders of reigning in rogue backbenchers are unlikely static over time. For example, electoral incentives are likely strongest around election time and weakest in the middle of the term.

However, what happens when there are two sets of party leaders to whom backbenchers must answer? Who do the rank and file listen to and does this change over time? This is precisely the problem faced by members of the European Parliament (MEPs). Unlike members of national parliaments, MEPs are subject to the control of two different sets of party leaders (Hix, 2002). They are elected to the parliament on national lists controlled by their national parties. But once in the parliament, national party delegations organize into European party groups. It is the party groups who control committee and rapporteurship assignments as well as elections to leadership posts within the EP. We argue that the extent to which these two sets of party leaders exercise control over their MEPs is likely to vary over time within parliamentary sessions, with national parties exerting the most control around

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election time and EP party groups exerting more influence in the middle of the term.

Very few studies of legislatures have explored changes in MP behavior over time within a single electoral cycle (but see Lindstädt and Vander Wielen, 2009). This paper explores how the voting behavior of MEPs during the 5th parliament (EP5) [1999-2004] changes over time by treating each year as a separate period of observation. The EP presents a particularly interesting opportunity to examine partisan constraints on voting behavior over time because the European party group leaders responsible for ensuring successful passage of legislation in the EP are different from national party leaders who control MEPs' reelection bids. Moreover, European party group leaders have an incentive to see their MEPs reelected. After all, these were the MEPs who elected them to leadership positions during the previous term. The party group leadership may be willing to sacrifice party unity to allow MEPs to follow their national party around election time if this increases MEPs' reelection prospects.

After reviewing the literature on voting behavior in the EP, we present a formal model of legislative position-taking when MPs are subject to two sets of party leaders, or principals. To test our theory, we use Bayesian item response models to estimate ideal points from roll call votes over time within EP5. We find that the relative strength of party group cohesion does, indeed, vary across time, specifically as a function of national party monitoring. In particular, European party group cohesion is the strongest in the middle of the term when the electoral incentives, which are controlled by national parties, are the weakest.

1   Voting Behavior in the EP

Over time the EP has grown from a mere talking shop to a truly powerful parliament with complex institutional arrangements (Kreppel, 2002). Through the evolution of the EU's legislative procedures, the EP first gained conditional agenda-setting authority (Tsebelis, 1994) and eventually veto power (Tsebelis and Garrett, 2000). The power of party groups has increased along with the EP's powers. Most studies examining the internal development of the party group system within the EP have explored the general trend towards the strengthening of the institution over time, typically by examining party group cohesion (Attina, 1990; Brzinski, 1995; Raunio, 1997; Hix and Lord, 1997; Hix, Noury and Roland, 2007). These studies, though, have not examined changes in cohesion within a single parliamentary period,

and therefore they cannot examine how the electoral cycle affects MEP position-taking.[1]

More recently, scholars have begun to examine how political constraints affect voting behavior. Members of the European Parliament are often said to be subject to two principals: their national party controls their electoral chances and careers back home while their European party group controls their destiny within the parliament (Hix, 2002; McElroy and Benoit, Forthcoming). While some scholars have argued that national parties are unable to exert much influence over their delegation's behavior in the EP (Raunio, 2000), others have found that national parties can and do influence MEP behavior depending on the nature of the electoral system (Bowler and Farrell, 1993; Faas, 2003; Messmer, 2003; Hix, 2004). We argue that the influence of national parties on their MEPs should change over time, more precisely with respect to the location in the electoral cycle.

Given the role of national parties in EP electoral politics, national party leaders have stronger incentives to monitor their MEPs around election time. Before EP elections, national party leaders wish to ensure that MEPs do not take a position deviating from the national party line, which could potentially hurt the party electorally. Following an election, national parties may pay particularly close attention to new members to see how they behave in the EP. During the middle of the term, national party leaders may be more willing to allow the members of their delegation to stray from the home party's position. EP party group leaders, on the other hand, desire a cohesive party group within parliament to meet their legislative goals, but they also wish to see the reelection of MEPs who elected them to leadership. This will improve their chances of retaining a leadership position in the next term. Therefore, EP group leaders' incentive to monitor voting behavior is strongest around the middle of the term when electoral incentives are the weakest.[2]

If the demands of the two principals vary over the course of the electoral cycle, there are

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[1]The only partial exception to this is Hix, Noury and Roland (2007), who examine EP party group cohesion over time measuring cohesion at six-month intervals. However, they only report average scores by term for each group. Moreover, they do not examine the trend in cohesion with regard to the election cycle.

[2]Our argument mirrors that of Cox and McCubbins (1993) regarding the US Congress.

two possible MEP voting patterns we could observe. First, both the cohesion of national party delegations and European party groups could change across time but in opposite directions, with national delegations most cohesive around elections and party group cohesion highest in the middle of the term. Alternatively, voting cohesion within national party delegations may remain stable throughout the parliamentary term; however, whole national delegations may move away from the positions taken by their national party leadership at home and towards the EP group in the middle of the term. In this case, only the cohesion of European party groups, not national party delegations, should change over time. The second pattern seems the most plausible. Empirical literature on voting behavior suggests that national party delegations are highly cohesive. Although ideology clearly plays an important role in MEP voting decisions, often trumping the role of nationality (Kreppel and Tsebelis, 1999), this ideological divide occurs across national party delegations rather than within them (Hix, 2002; Hix, Noury and Roland, 2007). In other words, ideology explains voting patterns because the national party delegations within the party groups vote along an ideological, rather than national, dimension. German Social Democrats and French Socialists are more likely to vote with one another than with German and French conservatives, but MEPs within these national delegations still tend to vote as a bloc.

Alternative theories to ours would suggest that the link between MEP voting behavior and the electoral cycle is tenuous at best. Although recent studies have found that national parties' views on European integration may affect their electoral chances (Ferrara and Weishaupt, 2004; Hobolt, Spoon and Tilley, 2009), EP elections are still widely viewed as second-order contests in which citizens cast protest votes to punish their home governments (e.g. Reif and Schmitt, 1980; Marsh, 1998; Hix and Marsh, 2007). This literature suggests that citizens rarely pay attention to European politics and they tend to cast votes along national rather than European issues. Therefore, we may expect monitoring by national party leaders to remain consistently low throughout the term. Cohesion of European party groups may slowly trend upwards over time, even within a single parliament, or it may remain stable across time.

One might also suspect that national parties monitor their EP delegations more closely around national, rather than European elections. This, however, is rather unlikely. European

elections are rarely fought over European issues, and national elections are almost never fought on European rather than national grounds. Therefore, it seems implausible that voting behavior in the EP would factor into national election campaigns. Moreover, because national elections are staggered over the course of the term, any effects of national elections on voting should wash out in our data and should not effect our results. If anything, they add noise to the data, making empirical findings in support for our theory even more impressive.

Current studies of voting behavior in the EP are unable to examine these hypotheses because they either examine one period in time (Kreppel and Tsebelis, 1999; Han, 2007; Gabel, Hix and Malecki, 2008), or they examine change in voting patterns across parliaments but not within them (Hix, Noury and Roland, 2007). The theory we put forward in this paper suggests that ideological change should happen within legislative periods as well as across them.

2   EP Position-Taking Model

To understand the incentives and constraints confronting MEPs when staking out policy positions, we introduce a utility function for MEPs. This function offers insight into MEPs' optimal policy positions, taking into account the dual principals, variation in the monitoring intensity of the national party across time (vis-à-vis elections), and the cohesiveness of the party groups. While we discuss it with respect to the EP, the model itself is much more general and could be applied to any legislative setting in which MPs face competing demands. In the EP, these competing demands come from national parties and EP party groups, but in other systems they may come from national parties and voters in home districts or national parties and party activists to give just two examples.

The basis of the utility function is the one-dimensional spatial model.[3] The utility func-

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[3]Although empirical work tends to view EU politics as two-dimensional, the exact nature of the second dimension, and its relationship to the first dimension, is not clear. Typically the first dimension is viewed as a traditional left-right ideological dimension while the second is treated as an orthogonal dimension related to EU integration (Hix and Lord, 1997; Hix, Noury and Roland, 2007). Others have argued that the second dimension is related to the

tion of member j is shown in Equation 1, in which $i_j \in (-\infty, \infty)$ is member j's ideal point, $n_p \in (-\infty, \infty)$ is the ideal point of the national party p to which j belongs, $g \in (-\infty, \infty)$ is the ideal point of the party group to which p belongs, $M_j(t)$ is the monitoring intensity function (of time), and $K(k)$ is the party group cohesion function (of group size).

$$u_j = M_j(t) \left[-(i_j - n_p)^2 \right] - K(k)(i_j - g)^2 \tag{1}$$

Since national parties must periodically stand for election, there is reason to suspect that the levels with which national parties monitor their members will vary according to election proximity. The monitoring intensity function, $M_j(t) \in [0, \infty)$, provides for variation in the levels of monitoring of member j by j's national party, p, across time.[4] As the intensity of monitoring by the national party increases, more weight is placed upon the national party's ideal point in the utility function. In other words, it becomes more costly for the member to deviate from the preferences of the national party as $M_j(t)$ increases in value.

Some scholars have suggested that there are differences across party groups in terms of their ability to command collective behavior from members (McElroy and Benoit, Forthcoming; Hix, 2002, 690). The cohesion function, $K(k) \in [0, \infty)$, is incorporated into the utility function to account for this possible variation in cohesion across party groups. Increasing values of the cohesion function amplify the cost of a member's deviation from her party group ideal point. While certainly not the only factor affecting group cohesion, scholars widely recognize that group size is inversely related to a group's ability to exact "group-oriented behavior" from its members (Olson, 1971, 52). Therefore, we theorize that size of the party group is a central component of the cohesion function. Our current state of

first (Hooghe, Marks and Wilson, 2002). A recent study of MEP ideal points extracted from roll call votes finds that while the first dimension is explained by left-right politics, it is explained by EU integration as well (Benoit, Laver and Mikhaylov, 2009). We model the EP decision-making process in a single-dimensional space, and reduce the likelihood of multidimensionality in the empirical analysis by examining the party groups separately from each other.

[4]p is an integer function of j, yielding the national party to which j belongs.

knowledge regarding the specific functional relationship between group size and cohesion is limited, and something we leave for future research. For the sake of this analysis, and a point of initial investigation, we require only that the function increase in group size. We find that functions belonging to the general form $C \cdot k_j^{-m} \in [0, \infty)$ effectively satisfy this requirement, and provide the researcher considerable flexibility. In this specification, $C \in [0, \infty)$ can be conceptualized as a group cohesion constant, representing cohesion factors unrelated to party group size (e.g., group leadership, member preference similarity, etc.), $k \in [1, 2, 3, ..., \infty)$ represents the number of national parties in j's group party, and $m > 0$ is an arbitrary constant determining the magnitude of the group size effect on cohesion. Quite intuitively, $K(k)$ is monotonically increasing in C and decreasing in k and m, holding other parameters constant.

The first component of Equation 1, $M_j(t) \left[-(i_j - n_p)^2 \right]$, interacts the monitoring intensity function with the Euclidean distance between the member's ideal point and the ideal point of her national party. The second component, $-K(k)(i_j - g)^2$, interacts the cohesion function with the Euclidean distance between the member's ideal point and the ideal point of her party group. We operationalize all distances as negative quadratics, which are maximized at zero. It is important to note that the monitoring intensity and cohesion functions are permitted to take any non-negative value, and therefore the relative importance of the party ideal points to the member's utility is determined by the ratio of the values of the functions. Throughout the subsequent analysis we treat the parameter C in the cohesion function as a fixed constant across all party groups, since we have limited ability to account for variation in cohesion factors other than with party group size. The maximum possible value of the cohesion function is, therefore, equal to C, which occurs when $k = 1$.

Next we derive the optimal position for member j — shown in Equation 2 — by taking the partial derivative of u_j with respect to i_j, setting the result equal to zero, and solving for i_j. This equation identifies the position in the uni-dimensional space that maximizes member j's utility function, considering the other constraints discussed above. This optimal position is denoted i_j^*.

$$i_j^* = \frac{n_p M_j(t) + g K(k)}{M_j(t) + K(k)} \tag{2}$$

As a basic diagnostic test of the solution in Equation 2, suppose that $n_p = g$. Under

this condition, in which the national party and party group share the same ideal point, the monitoring intensity and cohesion functions factor out of the equation. Therefore, the member maximizes her utility by adopting the position shared by her national party and party group, or $i_j^* = n_p = g$. When we permit the ideal points of the national party and party group to diverge from one another, the member will select a position located between these ideal points. The precise location will depend upon the value of the monitoring intensity function at time t relative to the cohesion function. In the following section, we explore the implications of this model at the level of both the individual legislator and the party group.

3 Implications of the EP Position-Taking Model

Since the monitoring intensity function is the only parameter in Equation 2 that is allowed to vary over the course of a parliamentary term, it follows that movement in a member's optimal policy position, i_j^*, across time is directly related to the functional form of the monitoring intensity function. Specifically, the distance a member is from her national party position is inversely related to the monitoring intensity function when $n_p \neq g$.[5] That is, a member's optimal position is nearest to her national party's ideal point when the monitoring intensity function is at its highest level, and closest to the party group ideal point when monitoring intensity is at its lowest. However, this relationship can, to varying extents, be mitigated by the cohesion function. Members belonging to small party groups are predicted to remain in closer proximity to their party group position across time when compared to members from larger party groups, under conditions of identical monitoring intensity functions. When the values of $M_j(t)$ and $K(k)$ are equal, the member quite simply adopts the midpoint between the national party and party group ideal points.

Figure 1(a) demonstrates the movement in optimal positions for two members belonging to party groups of different sizes, in response to an identical monitoring intensity function.

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[5]Although EP group membership is driven by ideology, empirical evidence demonstrates that national parties commonly take distinctly different positions than the party groups to which they belong (McElroy and Benoit, Forthcoming; Hix, 2002), suggesting that their ideal points are not perfectly aligned.

We operationalize time throughout the theoretical analysis as continuous and bounded by elections. Therefore, elections occur at $t = 0$ and $t = 1$ in Figure 1(a). The input values for the parameters are specified in the figure, and are chosen without loss of generality. Both members move toward the national party position ($n_p = 1$) when the value of the monitoring intensity function (dotted line) is high, and converge on the party group position ($g = 0$) when the value is low. Notably, member 1's optimal position, i_1^*, remains nearer the party group position than member 2's optimal position, i_2^*, throughout the term, since member 1 belongs to a smaller party group than member 2 ($k = 5$ and $k = 20$, respectively).

[FIGURE 1 ABOUT HERE.]

We are chiefly interested in exploring how theoretical expectations of monitoring inform our understanding of movement in members' positions. In order to do so, we must establish some expectations for levels of monitoring by national parties across time. We theorize that there is a positive relationship between election proximity and levels of monitoring, as depicted by the monitoring intensity function in Figure 1(a). National parties should monitor their MEPs most closely just prior to and just after EP elections. While an intuitive expectation, it does warrant some discussion.

Even if EP elections are generally thought to matter little for EU politics, national parties certainly do not simply dismiss them. Because EP elections are often seen as second-order by-elections, national opposition parties use them to criticize their national government, while government parties attempt to defend their record. Election outcomes are seen as a referendum on the government's performance at home and may offer clues about the ability of the government to survive until the next scheduled election. The British Labour Party's poor showing in the 2009 EP elections, for example, led to renewed calls for Prime Minister Gordon Brown to step aside.[6] Irish opposition parties even called a motion of no confidence after the Fianna Fail-led government's poor showing in the 2009 EP polls.

Parties wish to stand by their policy goals and project a favorable image to the voting public, which to some extent relies upon congruence between the national party platform and

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[6]See "European Elections: Brown Faces Leadership Battle Amid Labour Meltdown and BNP Success." *The Guardian*, 8 June, 2009.

the voting record of the national party delegation to the EP. A lack of congruence impedes the transmission of a clear signal (i.e., the public is less able to discern the party's position due to the internal heterogeneity of the party), and may convey the image that the party is unsuited to govern.

Even though EP voting records are not often subject to scrutiny by the media, when a national delegation deviates from a national party position it may make headlines, especially as elections approach. In a particularly embarrassing episode for the UK Labour government, on December 17th, 2008, only a few months before the June 2009 EP election, British Labour MEPs voted to scrap the UK's opt-out from the working time directive's 48-hour work week against the wishes of the national party. Conservatives and Liberal Democrats, both of whom supported maintaining the opt-out, jumped on the opportunity to criticize the Labour government for its lack of clarity and its inability to control its own MEPs.[7] Because parties generally wish to avoid episodes such as this around election time, we expect national parties to exert the highest monitoring levels just before elections.

National parties should also monitor their EP delegations closely just following elections. When new MEPs win seats, the national party will wish to see how they behave in the parliament. The media and organized groups may pay more attention for the first few months of a new term. They may wish to monitor the behavior of new parties that recently entered parliament, for example. Meanwhile, national parties will maintain high levels of monitoring when they feel the spotlight is still on the new EP. As the work of the new parliament proceeds, though, the need of the national party to constantly monitor its delegation will diminish. Monitoring levels, therefore, should be lowest in the middle of the term.

It is important to note that our expectation for high monitoring levels immediately *following* elections are more tentative then our expectation for high monitoring levels immediately *preceding* elections. We generally speculate that MEPs are under greater scrutiny following elections (vis-à-vis external scrutiny) than the middle of the term, but there is less theoretical guidance to this effect then exists for the speculation that monitoring intensity is higher

[7]See "Britain's opt-out from the 48-hour working week set to be scrapped." *The Daily Telegraph*, 18 December, 2008.

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preceding elections compared to the middle of a term. It is conceivable that the changes in monitoring intensity that occur in the first half of a term are minimal (or completely absent). Moreover, the precise relationship between monitoring levels pre- and post-election also remains somewhat ambiguous. Intuition alone might suggest that monitoring levels preceding elections will be higher than those following elections, given the immediacy of consequences. Therefore, our expectation of a parabolic monitoring intensity function must be accompanied by the caveat that this expectation is stronger for the latter portion of a term.

What does this behavior imply for the dispersion of member positions within party groups? Should there be *any* differences in the ideal points of the national parties that constitute a party group — such differences are often observed and in the most severe cases lead to party group switching (McElroy and Benoit, Forthcoming) — movement by party group members toward their respective national party position will inherently diminish party group cohesion. National parties with views farthest from the center of the party group are expected to move the most. Since we theorize that monitoring intensity by national parties is highest when elections are near, party group cohesion will be inversely related to election proximity, as national party delegations with positions at variance with their EP party group position move away from the EP party group and towards their national position. By extension, there are more opportunities for differences across the positions of national parties as the number of national parties within a party group increases, contributing to higher dispersion of member positions for larger party groups. This is merely one of the many reasons that increasing group size complicates the ability of group leadership to compel collective behavior. Thus, we arrive at the following proposition and corollary.

Proposition for Party Group Cohesion Relative to Elections

Party groups will have the least cohesion (highest dispersion of member positions) when elections are proximate and the greatest cohesion (lowest dispersion of member positions) when elections are distant.

Corollary

As the number of national parties that comprise a party group increases, the cohesion of that party group will decrease (i.e., the dispersion of member positions will increase with group size).

Figures 1(b) and 1(c) illustrate these predictions for different specifications of parabolic monitoring intensity functions, in which party group 1 (EPG1) is smaller in size than party group 2 (EPG2). While the functional forms of the predicted dispersion differ across the different monitoring intensity functions, as we would expect, the proposition and corollary hold.

4   Testing the EP Position-Taking Model

We empirically test our theoretical model using roll call vote data from the fifth EP (EP5). Not only is EP5 the most recent parliament for which complete roll call data is available, it is also the last parliament prior to Eastern enlargement. As the EP has consistently increased in both its power and its level of institutionalization, using data from a recent parliament offers the best test of our theory. However, our theory also requires that national parties and their members possess a sophisticated understanding of EP electoral politics, something most likely learned over time. For this reason, MEPs from new member states just entering parliament may not immediately conform to our theoretical expectations. Therefore we feel the 5th EP data offers a better test than would data from the 6th EP.[8]

We first calculate party group cohesion scores and then we estimate MEP ideal points using a one-dimensional Bayesian item-response (IRT) model. To calculate cohesion scores and ideal points across time, we have divided the roll calls by year. Accordingly, the first year in our data extends from July 1999 to June 2000, the second year from July 2000 to June 2001, the third from July 2001 to June 2002, the fourth from July 2002 to June 2003 and the fifth from July 2003 to June 2004. The use of roll call votes to examine ideology in the European Parliament is certainly not uncontroversial. Some scholars have examined selection bias in roll calls and have found that when not all votes are recorded, using roll calls can lead to biased estimates of ideology and cohesion (Carrubba et al., 2006; Carrubba, Gabel and Hug, 2008; Hug, Forthcoming). In the EP approximately one third of all votes are roll calls. The remaining two thirds are taken either by a show of hands

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[8]The data is available from Simon Hix's website at `http://personal.lse.ac.uk/HIX/` `HixNouryRolandEPdata.HTM`.

or by electronic vote where the outcome of the vote is recorded but not the way individual MEPs voted. Nevertheless, we feel roll calls represent the best data available for testing our theory. Other means of estimating ideology, such as expert surveys of party group positions (McElroy and Benoit, 2007), national parties (Steenbergen and Marks, 2007) or surveys of MEPs themselves (Farrell et al., 2006) do not offer sufficient variation over time. Proksch and Slapin (Forthcoming) have used speeches to estimate positions of national parties in the European Parliament, however they find a strong national component to speech which is likely related to the institutional incentives of MEPs to make speeches. Selection effects may be even stronger for speech data than for vote data and are less well understood. Thus, we opt to use roll call votes to examine our claims.

Moreover, the shortcomings of roll call analysis articulated in the aforementioned scholarship appear not to bias our analysis. We concur with these scholars that roll calls may lead to imperfect estimation of legislators' sincere preferences, as roll calls are unlikely to be a random sample of all votes. However, there is little reason to suspect that this imprecision in estimation would *advantage* our theory, since it seems improbable that this bias is time-dependent. This study is principally interested in examining *change* in ideal points across a parliamentary term, and therefore we should be cautious of using roll call analysis if it is likely to result in finding greater cohesion when elections are near. If party groups that request roll call votes are likely to exhibit greater cohesion than they would under other voting methods, as suggested by Carrubba, Gabel and Hug (2008), then we should look to the frequency of roll call votes across the term to explore the appropriateness of this approach. In fact, there is remarkable consistency in the number of roll calls across the years. For instance, the difference in the number of roll calls between the third and fifth year of EP5 (the years with the greatest predicted difference in cohesion) is merely 19 (1219 in the third year and 1236 in the fifth). Thus, we opt to use roll call votes to examine our theoretical claims.

4.1   Agreement Indices

As a first cut at identifying potential differences in EP party group cohesion across time, we calculate Agreement Indices (Hix, Noury and Roland, 2005) for each of the major party

groups and each year. The formula for the Agreement Index, as explained in Hix, Noury and Roland, is as follows:

$$AI_i = \frac{\max\{Y_i, N_i, A_i\} - 1/2[(Y_i + N_i + A_i) - \max\{Y_i, N_i, A_i\}]}{Y_i + N_i + A_i},$$ (3)

where Y_i represents the number of Yea votes, N_i the number of Nay votes and A_i the number of abstentions on vote i. The index equals 1 when all members of a group vote in the same manner, and it equals 0 when their votes are equally divided among the three choices. We calculated Agreement Indices for every party group and every roll call vote by year. Thus, for every party group we have five (one for each year) Agreement Index distributions based on the total number of roll call votes in the corresponding year. We used those distributions to calculate the median Agreement Index and 95% confidence intervals for each year and party group. These results are presented as bar plots in Figure 2, with year graphed on the x-axis and the Agreement Index on the y-axis. The bars represent the median Agreement Indices and the whiskers span the 95% confidence intervals, calculated with the standard errors from the distributions of annual party group cohesion scores. Based on our theoretical model, we expect that party groups will be most cohesive in the middle of the term. Immediately following an election, we expect cohesion to be low, slowly increasing and reaching a maximum in the middle of the term and then decreasing to reach another low in the last year.

[FIGURE 2 ABOUT HERE.]

Figure 2 provides some initial evidence in favor of our theoretical predictions, especially when we focus on the changes from years 1 to 3 and years 3 to 5. In fact, for the four largest party groups — the Socialists (Party of European Socialists - PES), the Conservatives (European Peoples Party - EPP), the Liberals (European Liberal Democrats - ELDR), and the Greens — one-sided t-tests confirm that there are statistically significant differences across years 1, 3 and 5. For these four party groups, cohesion is significantly higher in year 3 than in year 1 and significantly lower in year 5 than in year 3.

The smaller party groups, such as the right-wing group Union for Europe of the Nations (UEN) and the left-wing European United Left/Nordic Green Left (EUL), appear to show a

monotonic increase in party group cohesion over the course of EP5.[9] This suggests that the national parties within these smaller, fringe party groups may have been employing different monitoring functions than the national parties belonging to the four larger, more mainstream party groups. In addition, these party groups had the lowest overall Agreement Index scores at the beginning of the term and, therefore, had little place to go but up. For these reasons, the remaining analysis focuses solely on the four largest groups. Moreover, outside of the four largest party groups, membership size for the remaining party groups is too small for meaningful regression analysis, which is at the core of our empirical test of the electoral connection (see below). It is important to note, though, that the four largest groups we consider in our subsequent analysis make up 82% of the EP membership.

4.2   Bayesian Ideal Point Analysis

Next, we take a more refined approach to examining changes in party group cohesion. Specifically, we use a Bayesian item-response theory (IRT) model to estimate ideal points for each year and MEP in EP5. The great advantage of this method over the Agreement Index is that it lets us assess changes in cohesion more accurately. While the Agreement Index only accounts for the extent to which party group members vote similarly on individual votes, the IRT model generates estimates for the actual position of each MEP. Thus, we can accurately account for the dispersion of individual members within a party group. This is not possible with the Agreement Index. Stated differently, from the Agreement Index, we cannot recover the actual dispersion of MEP ideal points. For example, a low Agreement Index could be the result of either an ideal point distribution with relatively large dispersion or a distribution with relatively low dispersion. This uncertainty is resolved by using the roll call votes to estimate ideal points.

There are several reasons to use a Bayesian IRT model to estimate MEP ideal points. Since we are interested in variation within a legislative term, we cannot rely on the well-known Nominate estimates of Hix, Noury and Roland (2007), which have only been estimated

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[9]We do not examine the Europe of Democracies and Diversities (EDD) group due to the fact that they only held 16 seats.

for entire EP terms. Moreover, these (W-)Nominate scores are not comparable across time. There is also a strong argument for using Bayesian IRT models over DW-Nominate (Poole and Rosenthal, 1997), the dynamic version of Nominate. As several authors before us have pointed out, the DW-Nominate estimation procedure assumes a linear trajectory for individual ideal points across time, which we believe is quite a restrictive assumption (Clinton, Jackman and Rivers, 2004). The Bayesian IRT model that we use here does not make that assumption but rather allows ideal points to move in any pattern across time. In our research on the U.S. Senate we show that forgoing the linearity assumption inherent to the DW-Nominate model makes an important difference to inference and conclusions one can draw about ideal point change (Lindstädt and Vander Wielen, 2009).

For the ideal point analysis, the roll call data can only contain zeros, ones and missing values. We follow Hix, Noury and Roland's (2007) convention of coding *present but did not vote*, *absent* and *not an MEP* as missing, *no* and *abstain* as zero and *yes* as one for absolute majority votes. The coding for simple majority votes is identical, except that *abstain* is coded as missing rather than a *no* vote. Aside from the coding, however, our approach is quite different from that of Hix, Noury and Roland. While they are interested in estimating MEP ideal points for purposes of exploring relative positioning both across EP members and party groups, our main interest is in assessing the variation of cohesiveness within party groups across time. For that reason, we choose to estimate MEP ideal points separately for each of the major party groups rather than in a single model, thereby significantly reducing the computational burden. This approach allows us to compare ideal points of MEPs from within the same party group, but not across party groups. In other words, we can no longer say whether the Socialists are more centrist than the Greens; but given our primary interest in party group cohesion rather than ideal point comparison across party groups, our approach is justified. Moreover, estimating group positions separately helps eliminate concerns that positions vary over time with respect to other groups as a result of legislative coalition formation. The entire Socialist group may move to the center during the middle of the term to form a legislative coalition with the Conservative group, but so long as the Socialists move as a monolithic bloc, our results will not be affected. To reiterate, we are only interested in dispersion of ideal points within party groups and not their positional

relationship to other party groups.

As a result, we have four data sets, one each for the largest EP party groups - the Socialists, the Conservatives, the Liberals and the Greens. For each of the party groups, we drop all MEPs who did not vote at least 25% of the time in each of the five years.[10] We follow Hix, Noury and Roland's (2007) approach by dropping roll calls on which 97% or more of the MEPs are in agreement. This greatly reduces the number of votes for each party group, which further reduces computational burden. Again, this is unproblematic as votes with high levels of agreement among party group members offer very little information for purposes of discriminating among members and their ideal points.

The final data set for the Socialists contains 161 legislators and 412 roll calls in the first year, 332 roll calls in the second, 368 roll calls in the third, 443 roll calls in the fourth and 419 roll calls in the fifth year. Similarly, the relevant numbers for the Conservatives are 200 legislators and 485, 518, 541, 520 and 677 roll calls, for the Liberals 43 legislators and 498, 526, 467, 480 and 623 roll calls, and finally for the Greens 41 legislators and 302, 256, 290, 208 and 260 roll calls. For each of the party groups, we hold the ideal points of two MEPs constant across time.

There are different ways for estimating ideal points that are comparable across time in an IRT framework, but a particularly straightforward and easily implemented technique is to estimate a quasi-dynamic model. We illustrate the method with reference to the Socialists. The procedure is the same for the three remaining party groups. For the Socialists, we first generate a 795×1974 matrix of missing values and then place the annual roll call data on the diagonal of that matrix. As a result, we treat the annual observations for an individual MEP as if they came from different individuals. Thus, we essentially have 159×5 MEPs. However, MEP 1.1 (MEP 1 in year 1) has votes recorded only for year 1 and missing values for all of the other years, and MEP 1.2 has votes recorded only for year 2 and missing values

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[10]Estimation of ideal points for MEPs who participate in few votes results in extremely inaccurate and unreliable posterior estimates. Dropping those members from the analysis is therefore a common approach in ideal point research (see for instance Hix, Noury and Roland, 2007).

for all of the other years, etc. Consequently, the estimations yield five ideal points for each MEP (the exception being the constant members; see below).

For these ideal points to be on the same scale, and, therefore, comparable across years, we must make one additional assumption, namely that the ideal points of some members are constant across years. This might seem to be a somewhat odd assumption to make in an analysis that specifically looks at ideal point change across time, but (i) it is essential for guaranteeing comparability of ideal points across time, (ii) less problematic than the alternative of identifying the scale by fixing roll calls (which is better with time-invariant estimations but inappropriate here), and (iii) it still allows us to make inference about movement for all of the non-constant MEPs. We take an additional precaution by holding constant members from the party group leadership, as these members are less likely influenced by national party monitoring, and therefore less likely to shift positions over time. Party group leaders tend to be accomplished senior politicians who will not wish to return to jobs in national politics. They are also less likely to be moved down the party list at election time. Therefore, they are less susceptible to pressures from the national party to toe the national party line. For each party group, we anchor the ideal point scale with two party leaders with high vote participation rates who fall on opposite sides of the party group's ideological spectrum (which we identified using the first-dimension W-Nominate scores provided by Hix, Noury and Roland (2007)).[11]

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[11]It is important to note again that we hold these anchors constant across the five years and that we impose inequality constraints on their ideal points to identify the scale. We therefore still estimate ideal points for these members but constrain them to be on one side (positive or negative) of the scale for the entire period of analysis. For the Socialists, we constrain the ideal point of Torben Lund (Denmark) on the left and Robert Goebbels (Luxembourg) on the right. Both are party group Vice-Chairmen. For the Conservatives, we use Françoise Grossetête (Vice-Chairwoman from France) as the left anchor and James Elles (Vice-Chairman from the UK) as the right anchor. The anchors for the Liberals are Graham Watson (left anchor; Chairman from the UK) and Paavo Väyrynen (right anchor; Vice-Chairman from Finland). Finally, for the Greens, we use Paul Lannoye (left anchor;

The model that we estimate is the standard one-dimensional Bayesian IRT model (see Clinton, Jackman and Rivers, 2004). The model is estimated using Gibbs sampling and implemented as part of the `MCMCpack` package (Martin, Quinn and Park, 2009) in `R` (R Development Core Team, 2009). The specific `MCMCpack` function we use is `MCMCirt1d`. The final model takes the following form:

$$p(\alpha, \beta, \theta | \mathbf{V}) \propto p(\mathbf{V}|\alpha, \beta, \theta)p(\alpha, \beta, \theta), \tag{4}$$

where:

- $p(\alpha, \beta, \theta)$ are the priors, all distributed normal with mean 0 and variance 1, and

- $p(\mathbf{V}|\alpha, \beta, \theta) \propto \prod_{b \in B_c} \prod_{s \in S_b} \Phi(\alpha_b + \beta_b \theta_s)^{v_{b,s}} (1 - \Phi(\alpha_b + \beta_b \theta_s))^{1-v_{b,s}}$ is the likelihood function.

In Equation 4, α refers to the difficulty parameters, β to the discrimination parameters, and θ to the ideal points (subject abilities). For each of the four estimations, we set the number of burn-in iterations at 200,000 and the number of MCMC iterations at 2,000,000, saving every 200th iteration for a total of 10,000 posterior ideal point estimates for each MEP. In the next section, we discuss the results of the ideal point estimations.

5 Results

Graphical examination of the parameters as well as other diagnostic tests indicate that the estimates have reached stationarity and have likely converged.[12] As before, we are interested

Chairman from Belgium) and Heide Rühle (right anchor; Vice-Chairwoman from Germany). The constant members and their corresponding roll calls are appended to the roll call matrix. The corresponding final matrices used for the ideal point estimations are of size 797×1974 for the Socialists, 992×2741 for the Conservatives, 207×2594 for the Liberals, and 197×1316 for the Greens.

[12]We primarily relied on Geweke's convergence diagnostic, as implemented in the `coda` (Plummer et al., 2009) package in `R` (R Development Core Team, 2009).

in the spatial contraction and expansion of EP party group ideal point distributions across years. Rather than plot MEP ideal points, we begin by constructing barcharts of the standard deviations of ideal points within each party group by year. We illustrate the procedure taking the Greens as an example. The procedure is the same for the other party groups.

After eliminating members that did not participate in a sufficient number of roll calls, there remain 41 members in the party group. Of those 41 members, we selected two (see above) whose ideal points we held constant across the five years of EP5 in order to anchor the ideal point scale. To calculate the standard deviations for the Greens for each year and to account for the uncertainty of the ideal point estimates, we repeatedly conduct random draws of ideal points from the posterior distribution. Specifically, for year 1, we randomly draw an ideal point estimate for each of the 39 non-constant members of the Greens and then calculate the standard deviation from the distribution of those ideal points. We then repeat that process 1,000 times. The result is a distribution of standard deviations of size 1,000 for year 1. From that distribution, we calculate the median standard deviation and 95% Bayesian credible intervals. We then do the same for years 2 through 5. The process is the exact same for the other three party groups.

We graph the results in Figure 3, plotting year on the x-axis and the standard deviation on the y-axis for each of the four largest party groups. The gray bars represent the median standard deviation, and the whiskers span the 95% Bayesian credible intervals. From Figure 3, we can see that all of the major party groups, with the exception of the Greens, follow the pattern suggested by our theoretical model. The Socialists, Conservatives and Liberals all exhibit the U-shaped pattern across the five years shown in Figures 1(b) and 1(c).

[FIGURE 3 ABOUT HERE.]

The results are most impressive for the Socialists and the Conservatives, for which the 95% Bayesian credible intervals of years 1 and 3 as well as 3 and 5 are far from overlapping. While the trend for the Liberals is in accordance with our theoretical model, there is a little bit of an overlap in the credible intervals for years 1 and 3 as well as years 3 and 5, although the credible interval for year 4 is distinctly different from years 1 and 5. Given the general parabolic shape of across-year dispersion for the Liberals in Figure 3, there is

sufficient evidence to conclude that the Liberals as well behave in a manner consistent with our theoretical model. Yet, it is important to note that the year-to-year changes are not always completely aligned with the theoretical predictions for the Liberals. While the results for the Greens are less conclusive, the overall conclusion from the standard deviation analysis is that our theoretical model fares extremely well in predicting patterns of cohesion across time for the major party groups: When elections are proximate, party group cohesion will tend to be lowest.

The results from the standard deviation analysis also give impressive support to our corollary claim, which posits that party group dispersion will increase with group size. It is noticeable that the standard deviations for the Socialists and the Conservatives are larger for most years and have a much greater range than do the standard deviations for the Liberals and the Greens, closely resembling the comparison of EPG_1 to EPG_2 in the theoretical Figures 1(b) and 1(c). The Greens, the smallest party group, are the most cohesive, followed by the second smallest group, the Liberals. The larger party groups are also correctly ordered according to our theoretical model. The Socialists, the second largest group, are much less cohesive overall than the smaller party groups, but are generally more cohesive than the Conservatives, the largest EP party group. Given these patterns, which are perfectly consistent with our corollary, it is not surprising either that the two smallest party groups offer the weakest support for our main proposition. Since these are the party groups predicted to exhibit the greatest cohesion across time, finding sufficient variation in dispersion to reject the null hypothesis of no change constitutes a particularly high bar.

At this point, we have only shown that there is indeed contraction and expansion of ideal point distributions across years that is consistent with our theoretical model. Figure 3 suggests that there is a maximum amount of insulation from electoral pressures in year 3 and a minimum in year 5. However, contraction and expansion in and of themselves do not provide conclusive evidence that the cohesion patterns are driven by electoral factors in general or that they are the result of national party monitoring in particular. The best approach to uncovering possible electoral effects is to regress our ideal point estimates on a measure of national party positions, while at the same time accounting for nonlinear time dynamics.

Thus, we estimate four OLS regression models, one for each major party group, in which the dependent variable is the absolute distance between a MEP's ideal point and the mean position of her party group in that year. The independent variables include year (ranging from 1 to 5), year-squared, the position of the MEP's national party on EU integration and two interaction terms between year and national party position as well as year-squared and national party position. For the national party position measure, we rely on an expert survey conducted by Hooghe et al. (2008). The variable has seven categories, ranging from 1 (strongly opposed to European integration) to 7 (strongly in favor of European integration). The regression model takes the following form, where θ_j is the individual's ideal point estimate in year j, $\bar{\theta}_j$ is the mean ideal point of the MEP's party group in year j and NP is the position of the individual's national party on EU integration as measured by the Hooghe et al. (2008) expert survey.

$$
\begin{aligned}
|\theta_j - \bar{\theta}_j| \;=\; & \beta_0 + \beta_1 \text{Year} + \beta_2 \text{Year}^2 + \beta_3 \text{NP} + \\
& \zeta_1 \text{Year} \times \text{NP} + \zeta_2 \text{Year}^2 \times \text{NP} + \epsilon, \\
& \text{for} \;\; j = 1, \dots, 5
\end{aligned}
\tag{5}
$$

Given our theoretical prediction, we expect that MEPs' deviations from the mean party group position will be greatest when elections are proximate and national party preferences trump party group preferences. The least amount of deviation is expected to occur in the middle of the five-year EP term, when electoral insulation is greatest and MEPs are relatively free to focus on party group preferences. Moreover, we expect that MEPs whose national parties are highly favorable of EU integration have little reason to deviate from the party group position throughout the term, whereas MEPs from national parties who are more opposed to EU integration are more likely to show substantial movement across time. This is especially true for the members of the two largest party groups — the Socialists and Conservatives — as these groups are generally very pro-integration. Specifically, in a graphical display of levels of MEP deviation from their mean party group ideal point, we would expect MEPs from EU-skeptical parties to exhibit an across-time pattern resembling an upward-opening parabola, while we would expect a relatively flat pattern for MEPs from

EU-enthusiastic national parties.

Of course, simply using the mean ideal point estimates as the dependent variable for our regression would neither be in the spirit of our Bayesian approach nor would it account for the uncertainty about the ideal point estimates. Consequently, we use a similar approach to the one employed for the standard deviation analysis. We first randomly draw, by year, an ideal point estimate for each of a party group's non-constant members and then calculate the absolute mean distance from the mean party group estimate for that particular sample. We repeat that process 100 times.[13] Subsequently, we estimate the regression in equation 6 by party group for each of the 100 draws, giving us 100 separate regression estimates for each group. This method straightforwardly accounts for the uncertainty surrounding our ideal point estimates.

We proceed to present the results of the regression analysis by plotting predicted values with confidence intervals for each of the 100 draws and each party group. Figures 4, 5, 6 and 7 show the resulting graphs. In each of the four graphs, the predicted values for the absolute mean ideal point estimation are plotted on the y-axis and year on the x-axis. The black lines represent the regression curves when the national party position is set at the minimum value within the respective party group (indicating less support for EU integration). The gray lines represent the regression curves when the national party position is set at the maximum value within the respective party group (indicating the most support for EU integration). In both cases, the middle curves represents the mean estimate and the upper and lower curves form the 95% confidence intervals.

[FIGURES 4 AND 5 ABOUT HERE.]

From Figures 4 and 5, we can see that the two major party groups show the patterns we would expect from electorally motivated contraction and expansion. In both cases, as expected, MEPs from national parties with low support for EU integration (black curves) display maximal deviation from the mean party group ideal point right before and right

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[13]We also did this with 1,000 draws, but graphical representation of a sample of that size is entirely impractical. Of course, in both cases, the draws were random, which is why — not surprisingly — the results are practically identical across the large and the small sample.

after elections and minimal deviation in the middle of the EP term. MEPs from pro-EU integration national parties (gray curves), on the other hand, show very little variation across time for the Conservatives and the Socialists. In addition to displaying a parabolic shape, members from more Euro-skeptic national parties have greater absolute deviations from the mean of the party group in all years. When national parties are supportive of EU integration, they have less need to closely monitor their MEPs because their national party position is likely more similar to that of the party group.

[FIGURES 6 AND 7 ABOUT HERE.]

We do not observe the same patterns for the smaller party groups — the Liberals (Figure 6) and the Greens (Figure 7) — but as pointed out in our discussion of the standard deviation patterns, there is reason to believe that there are other mechanisms at work here. In particular, as we suggest in our corollary, smaller party groups might generally have less of a problem with large swings in cohesion, since the party group leadership is in a better position to closely monitor the relatively small membership and fewer (potentially divergent) preferences comprise the party group. Not only is the across-time variation in cohesion relatively flat for the Liberals and the Greens, but the size of the mean deviations are generally smaller for these party groups than they are for the Socialists and the Conservatives, a finding that is consistent with our theoretical model.

In conclusion, we find strong evidence for our theoretical predictions. Not only is there contraction and expansion in ideal point distributions over the years, but these patterns can be directly explained by national party monitoring as elections approach. The patterns of ideal point movement are remarkably strong for the two largest party groups, which together represent 66% of the total EP membership and consist of the largest center-left and center-right national parties from across Europe. And the weaker evidence of election-related movement occurs among the smaller party groups as predicted by the theoretical model.

6 Conclusion

MEPs face competing incentives from national party and party group leaders. There are strong theoretical reasons to believe that the influence these two principals assert is not

constant across a single parliamentary term. Yet research on ideological position-taking and cohesion within the EP has assumed that shifts only occur across parliamentary periods rather than within them. We have presented a formal model to demonstrate how MEPs facing two principals shift their ideological positions over time as constraints imposed by these principals change. We find strong evidence that EP party groups are most cohesive during the middle of the parliamentary term and least cohesive around election time. This is because national party delegates within a party group move en bloc towards each other during the middle of the parliamentary term.

Our findings are particularly interesting in light of the literature on the second-order nature of EP elections. Even though the public does not seem to know or care much about European politics and elections, national parties and party groups shape the behavior of their MEPs on the floor of parliament as if MEP behavior would have an electoral impact. Parties may worry that the public will start to pay attention, or that opposing parties will attempt to take advantage if their MEPs cast public votes that are out of line with the national party position.

The approach we take here has implications beyond the EU. The theoretical model can be used to study legislative position-taking in any political system where MPs face competing demands. MPs, for example, may be caught between party leaders in charge at the national level and party activists responsible for candidate selection at the local level. In systems with single member districts, the position of the national party may not be the same as the position of the median voter in an MP's district, again leading MPs to attempt to balance these competing demands. Future research is required to both further investigate our claims regarding EU politics and to extend the model to other political systems.

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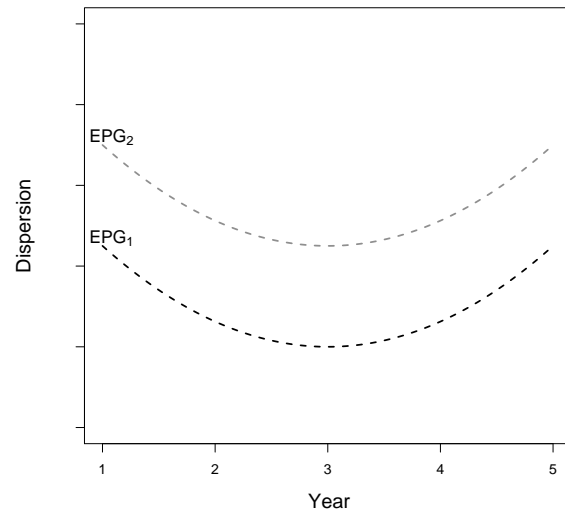
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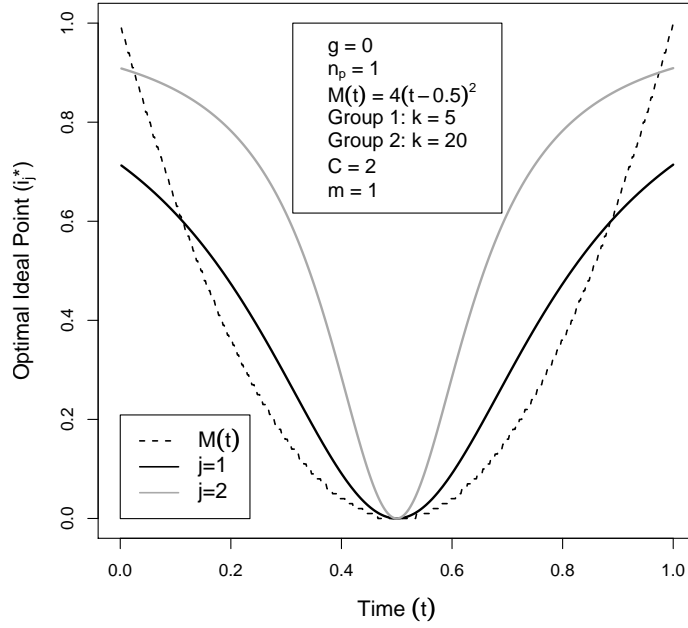
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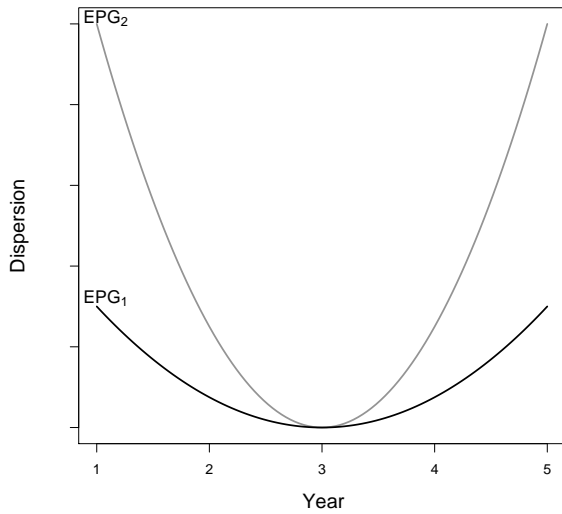
(b)

(c)

Figure 1: *Theoretical Predictions.* Panel (a) displays optimal ideal points for two MEPs from party groups of different sizes, under conditions of identical monitoring intensity functions and input values listed in panel. Panels (b) and (c) display dispersion predictions comparing two party groups in which party group 1 (EPG1) is smaller in size than party group 2 (EPG2). Panels (b) and (c) differ in the specification of the parabolic monitoring intensity function.
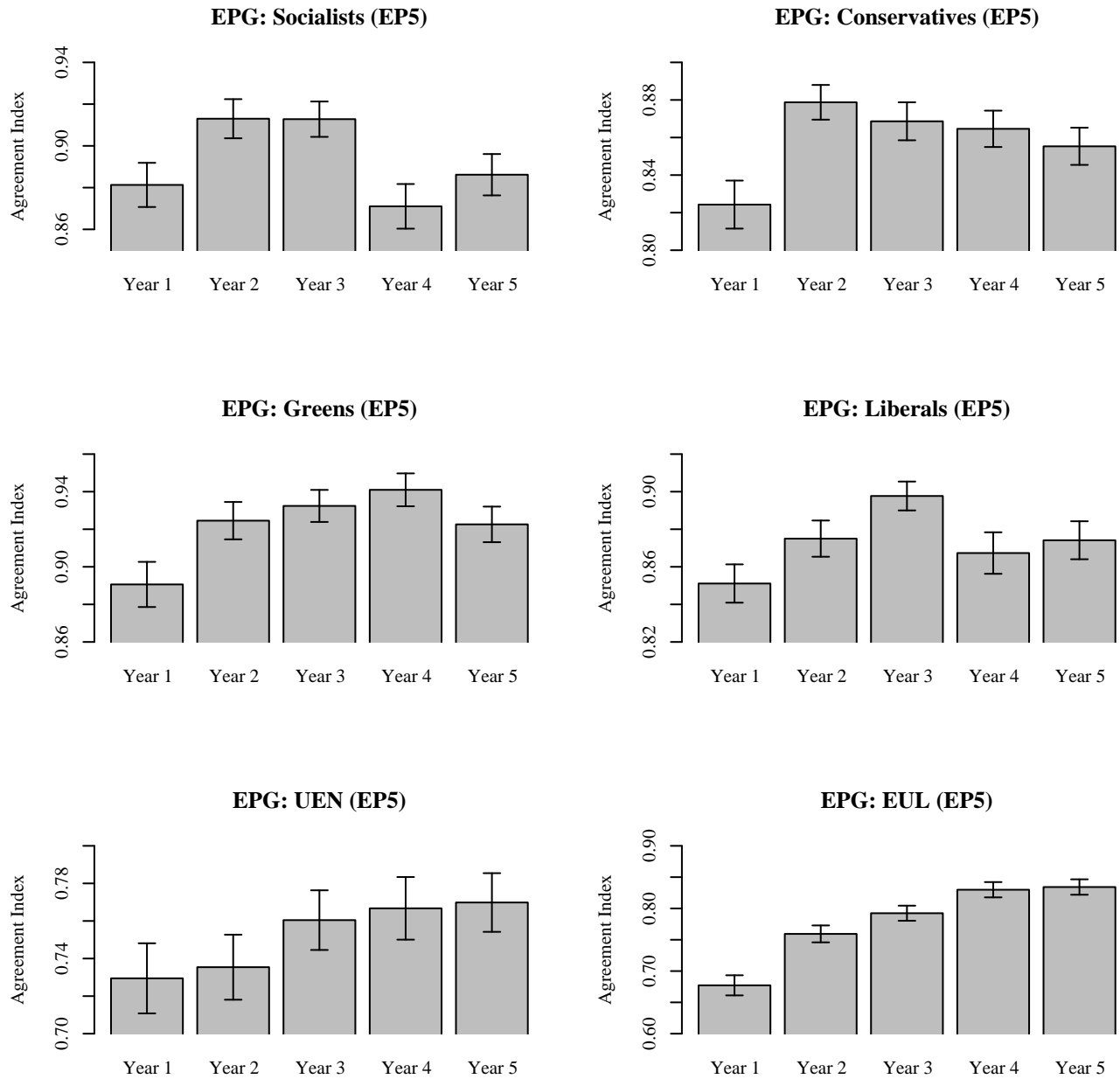
Figure 2: *Agreement Indices for EP Party Groups.* Agreement Indices, plotted on the y-axis, were calculated using Hix, Noury and Roland's (2005) formula. The bars correspond to the median Agreement Index and the whiskers span the 95% confidence intervals, calculated with the standard errors from the distribution of annual Agreement Indices.
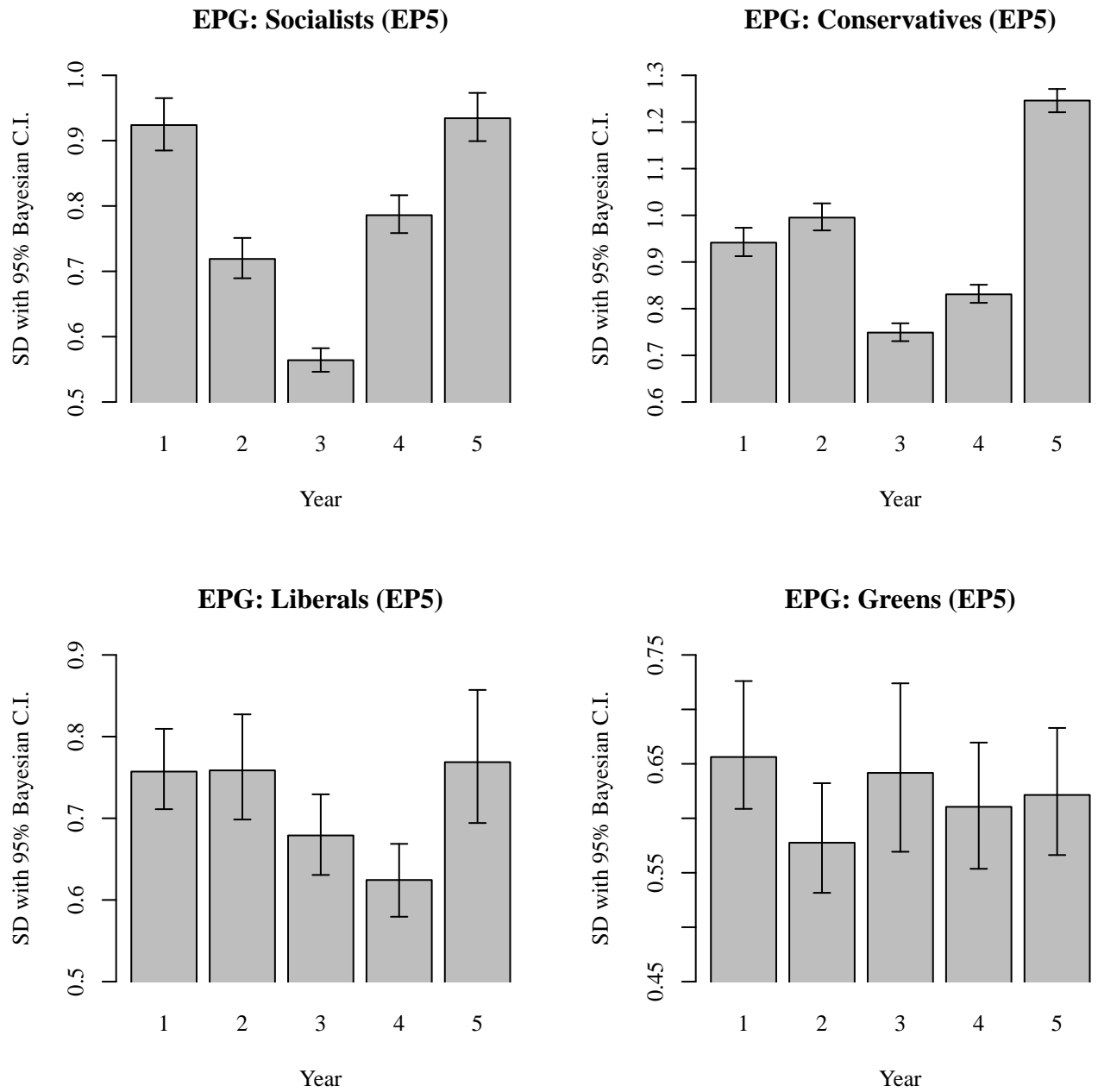
Figure 3: *Standard Deviations for EP Party Group Ideal Point Distributions.* Standard deviations are plotted on the y-axis and year on the x-axis. The bars represent the median estimates and the whiskers the 95% Bayesian credible intervals, all calculated using 1,000 samples of MEP ideal points (by party group and year) from the posterior distributions.
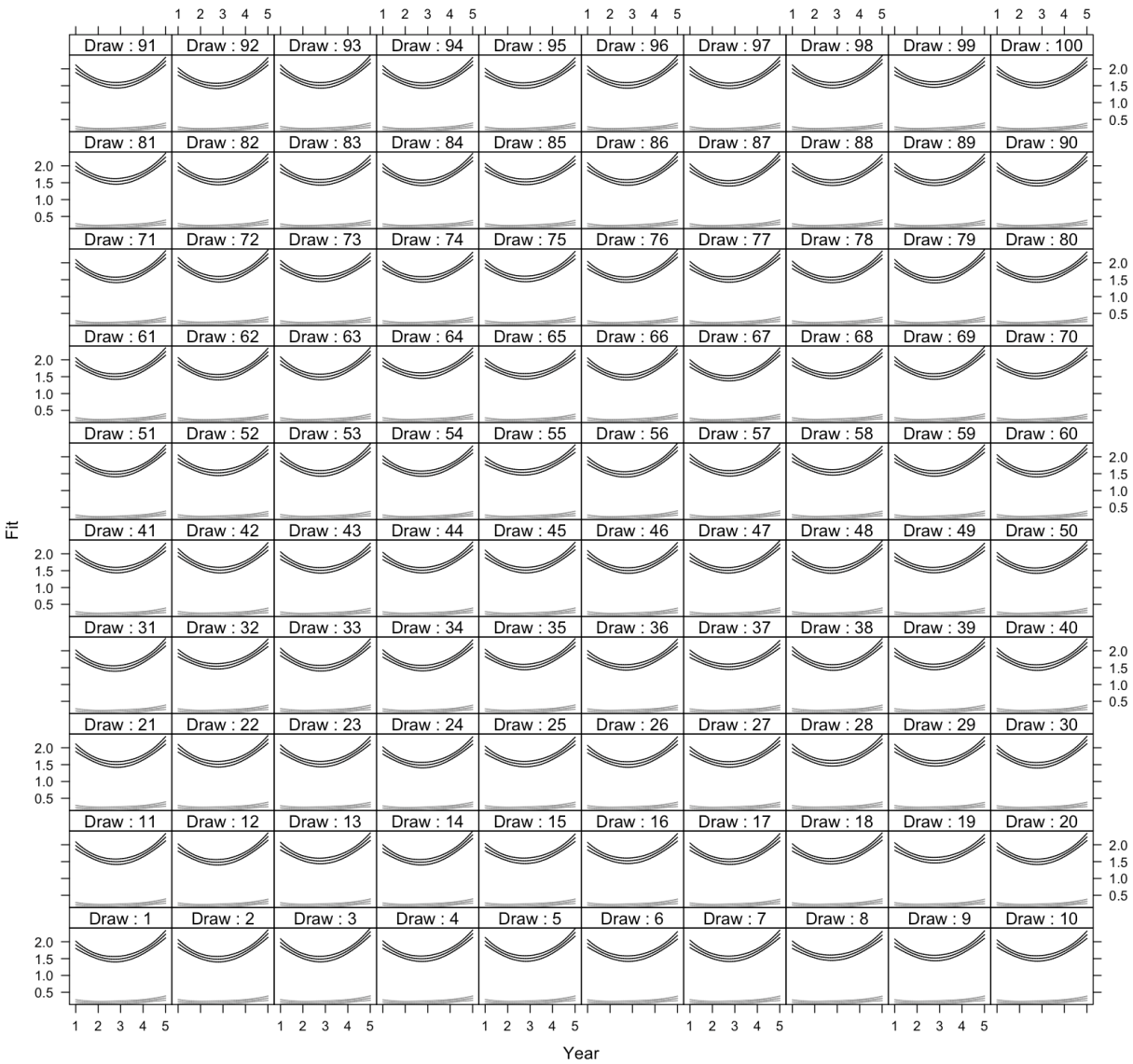
Figure 4: *Predictions for National Party Effects Across Time: Conservatives.* Predicted absolute ideal point deviations from the party group mean are plotted on the y-axis and year is plotted on the x-axis. The curves represent the predicted estimates from an OLS regression of absolute ideal point deviations from the party group mean on year, year-squared, national party position and interactions between year and national party position as well as year-squared and national party position. The gray curves are the predictions for when the national party position is set at the maximum for the Conservatives (maximal support for the EU) and the black curves for when the national party position is set at the minimum for the Conservatives (minimal support for the EU). The middle black and gray curves are the mean predictions, with the enveloping lines forming the 95% confidence intervals.
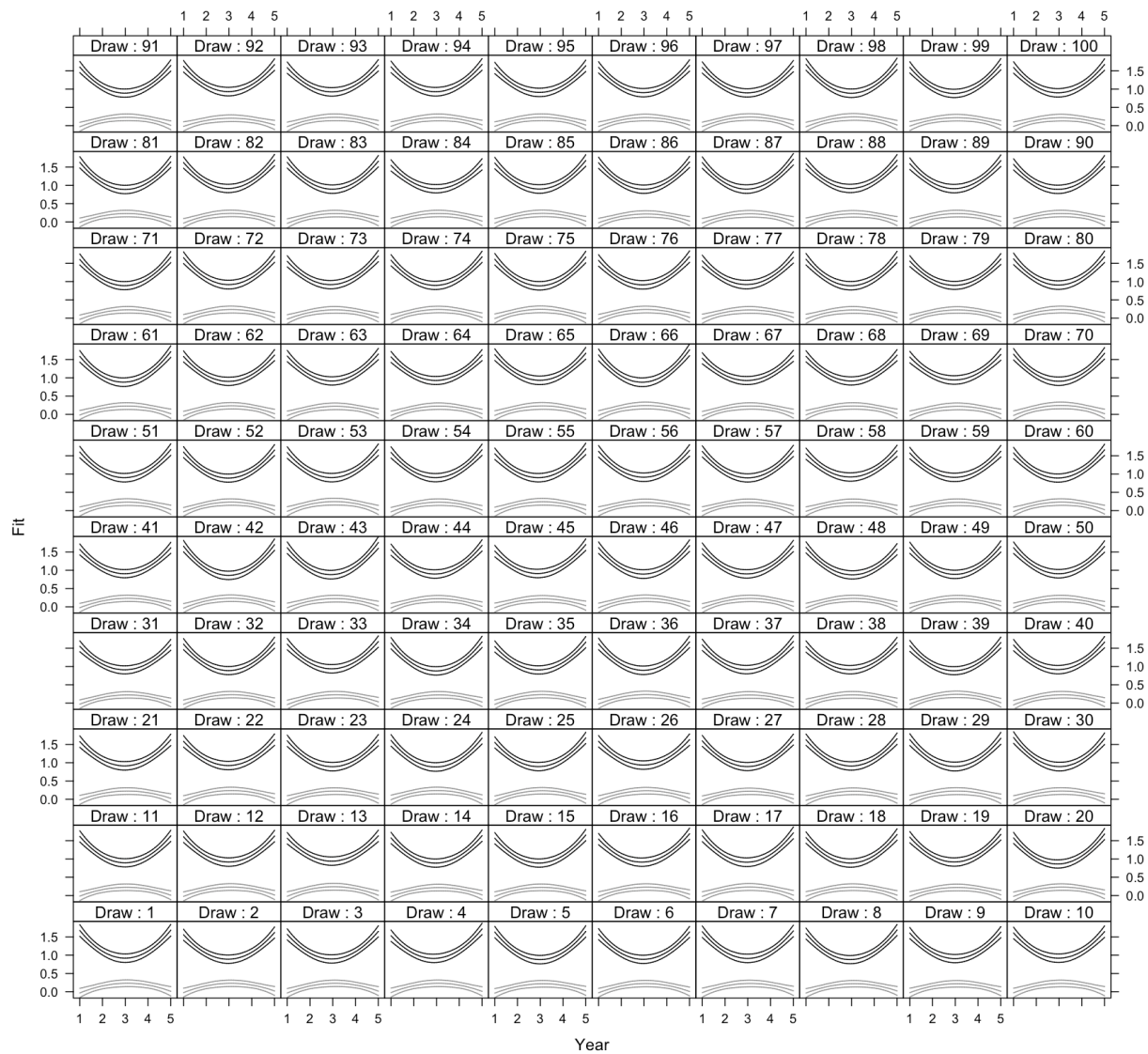
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Figure 5: *Predictions for National Party Effects Across Time: Socialists.* Predicted absolute ideal point deviations from the party group mean are plotted on the y-axis and year is plotted on the x-axis. The curves represent the predicted estimates from an OLS regression of absolute ideal point deviations from the party group mean on year, year-squared, national party position and interactions between year and national party position as well as year-squared and national party position. The gray curves are the predictions for when the national party position is set at the maximum for the Socialists (maximal support for the EU) and the black curves for when the national party position is set at the minimum for the Socialists (minimal support for the EU). The middle black and gray curves are the mean predictions, with the enveloping lines forming the 95% confidence intervals.
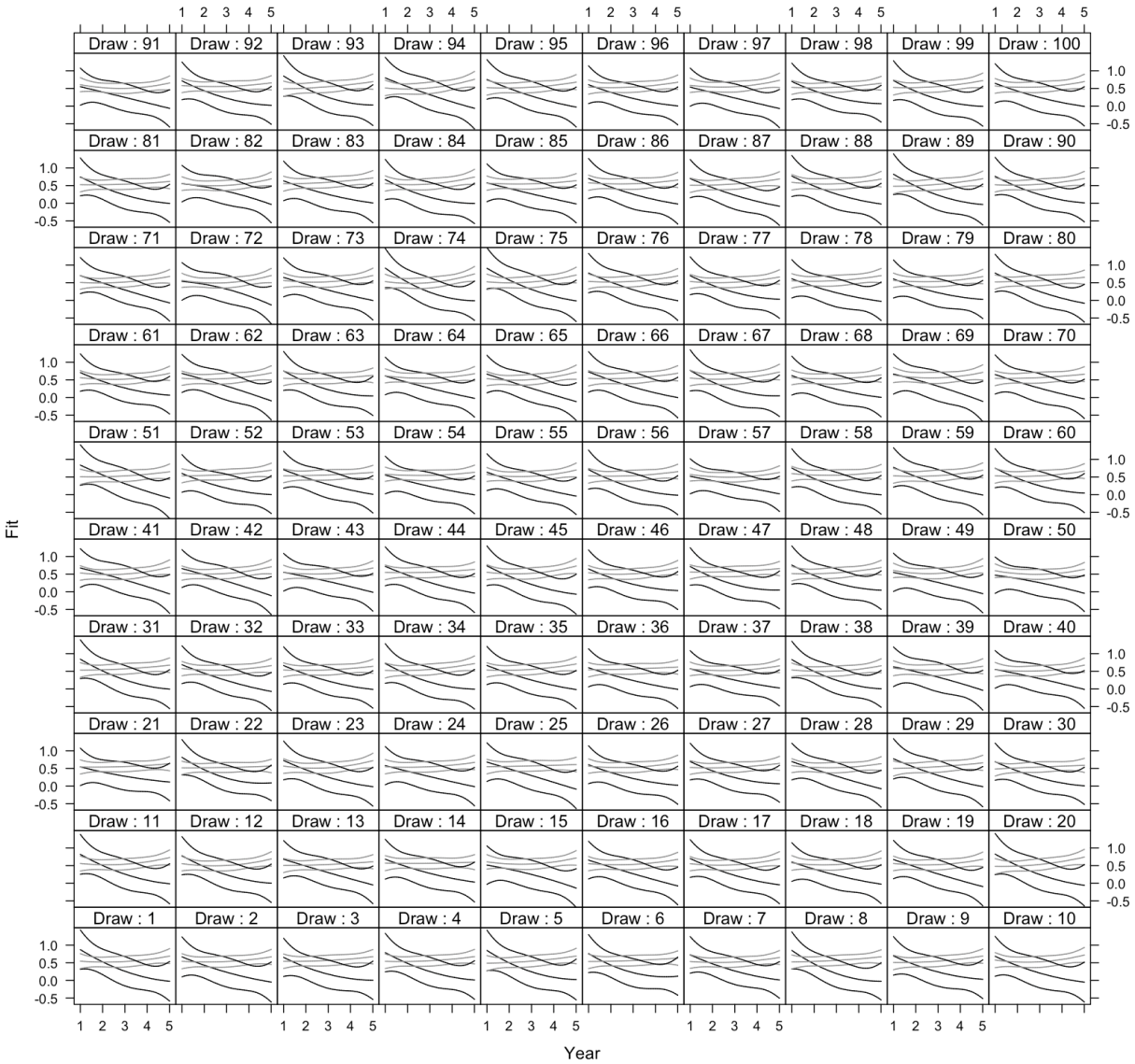
Figure 6: *Predictions for National Party Effects Across Time: Liberals.* Predicted absolute ideal point deviations from the party group mean are plotted on the y-axis and year is plotted on the x-axis. The curves represent the predicted estimates from an OLS regression of absolute ideal point deviations from the party group mean on year, year-squared, national party position and interactions between year and national party position as well as year-squared and national party position. The gray curves are the predictions for when the national party position is set at the maximum for the Liberals (maximal support for the EU) and the black curves for when the national party position is set at the minimum for the Liberals (minimal support for the EU). The middle black and gray curves are the mean predictions, with the enveloping lines forming the 95% confidence intervals.
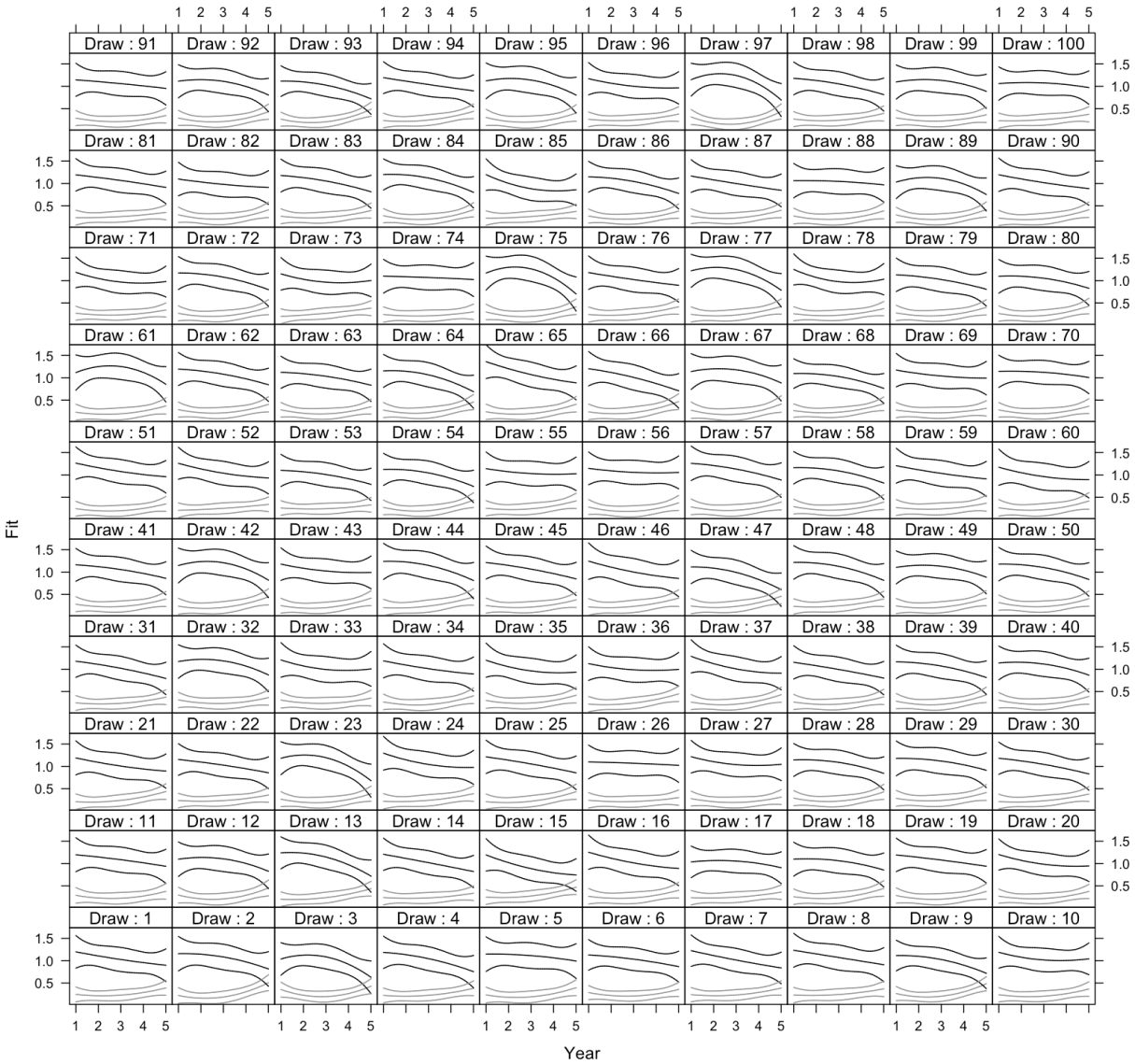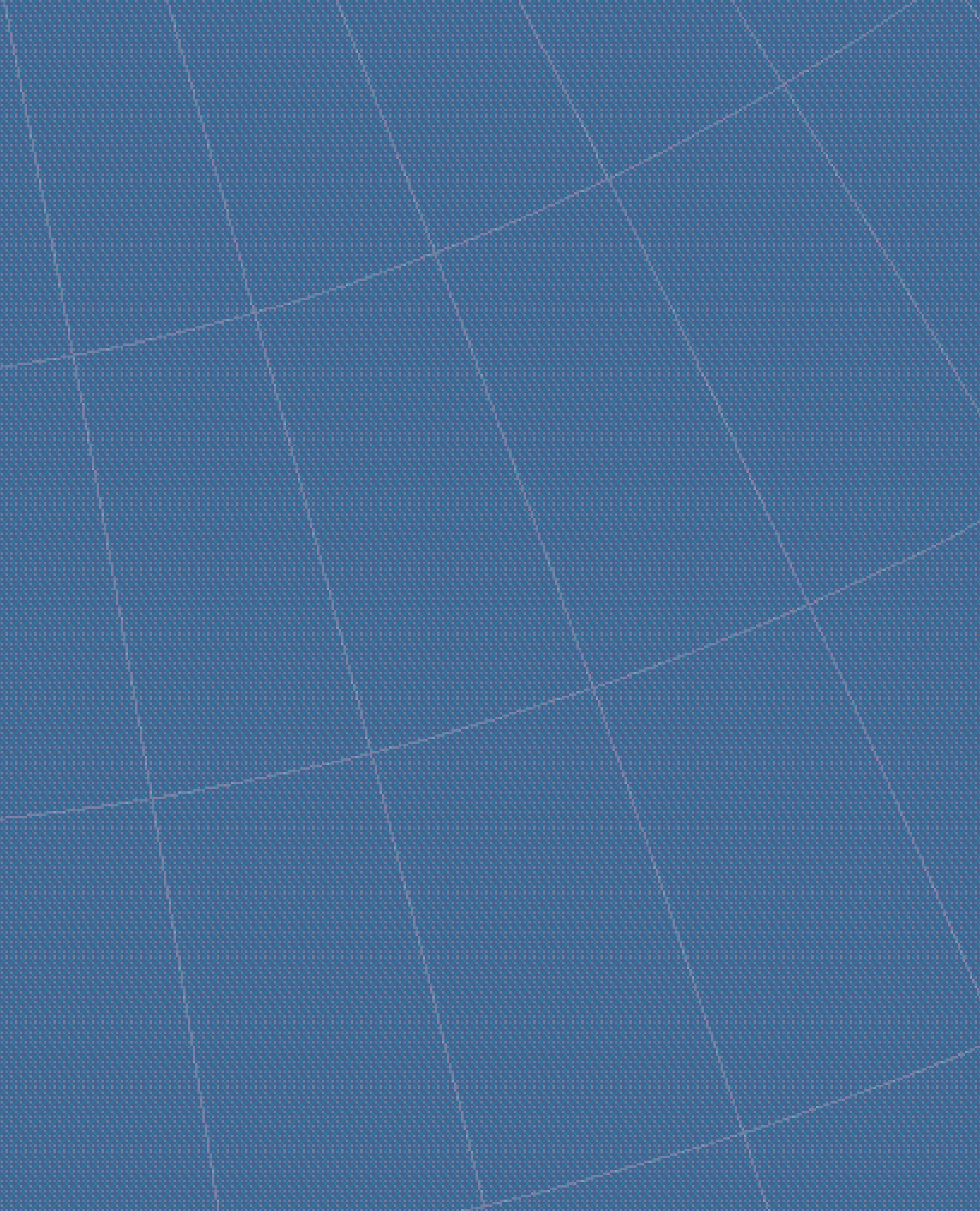
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Figure 7: *Predictions for National Party Effects Across Time: Greens.* Predicted absolute ideal point deviations from the party group mean are plotted on the y-axis and year is plotted on the x-axis. The curves represent the predicted estimates from an OLS regression of absolute ideal point deviations from the party group mean on year, year-squared, national party position and interactions between year and national party position as well as year-squared and national party position. The gray curves are the predictions for when the national party position is set at the maximum for the Greens (maximal support for the EU) and the black curves for when the national party position is set at the minimum for the Greens (minimal support for the EU). The middle black and gray curves are the mean predictions, with the enveloping lines forming the 95% confidence intervals.

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