The Emergence of a European Integration Dimension in National Party Systems of Europe, 1945-2010

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Abstract

The dimensionality of a policy space is an important element of political competition. We investigate whether and, if so, when and where national party competition changes from a one- into a two-dimensional policy space in Europe. We develop a Bayesian Finite Mixture Factor Analysis to estimate the probability for the latent one-dimensional traditional left/right and a two-dimensional inverted U-shaped configuration with Eurosceptic parties at the peripheries. Our analysis combines expert and transformed manifesto data, covering 286 national elections in 25 European Union (EU) countries over the period since World War II. The findings reveal that the probability for a one-dimensional left/right configuration is decreasing in almost all countries since the late 1980s. We provide further evidence that the emergence of this second dimension with Eurosceptic parties at the peripheries corresponds to the time countries applied for EU membership and that this second dimension refers not only to the EU, but also reflects conflicts about immigration and cultural diversity.

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Introduction

On January 25th, 2015, the left-wing party Syriza won the Greek elections and one day later formed a government with the small right-wing party Independent Greeks. From the traditional left versus right-perspective, this is a surprising coalition because both parties pursue very different goals in economic, societal and environmental affairs. However, they are aligned in their skepticism against the “troika” of institutions (the European Commission, the European Central Bank and the Monetary Fund) and their strategy to overcome the Eurozone crisis. Obviously, their Eurosceptic attitude plays a more important role for the forming of this coalition than the left/right division in the Greek party system. The former ruling parties, the New Democracy and the Panhellenic Socialist Movement, lost about half of their parliamentary seats to Syriza. A similar rise of left- and right-wing Eurosceptic parties is emerging in other European Union (EU) member countries, i.e. in France with the Front National, the United Kingdom Independence Party in Britain, the Liberal Party in Austria, the Alternative für Deutschland in Germany, the Five Star movement in Italy and Podemos (“We Can”) in Spain. This development raises the question whether the configuration of national party competition is changing in Europe.

According to the pioneering study of Lipset and Rokkan (1967) on cleavage structures, the configuration of national party systems develops from a long term process and major historical junctures that generate basic ideological conflicts. Early on, Hix and Lord (1997, p. 27) argued that European integration promotes a conflict “about more or less European integration derived from deep social, cultural, national and territorial traditions” that cross-cuts the traditional left/right- dimension of party competition in Europe. The resulting party configuration mirrors an inverted U-shape: Peripheral parties at the left and right of the ideological spectrum oppose European integration yet centrist parties support it (see Marks, Wilson and Ray, 2002; Hooghe et al., 2010). Although research on Eurosceptic parties suggests that a European integration dimension with periphery parties in opposition to the EU is emerging (De Vries, 2007; Szczerbiak and Taggart, 2008; Topaloff, 2012), recent studies on the nature and content of policy spaces in Europe provide mixed results about the existence of such a second dimension (Warwick, 2002; Albright, 2010; Stoll, 2010; Bakker, Jolly and Polk, 2012). Because most of these studies try to identify a “fixed” dimensionality in Europe, it remains an open question whether European integration only recently started to emerge in national party competition, and whether this emergence varies across countries.
In this study, we attempt to identify the time of an eventual change of national party competition that may help to understand several puzzling phenomena, such as the formation of coalitions between peripheral left- and right-wing parties or between large center parties to “grand” coalitions. We propose to examine the time of a dimensional change of policy spaces by introducing a novel approach with a statistical model that combines two distinct data sources. More specifically, we build on the literature of mixture modeling (Frühwirth-Schnatter, 2006; Imai and Tingley, 2012) and present a mixture of latent variable models that allows us to estimate latent party positions and their dimensionality from the data. We apply this model to the dataset of the Comparative Manifesto Project (CMP), which contains data on the programmatic statements of 388 parties for all elections since World War II (Budge et al., 2001; Klingemann and Volkens, 2007). Following Lowe et al. (2011), we construct from these data 16 issue scales by transforming the 56 CMP saliency categories. We use expert survey knowledge on the current configuration of party families from the Chapel Hill dataset (Steenbergen and Marks, 2007; Hooghe et al., 2010) to define the latent policy space a priori, which is accordingly inverted U-shaped with Eurosceptical parties from the left- and right-peripheries. Using information on the current configuration of party families allows us to “leverage our de facto knowledge of these dimensions as part of the estimation process” (Benoit and Laver, 2012, p. 216) and to identify the time when the policy space may have changed from a one-dimensional left/right to an inverted U-shaped two-dimensional configuration.

Our findings on national party competition show that the probability for the two-dimensional inverted U-shaped space becomes more likely than the one-dimensional left/right-space since the late 1980s when the Single European Act set up the common market project in the EU. Overall, the emerging European integration dimension explains 8% of the total variance in our data, while the left/right dimensions accounts for 14%. The examination of the country-specific trends reveals that most Western European countries experience a trend towards two-dimensionality since the 1970s or 1980s. A notable exception are France, Great Britain and Ireland, where the policy space becomes two-dimensional before the 1970s. In spite of their high number of parties, Denmark and Finland remain one-dimensional. While the time series on the Eastern European countries is much shorter, our results indicates a similar trend towards two-dimensionality since the 1990s. On closer inspection, our analysis reveals that the dimensionality parameter corresponds to historical junctures of important political events, such as the application for EU membership. This indicates that the emergence of the second dimension is related to the increasing importance of the EU. However, the factor loadings of the new dimension suggest that
its substantive nature is related to a conflict over not only strengthening of EU institutions and enlargement but also immigration and cultural diversity. This means that Euroscepticism is a more complex phenomenon, which is also corroborated by the correlations between our estimated positions for (Eurosceptic) parties with other measures from expert and public opinion polls.

Our results on the emergence of the new second dimension in almost all EU member countries challenges our understanding of the implications of European integration for national party competition which were believed “to be most impervious to change” (Mair, 2000, p. 460). In particular, the Greek example demonstrates that this new dimension may decrease the decisive effect of left/right ideology in national party competition and outcomes, such as the formation of a coalition and national policy making vis-à-vis the EU. Our analysis provides further evidence on when and in which countries the new conflict pattern emerges, which underscores the various reasons for the growing importance of Eurosceptic parties in most national party systems (De Vries, 2007; Szczerbiak and Taggart, 2008; Topaloff, 2012). Our insights may also stimulate to continue the debate about the stability and implications of new dimensions for national party competition (e.g. Benoit and Laver, 2012; Laver, 2014) and may have important ramifications for scholars using party positions to investigate, for example, coalition conflict, ministerial drift, polarization and the response of voters to party positions (e.g. Martin and Vanberg, 2005; Franchino and Høyland, 2009; Tavits and Letki, 2009; Maoz and Somer-Topcu, 2010; Adams, Ezrow and Somer-Topcu, 2011). Apart from this, our approach is potentially applicable to other data sources and phenomena, such as the study of the dimensionality in the U.S. Congress, United Nations General Assembly and European Parliament (e.g. Poole, Rosenthal and Koford, 1991; Voeten, 2000; Clinton, Jackman and Rivers, 2004; Hix, Noury and Roland, 2006).

**European Integration and National Party Competition**

One of the most fundamental explanations for the configuration of national party competition in European party systems goes back to the seminal study of Lipset and Rokkan (1967) on cleavage structures, party systems and voter alignments. From a historical perspective, Lipset and Rokkan argue that the major dimensions of national party competition are “frozen” because they result from enduring, long-lasting cleavages in the
social fabric. These cleavages are a function of historical junctures, which provide the foundation for the creation of national party systems at the beginning of the twentieth century. The most important condition for a cleavage to become salient is that political parties compete around the cleavage (McAllister and White, 2007, p. 198). For Lipset and Rokkan, the freezing of the party systems in Europe took place in the 1920s - a thesis, which has attracted much scholarly attention (e.g. Lijphart, 1979; Roberts and Wibbels, 1999; Pierson, 2000; Mozaffar, Scarritt and Galaich, 2003). Since the Second World War political parties mainly competed for state-oriented or liberal policies. Hence, the left-right dimension is the “one dimension that arguably allows for meaningful cross-national comparisons” (Adams, 2012, p. 402).

With the continuous transfer of policy-making competences from the national to the EU level, scholars debate whether and how EU membership is influencing national politics and altering the configuration of national party competition. Substantively, this transfer is raising a conflict “about more or less European integration derived from deep social, cultural, national and territorial traditions” (Hix and Lord, 1997, p. 27). Some argue that the left/right-dimension absorbs the issue of European integration (Tsebelis and Garrett, 2000), while others emphasize that European integration stimulates the formation of a new, cross-cutting dimension (Hix and Lord, 1997; Hooghe and Marks, 2001; Kriesi, 2007). Several authors propose to separate the left/right from a social or cultural dimension related to the post-materialist conflict (Inglehart, 1971), new politics issues (Franklin, Mackie and Valen, 1992), the authoritarian-libertarian conflict (Kitschelt, 1994), the green/alternative/libertarian-traditionalism/authority/nationalism conflict (Marks et al., 2006) or the “cosmopolitan-nationalist” cleavage (Kriesi et al., 2006, 2012). However, Marks et al. (2006, p. 158) show that the party positions on the left/right dimension are strongly correlated to the positions on this social or cultural dimension (see also Kitschelt, 1994, p. 27). Although Kriesi et al. (2006) and Kriesi et al. (2012) provide evidence for the existence of the “cosmopolitan-nationalist” cleavage using newspaper articles in six countries, we have little evidence for its existence in national party competition as measured by manifesto and expert survey data (e.g. Van der Brug, Wouter and van Spanje, Joost, 2009). Because of the ongoing debate on the implications of European integration (Warwick, 2002; Albright, 2010; Stoll, 2010; Proksch and Lo, 2012), we take a closer look at the argument that competition over European integration becomes more important and cannot be reduced to a left/right dimension (e.g. Hix and Lord, 1997; Marks and Wilson, 2000; Marks, Wilson and Ray, 2002; Kriesi, 2007; De Vries and Marks, 2012; Pennings, 2006; Bakker, Jolly and Polk, 2012; Spoon, 2012).
Evidence for a growing influence of European integration comes from two literatures, the literature on Eurosceptic parties (Taggart, 1998; Sitter, 2001; Szczerbiak and Taggart, 2008; Topaloff, 2012) and recent expert surveys on the positions of political parties (Steenbergen and Marks, 2007; Hooghe et al., 2010), according to which center parties are more pro-European, while extreme parties from the left- and right-wing pursue a more Eurosceptic position. This produces an inverted U-shaped configuration of political parties that cannot be reduced to a one-dimensional left/right space (Marks, Wilson and Ray, 2002; Hooghe, Marks and Wilson, 2002; Benoit and Laver, 2006; Bakker, Jolly and Polk, 2012). This is also corroborated by Kriesi (2007, p. 99) using coded newspaper articles.\footnote{Apart from national party competition, several studies report that the traditional left/right-dimension is complemented by a European integration dimension in the policy spaces of the Council, the European Parliament and at European parliamentary elections (Hix, 1999; Mattila, 2004; Hix, Noury and Roland, 2006). Note that several studies come to a different conclusion (Gabel and Hix, 2002; Thomson, Boerefijn and Stokman, 2004; Zimmer, Schneider and Dobbins, 2005; Proksch and Slapin, 2009).}

The literature on Eurosceptism also points to the increasing importance and cross-cutting character of European integration, according to which peripheral parties from the left- and right-wing spectrum increased their popularity by opposing European integration, in particular since the coming into force of the Maastricht Treaty (1993) which transferred monetary and currency competences to the EU level. While much of this literature draws the attention to voters’ reasons to support left- and right-wing Eurosceptic parties (e.g. De Vries and Edwards, 2009; Visser et al., 2014; March and Rommerskirchen, 2015), the findings highlight the common Eurosceptism of peripheral parties and their strategic considerations to pursue Eurosceptic positions (Marks and Wilson, 2000; Taggart, 1998; Sitter, 2001; Szczerbiak and Taggart, 2008; Topaloff, 2012).

In our view, one reason for the ongoing debate nourished by the mixed picture of empirical studies on policy spaces is the ambition to identify a “fixed” dimensionality of national party competition in Europe, which does not change over time. Because it is difficult to identify an emerging dimension that distinguishes between non-existence and recent, gradual, heterogeneous emergence, little insights exist about when and where the policy space of national party competition eventually changed in Europe. Another reason is the usage of different data sources to identify a new dimension that complements the left/right-dimension. Compared to manifesto data, which scholars use to provide election-specific estimates about every four years and hardly find a second dimension, more recent expert surveys reveal an inverted U-shaped configuration without specifying the time frame of experts’ assessments. In this paper, we relax the assumption of a constant
dimensionality and estimate it jointly with party positions from the data. Instead of entering into the discussion of the pros and cons of each data source (see e.g. Budge (2000); Benoit and Laver (2007); Mikhaylov, Laver and Benoit (2012); McDonald and Budge (2014), we propose to combine the two data source in a Bayesian manner using expert data as a prior of party family location and party manifestos as data on the parties’ positions. Because existing studies on party manifestos hardly found a second dimension, we understand our analysis as a conservative test of when and where it is more likely that this specific dimension complements the traditional left/right-dimension in each country.

Bayesian Mixture Factor Analysis

Our statistical analysis belongs to the class of latent variable models because both the policy space and the positions of political parties are latent, which means that we can neither directly observe the nature of the dimensions nor the location of the political parties. Instead, latent dimensions, as well as parties’ positions, need to be estimated by using a statistical model. Compared to existing latent variable models that estimated party policy positions from party manifestos (e.g. Gabel and Huber, 2000; Bakker, 2009; König, Marbach and Osnabrügge, 2013), we do not assume a fixed dimensionality of the policy space. Instead, we estimate the election-specific probability that a second inverted U-shaped latent dimension characterizes the configuration of national parties beyond the left/right-dimension.

Data

For our study of the election-specific dimensionality we use two prominent datasets, expert survey data from the Chapel Hill dataset (Steenbergen and Marks, 2007; Hooghe et al., 2010) and coded manifesto data from the CMP project (Budge et al., 2001; Klingemann and Volkens, 2007). Although our approach is also applicable to other phenomena and less critically debated data sources (e.g. Benoit, Laver and Mikhaylov, 2009; Mikhaylov, Laver and Benoit, 2012), we decided to use CMP data because this dataset covers election-specific national party competition in European countries since World War II. In our view, this long-term election-specific perspective is necessary for at least two reasons: According to Lipset and Rokkan (1967) we expect that the emergence of a new dimension in national party competition is a historical process with critical junctures that translate into the
configuration of political parties. Furthermore, the 25 investigated countries transformed to democracies and joined the EU at different points of time, which means that the countries may have experienced such junctures at different times. A further advantage is that the CMP data include an item on the issue of EU institutions that allows us to inspect, which issues contribute to European integration and whether our findings relate to any other (global) development and issues that may give rise to a second dimension.

To use CMP data in a spatial context, we follow the recommendation of Lowe et al. (2011) and construct from the coded manifesto data (logit) issue scales with issue-specific positions of political parties. This transformation is necessary because the data generation of the CMP project is based on saliency theory, which counts the frequent usage of the coded 56 categories (Laver and Garry, 2000). More specifically, we construct 16 issue scales by assigning 36 of the 56 CMP categories to opposing poles on each scale.

Model

Our statistical modeling of the latent variables builds on Bayesian factor analysis models, in which the latent factors are the unobserved party positions on ideological dimensions (see e.g. Skrondal and Rabe-Hesketh, 2004; Quinn, 2004; Jackman, 2009). We define, $y_j$ to be the $j$ ($j = 1, \ldots, J$) row of our data matrix with $L$ ($l = 1, \ldots, L$) columns. Each cell contains the position of a party on an issue scale at a particular national election.

A general assumption of latent variable models is that each issue position is a weighted sum of latent party positions plus measurement error. The weights are the factor loadings and indicate the extent to which a particular latent party position is determined by each issue scale. Similar to previous factor analytic models for CMP data, we assume that the factor loadings are constant across countries and over time, and that the latent policy space is orthogonal (Gabel and Huber, 2000; Bakker, 2009).

Formally, let $\chi_j$ be the unobserved $D$-dimensional position of party in an election (the factor) and let $\lambda$ be the $L \times D$ matrix of factor loadings. We can then write the mixture of factor analysis models as follows:

\footnote{Each issue-specific position is constructed by subtracting the logarithms of each pole's quasi sentence count. As suggested by Lowe et al. (2011), we also add 0.5 to each pole, which “makes position estimates created from very small counts more stable, while barely affecting those derived from more reasonable numbers of sentences” (Lowe et al., 2011, p. 132). The supporting material provides a list, which CMP categories we use to construct these issue scales. It also provides an overview of the number of parties, elections and coverage for each country as well as the distribution of each issue scale per party family.}
\[ y_j = \begin{cases} 
\lambda_1 \chi_{j,1} + \epsilon_1 & \text{if } k_j = 0 \\
\lambda_1 \chi_{j,1} + \lambda_2 \chi_{j,2} + \epsilon_2 & \text{if } k_j = 1 
\end{cases} \]

\[ \epsilon_1 \sim \mathcal{N}(0, \Sigma_1) \]
\[ \epsilon_2 \sim \mathcal{N}(0, \Sigma_2) \]

where \( k_j \) is a binary indicator variable that indicates if a party has a one- or two-dimensional position. Note that if we could directly observe this variable, we would have two ordinary factor analysis models - the first being one-dimensional, the second two-dimensional. However, since we do not know the dimensionality of an election-specific policy space, we also have to estimate this parameter from the data. Integrating the unobserved \( k_j \) for each election \( e \), \((e = 1, ..., E)\) from the joint density and assuming measurement error independent across issue scales, the likelihood function with the standard normal density \( \Phi \) and variance \( w_l^2 \) can be written as:

\[
\mathcal{L} = \prod_j \left[ \prod_{l=1}^L \Phi \left( \frac{y_{l,j} - (\lambda_{l,1} \chi_{1,j})}{w_{l,1}} \right) (1 - \pi_{e[j]}) + \prod_{l=1}^L \Phi \left( \frac{y_{l,j} - (\lambda_{l,1} \chi_{1,j} + \lambda_{l,2} \chi_{2,j})}{w_{l,2}} \right) \pi_{e[j]} \right],
\]

where \( \pi_{e[j]} = \Pr(k_{e[j]} = 1) \). We adopt the Gelman-Hill notation \( (Gelman \ and \ Hill, \ 2007) \) and let \( j \) select the corresponding index \( e \) to relate the \( j^{th} \) observation to a corresponding \( \pi \). Our primary interest is in \( \pi_e \) indicating the probability for a particular dimensionality of the policy space in the election \( e \). To simplify the presentation of the results, we refer to \( \pi_e \) as the dimensionality parameter.

Our modeling has an important advantage for studying the emergence of a second dimension over alternative approaches such as comparing model fit measures \( (\text{e.g. Warwick, 2002; Albright, 2010; Stoll, 2010; Bakker, Jolly and Polk, 2012}) \). When one estimates two separate models (one model A with \( D \) dimensions, the other model B with \( D + 1 \) dimensions) and then compares their fit, it remains unclear whether and to what extent the meaning of the first dimension in model A is the same as the first dimension in model B. Our mixture model approach in turn constrains parties’ positions and factor loadings.
on the first (left/right) dimension to be the same across the two mixture components\(^3\).

**Priors**

Adopting a Bayesian perspective, we systematically incorporate expert survey information about the shape of the latent policy space as priors for the location of party families into the estimation. Two reasons motivate our approach. Technically, using informed priors on the party families identifies the model by exploiting the functional equivalence of informed prior densities and parameter restrictions to locate the party positions on a specific scale (Jackman, 2009, p.441)\(^4\).

Substantively, we use the priors to induce a general configuration of political parties that is consistent with the literature’s current description of national party competition. Empirically, we construct a priori where party families are ordered along an inverted U-shape: The left/right extreme parties are generally opposed to further European integration whereas the left/right center parties favor it. This approach also helps to avoid an ad hoc, ex post facto interpretation of the policy space (Benoit and Laver, 2012).

For each latent party position \((\chi_j)\) we employ a multivariate normal prior. We set each party’s prior mean and variance to the mean and variance of its party family. We calculate these means and variances for seven party families’ positions separately on the left/right and the European integration dimensions from CHES expert survey data by Steenbergen and Marks (2007) as well as Hooghe et al. (2010)\(^5\). Figure 1 illustrates the party positions of the Chapel Hill expert survey data and the superimposed prior density by party families. The relation between party positions on the left/right and European integration

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\(^3\)Admittedly, this advantage of our model in estimating the dimensionality comes at the price of complicating party position identification, for which we need a decision criterion \(\pi_e\), namely that the parties in an election belong in a two dimensional space (instead of a one dimensional space). The choice of this criterion is important because the latent party position is a function of the assigned prior and the data. Before the estimation, we assign a prior for each party in each dimension. This prior is then updated using the data. If the probability for a second dimension is very small, the information available in the data about the second component’s parameters is very limited. In fact, if the probability is essentially zero, then there is almost no information available in the data to update parties’ positions. In this case, the posterior density of these parties is almost identical to the prior density. Although this problem applies to all mixture models, this is not a primary concern for our study because we are mainly interested in estimating the dimensionality of the policy space.

\(^4\)In the supporting information we discuss in detail what the identification requirements are.

\(^5\)We consider the following party families: Left, Greens, Social Democrats, Liberals, Christian Democrats, Conservatives and Nationalists using three survey waves: 1999, 2002, 2006. To merge the manifesto data with the expert survey data, we use the party table of the ParlGov dataset provided by Döring and Manow (2012).
Figure 1: Party positions from the Chapel Hill Expert Survey and contours from a two-dimensional kernel density estimation for each party family.

dimensions has an inverted U-shape. In other words, the more extreme a party’s position on the left/right dimension, the more critical it is towards European integration. The data also suggest that Green and Conservative parties are more critical towards Europe than Socialist, Liberal and Christian-democratic parties. We center all parties’ priors that are not part of a party family at 0 and assign a variance of 11, which effectively provides no a priori information about the location of the party in the latent policy space.

For all remaining parameters where we have little a priori information, we use vague priors. In particular, regarding the factor loadings ($\mathbf{\lambda}_t$), we employ zero-centered multivariate normal priors with a diagonal covariance matrix with all elements set to 10, and for the variance components ($w_{..}$) we use gamma priors ($a0 = 0.001$, $b0 = 0.001$). For the dimensionality parameter set ($(1 - \pi_c, \pi_c)$, we use uniformly shaped beta prior ($d = (1, 1)$). This prior embodies our a-priori belief that a one- and a two-dimensional space are equally likely.
Results

We implement the finite mixtures of factor analysis models in JAGS (Plummer, 2003) to obtain samples from the marginal posterior distributions of the parameters\(^6\). We obtain samples from three sets of parameters: the dimensionality parameters \((\pi)\), factor loadings \((\lambda)\) and latent positions of the parties \((\chi)\)\(^7\). In the supporting information we describe the Monte Carlo Experiments we conduct to verify that the model performs as expected. We are primarily interested in the time of a change of national party competition and therefore inspect the estimated election-specific dimensionality parameter, which captures the probability that the policy space of a specific national election is solely characterized by a single left/right dimension rather than an inverted U-shaped two-dimensional space. We first inspect the average trend in dimensionality across all countries before we discuss the country-specific trends and robustness. Note, that we use a prior-consistent and impartial cutoff criteria to distinguish between one and two-dimensional spaces\(^8\).

General Trend

Figure 2 plots the posterior mean of each dimensionality parameter for the entire study period. Each dot shows the dimensionality parameter for each (democratic) election that took place since World War II in the 25 countries. Note that almost half of our country sample transformed to parliamentary democracies after the break-down of the

\(^6\)The joint posterior density of our finite mixtures of factor analysis models is proportional to the likelihood function times the prior density. As in many Bayesian models, the posterior density cannot be marginalized analytically, which prompted us to simulate from the posterior density and then use the simulated samples to characterize the marginal posterior densities of the parameters.

\(^7\)We run two MCMC chains in parallel using multiple streams of pseudo-random numbers from the JAGS L’Ecuyer RNG. We discard the first 10,000 iterations as burn in and draw another 20,000 values. For data storage reasons we only save every 10th draw, yielding a posterior sample of 1,000 draws per chain. The Gelman and Rubin (1992) convergence diagnostic supports our choice of run length. In initial Monte Carlo Experiments, we observe that sometimes subsets of chains converge to two distinct posterior distributions (in a sense that posterior means of the parameters were very different, but convergence was indicated for the subset of chains by diagnostics). Further explorations of this result reveal that one of these posteriors always has a higher deviance (deviance is generally defined as the negative of twice the logarithm of the likelihood). Since higher deviance implies that the probability of the data given the parameters is smaller, we monitor deviances for all our models in order to identify such situations and select the subset of chains that converge to the posterior with the higher probability of the data given the parameters.

\(^8\)Throughout the presentation of the results, and to increase readability, we omit the more precise characterization of the policy space, namely that of a one-dimensional left/right policy space or a two-dimensional policy space with a second cross-cutting European integration dimension and a party position configuration similar to an inverted U-shape.
Soviet Union in the end of the 1980s. The distribution of the dots indicates a negative trend over time. This means that the probability of a one-dimensional left/right space in national party competition generally decreases over time in the 25 EU countries. To further inspect this trend, we fitted a local polynomial regression to each set of 2000 posterior draws. The solid black line indicates the mean of the fitted curves from these regressions, the gray lines show the 2.5%- and 97.5% quantiles. The results support our finding that the probability for a representation of national party competition on a single left/right-dimension is decreasing steadily in Europe. This probability decreases from 66% after World War II to approximately 32% in 2010. In sum, on average, the policy spaces of national party competition in Europe are more likely to have a one-dimensional, left/right configuration before the late 1980s and are increasingly likely to have a two-dimensional, inverted U-shape thereafter. This result is consistent with the literature’s general finding that, with the continuing transfer of policy competences - especially by the Single European Act in 1987 and the Maastricht Treaty in 1993, the opposition to European integration has been continuously increasing (Hooghe and Marks, 2009; Topaloff, 2012; Kriesi et al., 2012; Hutter and Grande, 2014). The total variance explained by our model is about 21.8% with a 95% posterior interval of [20.6, 22.8]. The additional variance explained by the second dimension is 7.7% [6.5, 8.7].

Country Trends

While we find a general trend in Europe towards an inverted U-shaped two-dimensional policy space over time, the more specific question is which countries experience this trend at what point in time. Note that almost half of our country sample transformed to parliamentary democracies in the end of the 1980s, which means that their inclusion could be a major reason for this trend. Complementary to figure 2, figures 3 and 4 show the probability of a one-dimensional left/right policy space for each national election by country. From a historical perspective, we order the countries along their accession date to the EU and super-impose a dashed 0.5-line. The six founding members Belgium, France, Germany, Italy, Luxembourg and the Netherlands are displayed in the first two rows, followed by Denmark, Great Britain and Ireland which joined the EU in the 1970s.

\[ R^2 = 1 - \frac{\sum_{t=1}^{T} (y_{t,j} - \hat{y}_{t,j})^2}{\sum_{t=1}^{T} (y_{t,j} - \bar{y}_{t,j})^2} \]

The \( R^2 \) for each posterior draw is calculated as follows: \( R^2(s) = 1 - \frac{\sum_{t=1}^{T} (y_{t,j} - \hat{y}_{t,j}^{(s)})^2}{\sum_{t=1}^{T} (y_{t,j} - \bar{y}_t)^2} \), where \( \bar{y}_t \) is the column mean of the data matrix and \( \hat{y}_{t,j}^{(s)} = \lambda_{1,t}^{(s)} \chi_{1,j} + (\lambda_{2,t}^{(s)} \chi_{2,j} I(k_j^{(s)} = 1) \) the predicted value based on the \( s \)th posterior draw. To calculate the additional variance explained by the second dimension, we take the difference to an \( R^2(s) \) calculated with \( \hat{y}_{t,j}^{(s)} = \lambda_{1,t}^{(s)} \chi_{1,j}^{(s)} \).
Greece, Portugal and Spain acceded in the 1980s, and Austria, Finland and Sweden in mid-1990s. After the turn of the century, 10 Eastern European countries joined the EU, all of which became parliamentary democracies after the break-down of the Soviet Union. To interpret the country-specific trends, we use the average fitted curve of a local polynomial regression. The graphs reveal that five out of the six founding members (Belgium, Germany, Italy, Luxembourg and the Netherlands) exhibit a strong monotone, negative trend since the 1970s. On closer inspection of these founding members, only France is two-dimensional since the late 1950s, Belgium, Netherlands and Luxembourg since the early 1980s, Germany and Italy since the late 1990s.

The estimates provide evidence that Denmark’s national party competition is still characterized by a single left/right dimension. The trends of Great Britain and Ireland, the two other accession countries of this period, are non-monotonic but suggest a two-dimensional
Figure 3: Posterior probability for a one-dimensional left/right policy space ($D = 1$) for specific countries. We fitted local polynomial regression on each posterior draw. The solid black line indicates the average fitted curve. The gray lines indicate the 2.5%- and 97.5% quantiles.
Figure 4: Posterior probability for a one-dimensional left/right policy space ($D = 1$) for specific countries. We fitted local polynomial regression on each posterior draw. The solid black line indicates the average fitted curve. The gray lines indicate the 2.5%– and 97.5% quantiles.
configuration almost all of the time since World War II. Interestingly, Greece acceded in
the beginning of the 1980s and shows a trend, which is very similar to the one of the
founding members. As in Portugal, Greece’s national party competition is represented by
a two-dimensional configuration with an inverted U-shape since the late 1980s. Spain, that
jointly acceded with Portugal in the mid-1980s, shares with its neighbor country a strong,
monotone trend until the 2000s and an indicative reversing trend thereafter. Austria and
Sweden, which acceded in 1995, become two-dimensional in the 2000s, while Finland re-
mains left/right one-dimensional. Overall, our results reveal a country-specific variation
among the 15 countries, which held democratic elections since World War II and became
members of the EU since the mid-1990s. Party competition became two-dimensional over
time in most of these countries, but a few countries remain one-dimensional.

In the 10 countries from Eastern Europe we also find variation across countries and
over time. Some of the new member countries, which acceded in the beginning of the
2000s, exhibit a negative trend towards two-dimensionality, while others show a strong
positive trend. Cyprus, Czech Republic, Lithuania, Slovenia and Slovakia appear to have
a kind of national party competition that is characterized by two dimensions, at least
recently. Poland also belongs to this group, but the country experiences only a small
negative trend. Estonia, Hungary and Latvia exhibit positive trends towards national
party competition that is only centered around the left/right dimension. As the time
period of their transformation to parliamentary democracies and membership in the EU
is much shorter, a cautious interpretation of these trends is however warranted. However,
our country-specific evaluation shows that their accession is not responsible for the overall
trend towards two-dimensionality in national party competition in Europe.

Robustness

We conduct several robustness tests to ensure that the trends we identified are not sensitive
to particular modeling assumptions and the data composition. We only briefly summarize
the results here; the interested reader is referred to the supporting information for further
detail. First, motivated by the sensitivity of mixture models to the choice of the mixing
prior (Frühwirth-Schnatter, 2006), we re-run the model with different priors capturing
different a-priori beliefs about the probability of a one-or two-dimensional space and obtain
virtually identical results. Second, in the model above, we estimated the dimensionality
parameter per election. In order to test the implications of our focus on elections, we
re-estimated the model grouping by decade instead of election. The substantive findings
about the shape of the trends presented below, are the same. Third, we excluded the
Eastern European countries to check to what extent the inclusion of these new members
to the EU has an influence on our results. We obtain virtually the same results for the
other countries. Fourth, we re-run the model 15 times, each time excluding one of the 16
issue-scales. In 14 out of 15 runs, we obtain virtually the same results. When we exclude
the issue scale protectionism, the result changes to some extent but these changes do not
affect the substantive conclusions above.

**Understanding the Changing Dimensionality**

Our analysis shows variation across countries and over time in the trend towards two-
dimensionality. To provide more evidence on the validity of our findings and to shed
more light into the country-specific trends, we continue to examine our results. We
begin with examining the dimensionality parameter and assess to what extent the trend
corresponds to critical junctures that may have shaped national party competition, such as
EU membership or applications for membership. We further examine the factor loadings
to identify which conflicts characterize the left/right and the second European integration
dimension. Finally, we examine the validity of our party positions by implementing three
tests: i) we identify on the basis of our estimates Eurosceptic parties and compare this list
to existing categorizations of Eurosceptic parties, ii) we cross-validate our party positions
with expert survey data, and iii) we compare the configuration of party positions to the
configuration of voter preferences as measured with the Eurobarometer public opinion
data.

**The Role of Critical Junctures**

A central element in the analysis of Lipset and Rokkan (1967) on cleavage structures
concerns the identification of critical junctures, which translate into conflict lines among
political parties. In order to assess the validity of our dimensionality parameter we identify
the ‘critical juncture year’ by the year in which the (average posterior) probability for the
one-dimensional left/right policy space becomes smaller than the probability for the two-
dimensional policy space. This strategy allows us to compare the trends to important
political events that may have contributed to the emergence of the new conflict over
European integration in national party competition.
For all acceding countries, we expect that the critical juncture year is related to the year in which a country applied for EU membership because political parties are more likely to refer to European integration when the EU is responsible for certain policies, in particular when the voters dislike this aspect of European integration (De Vries, 2007; Van de Wardt, De Vries and Hobolt, 2014). We accordingly compare the critical juncture year to the ‘EU influence year’, which we define as the year of their application for EU membership. The reason is that a country usually starts to prepare for European integration with its application, i.e. by transposing the entire body of existing EU legislation (the acquis communautaire) into domestic law and fulfilling further accession requirements. For example, the Eastern European candidate countries had to fulfill the Copenhagen criteria before their accession to the EU (Nugent, 2004). This may create conflicts about those activities in the domestic arena, which political parties programmatically translate into national party competition.

Excluding Denmark and Finland because they remain one-dimensional left/right, figure 5 plots each accession’s countries’ critical juncture year against the EU influence year. We also include the founding members in gray. Countries on the gray 45-degree line turned two-dimensional in the same year as they were influenced by the EU, countries above turned two-dimensional later and those below earlier. The two fitted regression lines suggest that there is a strong positive relationship between the critical juncture year and the EU influence year\textsuperscript{10}. The relationship is weaker when we pool Western and the 10 Eastern European accession countries.

The decreasing slope of the fitted linear regression line suggests that the application for membership led to a much quicker critical juncture year in the Eastern than Western countries. This is very plausible because the Eastern countries had make more adjustments to implement the existing body of EU legislation than countries at previous enlargement rounds. For example, Austria and Sweden were already members of the European Economic Area at the time they joined the EU and, hence, many issues were resolved at previous negotiation rounds (Nugent, 2004).

\textsuperscript{10}The displayed fitted regression lines are from a linear regression of the EU influence year on the critical juncture year, identified based on the posterior mean estimates from the dimensionality parameter. Intercept: -454.12, Slope: 1.23 (Western and Eastern accession countries); Intercept: -1929.24, Slope: 1.98 (Western accession countries). When we propagate the uncertainty from the posterior draws into these estimates, we obtain a density of linear regression coefficients that we summarize using the mean and the 95% quantile (in brackets). Intercept: -283.4 [-557.1, 97.14], Slope: 1.14 [0.95, 1.28] (Western and Eastern accession countries); Intercept: 854.90 [-254.78, 1723.53], Slope: 0.56 [0.12, 1.13] (Western accession countries). The probability that both slope coefficients are positive is 1.
Figure 5: Application for EU membership and critical juncture year. The fitted regression lines (solid black lines) are fitted using the Western and/or Eastern accession member states only. The dashed gray line shows the 45-degree line.

The evidence suggests that the emergence of the second dimension with conflict over European integration is related to the increasing influence of the EU for the accession countries. Because European integration started very slowly in the first decades, the founding members are ‘natural’ outliers in this logic. France is the only country, in which national party competition was two-dimensional early on. This is consistent with the general finding that, except for France, the founding members were characterized by a broad consensus on European integration in the early years (Szczerbiak and Taggart, 2008). The BeNeLux countries turned at the beginnings of the eighties into two-dimensionality, followed by Germany and Italy around 2000. This suggests that national party competition in the BeNeLux countries becomes two-dimensional in the period when the Single European Act was signed, while the timing in Germany and Italy corresponds to the signature of the Maastricht and Amsterdam Treaties.
Conflict over European Integration

Although we find evidence for the relationship between the year of EU influence and the emergence of the second dimension, it remains an open question whether this dimension is exclusively related to the EU or any other global development and issues. For answering this question, we inspect the factor loadings, which express the relation between an issue scale and the latent party positions on both dimensions: The larger the factor loading, the more a latent party position is correlated with an issue scale. Table 1 summarizes the posterior density of the factor loadings. The issue scales military, enterprise, market and traditional morality are more strongly related to the left/right-dimension than to the second dimension. Larger values on these scales measure primarily to what extent a party favors a stronger military, less regulation for enterprises, more entrepreneurial incentives and obedience of traditional moral values. Substantively, this is in line with the conventional content of the left/right concept.

While two issues (national way of life and freedom) load almost equally on both dimensions, the remaining issues are stronger associated with the European integration than the left/right-dimension. Four of these issue scales are at least three times more strongly associated with the European integration dimension than with the left/right-dimension: the EU, internationalism, target groups, and multiculturalism. Larger values on these scales indicate that a party favors a strengthening of EU institutions and enlargement, an increase in international cooperation, more support for the middle class (as opposed to minority groups such as immigrants) and denounces cultural diversity and plurality.

The large positive factor loading on the EU and internationalism suggest that the second dimension is indeed capturing the conflict over increasing European integration. However, the negative loadings on the issue scales target groups and multiculturalism indicate that this conflict goes beyond a mere conflict over strengthening of EU institutions and enlargement by also capturing a conflict over the proper regulation and integration of immigrants and cultural diversity. This suggests that the conflict of this second dimension is more complex than the issue of pro- versus anti-EU. This evidence is in line with Grande and Kriesi (2015) who argue that the second dimension is not only about European integration, but also about other elements related to globalization.

In sum, the inspection of the factor loadings evidences that our estimated dimensions correspond to the left/right and the European integration dimension. However, the European integration dimension does not only capture a strengthening of EU institutions,
but also comprises other factors related to immigration and cultural diversity. Thus, we finally not only cross-validate our estimates, but also draw the attention to Eurosceptic parties and the patterns for their support.

### Comparing Party Positions

The standard procedure in assessing estimated party positions is cross-validation with other measures of party positions. In addition to this cross-validation, we also check our identification of Eurosceptic parties and compare our estimates to public opinion data. Figure 6 summarizes the estimated party positions. The graph includes locally-weighted polynomial regression lines to describe the shape of the party configurations, which can be driven by parties on the left, right or both sides of the spectrum. Again, the panel is empty for Denmark and Finland, where we did not identify a second European integration dimension in national party competition\(^\text{11}\).

\(^{11}\)This does not mean that all Danish and Finnish parties agree on the question of European integration. It only means that the conflict over European integration does not cross-cut the left/right-dimension.

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<table>
<thead>
<tr>
<th>Indicator</th>
<th>LR Dimension</th>
<th>EU Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Post. mean λ</td>
<td>BCI</td>
</tr>
<tr>
<td>Military</td>
<td>0.49</td>
<td>[0.45, 0.52]</td>
</tr>
<tr>
<td>Freedom</td>
<td>0.28</td>
<td>[0.24, 0.31]</td>
</tr>
<tr>
<td>Administration</td>
<td>0.18</td>
<td>[0.14, 0.22]</td>
</tr>
<tr>
<td>Enterprise</td>
<td>0.58</td>
<td>[0.54, 0.62]</td>
</tr>
<tr>
<td>Market</td>
<td>0.27</td>
<td>[0.23, 0.30]</td>
</tr>
<tr>
<td>Protectionism</td>
<td>-0.00</td>
<td>[-0.00, 0.00]</td>
</tr>
<tr>
<td>Macroeconomics</td>
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<td>[0.15, 0.23]</td>
</tr>
<tr>
<td>Quality of life</td>
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<td>[0.10, 0.18]</td>
</tr>
<tr>
<td>Welfare state</td>
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<td>[0.25, 0.33]</td>
</tr>
<tr>
<td>Traditional morality</td>
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<tr>
<td>Multiculturalism</td>
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<td>Target groups</td>
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<td>[0.12, 0.20]</td>
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<tr>
<td>National way of life</td>
<td>-0.23</td>
<td>[-0.26, -0.19]</td>
</tr>
</tbody>
</table>

**Table 1:** Posterior density summary of factor loadings, λ, with posterior mean and 95% Bayesian credible interval (BCI).
Figure 6: Mean posterior party position from all elections that have been classified as two-dimensional. Superimposed fitted local polynomial regressions indicating the shape of the party configuration.
We compare our estimated party positions to Chapel Hill expert survey data\textsuperscript{12}. The correlation between our estimated party positions and the expert scores on the left/right dimension is high ($r = 0.84$). The correlation between the expert scores and our estimated party positions for the European integration dimension is lower ($r = 0.61$)\textsuperscript{13}. Compared to the polarized picture in Proksch and Lo (2012), we find a more cohesive lower correlation between expert scores and our estimates for European integration dimension. For the lower level, a gap between party leaders’ preferences and the wider party members could be responsible (see also May, 1973; Norris, 1995; Kennedy, Lyons and Fitzgerald, 2006). Note that expert surveys ask participants to specify the positions of the party leaders, while party manifestos capture the officially declared party positions. Another reason could be that experts perceive European integration only as a conflict over the transfer of policy competences from the national to the EU level, while our results on the European integration dimension include issues like target groups and multiculturalism.

A crucial component for the emergence of a new, cross-cutting European integration dimension is the existence of Eurosceptic parties, which are located at the left- and right-wing spectrum. To identify Eurosceptic parties, we follow the procedure of De Vries and Edwards (2009) and classify each election party that is at least one standard deviation below the average position on the European integration dimension as ‘Eurosceptic’. Figure 6 shows the distribution of estimated party positions across elections that are classified by our model to be two-dimensional. Accordingly, all points below the dotted line represent Eurosceptic parties in our two-dimensional policy spaces (see in more detail our election-specific list of the 106 Eurosceptic parties in the supporting materials). In his study of Euroscepticism Taggart (1998) lists 37 Eurosceptic parties, from which 26 are also included in the CMP dataset\textsuperscript{14}. When we leave out Finland and Denmark, the two countries for which we did not identify a European integration dimension, our model classifies 77% of Taggart’s parties as Eurosceptic. The posterior probability that parties classified by Taggart as Eurosceptic take a more Eurosceptic position than the rest is 1.

\textsuperscript{12}When we merge CHES and our estimated party positions based on election year and party ID we find 76 observations for comparison. To increase the number of observations to 156, we accept a one year difference between the CHES survey in 1999, 2002 and 2006 with an observation in our dataset. We only use observations from elections in our dataset that are estimated to be two-dimensional.

\textsuperscript{13}A closer inspection reveals that our lower correlation on the European integration dimension is to some extend driven by data for two countries: Italy and Belgium. Excluding these two countries increases the correlation to $r = 0.70$. The per-country correlations are in the supporting materials.

\textsuperscript{14}Two reasons explain this discrepancy. First, the CMP project only considers relevant parties, which usually corresponds to parties with seats in their respective national parliaments. Second, Taggart (1998) lists some single-issue parties that competed at European parliamentary elections, which the CMP project does not consider.
Finally, we compare our estimated party positions to survey data from the Eurobarometer surveys. As many Eurobarometer respondents do not indicate a party preference, we decided to compare directly the configuration of the estimated party positions with respondents’ preferences for European integration of left/right. We expect that the configuration of party positions should correspond to the respondents’ preferences if our estimates are valid. To classify the shapes in figure 6 we use the posterior probability. More specifically, we examine whether the posterior probability that the left side of the fitted curve is below the right side is larger than 90%. Then, we compare this classification to the structure of public preferences, which we measure with Eurobarometer data following the approach of Carrubba (2001). Table 2 summarizes the results. In 9 out of 13 countries the structure of the Eurobarometer preferences reflects the pattern of party positions. There are four deviating cases: Ireland, Sweden, Spain and Germany. In Spain and Germany the Eurobarometer data indicates a stronger concentration of Eurosceptics on the right than we find in the manifesto data of political parties. One reason could be that the radical right party spectrum was marginalized and fragmented after the breakdown of the Franco regime in Spain and the Nazi regime in Germany (e.g. Gómez-Reino, Llamazares and Ramiro, 2008, p. 145). The largely irrelevant right-wing peripheral parties are thus not considered by the CMP project, which may explain the divergence between Eurobarometer and manifesto data in the two countries. In Ireland and Sweden, the respondents on the left are more Eurosceptic than the party manifestos indicate. Note that the analysis of Sweden is only based on two elections, which makes inferences on the basis of a locally-weighted polynomial regression more difficult. One potential reason for the divergence in the case of Ireland is that the Eurobarometer surveys do not cover the 1950s and 1960s where the manifesto data indicate a strong right-wing Euroscepticism (e.g. Fianna Fáil).

In summary, we implemented three tests to evaluate our findings on the emergence of a second dimension in national party competition. First, we compared our latent party positions to expert survey data. Although our estimated positions correlate relatively high on the left/right dimension, we found a more complex content of the European

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15 We use the responded left/right placement on a 10-point scale and their response to the question “Generally speaking, do you think that (country’s) membership in the European Community / Common Market / European Union is a good thing / neither nor / bad thing”. For all respondents that placed themselves at the extreme left (1-2) and the extreme right (9-10), we calculate the difference between the percentage that responded the EU was “a good thing” and the percentage that said it is bad. We also calculate nonparametric bootstrap confidence intervals to account for sampling uncertainty. Finally, we pool Eurobarometer surveys between the country’s critical juncture and its last election in our dataset (Schmitt et al., 2008) to estimate distribution of voter preferences for each election.
integration dimension as a reason for the slightly lower correlation between our and other estimates for this dimension. Second, we identified parties as Eurosceptic and compared this classification to previous lists of Eurosceptic parties. This test reveals a very high correspondence between our identification of Eurosceptic parties and the party lists of the literature on Euroscepticism. Finally, we compared the shape of the graphs to graphs of the Eurobarometer public opinion survey, which shows for most countries a reflection of the structure of the Eurobarometer voter preferences with the configuration of our party positions.

**Concluding Remarks**

This study investigates whether, when and where a second dimension emerges in national party competition of 25 EU member countries in the period since World War II. We develop a Bayesian Mixture Factor Analysis that allows us to estimate the probability of a one-dimensional left/right versus a two-dimensional inverted U-shaped configuration at each election. For our empirical analysis we use two prominent data sources by combining transformed programmatic manifesto data with expert evaluations of current party family positions. From this a priori-perspective on current party family positions, we estimate the election-specific dimensionality of national party competition documented in the programmatic positions at all elections of the 25 EU countries since World War II. Our findings reveal that a second dimension with a conflict over European integration becomes increasingly important over time in almost all countries. Except for Denmark and Finland, this general trend towards a second dimension is especially strong since the 1990s in almost all countries.
Our substantive inspection of the conflict over European integration reveals that this trend towards a second dimension is related to important political events, such as applications for EU membership. With the application for EU membership, the European integration is becoming an important element of national party competition because the country needs to implement the existing body of EU legislation. However, in addition to the conflict over the issues of internationalism and the transfer of policy competences from the national to the EU level, we also find that the conflict over European integration includes issues on immigration and cultural diversity. Accordingly, Euroscepticism is a more complex phenomenon, which cannot be reduced to the single issue of a pro- or anti-EU party attitude. Since our estimated party positions are in line with expert surveys, existing lists of Eurosceptic parties and public opinion data, we are confident about the validity of this finding.

Our analysis highlights that the dimensionality of policy spaces may change considerably over time and across countries. This suggest that a more nuanced perspective about the existence of a second dimension and its role in national party competition is warranted. Although we find a general trend towards two-dimensionality, we also identify exemptions and possible reversions of this trend. These exemptions include the continuous dominance of the one-dimensional left/right-space in Denmark and Finland as well as the time of change from a one-dimensional to a two-dimensional policy space, such as in France. This means that the influence of European integration for national party competition is neither deterministic nor irreversible. The number of Eurosceptic parties is growing in most countries, which profit from the declining public support for European integration. This is documented in expert surveys, which report about an inverted U-shaped configuration of party positions (Marks, Wilson and Ray, 2002; Benoit and Laver, 2006). However, our findings reveal that this configuration increasingly exists in the manifestos of the political parties, which reflect election-specific national party competition.

Since the dimensionality of the policy space is “is a central determinant of political competition and outcomes” (Gabel and Hix, 2002, p. 934) and “expanding the dimensionality of the policy space from one to two has profoundly disequilibrating consequences” (Krehbiel, 1988, p. 267), the identified trend towards two-dimensionality may have consequences for the study of a variety of political phenomena, such as coalition formation and (coalition) governance in the EU countries (e.g. Martin and Vanberg, 2005; Franchino and Høyland, 2009; Tavits and Letki, 2009; Maoz and Somer-Topcu, 2010; Adams, Ezrow and Somer-Topcu, 2011). In particular, the emergence of a second dimension may alter the patterns of coalition building in forming governments and adopting policies.
increases for building grand coalitions, which consist of central parties, this may further increase the popularity of peripheral parties as our introductory Greek example indicates. Future research may advance our theoretical knowledge about the conditions under which national party competition changes, i.e. by emphasizing issues in multi-party elections (Carmines and Stimson, 1981; De Sio and Weber, 2014).
References


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