The Dimensionality of Party Politics in Europe

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Abstract

As the European Union has grown in size and depth, the electoral and policy behavior of political parties has become more complex. To better understand motivations and outcomes in this context, researchers need to incorporate the changes in European party systems into their research designs. In order to do this, we must ask and answer several questions. Are the politics of European states one-dimensional or multi-dimensional? How do the contents of the dimension(s) (i.e. economic, social, or some combination) vary across countries and over time? More generally, how does dimensionality vary across these contexts? In this initial exploratory analysis, we begin to address these empirical questions using the Chapel Hill Expert Survey (CHES).

1　Introduction

As the European Union has grown in both size and scope, the electoral and policy behavior of domestic political parties has become more complex. Yet at the national level, political scientists tend to either assume a single dimension of contestation or project a second, orthogonal, dimension onto the political space. In fact, Hooghe, Marks and Wilson (2002) argue that "the standard model of European party system dynamics" consists of contestation limited to one or two dimensions, which "renders competition among parties institutionally and intellectually tractable." But where exactly a single dimension is sufficient to understand party contestation is an empirical question. To guide research into party electoral and legislative behavior, we need a clearer empirical understanding of the dimensional space in which parties compete.

In order to do this, we must address several questions. Is party competition in European states one-dimensional or multi-dimensional? How do the contents of these dimension(s) (i.e. economic, social, or some combination) vary across countries? More generally, how does dimensionality vary across these contexts? In this initial exploratory analysis, we begin to address these empirical questions using the 2006 Chapel Hill Expert Survey (CHES) (Hooghe et al. 2010; Steenbergen and Marks 2007). In future research, we will consider alternative data sources and focus on the measurement issues related to dimensionality, particularly how to combine different data sources and which method or technique is most suitable for comparing dimensionality across contexts.

As Hix, Noury and Roland (2006, 494) argue in their study of the dimensionality of European Parliament politics, "One of the main ways of understanding politics inside legislative institutions is to investigate the shape of the policy space." Yet, despite the value of this research focus, a recent special issue of *West European Politics* focusing on cleavages suggests that work remains to be done understanding the shape of the policy space in the electoral arena as well.

Our goals in this paper are simple. Using expert placements of parties on a variety of issues, we seek to extract the number of dimensions that best capture the issue space. In certain contexts, empirical political scientists may be able to explain political phenomena with a single dimension as well as with two. As Poole and Rosenthal (1997, 3) so elegantly state, "any science of politics must seek to find simple structures that organize this apparent complexity." Given the small N issues in studying cross-national European politics, this gain in parsimony is even more valuable.

Beyond this data reduction exercise, we further seek to understand how and why the number and contents of the dimensions vary across contexts. In particular, we consider two explanations for the variation in dimensionality across time and countries: the historical cleavage structure in different countries (Lipset and Rokkan 1967; Lijphart 1999), the introduction of new issues or dimensions (Inglehart 1990; Kitschelt 1994; Hooghe, Marks and Wilson 2002) and the strategic behavior of mainstream parties (Kitschelt 1994; Meguid 2008). We argue that mainstream parties in certain countries are better able to aggregate new issues into a single dimension.

In this paper, we first consider the literature on dimensionality in Europe using the 2006 Chapel Hill Expert Survey (CHES hereafter). Second, we analyze the number of dimensions in each European state included in the survey. Using exploratory factor analysis, we demonstrate that while multiple dimensions sometimes exist, there is consistently one dominant dimension, at least at the elite party level. Next we estimate separate factors for the economic left/right and the second social dimension and assess the correlations between them.[1] The relationship between these two dimensions varies between east and west. Consistent with earlier work (Marks et al. 2006), in the west, left-wing parties tend to be left on the economic and the social (or GAL) dimensions whereas left-wing parties in the East tend to be right-wing on the social (or TAN) dimension.

2 Dimensionality in Europe

Theoretically, politics can be conceived as contestation in an infinite-issue space. But for many reasons, there is justification for reducing that space to a more manageable number. For voters, the limits of cognition, or capacity to process information, constrain the numbers of dimensions (Downs 1957; Kitschelt 1994; Hinich and Munger 1996). Downs (1957) cogently argues that voters use ideology to cut their information cost and choose their preferred political party or candidate.

For parties, reducing the information costs for voters helps resolve an essential collective action problem for candidates, namely mobilizing the electorate to vote (Aldrich 1995). As Layman and Carsey (2002, 788) argue, "When Democratic and Republican elites present distinct viewpoints on multiple issues, those issues are, to some extent, packaged together for public consumption. In

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[1]This second dimension goes by many names, including materialist/post-materialist (Inglehart 1990), left-libertarian/right-authoritarian (Kitschelt 1994), Green-Alternative-Libertarian/Traditional-Authoritarian-Nationalist (GAL/TAN) (Hooghe, Marks and Wilson 2002), or simply by new politics. In this paper, we will simplify matters by following CHES norms and labeling this second dimension GAL/TAN.

other words, the policy positions of the two parties help determine 'what goes with what' in public policy debates and in the policy attitudes of citizens who receive political cues from party elites." Further, in a multiparty system, this elite capacity to determine 'what goes with what' or even whether issues are on the agenda is a crucial explanation for the (lack of) success of new parties (Meguid 2008).

Finally, for researchers, this process of data reduction, or going from an n-dimensional space to a simple one- or two-dimensional space, greatly simplifies analysis, with little loss of explanatory power. In the United States, for instance, Poole and Rosenthal (1997, 19) find that explaining roll call votes requires one or, at most, two dimensions. In their words, "virtually no substantive concern is served by going beyond two dimensions" (Poole and Rosenthal 1997, 19).

In American politics, largely thanks to (Poole and Rosenthal 1997), a simple 1 dimensional ideological space is the default.[2] But is a single economic left/right enough to explain political contestation in multi-party systems found throughout East and West Europe?

Using social structure as the theoretical basis, Kitschelt (1994) divides the issue space into two dimensions: socialist vs. capitalist and libertarian vs. authoritarian. Similarly, Marks et al. (2006) contend that two dimensions structure political competition, an economic left/right and a second, more context-specific, dimension that captures several noneconomic issues such as the environment, lifestyle, and community, which they label GAL/TAN. To be perceived as responsible and reliable to voters, parties must package together an ideology that is relatively coherent and stable (Downs 1957, 109). Thus, though two theoretical dimensions exist, parties actually compete along a single left-libertarian/right-authoritarian dimension while the off-diagonal quadrants—extreme socialist-authoritarian and capitalist-libertarian regions—are theoretically and empirically empty (Kitschelt 1994, 24–26). As Marks et al. (2006, 157–158) so cogently demonstrate with correlations and scatterplots, the two dimensional space neatly reduces to a single dimension in both the East as well, though the single unifying dimension that emerges ranges from left-authoritarian to right-libertarian (Marks et al. 2006). These studies cast some doubt on the pure orthogonality of a

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[2]Certainly, arguments over the number of dimensions in American politics continues (Aldrich, Rohde and Tofias 2007), but Poole and Rosenthal (1997) is the starting point. They admit two dimensions are significant in certain eras, but find the first dimension to 'dwarf' the second even in those eras (Poole and Rosenthal 1997, 54). This finding carries over to the European Parliament, where Hix, Noury and Roland (2006, 495) also find that a single dimension of politics dominates other latent dimensions. A second dimension, pro/anti-European Union, emerges from the roll call vote analysis but is far weaker.

second latent dimension.

In contrast to this simpler one-dimensional space, other scholars find more variation in the dimensionality. For instance, Schofield (1993a) uses the Comparative Manifesto Project (CMP) data to map 2 dimensions from the issue space. Indeed, he is startled to discover that the issue space so neatly reduces to two dimensions (Schofield 1993a, 30) and finds both dimensions valuable for analyzing coalition formation. Theoretically, Schofield (1993b, 136) argues that, for coalition bargaining, a one-dimensional model is unsatisfactory. Counterfactually, he infers that since smaller parties never form the core position in minority coalitions, then "there must be more than one underlying dimension of policy or ideology in these countries" (Schofield 1993b, 143). And yet, Schofield (1993b, 143) only finds empirical evidence for two dimensions in six of the twelve West European countries studied.

In a more recent study, (Stoll 2010) also uses CMP data to extract the number of latent dimensions in the issue space. Given her focus on the realignment debate, she pools the data across 18 West European countries and compares the number of dimension over time. The principal components analysis shows that dimensionality has decreased over time, going from three dimensions in the 1950s to one or two in the 1990s and 2000s (Stoll 2010, 461). While the temporal variation is interesting and warrants further investigation, we will argue below that we should not ignore the variation in dimensionality between countries via aggregation.

The simplification of the issue-space is not restricted to elites. Analyzing the European Values Survey, Henjak (2010) also finds that two dimensions structure individual attitudes generally, but the strength and content of the second dimension varies considerably across countries.

Again, the value of this distinction between n-dimensions and a single or two is crucial for researchers. Equipped with a citizen's positions on just a single or few dimensions, researchers are able to relatively accurately predict voter attitudes on all issues (Hinich and Munger 1996, 127). Hinich and Munger (1996, 3) go further, arguing that "the cleavages between parties separate along simpler, more predictable lines than an n-dimensional policy space would imply, *even if what voters care about is the n-dimensional space.* A reduced-dimensional policy space represents party conflict very accurately, and at far less cost to the voters and the parties themselves." In their unified theory of party competition, for instance, Adams, Merrill III and Grofman (2005) make significant

progress in explaining party positioning in response to voters using a simple left/right dimension.[3]

This discussion clearly points to the research queries at the heart of this paper. Does the *n*-issue space in domestic European polities reduce to one, two or more dimensions? How does the dimensionality vary across countries? And how does the content of the dimension(s) vary across contexts?

3   Plotting the Dimensional Space

In the 2006 Chapel Hill Expert Survey, experts place parties on a standard left/right dimension and on a social left/right labeled GAL/TAN (Green-Alternative-Libertarian/Traditional-Authoritarian-Nationalist). But the experts also place parties on 13 specific issues, such as decentralization, minority rights, welfare, etc. Thus, there are two methods to extract dimensions from the data: using the expert placements on the dimensions or using factor analysis on the 13 issues to extract 1, 2 or more dimensions from the data. In the following pages, we analyze the parties using both methods.

First, we simply created scatterplots with the two dimensions. For example, in Figure 1, we present the Spanish, Slovakian and Hungarian party systems.

| (a) Spain | (b) Slovakia | (c) Hungary |

Figure 1: Political Parties in a 2 Dimensional Space

For illustration purposes, the graphs include a best fit line. In each country, multiple parties contested the election. As Figure 1a shows, in the Spanish case, the relationship between economic

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[3]Even when they consider multiple dimensions (Adams, Merrill III and Grofman 2005, 77), as they do in France, the ordering of parties hardly varies across left/right, immigration, public sector, and church schools (Chirac is slightly to the right of Le Pen on public sector and church schools). This stable ordering implies that there is considerable packaging of issues into a small number of dimensions.

left/right and GAL/TAN is so strong and positive that it is clear parties compete on a single left-libertarian/right-authoritarian dimension. The contrast between Spain and Hungary, shown in Figure 1c, is striking. The parties in Hungary clearly compete along a single dimension, though in Hungary it is left-authoritarian/right-libertarian. Finally, Figure 1b demonstrates the clearest case in the CHES data that there simply is not a straightforward relationship between left/right and GAL/TAN among a country's parties. Extreme left and right-wing parties are just as likely to be on the TAN side, while centrist parties occupy both the GAL and TAN sides of the ideological spectrum.

These examples highlight the three main patterns in the data. In Appendix A, we present graphs of the remaining countries. But the correlation coefficients tell much of the story. Table 1 presents the correlations between left/right and GAL/TAN, by country.

Table 1: Left/Right and GAL/TAN Correlation Coefficients

Country	Correlation Coefficient	Observations (Parties)
Spain	0.9772	10
Portugal	0.9562	5
United Kingdom	0.9181	7
France	0.8296	8
Slovenia	0.7891	8
Austria	0.7472	6
Sweden	0.6835	8
Latvia	0.6823	8
Belgium	0.6572	10
Ireland	0.6511	6
Estonia	0.6445	5
Italy	0.5995	13
Denmark	0.5259	9
Greece	0.4444	5
Germany	0.4112	6
Netherlands	0.3119	8
Finland	0.2402	8
Slovakia	0.0349	8
Lithuania	-0.4490	8
Czech	-0.5997	6
Bulgaria	-0.8120	7
Poland	-0.8331	8
Romania	-0.8723	7
Hungary	-0.9880	5

As previous research has demonstrated, the relationship is positive in the West (left-wing parties are also GAL), but the evidence in the East is mixed. In some countries, like Bulgaria and Hungary, the left-wing parties are the TAN parties while other east European countries, such as Latvia and Slovenia mimic the Western relationship. In only a few countries is the correlation less than 0.50. Slovakia is an extreme outlier, with nearly no correlation between the two dimensions at all.

These correlations suggest that, based on expert placement on the two dimensions, parties typically compete along a single dominant dimension. But in some cases, like Slovakia, the party system is contested clearly along more than one dimension.

In Figure 2, we visualize these correlations in a simple bar graph.
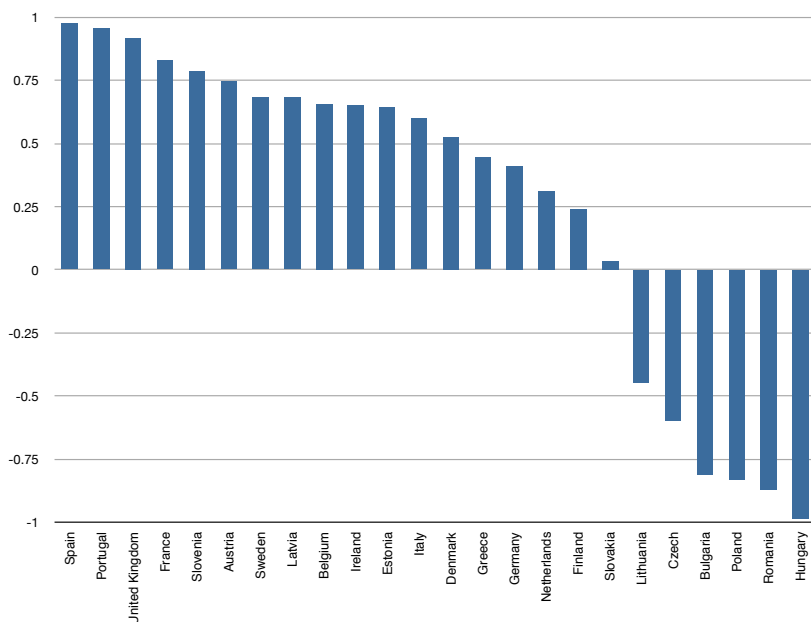
Figure 2: Left/Right and GAL/TAN Correlation Coefficients

What is immediately clear from Figure 2 is the dramatic variation across countries. Most correlations are positive and strong, showing a positive relationship between left-wing and GAL. Only a few correlations are small, or even near zero in the case of Slovakia, which suggests there is little clarity in the relationship between the two dimensions. In the remaining few cases, the correlations are negative, as in Hungary, where left-wing parties tend to also be TAN. And yet,

while these correlations tell us some of the story, they are not sufficient for understanding the factor structure in the data. In the next section, we set aside the expert placements on the dimensional questions (left/right and GAL/TAN) and focus on specific issues to try to extract dimensions.

4   Factor Analysis

Hinich and Munger (1996, 102) argue that "The units of the space, and its dimensionality, *are not theoretically derivable*. The dimensions are, at best, empirically recoverable, using regression analysis or factor analysis." In this section, we attempt to recover the dimensions by analyzing the issue space to determine the number of dimensions in each system.

In this stage, we disregard the expert placements on the dimensions (i.e. where experts place parties on the economic Left/Right scale) and focus on expert placement of parties on specific issues (i.e. where experts place parties on immigration, European integration, etc.). Using the 13 specific issue questions in the CHES, we ran a factor analysis on each country separately to evaluate whether one or more dimensions captured the political space. With few exceptions, one factor dominated any others.

In Figure 3, we plotted the graphs of eigenvalues versus the number of estimated factors. These scree plots provide an indicator of how many dimensions the data support.

(a) Spain   (b) Slovakia   (c) Hungary
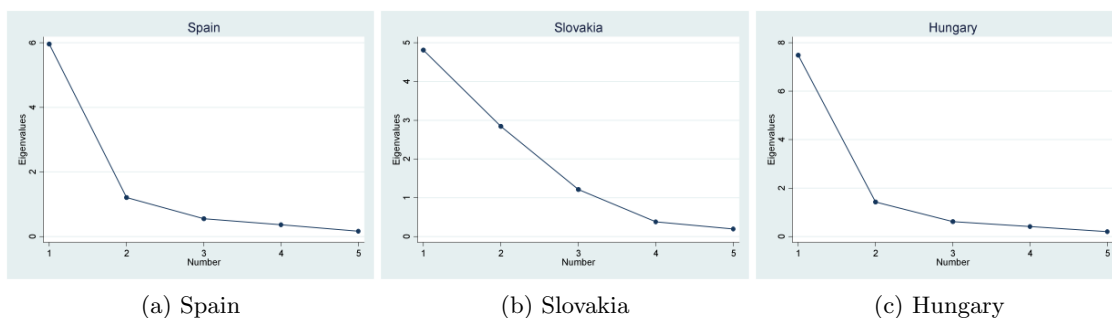
Figure 3: Plot of Eigenvalues and Number of Factors

For this graph, the number of factors before the elbow, or bend in the curve, illustrates dimensionality. Not surprisingly given Figure 1 on page 5, the scree plots demonstrate that a single dimension dominates the rest in Spain and Hungary. By contrast, a case could be made for 2 or even 3 dimensions in the Slovakian case based on Figure 3b. In Appendix B, we provide simi-

lar graphs for the remaining countries, but the evidence is remarkably consistent, at least in the West. In several of the central or eastern European members, at least two dimensions emerge. For instance, along with Slovakia, Latvia and Lithuania stand out. Clearly, there is variation across countries in terms of how many dimensions form the basis of contestation, but a single dimension often dominates the others.

5   Dimensional Content

To better understand the make-up of the dimensions estimated using the 13 issue-specific questions in the survey, we can examine the factor loadings from the country-specific factor analyses. Briefly, the factor loadings provide a measure of how closely each of the individual survey questions is related to the latent concept (left/right or GAL/TAN). To the extent that a given party system is one-dimensional, the individual items will all load on a single factor. If, however, we see that some items load together on one factor, while others load together on a separate factor, this provides strong evidence of a multi-dimensional party space. Table 2 displays the factor loadings for Belgium in 2006 for the significant factors estimated by the model. Factor loadings for the rest of the countries are available upon request.

What we see from Table 2 is that 12 of the 13 items all clearly load on the first factorthe lone exception in Belgium being the question regarding political decentralization to regions/localities. Although the three economic-related items do load together on the 2nd dimensionthey are most closely related to the first dimension and share a great deal of variance with the other 10 items, which are more substantively representative of the GAL/TAN dimension. Given that the separate dimensions are, by assumption, orthogonal to each other, there is clearly an aspect of the shared variation in the economic questions that is separate from the others, but this does not mean that more than one dimension is required to accurately summarize the party-space in a given country. By examining the factor loadings across time and space, we can start to get a better feel for the issues that compose the different dimensionsat least to the extent that the expert surveys allow.

In future revisions, we plan to extend significantly this section.

Table 2: Belgium 2006 Factor Loading

Variable	Factor 1	Factor 2	Uniqueness
Spend_tax	0.7272	0.6055	0.1046
Deregulation	0.6696	0.5390	0.2612
Redistribution	0.7841	0.4054	0.2208
civlib_law&order	0.8358	-0.1896	0.2655
Social_lifestyle	0.8137	-0.4204	0.1612
Religious_Principle	0.6587	-0.4873	0.3287
immigrate_policy	0.9048	0.0020	0.1814
immigrant_asylum	0.9346	-0.0643	0.1224
urban_rural	0.4579	-0.1753	0.7596
cosmo_national	0.8986	-0.3092	0.0969
Regions	-0.3211	-0.0252	0.8963
USpower	0.7753	0.1342	0.3810
ethnic_minorities	0.8944	0.0075	0.2000

6   Discussion

The analysis in this draft is preliminary. Several steps forward are clear. First, now that we have disaggregated the data to the country level, we need to decipher the results and discern the patterns in the data. Second, we need to evaluate change over time. Do the dimensions change over time? Third, we need to compare the results based on CHES data with results from other sources, such as the Comparative Manifesto Project and individual-level attitudes. Fourth, we have focused far more attention on how many dimensions emerge than what these dimensions represent. The content of these dimensions matters at least as much, if not more, than the number itself. Finally, when the descriptive work is complete, we will turn our attention to understanding the causes and consequences of the varieties of dimensionality in European politics.
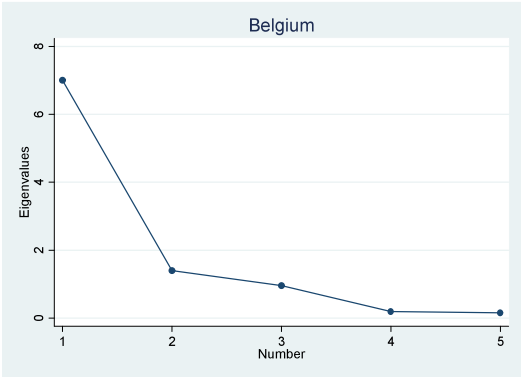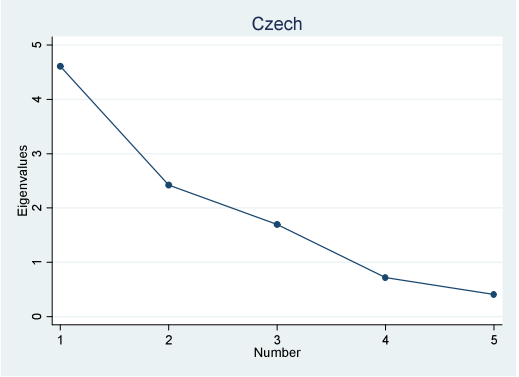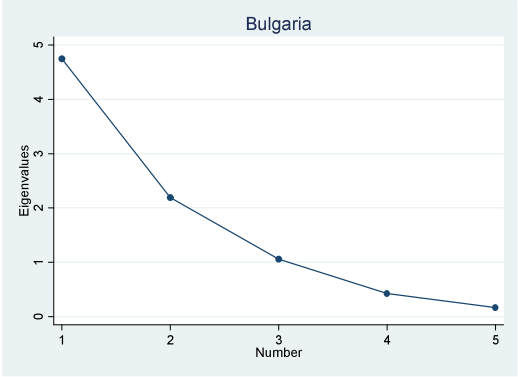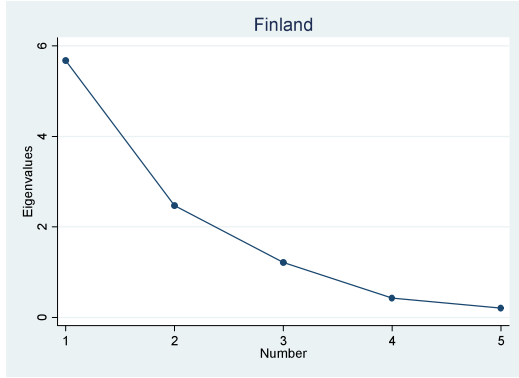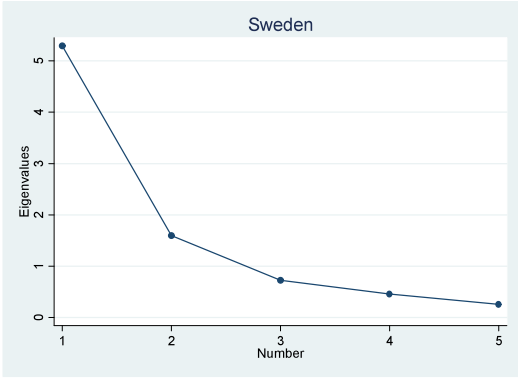
Appendix A. Political Parties in a 2 Dimensional Space

Appendix A. continued

Latvia 2006 Direct Questions

Lithiuania 2006 Direct Questions

Poland 2006 Direct Questions

Romania 2006 Direct Questions

Slovakia 2006 Direct Questions

Slovenia 2006 Direct Questions
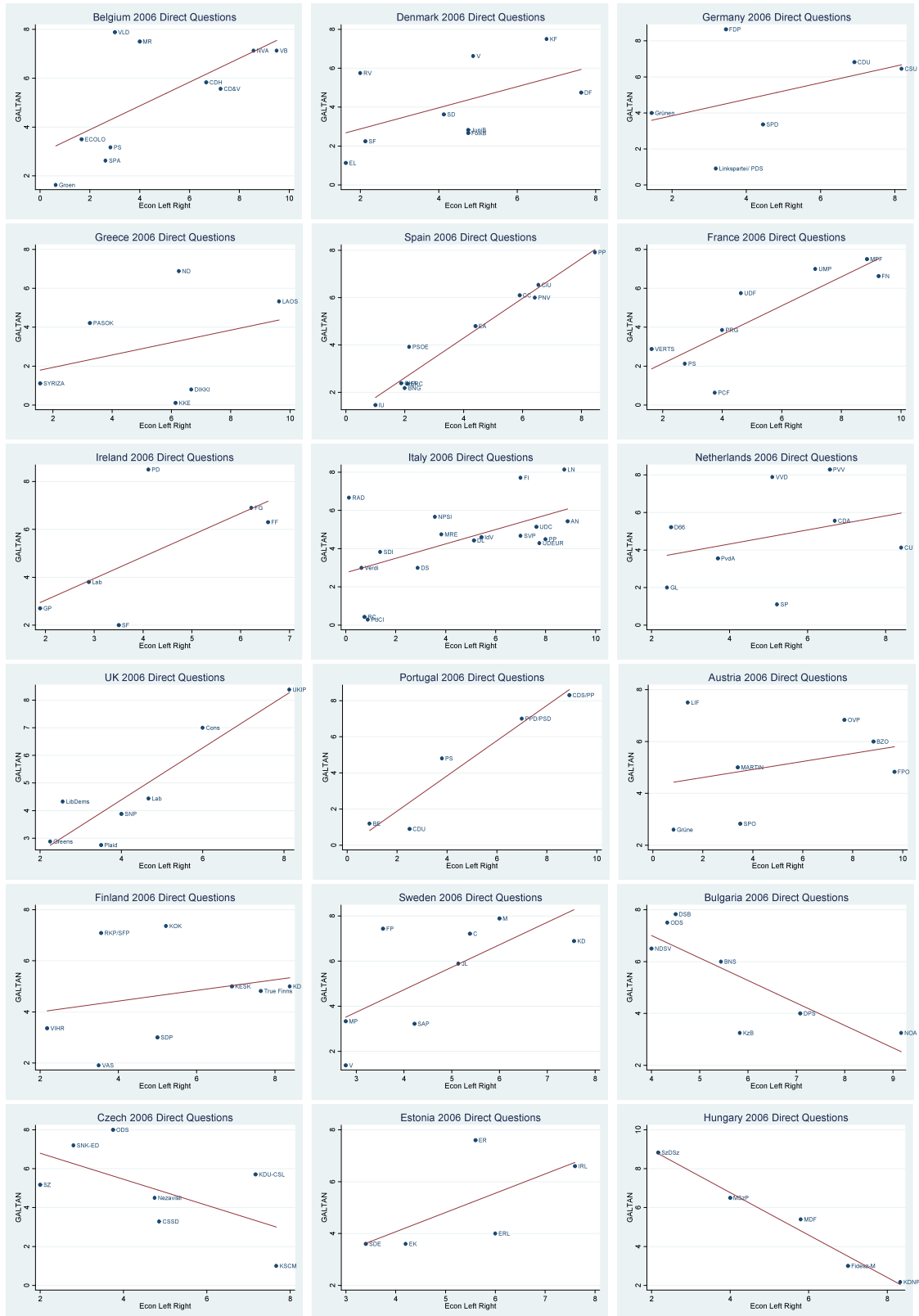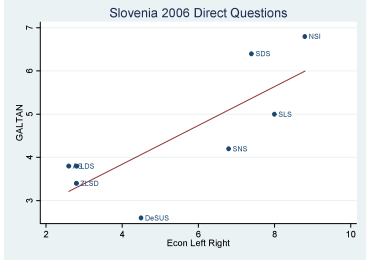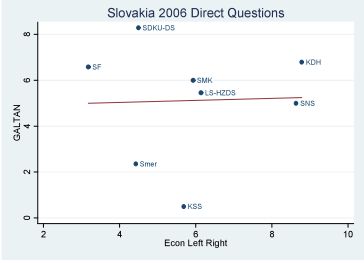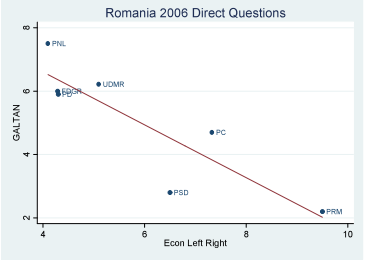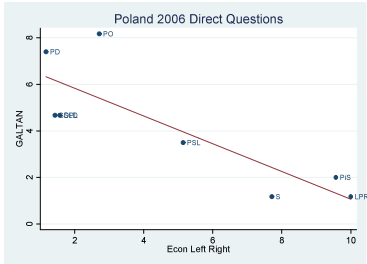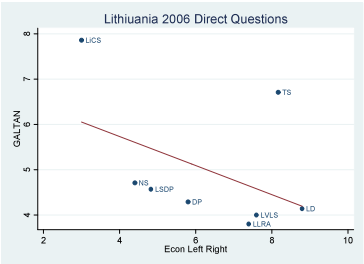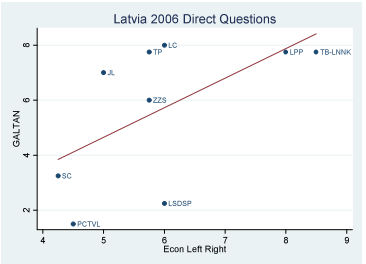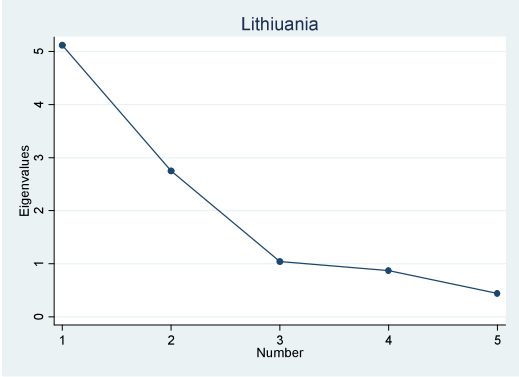
Appendix B. Plots of Eigenvalues versus Number of Dimensions, by country

Appendix B. continued

Netherlands — UK — Portugal — Austria — Sweden — Finland — Bulgaria — Czech (Eigenvalues vs Number, scree plots)
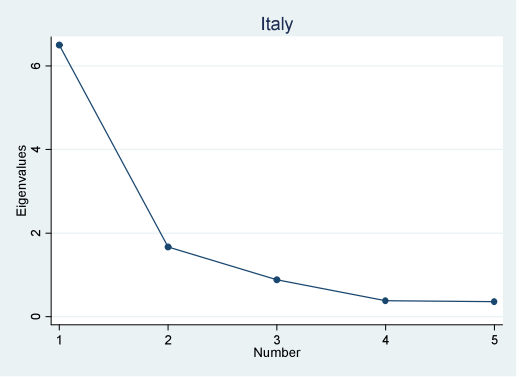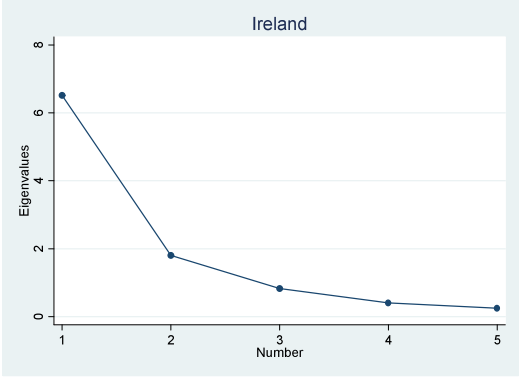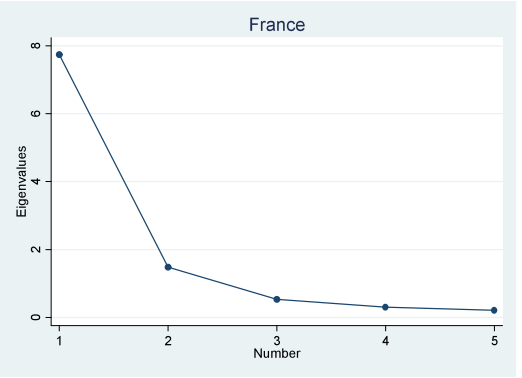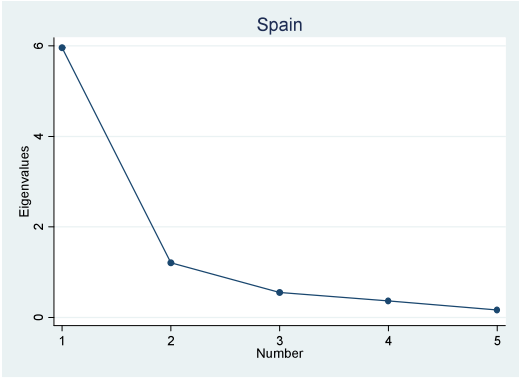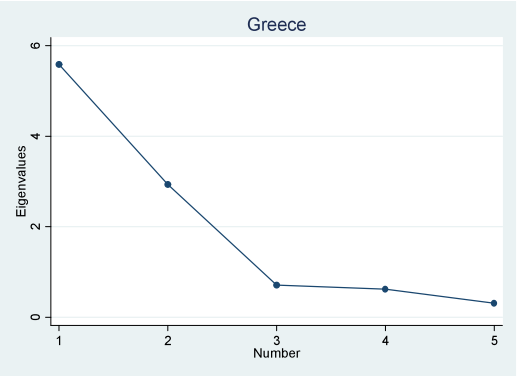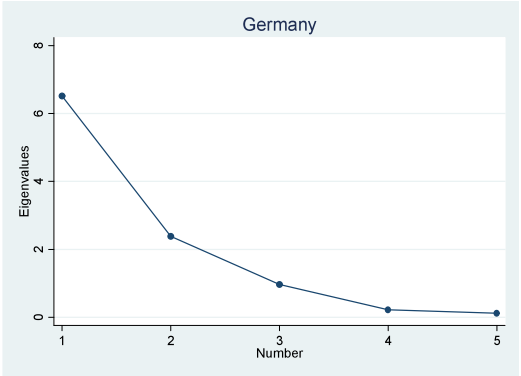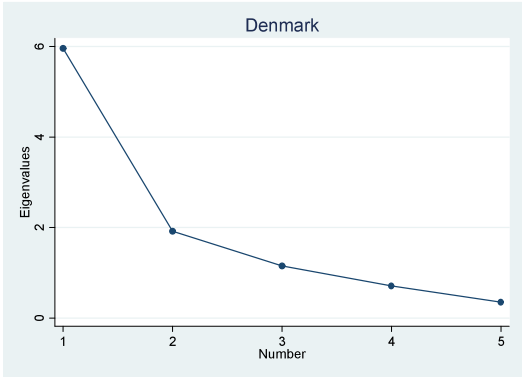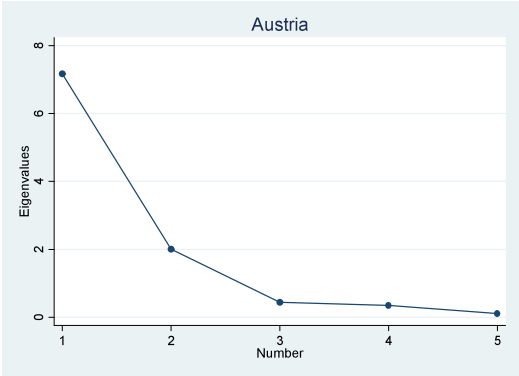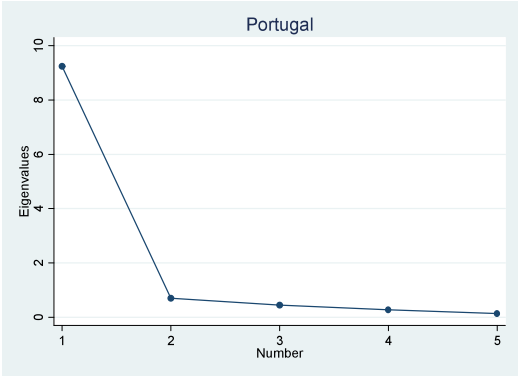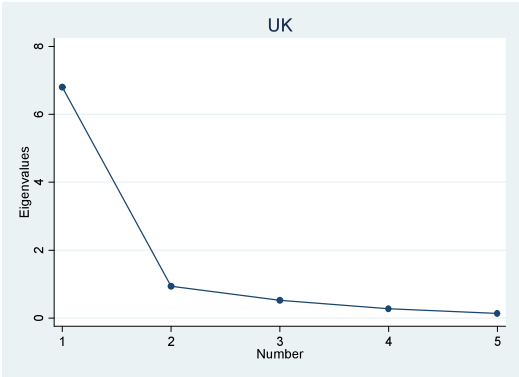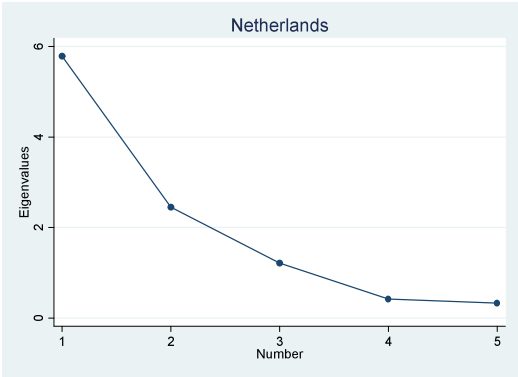
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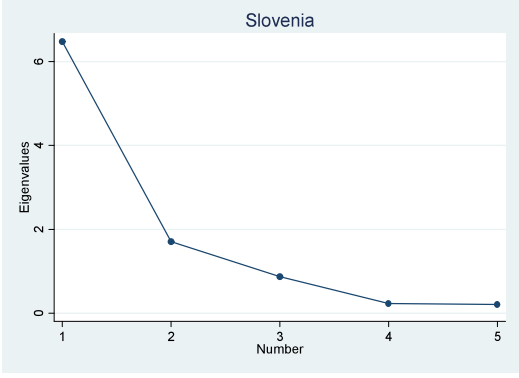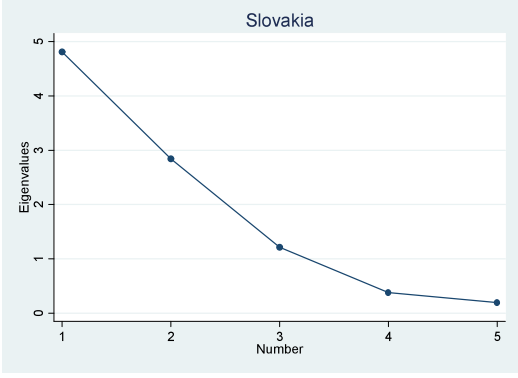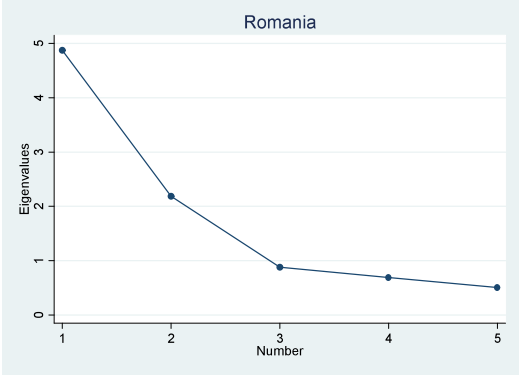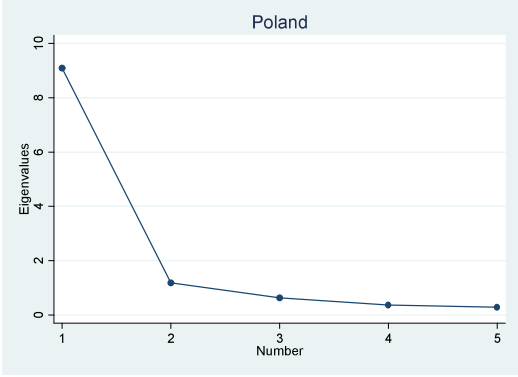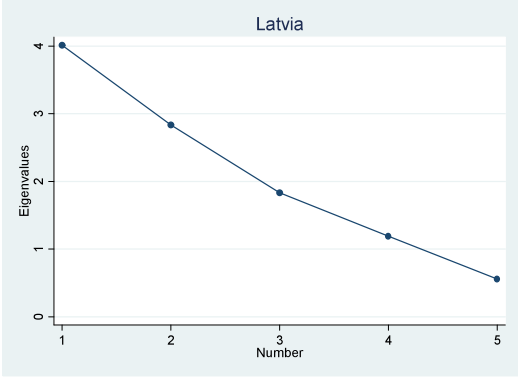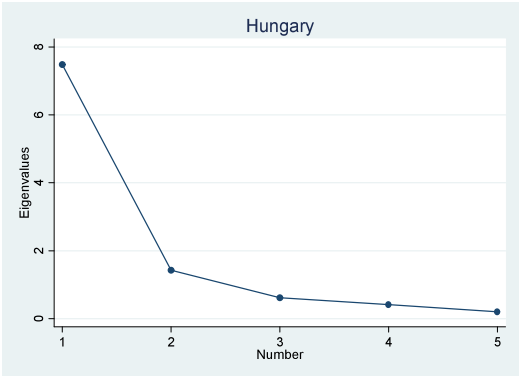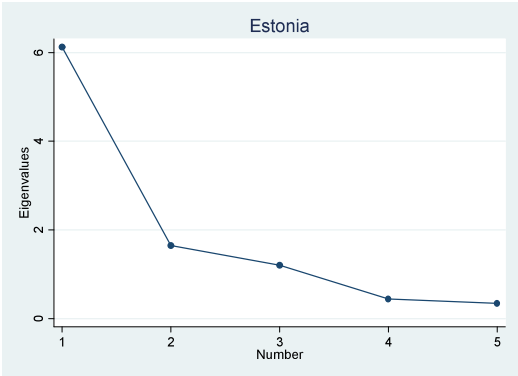
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