

# The Emergence of the European Integration Dimension in National Party Systems, 1945-2010\*

Thomas König<sup>†</sup>  
Moritz Marbach<sup>‡</sup>  
Moritz Osnabrügge<sup>§</sup>

University of Mannheim  
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## Abstract

We investigate whether and, if so, when and where a new European integration dimension emerges in national party competition that complements the traditional left/right-dimension in Europe. We develop a Bayesian Finite Mixture Factor Analysis to estimate the probability for the latent one-dimensional traditional left/right and two-dimensional inverted U-shaped configuration with anti-European parties at the peripheries. Our empirical analysis combines expert and transformed manifesto data, covering the period since World War II. The estimation reveals that the probability for a one-dimensional configuration becomes on average less likely than the probability for a two-dimensional configuration since the late 1980s. We provide evidence that the increasing transfer of competences to the EU as manifested by EU membership plays a key role for the emergence of the European integration dimension. Our findings are supported by a series of validity tests and have implications for a many political phenomena.

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<sup>†</sup>[koenig@uni-mannheim.de](mailto:koenig@uni-mannheim.de)

<sup>‡</sup>[mmarbach@mail.uni-mannheim.de](mailto:mmarbach@mail.uni-mannheim.de)

<sup>§</sup>[osnabruegge@uni-mannheim.de](mailto:osnabruegge@uni-mannheim.de)

## 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, social and environmental affairs. However, they are aligned in their scepticism against the “troika” of institutions (the European Commission, the European Central Bank and the International Monetary Fund) and their strategy to overcome the Eurozone crisis. The former ruling parties, the New Democracy and the Panhellenic Socialist Movement, lost about half of their former 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 is raising the question, whether a new European integration dimension is characterizing Europe’s national party competition by cross-cutting the traditional left/right-dimension, which is for some scholars “the one dimension that arguably allows for meaningful cross-national comparisons” (Adams, 2012, p. 402).

Because the emergence of a new dimension in national party competition is a long term process changing the historical cleavage structure (Lipset and Rokkan, 1967), a further question is when and where this dimension emerges in European countries. Early on, Hix and Lord (1997, p. 27) suggested that the emerging conflict “about more or less European integration derived from deep social, cultural, national and territorial traditions” cross-cuts the traditional left/right- dimension of party competition in Europe, which leads to an inverted U-shaped party configuration: Peripheral parties at the left and right of the ideological spectrum oppose European integration yet centrist parties are supporting it (Taggart, 1998; Marks, Wilson and Ray, 2002; Hooghe et al., 2010). Although the dimensionality of a national policy space “is a central determinant of political competition and outcomes” (Gabel and Hix, 2002, p. 934), and although this conflict is likely to become more and more salient with the transfer of monetary and currency competences to the European level, we have little evidence about when and in which countries such an inverted U-shaped party configuration is emerging in Europe. In fact, a cross-cutting European integration dimension may explain several phenomena that seem puzzling from the traditional left/right one-dimensional perspective, such as the formation of coalitions between peripheral left- and right-wing parties or between large center parties to “grand”

coalitions.

To answer these questions, we examine whether an inverted U-shaped configuration of political parties characterizes party competition at national elections better than a traditional left/right-dimension. Our approach involves the construction of a novel statistical model and the combination of two distinct data sources. Building on the literature of mixture modeling (Frühwirth-Schnatter, 2006; Imai and Tingley, 2012), we introduce a mixture of latent variable models that allows us to estimate latent party positions and their dimensionality from the data. Because of our longitudinal perspective on the emergence of a new dimension, 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 König and Luig (2012). We use also expert survey knowledge on the configuration of party families from the Chapel Hill dataset (Steenbergen and Marks, 2007; Hooghe et al., 2010; Bakker, Jolly and Polk, 2012) to define the latent policy space a priori. Using information on the 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).

Our findings on national party competition show that the probability for the one-dimensional left/right space becomes less likely than the two-dimensional inverted U-shaped space since the late 1980s when the Single European Act set up the common market project in the EU. The examination of the country-specific trends reveals that most Western European countries experience a trend towards a two-dimensional space since the 1970s or 1980s. A notable exception are France, Great Britain and Ireland, where the political space becomes two-dimensional before the 1970s. In spite of their high number of parties, Denmark and Finland remain one-dimensional. Furthermore, party competition in many new member states from Eastern Europe indicates a similar trend towards two-dimensionality since the 1990s. However, as the period of analysis is much shorter due to those countries’ later transitions to democracy at the end of the 1980s and their recent accession to the EU in the early 2000s, a more cautious interpretation of this result is warranted. On closer inspection of our analysis, we find that the dimensionality parameter corresponds to historical junctures of important political events, such as EU membership. This suggests that the emergence of the second dimension is related to the increasing competences of the EU. Furthermore, the factor loadings of the new dimension reveal that its substantive nature is related to a conflict over strengthening of EU institutions

and enlargement as well as a conflict over immigration and cultural diversity. Finally, we find that our estimated party positions correlate with other measures of party positions from expert and public opinion polls.

Our result on the emergence of the new European integration dimension in almost all EU member countries challenges our understanding of the implications of European integration for national party competition and may have important ramifications for scholars using party positions (e.g. Tsebelis, 1999; Mair, 2000; Hooghe, Marks and Wilson, 2002; Marks and Steenbergen, 2002; Meguid, 2005; Martin and Vanberg, 2005; Adams and Merrill, 2006; Adams, Ezrow and Somer-Topcu, 2011; Adams, 2012; Franchino and Høyland, 2009; Tavits and Letki, 2009; Laver, 2014). The Greek example from the first paragraph 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 policy outcomes. Our analysis provides evidence on when and in which countries the conflict over European integration emerges, which underscores the 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 the debate about the reasons, stability and implications of this new dimension for national party competition (e.g. Benoit and Laver, 2012; Bakker, Jolly and Polk, 2012). Apart from this, our approach is applicable to other data sources and phenomena, such as the study of the dimensionality in the U.S. Congress, United Nations General Assembly and the 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 explanation 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 and 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). An empirical implication is that many scholars reduce this classic cleavage structure to a left/right dimension (e.g. Meguid, 2005; Tavits, 2007; Franchino and Høyland, 2009; Tavits and Letki, 2009; Adams, Ezrow and Somer-Topcu, 2011; Adams, 2012).

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 in their member states of the EU. 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). Conceptually, some colleagues argue that the left/right-dimension absorbs the issues 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). Until now, empirical studies provide a mixed picture on the existence of this new dimension: Proksch and colleagues using public opinion and expert surveys as well as roll call votes of members of the European Parliament argue that the European integration scale is dichotomous (Proksch and Lo, 2012; Lo, Proksch and Gschwend, 2014). Despite the growing saliency of European integration issues in electoral manifestos (Pennings, 2006; Spoon, 2012), several studies report no evidence for a major change in the dimensionality of the policy space that is related to European integration (Warwick, 2002; Albright, 2010; Stoll, 2010).

Evidence for the existence of a new European integration dimension mostly comes from recent expert surveys, 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-shape 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). Also Kriesi (2007, p. 99) corroborates this result using coded media reports<sup>1</sup>. Currently, the growing literature on Euroscepticism also points to the increasing importance and cross-cutting character

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<sup>1</sup>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, Noury and Roland, 2006; Hix, 1999; Mattila, 2004). Note that several studies come to a different conclusion (Gabel and Hix, 2002; Thomson, Boerefijn and Stokman, 2004; Zimmer, Schneider and Dobbins, 2005).

of European integration. Accordingly, peripheral parties from the left- and right-wing spectrum increased their popularity by opposing European integration 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 also highlight the common Euroscepticism of left- and right-wing 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 mixed picture of empirical studies on the existence of a European integration dimension is that the studies use different data sources to identify a new dimension that eventually complements the left/right-dimension. Until now, studies using party manifestos hardly find a second European integration dimension, while more recent expert surveys reveal an inverted U-shaped configuration. Compared to manifestos which provide new estimates about every four years at each election, it remains difficult to specify the time frame of experts' assessments ([McDonald, Mendes and Kim, 2007](#); [Bakker, Jolly and Polk, 2012](#)). Instead of preferring the one against the other, we propose to combine the two data sources and use expert data as a prior to estimate the probability for this European integration dimension with an inverted U-shaped configuration of political parties in national party competition on the basis of party manifestos <sup>2</sup>. Because existing studies on party manifestos hardly found a second European integration dimension, our analysis is 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

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<sup>2</sup>Other authors propose separating an economic from a social or cultural left/right-dimension related to post-materialist conflict ([Inglehart, 1971](#)), new politics issues ([Franklin, Mackie and Valen, 1992](#)) and authoritarian-libertarian conflict ([Kitschelt, 1994](#); [Kriesi et al., 2006](#)). However, because there is a strong linear relationship between parties' positions on the economic and social or cultural left/right dimensions ([Marks et al., 2006](#), p. 158), it is questionable whether this produces a second dimension of national party competition (see also [Kitschelt, 1994](#), p. 27).

by using a statistical model. Compared to existing latent variable models that estimate 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 evaluated data sources (e.g. Benoit, Laver and Mikhaylov, 2009; Mikhaylov, Laver and Benoit, 2012), we decided to use CMP data because this dataset covers national party competition in European countries since World War II. In our view, this long-term 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. Furthermore, the 25 investigated countries 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 EU that allows us to probe whether our findings relate to European integration or any other (global) development 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<sup>3</sup>.

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<sup>3</sup>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.

## 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,  $\mathbf{y}_j$  to be the  $j$  ( $j = 1, \dots, J$ ) row of our data matrix with  $L$  ( $l = 1, \dots, L$ ) 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  $\boldsymbol{\chi}_j$  be the unobserved  $D$ -dimensional position of party in an election (the factor) and let  $\boldsymbol{\lambda}$  be the  $L \times D$  matrix of factor loadings. We can then write the mixture of factor analysis models as follows:

$$\mathbf{y}_j = \begin{cases} \boldsymbol{\lambda}_1 \chi_{j,1} + \mathbf{e}_1 & \text{if } k_j = 0 \\ \boldsymbol{\lambda}_1 \chi_{j,1} + \boldsymbol{\lambda}_2 \chi_{j,2} + \mathbf{e}_2 & \text{if } k_j = 1 \end{cases}$$

$$\mathbf{e}_1 \sim \mathbf{N}(0, \boldsymbol{\Sigma}_1)$$

$$\mathbf{e}_2 \sim \mathbf{N}(0, \boldsymbol{\Sigma}_2),$$

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  $e$ , ( $e = 1, \dots, E$ ) 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:



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

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  $j^{\text{th}}$  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 European integration dimension over alternative approaches such as comparing model fit measures (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<sup>4</sup>.

## Priors

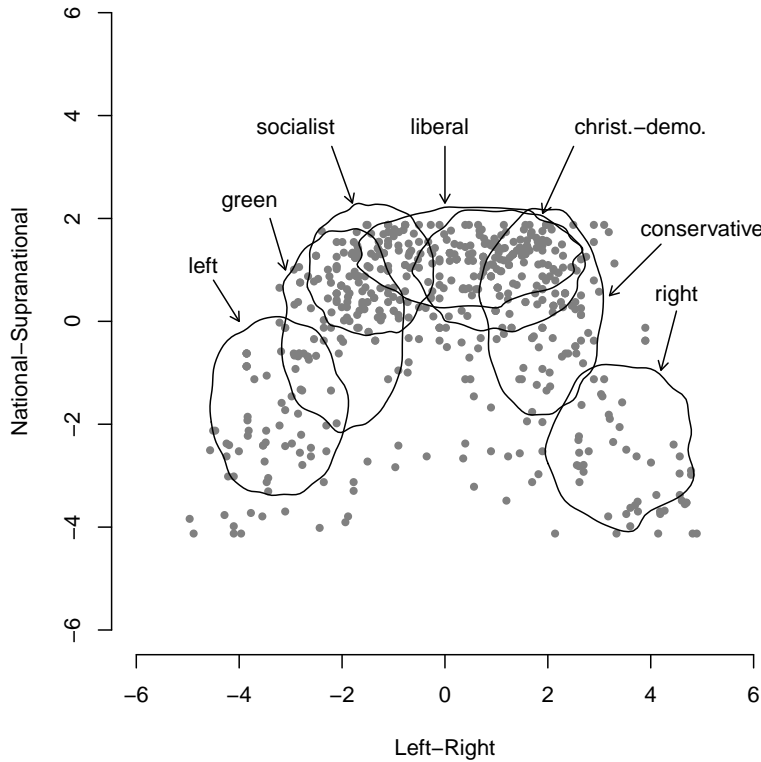
Adopting a Bayesian perspective, we systematically incorporate expert survey information about the shape of the latent policy space as priors into the estimation. Two reasons motivate our approach. Technically, using informed priors on the party family positions

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<sup>4</sup>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 criteria  $\pi_e$ , namely that the parties in an election belong in a two dimensional space (instead of a one dimensional space). The choice of this criteria 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.

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)<sup>5</sup>.

Substantively, we use the priors to induce a specific 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).



**Figure 1:** Party positions from the Chapel Hill Expert Survey and contours from a two-dimensional kernel density estimation for each party family.

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

<sup>5</sup>In the supporting information we discuss in detail what the identification requirements are.

and Marks (2007) as well as Hooghe et al. (2010)<sup>6</sup>. 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 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 ( $\lambda_l$ ), 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 ( $a_0 = 0.001$ ,  $b_0 = 0.001$ ). For the dimensionality parameter set ( $(1 - \pi_e, \pi_e)$ ), 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<sup>7</sup>. We obtain samples from three sets of parameters: the dimensionality parameters ( $\pi$ ), factor loadings ( $\lambda$ ) and latent positions of the parties ( $\chi$ )<sup>8</sup>. In the supporting information we describe

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<sup>6</sup>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).

<sup>7</sup>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.

<sup>8</sup>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

the Monte Carlo Experiments we conduct to verify that the model performs as expected. We are primarily interested in 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<sup>9</sup>.

## General Trend

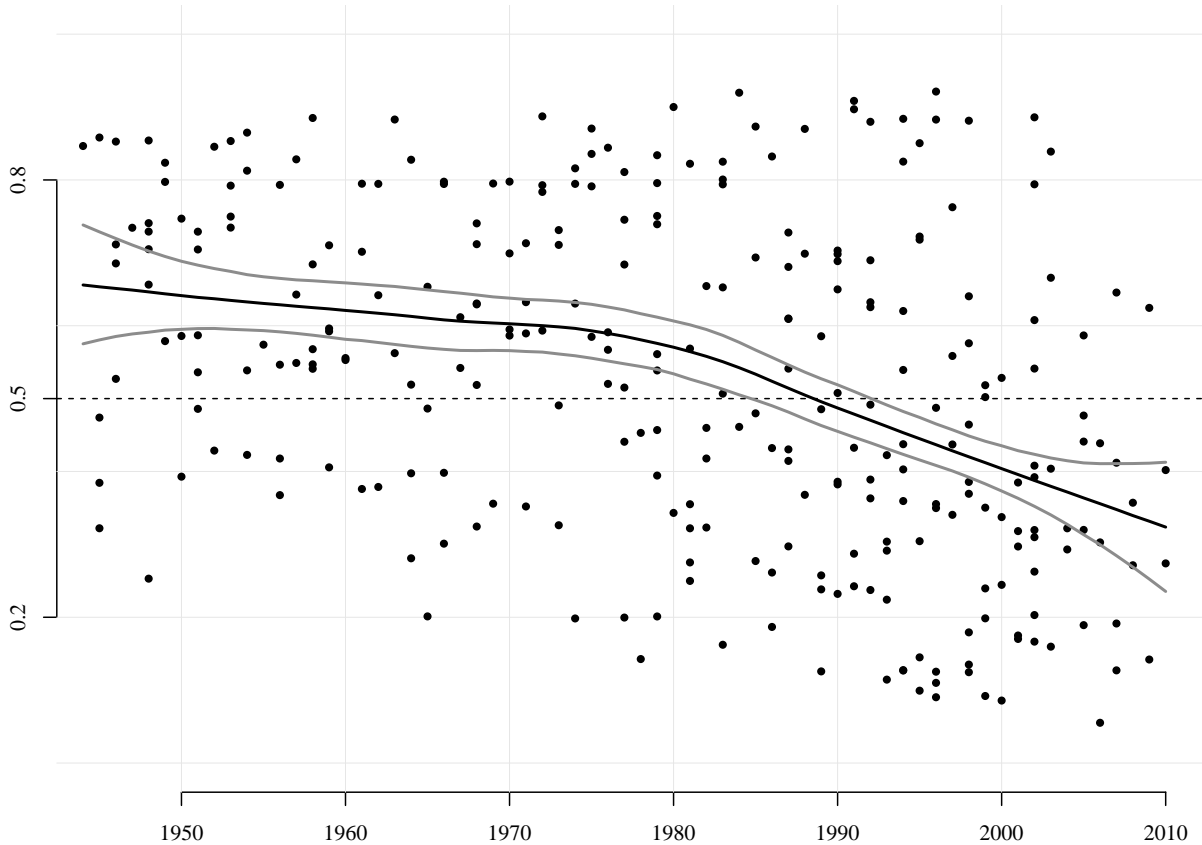
Figure 2 plots the posterior mean of each dimensionality parameter for the entire study period. Each dot shows the dimensionality parameter for each (democratic) election that took place since World War II in the 25 countries. Note that almost half of our country sample transformed to parliamentary democracies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

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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.

<sup>9</sup>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.

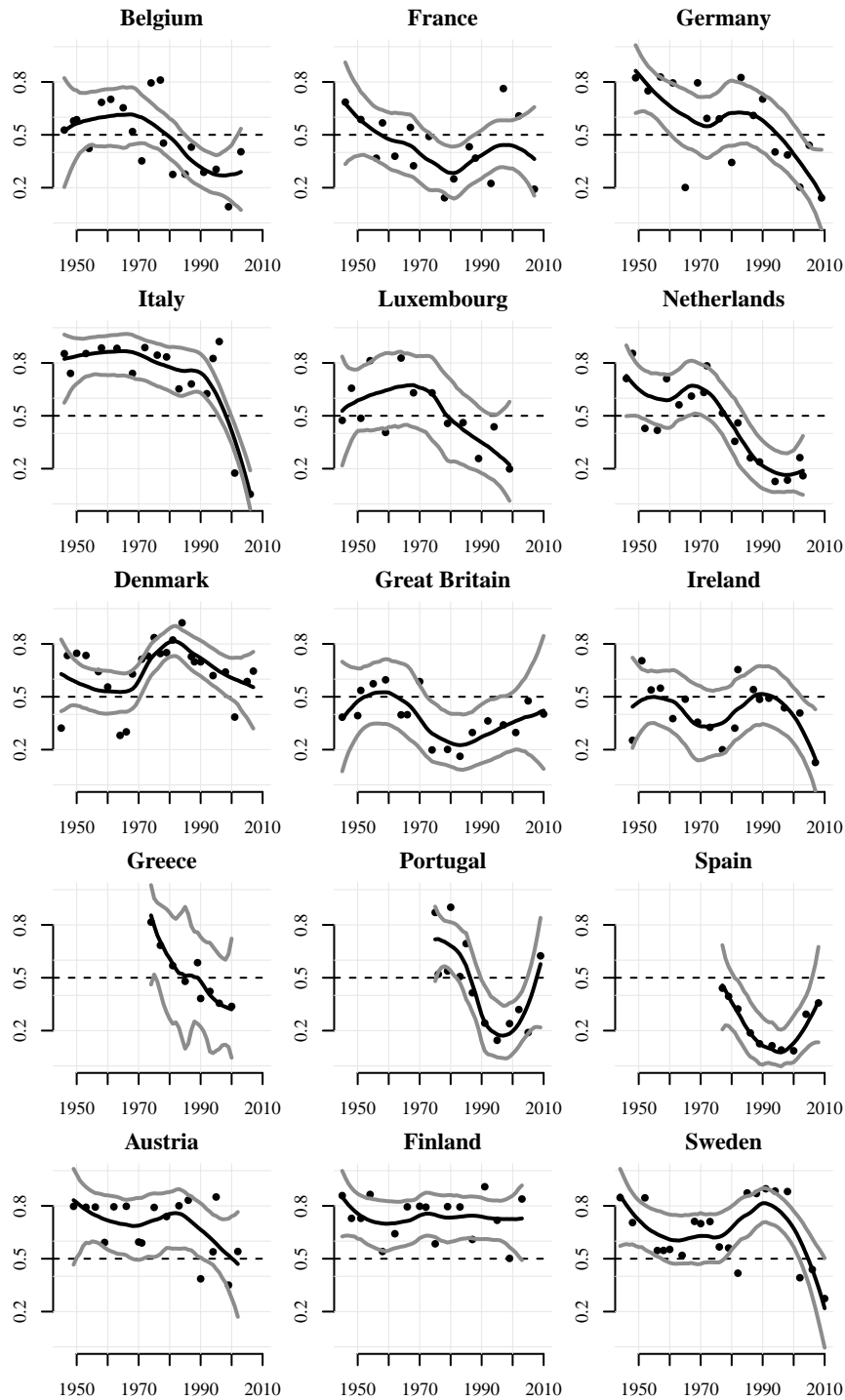
integration has been continuously increasing (Hooghe and Marks, 2009; Topaloff, 2012; Kriesi et al., 2012; Hutter and Grande, 2014).



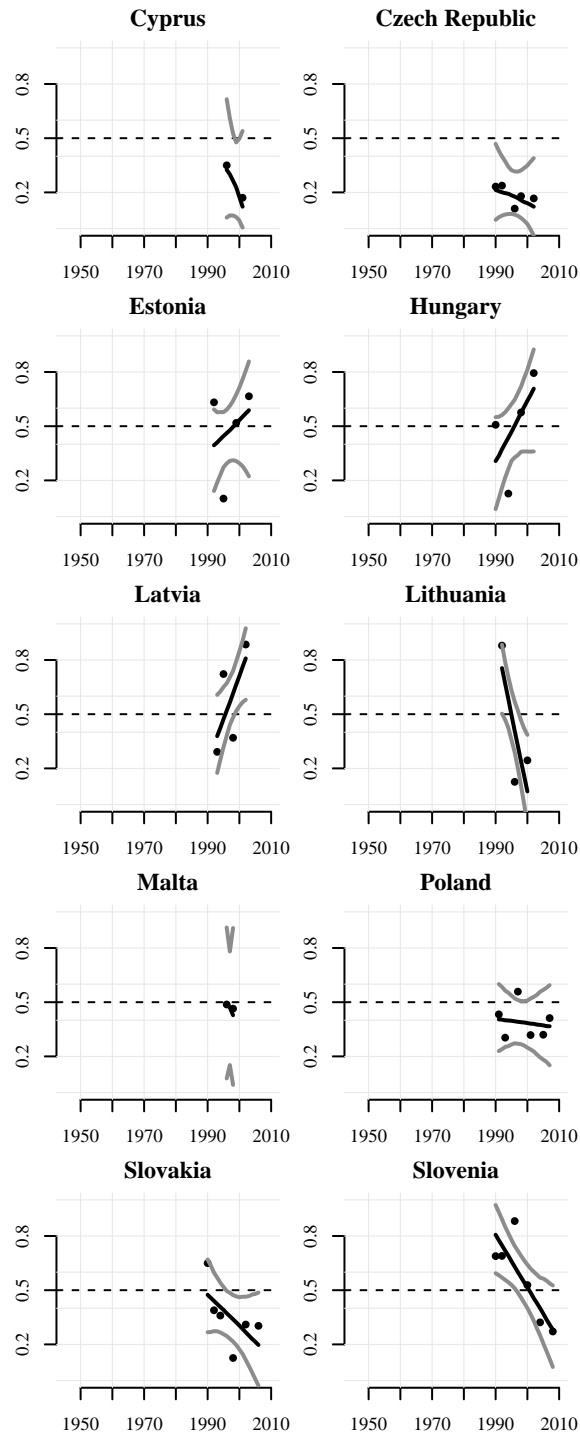
**Figure 2:** Posterior probability for a one-dimensional left/right policy space ( $D = 1$ ). We fitted local polynomial regression on each posterior draw. The solid black line indicates the average fitted curve. The gray lines indicate the corresponding 95% Bayesian credible interval.

## 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. Because almost half of our country sample transformed to parliamentary democracies in the end of the 1980s, it could well be that their inclusion is responsible 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. To provide a historical perspective, we order the countries along their accession date to



**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.

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. 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 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 remains 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 our results are not too sensitive to certain 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 estimate the dimensionality parameter per election. In order to test the implications of our focus on elections, we re-estimate the model grouping by decade instead of election. The substantive findings about the shape of the trends presented below, are the same. Third, we exclude the eastern European countries to check to what extent the inclusion of these new members to the European Union 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.

## **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 inspect the factor loadings to identify which conflicts characterize the left/right and 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

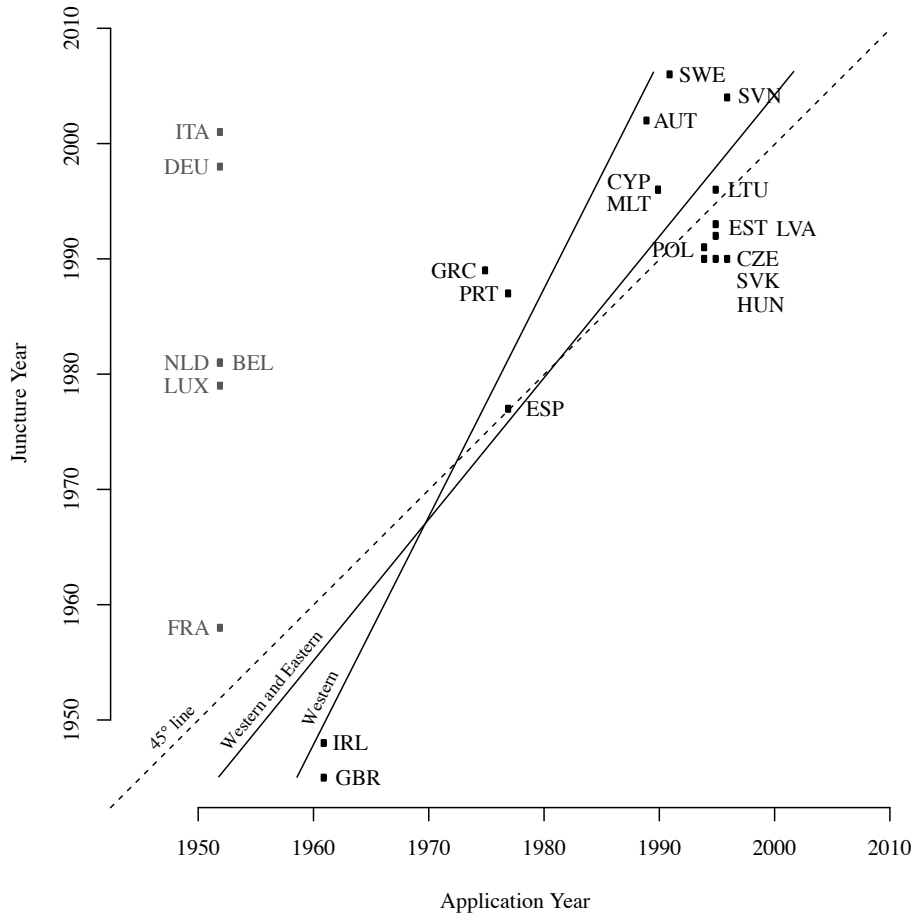
To assess the validity of the dimensionality parameter we identify the ‘critical juncture year’, which we define as the year in which the (average posterior) probability for the one-dimensional left/right policy space becomes smaller than the probability for the two-dimensional policy space. This strategy allows us to compare the trends to important political events that may have contributed to the emergence of the European integration dimension 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 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<sup>10</sup>. The relationship is weaker when we pool Western and the

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<sup>10</sup>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



**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.

### 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).

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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.

The evidence suggests that the emergence of the European integration dimension 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 in the literature 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, we further examine whether this dimension is directly related to the EU or any other global development. For this purpose 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 European integration 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. 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.

Indicator	LR Dimension		EU Dimension	
	Post. mean $\lambda$	BCI	Post. mean $\lambda$	BCI
Military	0.49	[0.45, 0.52]	0.32	[0.24, 0.40]
Freedom	0.28	[0.24, 0.31]	0.28	[0.20, 0.37]
Administration	0.18	[0.14, 0.22]	0.54	[0.45, 0.63]
Enterprise	0.58	[0.54, 0.62]	0.33	[0.23, 0.44]
Market	0.27	[0.23, 0.30]	0.01	[-0.06, 0.08]
Protectionism	-0.00	[-0.00, 0.00]	0.11	[0.04, 0.19]
Macroeconomics	0.19	[0.15, 0.23]	0.65	[0.57, 0.73]
Quality of life	0.14	[0.10, 0.18]	-0.28	[-0.38, -0.19]
Welfare state	0.29	[0.25, 0.33]	-0.49	[-0.57, -0.41]
Traditional morality	0.36	[0.32, 0.39]	0.18	[0.09, 0.27]
Multiculturalism	0.10	[0.07, 0.13]	-0.43	[-0.51, -0.36]
Labor groups	0.30	[0.26, 0.34]	-0.44	[-0.51, -0.36]
Target groups	0.07	[0.03, 0.10]	-0.39	[-0.47, -0.31]
Internationalism	-0.10	[-0.14, -0.06]	0.91	[0.82, 0.99]
European Union	0.16	[0.12, 0.20]	0.96	[0.87, 1.05]
National way of life	-0.23	[-0.26, -0.19]	-0.21	[-0.31, -0.13]

**Table 1:** Posterior density summary of factor loadings,  $\lambda$ , with posterior mean and 95% Bayesian credible interval (BCI).

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.

## 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<sup>11</sup>.

We compare our estimated party positions to Chapel Hill expert survey data<sup>12</sup>. 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 ( $r = 0.61$ ). This confirms the finding of Proksch and Lo (2012) highlighting that the correlation among different measures of party positions towards European integration is relatively small<sup>13</sup>. In our view, there are two reasons for the lower correlation between expert scores and our estimates for European integration dimension. First, it might indicate a gap between party leaders' preferences and the wider party members (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.

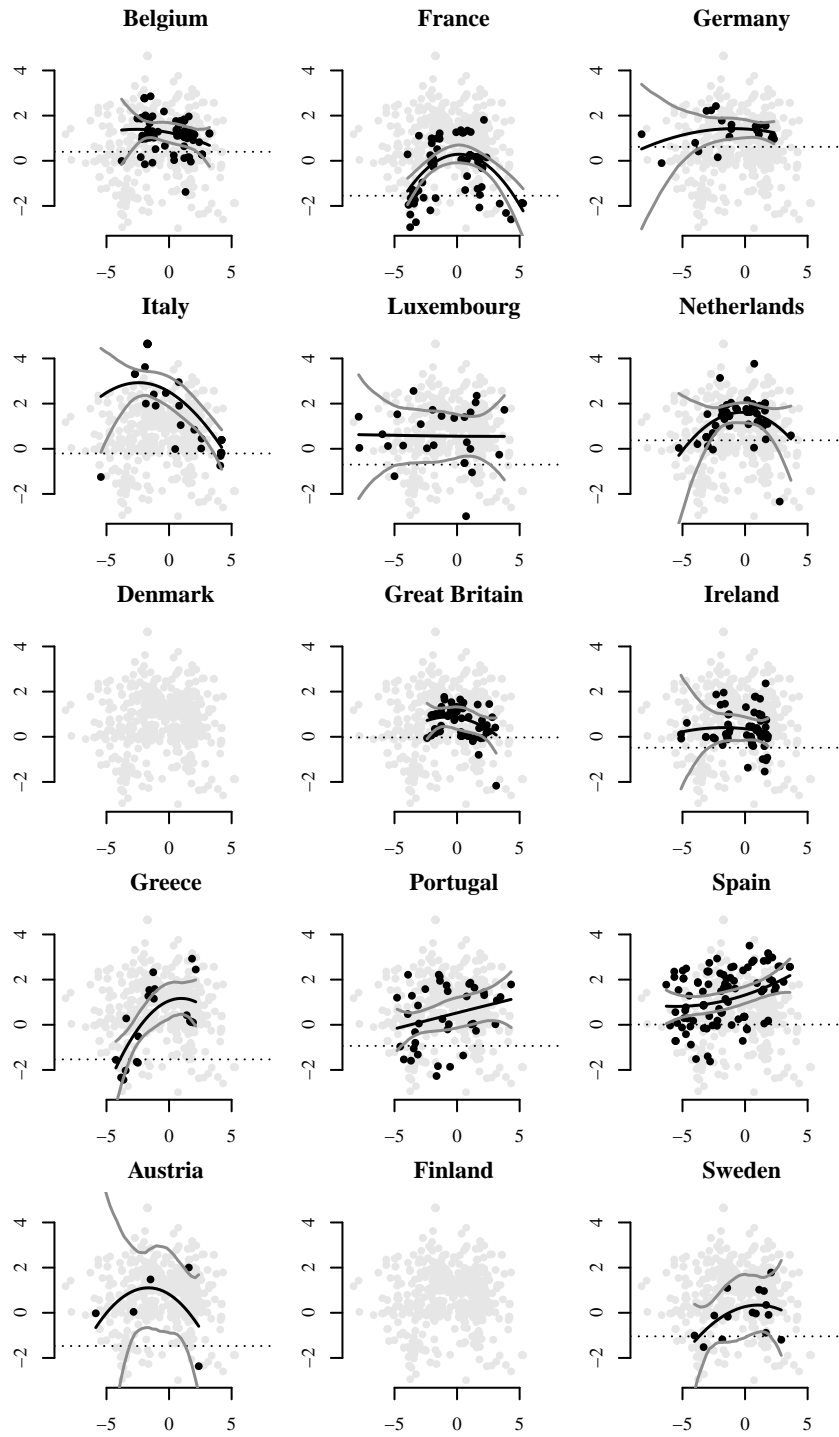
A crucial component for the emergence of a new, cross-cutting European integration dimension is the existence of Eurosceptic parties, which are located at the left- and right-wing spectrum. To identify Eurosceptic parties, we follow the procedure of De Vries and Edwards (2009) and classify each election 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

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<sup>11</sup>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.

<sup>12</sup>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.

<sup>13</sup>A closer inspection reveals that our lower correlation on the European integration dimension is to some extent 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.



**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.

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<sup>14</sup>. 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.

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)<sup>15</sup>.

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 Euroscep-

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<sup>14</sup>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.

<sup>15</sup>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.



tic 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).

Parties	Voters		
	Left	Balanced	Right
Left	GRC, PRT		ESP
Balanced	IRL SWE	AUT, BEL LUX, NLD	
Right	FRA,GBR ITA		

**Table 2:** Cross Tabulation: Eurosceptic voters and Eurosceptic parties

In summary, we implemented three tests. First, we compared our latent party positions to expert survey data. Although our estimated positions correlate relatively high on the left/right dimension, we presented our broader conception of the European 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 article investigates whether, when and where a new, cross-cutting European integration 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 transform

programmatic manifesto data and combine these data with expert evaluations of party family positions to estimate the election-specific dimensionality of national party competition (Budge et al., 2001; Klingemann and Volkens, 2007; Lowe et al., 2011; Steenbergen and Marks, 2007; Hooghe et al., 2010). Our findings reveal that the European integration dimension becomes increasingly important over time in national party competition for almost all countries. This general trend towards a second dimension is especially strong since the 1990s in almost all countries. Only in Denmark and Finland do we not find a two-dimensional space with an inverted U-shape.

Our substantive inspection of the European integration dimension suggests 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 EU is becoming an important element of national party competition because the country needs to implement the existing body of EU legislation. Our results indicate that the European integration dimension reflects the preferences over the transfer of policy competences from the national to the EU level, which also includes issues on immigration and cultural diversity. 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 also highlights that the dimensionality of policy spaces may change considerably over time and countries. This indicates that a closer inspection is warranted for answering questions on when and where this second dimension emerges. Although we find a general trend towards two-dimensionality, we also identify exemptions and possible reversions of this trend. 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 in national party competition (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.

The trend towards two-dimensionality may have consequences for our understanding and analysis of a variety of political phenomena, such as coalition formation in countries, where coalition governance is the rule rather than an exception (e.g. Austen-Smith and Banks, 1988; Laver and Shepsle, 1990; Baron, 1991; Martin and Stevenson, 2001; Strøm, Müller and Bergman, 2008). For example, Krehbiel (1988, p. 267) argues that “simply expanding the dimensionality of the policy space from one to two has profoundly disequilibrating

consequences". We expect that an emerging European integration dimension will increase the likelihood for grand coalitions consisting of central parties. This may however further increase the popularity of peripheral parties which may form coalitions as well, especially when public support for European integration is further decreasing in a member country as our introductory Greek example suggests. Future research may advance our theoretical knowledge by studying these dynamics and circumstances under which the dimensionality of party competition changes (see for an exception [Carmines and Stimson, 1981](#)).

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