Cleavage Structures and Ideological Dimensions in English Politics: Some Evidence from VAA Data

Jonathan Wheatley

University of Zürich

Abstract

The left-right dimension is the most common way of conceptualizing ideological difference. It is based on the traditional cleavage in society between capital and labour. But in an ever more globalised world, are the concepts of Left and Right as relevant today as they were half a century ago? This paper builds on the hypothesis of Kriesi et al. (2006), who argue that a new societal cleavage has emerged in many European societies between "winners" and "losers" of globalisation and that in some countries this has manifested itself in the formation of new populist "right-wing" parties. I argue that this cleavage has engendered a new ideological dimension that pits "cosmopolitans" against "communitarians" and draws on cultural issues relating to identity, rather than economic issues. I test this argument by identifying latent dimensions from opinion data generated by two Voting Advice Applications (VAAs) deployed in England in 2014 and 2015 and by mapping the positions of party supporters with respect to these dimensions. I find that in England the political space is defined by two main ideological dimensions: an economic Left-Right dimension and a cultural communitarian-cosmopolitan dimension. I also find that supporters of the newly formed United Kingdom Independence Party (UKIP) are located near the communitarian pole of the cultural dimension. Finally, I find that amongst voters who are not politically interested, the economic dimension is hardly relevant at all, but that the set of issues that define the cultural dimension remain relevant and structure the political views of these voters.

Introduction

The aim of this paper is to explore the validity of the concepts of Left and Right as ideological markers in English politics. Specifically I investigate

whether or not Left versus Right still constitutes a meaningful ideological dimension, and if it does what issues load onto it. "Left" and "Right" are ambiguous concepts; for Huber and Inglehart, the Left-Right dimension is "an amorphous vessel whose meaning varies in systematic ways with the underlying political and economic conditions in a given society" (Huber and Inglehart 1995, 90). Moreover, the concepts of Left and Right have proved extraordinarily flexible over time. First coined in post-revolutionary France to distinguish supporters of the King and Church (the Right) from supporters of the French Revolution (the Left), by the twentieth century these concepts had acquired an economic significance with those on the Right supporting free-market capitalism and those on the Left supporting redistribution of wealth and defending the interests of labour. Today "Left" and "Right" are variously used to refer to both economic ideologies (capital versus labour) and cultural ideologies (social liberalism versus social conservatism).

That Left and Right in Western Europe took on an economic significance in the twentieth century is unsurprising. By then the class cleavage, i.e. that between capital and labour, had become the dominant cleavage in society. However, in their seminal essay of 1967 Lipset and Rokken identify no less than four potential societal cleavages that have structured the formation of party politics in Western Europe since the end of the eighteenth century. The cleavage between labour and capital was but the last of these cleavages to emerge; Lipset and Rokkan identify two more that appeared earlier in certain societies as a result of the so called "national revolution"; these were between the centre and the periphery and between the interests of the Church and those of the state. The capital versus labour cleavage appeared as a result of the Industrial Revolution, as did a further cleavage between land and industry (Lipset and Rokkan 1967). Kriesi et al. (2006) identify a fifth societal cleavage that appeared at the end of the twentieth century and the beginning of the twenty-first: that between "winners" and "losers" of globalisation.

Given the complexities of societal cleavages in many European societies, is it not possible that politics is rather too complex to be reduced to just one (Left versus Right) ideological dimension? Lipset (1959) warns that politics becomes especially conflict-prone when the economic (capital versus labour) cleavage reinforces a religious-secular cleavage, leaving open the (more desirable) possibility that these two cleavages may be cross-cutting, suggesting by implication the possibility of at least two independent ideological dimensions. While not all (five) cleavages identified above are relevant in all societies, it is very likely that more than one may be relevant in most. If they are cross-cutting, rather than reinforcing, they may define a multi-dimensional ideological space.

By the 1970s and 1980s, scholars were already proposing a second ideological dimension that existed in parallel to the (economic) Left versus Right

dimension. Inglehart (1977, 1990) identified the emergence of a "new politics" based on what he terms "post-materialist values" that emerged as part of the counter-culture of the 1960s and 1970s and that began to supplant—or exist in parallel with—materialist values that were based on the imperative of economic need. "Post-materialist values" include cultural notions of gender equality, gay rights, environmental protection and tolerance of alternative lifestyles. Based on these concepts, some scholars suggest that two ideological dimensions—one economic and one cultural—would better describe the ideological space in Europe than a single all-encompassing Left-Right dimension. Thus Kitschelt suggests a libertarian-authoritarian dimension in addition to an (economic) Left-Right dimension (Kitschelt 1994, 1995), while Marks et al. (2006) suggest TAN/GAL as an acronym for the second dimension, where TAN stands for traditionalism/authority/nationalism and GAL refers to green/alternative/libertarian. The well-known Chapel Hill survey, carried out by scholars of the University of North Carolina, uses an economic Left-Right dimension and a TAN/GAL dimension to locate European political parties in a two-dimensional ideological space (Marks et al. 2006; Bakker et al. 2015).

The political system in the United Kingdom is usually described as a two-party system that is defined by a single Left-Right dimension, with the Labour Party on the Left and the Conservative Party on the Right. The smaller third party, the Liberal Democrats (previously the Liberal Party), is usually placed in the middle of the spectrum or very slightly to the left of centre. Above all, the Left-Right dimension is seen as an economic dimension with the Labour Party representing labour on the Left and the Conservatives representing capital on the Right. However, following Tony Blair's election as leader of the Labour party in 1994, the Labour Party increasingly adopted business-friendly policies and embraced the free market economy, reducing the distance between the two main parties on the economic dimension. During the beginning of twenty-first century, the United Kingdom Independence Party (UKIP), a eurosceptic party formed in 1991 as the anti-Federalist League, began to draw votes from the other parties. Weak on economic policy, UKIP was defined more by its stance on cultural or identity issues such as Britain's relation to Europe, immigration (for which it advocated strict controls) and localism. UKIP took first place in elections to the European Parliament in 2014 and came third in terms of votes, with 12.6 percent in the general elections of 2015. The two-party system in the United Kingdom was further undermined by the Scottish National Party (SNP), which by 2015 had become the dominant party in Scotland, garnering 50 percent of the vote there.

These developments suggest that British politics is becoming more complex and can no longer be so easily defined by a single Left-Right dimension. While UKIP is usually defined as "right-wing", it is not defined in this way because of its economic policy, but because of its stance on immigration

and other identity issues. For Ford and Goodwin (2014), UKIP draws from "left behind" voters, typically older, blue-collar workers who feel that their interests are no longer represented by the traditional parties, especially the Labour Party, which they feel has neglected its traditional working class base and has become too cosmopolitan and London-based. James Meek, reflecting on the constituency of Thanet, where UKIPs leader Nigel Farage stood as a candidate in the 2015 elections and came a close second behind the Conservatives, identifies an "alienation of [the local] economy and infrastructure from the people who live there", giving rise to a sense amongst less advantaged residents that they are "being taken for a ride by remote powers" (Meek 2014). Wary of change and unable to pinpoint the cause of change, they focus on what they see in front of them—more newcomers speaking eastern European languages—and a sense that it is the EU and the Westminster establishment that is to blame.

In short, authors such as Ford and Goodwin are describing voters who are "left behind" by globalisation and the changes associated with it and are bitter and resentful about their powerlessness. To adopt the terminology of Kriesi et. al, they are "losers" of globalisation in a new societal cleavage between "winners" and "losers". Indeed Kriesi et. al suggest that globalisation's losers more often adopt a position of "cultural demarcation" than focus on their economic woes and demand economic redistribution, leading many of them to turn to populist anti-immigration, anti-EU, "right-wing" parties (Kriesi et al. 2006). Referring to what would appear to be the same cleavage, some UK commentators have suggested that there is increasingly a divide in society between "communitarians" and "cosmopolitans" (Wheatley 2015a). While the former group (that to which UKIP supporters tend to belong) reject change, prefer continuity and stability and feel that "those close to us matter more than people who are far away"[1], the latter are predominantly metropolitan liberals who welcome change, cultural diversity and geographical mobility. The question we seek to address in this paper is whether a new communitarian-cosmopolitan dimension is more and more coming to define the ideological space in the United Kingdom, with UKIP representing the communitarian pole, and, if so, whether this dimension exists alongside an economic Left-Right dimension or even is beginning to supplant it.

In order to address this question we draw from public opinion data generated from an online application called a Voting Advice Application (VAA), the purpose of which is to help users decide how to vote in elections. Specifically, the data is drawn from two VAAs: the EUvox VAA, which was deployed prior to elections to the European Parliament (EP) in May 2014, and WhoGetsMyVoteUK, which was deployed before the general elections

---

[1]Goodhart, David, "How to close the door on an accidental mass migration", Financial Times, 24 October 2014

a year later. The data contains users' opinions on thirty policy issues and in this paper I use Mokken Scale Analysis to identify ideological dimensions and locate users, parties and, more specifically, party supporters on a policy space defined by these dimensions. My approach is inductive; instead of predefining ideological dimensions a priori like Marks et al., I "let the data speak for itself" and predetermine neither the number nor the nature of each dimension. Another innovation of my approach in this paper is that I focus more on how voters are aligned, rather than how political elites are aligned. While traditional approaches to locating parties in an ideological space involve elite surveys (Kitschelt et al. 1999) or manifesto analyses (Budge et al. 2001); here the focus is—to adopt a term coined by Key (1964)—the "party-in-the-electorate".

Of course, one problem we face is that VAA users are a self-selected sample that may not be representative of the population at large. To help overcome this problem, I divide the overall samples of VAA users into a number of different sub-samples, based on age, education and political interest, and perform the analysis on each subgroup separately. I also generate a sample of users than is more or less representative of the voting population in terms of vote intention. The goal of this sampling exercise is to see whether the coherence of the dimensions identified varies between the different sub-samples.

My overall findings are the following. First, two principal ideological dimensions were identified from the opinion data generated by the two VAAs, one of which was that between an economic Left and an economic Right and one of which represented the divide described above between communitarians and cosmopolitans. These two dimensions covary with one another with economically right-wing voters tending to be more communitarian and economically left-wing voters tending towards the cosmopolitan end of the spectrum. While one interpretation of data from EUvox suggested that these two dimensions could be subsumed into a single over-arching dimension, WhoGetsMyVoteUK identifies them as clearly distinct.

The second main finding regards the role of UKIP. Users who identified themselves as UKIP supporters in both VAAs were positioned near the communitarian pole of the communitarian-cosmopolitan dimension. This conforms to the hypothesis that UKIP supporters feel threatened by globalisation and seek refuge in their close community and "like-minded" people.

The third finding is probably the most dramatic. This is that amongst sub-samples of voters with relatively low political interest and—to a lesser extent—amongst younger and less well-educated voters, the covariances of user responses to policy issues belonging to the cultural communitarian-cosmopolitan dimension are significantly higher than corresponding covariances along the economic Left-Right dimension. Indeed amongst the cohort that shows least interest in politics, the economic Left-Right dimension is hardly a coherent dimension at all, while the communitarian-cosmopolitan

dimension remains relatively strong.

The rest of the paper will proceed as follows. First I explain the method used for analysing the data generated by the VAAs, including identifying ideological dimensions, mapping party supporters with respect to these dimensions and analysing sub-samples of the data. I then go on to present the results of the analysis. I end the paper with a short conclusion.

Method

As has been pointed out in the previous section, the data I use for this analysis has been generated by two VAAs deployed in the United Kingdom before the EP elections in 2014 and before the 2015 general elections. Because somewhat different questions were asked in England, Scotland, Wales and Northern Ireland, here I consider only the England dataset, which was far larger than the other three. The dataset generated from EUvox (for the EP elections) in England contains data from 60,728 users after cleaning, while the WhoGetsMyVote dataset (from the general elections) incorporates data from 17,281 users.

VAAs are online applications that enable users to compare their policy preferences with those of political parties (or election candidates) in order to help them decide how to vote. Users are presented with a number of policy or issue statements to which they can express varying degrees of agreement or disagreement. Independently, parties (or candidates) are either coded by experts or self-coded on each statement. The application then matches the user and parties (or candidates) in the form of a graphical display, which shows the user how close he or she is to each party or candidate. Both EUvox and WhoGetsMyVoteUK included thirty issue statements and users could respond with any one of the following response categories: "completely agree", "agree", "neither agree nor disagree", "disagree", "completely disagree" and "no opinion". In both VAAs, users were also invited to answer a number of supplementary questions, which included age, education, gender and (in the case of EUvox) interest in politics (very, somewhat, little or not at all) or (in the case of WhoGetsMyVoteUK) attention paid to politics (on a scale from 1 to 10). Further supplementary questions also asked users to name the parties (if any) they a) felt closest to, b) intended to vote for in the coming general elections and c) (for EUvox only) intended to vote for in the EP elections. For all supplementary questions, the option "I prefer not to say" was available, while for those involving the naming of parties, the options "none" and "I do not intend to vote" were available. The datasets included the responses of users to all issue statements and supplementary questions after extensive cleaning.[2]

---

[2]For cleaning I removed: 1) all cases in which the time taken to complete the 30 issue statements of the VAA was less than 120 seconds; 2) all cases in which the time to respond

Latent ideological dimensions were identified from users' responses to the thirty issue statements. The most commonly used method for identifying latent dimensions is factor analysis and this author has also previously used factor analysis from user responses to issue statements in VAAs, including in an earlier work on the England EUvox dataset (Wheatley 2015a,b). However, van der Eijk and Rose (2013) find that when factor analysis is applied to ordered-categorical survey items (also often known as Likert items), the analysis is prone to over-estimating the number of latent dimensions (over-dimensionalisation). Emons et al. (2012) hold that MSA is more suitable for analysing discrete questionnaire data than either principal component analysis (PCA) or confirmatory factor analysis (CFA), and that even when polychoric correlations are used in PCA and CFA (as in Wheatley (2015a) and Wheatley (2015b)), the assumption within this technique of latent normal distributions may distort the results. For this reason in this paper I use Mokken Scale Analysis (MSA) to identify latent dimensions or scales from users' responses to issue statements.

MSA has already been used on ordered-categorical VAA issue statements either to map parties or to test the validity of the scales that are used to generate two-dimensional maps in VAAs (Wheatley 2012; Wheatley et al. 2014; Germann et al. 2015; Germann and Mendez 2015). To constitute a scale in MSA a) each variable V_j that belongs to the scale must covary with the total score of the other variables belonging to it (excluding V_j, i.e. the rest score) with a normed covariance (or item scalability coefficient) H_j that is more than a certain lower bound c and b) the scale must satisfy the monotonicity requirement that as the value along the latent variable (as measured by the mean item score of the scale) changes, so the probability of a corresponding unidirectional change in each item of the scale changes accordingly and in the direction expected (Sijtsma and Molenaar 2002). In our case the variables V_j are the responses of users to the VAA issue statements (with j in 1 .. 30) with the value $V_j=4$ assigned to the response "completely agree", $V_j=3$ to "agree", $V_j=2$ to "neither agree nor disagree", $V_j=1$ to "disagree" and $V_j=0$ to "completely disagree" (with "no opinion" responses discarded). For each scale we identify we calculate the scalability coefficient H of the entire scale (also known as Loevinger's H). Following

to any one issue statement was less than two seconds; 3) all cases in which the time taken to respond to three or more issues statements was less than 3 seconds; 4) all cases in which the respondent answered ten successive issue statements in the same way; 5) all cases in which the user completed the questionnaire by smartphone (this is because it may not have been intuitively obvious about how to resister "no opinion" by smart phone). I then 6) sorted the data by an anonymised code that corresponded to the IP address (first), date of birth (second), gender (third), before removing all consecutive items with the same IP address unless it was obvious from date of birth or gender that they were different users. Finally I (7) removed all those who self-identified with a citizenship other than UK citizenship and all those that claimed a date of birth prior to 1920 (on the grounds that they were probably fictitious entries).

Mokken (1971) we consider a scale to be strong if $H \geq 0.5$, medium if $H \geq 0.4$ and weak if $H \geq 0.3$.

Before carrying out MSA we must take one preliminary step. The only disadvantage of MSA in comparison with confirmatory factor analysis (CFA) is that while the root mean square error of approximation (RMSEA) in CFA helps the researcher to identify and remove very similar items, MSA does not do so unless the frequency of each response to each item (i.e., level of difficulty) is very similar (in which case monotonicity violations may be flagged). First of all, therefore, we have to check that no two items are substantively similar, i.e. effectively refer to the same issue. If they do, the risk is that we give too much weight to that issue within the scale we identify, leading to a biased scale. Substantively "superfluous" items should therefore be removed.

The next steps identify the scales. First, following Emons et al. (2012), I run what is known as an automated item selection procedure (AISP) in R (in the R package "mokken") on all the items V_j and all reversed items $Vrev_j$ (calculated as 4-V_j), gradually increasing the lower bound c in increments of 0.05 for the coefficients H_j. In AISP I use a genetic algorithm that first identifies the longest scale that satisfies $H_j \geq c$ by experimenting with all possible combinations of items and then begins the process again by identifying scales out of the remaining items (Straat et al. 2013). For very low values of c, we expect to find just two scales, with the second of these simply containing the same items as the first, but reversed. As I increase c we would expect to see these scales break up into several separate scales that contain items that are substantively rather similar. Finally, as c increases further still, we expect the new scales to fragment further into smaller, more idiosyncratic scales that include just two or three items each. However, I stop the process when we reach the second stage (i.e. shortly after the single overarching scales have split into several distinct scales) providing c has reached a minimum threshold of 0.3. I then discard those scales that are merely the reverse of another scale and check that all items H_j in each scale satisfy the monotonicity criterion.[3] I remove all items that do not satisfy this condition and look for other items to replace them that satisfy both the monotonicity criterion and the requirement that $H_j \geq c$. Next, I remove all ambiguous items from each scale, i.e. those that satisfy $H_j \geq c$ for more than one scale. I also check to ensure that items that belong to one or other scale do not contradict the substantive meaning of the dimension or are substantively ambiguous with respect to more than one scale. I remove items that are problematic in this respect. Once again, if I remove items I look for viable substitutes that satisfy all conditions. The items that

---

[3]The check.monotonicity function in the R package generates "crit" values, which are deemed to indicate nothing more than a sampling error if they remain below 40 but are considered to represent a violation of the monotonicity criterion if they exceed 80. All items that generate a "crit" value of more than 80 should be removed.

still remain in each scale are deemed to constitute a particular ideological dimension.

Given the non-representative nature of the data, I then endeavour to check that the same dimensional structure emerges when the analysis is applied to a sample of the dataset that is more or less representative of the voting population in terms of political affiliation. I therefore randomly sample a number of users who expressed an intention to vote for each party that is proportional to the number of votes won by that party in the relevant election. I sample voters from the Conservative Party, Labour Party, Liberal Democrats, Green Party and UKIP, as well as from a generic sample of users who intended to vote for other parties, and combine them. Given that 65 percent of English voters did not exercise their right to vote in the EP elections and 34 percent failed to vote in the general elections, I also add those users who declared that they would not vote. As there were relatively few of these, I top them up by randomly selecting users who declared themselves to be undecided until the sample includes the required proportion of abstainers. While clearly a large number of undecided voters did, in fact vote, I assume their political affiliations to be similar to those of abstainers in order to provide a best estimate.

Having identified scales (i.e. dimensions) that satisfy all of the above conditions on both the original dataset and on the (politically) representative dataset, I calculate the position of all users that give an opinion on the relevant items with respect to the dimensions identified. I do this by summing the scores on all items that are deemed to belong to the relevant scale (using reversed items if an item is pointing in the opposite "ideological direction" from others) and normalising the sum to produce a value of between zero and one. I then identify party supporters as those users who name as the same party a) the party they felt closest to, b) the party they intended to vote for in the forthcoming general elections and c) (in the case of EUvox) the party they intended to vote for in the EP elections. Considering only the five largest parties in England—the Conservative Party, the Labour Party, the Liberal Democrats UKIP and the Green Party—I then calculate the mean positions of each group of party supporters with respect to each dimension and—if possible—plot graphically the contour lines that enclose 50 percent of party supporters.

As a reliability check, I calculate the parties' (or party elites') positions as articulated by manifesto pledges, other policy documents and speeches by leading members of the parties. This exercise is well-adapted to the VAAs because all parties were coded on each issue statement by a group of experts. The method used to code parties is the so-called Delphi method (Dalkey and Helmer 1963; Gemenis 2014), which is, in fact, rather rigorous. The method works as follows. First, a panel of experts are assigned to code each party. They work independently from one another in order to provide estimates of the policy positions of the parties for each issue statement

and justify their estimates by providing information from statements in the press, party manifestos or other relevant sources. In the case of both EUvox and WhoGetsMyVoteUK, five coders were assigned to each party. Subsequently, individual estimates and their justifications are fed back to the panel anonymously for a second round of coding in which panellists update their initial codes with the help of justifications from their fellow coders. Once the codes converge to a sufficient extent to be deemed consistent (demonstrated by values of the van der Eijk (2001) measure of agreement $A \geq 0.7$), the median response is taken as the final estimate. In most cases (including for EUvox and WhoGetsMyVoteUK) only two rounds of coding are needed. The positions of all the parties with respect to each dimension is calculated in exactly the same way as users' positions are calculated. These positions are then plotted on the same map as the users' positions.

The final stage is to repeat the analysis on various different sub-samples of users. Using the full dataset, I first sample according to age, taking one sub-sample consisting of those aged less than 40 in May 2015 (for EUvox data this means sampling those born in 1975 or later) and one consisting of those aged 40 or more. Next, I sample according to education. From the EUvox dataset I select those who have a university education and those who do not, while from the WhoGetsMyVoteUK dataset (in which the supplementary questions are a little different), I select those who finished their education at age 20 and over and those who finished their education earlier. Finally, I select three subsamples from both datasets on the basis of political interest/attention paid to politics. From the EUvox dataset I identify those who a) are "very" interested in politics, b) are "somewhat" interested in politics, and c) have "little" or "no" interest in politics, while from the WhoGetsMyVoteUK dataset I distinguish between those who graded themselves between 1 and 4 on a 1-10 scale in terms of attention paid to politics, from those graded 5 to 8 and finally those graded 9 or 10.

Results

As there was an emphasis on EU-related issues in EUvox, I first need to identify and delete from the questionnaire any superfluous items. Three items are substantively very similar and are about the same issue, so to include them all would have given too much weight to that issue. These are Item 6 (on whether EU membership is a bad thing), Item 9 (on remaining within the EU) and Item 10 (on holding an in-out referendum on EU membership). As Item 6 is more about a judgement of the current situation than a policy and Item 10 may tap into two separate constructs (whether the EU is a good thing and whether referendums are a good thing), I drop items 6 and 10 and retain Item 9. WhoGetsMyVoteUK covered a wide range of issues and none could be seen as superfluous.

Analysis of the remaining items in the EUvox dataset reveals two possible dimensional structures: a one-dimensional solution and a two-dimensional solution. The one-dimensional solution is observed at c=0.3 (the minimum value of all item scalability coefficients H_j). At this point, we have one broad Left-Right dimension that includes eighteen issues relating to European integration (with Euro-enthusiasts on the "left" and Eurosceptics on the "right"), the role of the state in the economy, redistribution of wealth, government spending, labour regulations, shale gas extraction, immigration, gay marriage and the influence of Islam (with anti-immigration, anti-gay marriage and anti-Islam orientations on the "right").

The second solution was obtained by increasing c to 0.4. At this point economic issues begin to break away from the main overarching dimension and form a dimension of their own. The economic dimension includes four items on the free market in healthcare, state regulation of the economy, cutting government spending and tax cuts for the rich. The remaining dimension is a cultural dimension that includes eleven items on EU integration, immigration, gay marriage and Islam. However, substantively there is one item that is somewhat problematic. This is Item 5 (on redistributing wealth from rich to poor countries), which is substantively ambiguous as it refers to both redistribution of wealth and to EU powers. We therefore exclude this item.

To see the issue statements that belong to both solutions, see the first four columns of Table 1 and refer to Table 5 (in the Appendix) for the wording of each issue statement. If the item contains the suffix "_rev", this means that agreement with the item means the user is "left" and so the values assigned to the response categories have been reversed, making all items "point" in a rightward direction. In Tables 1 and 2 (see below) the value of H_j is given with the number of "crit" values in parentheses afterwards. The H_j values in parentheses are the H_j values obtained when an item belonging to another scale is inserted into the scale. This is a check for ambiguous items.

Analysis of the WhoGetsMyVoteUK dataset reveals a clear two-dimensional solution. The dimensions identified here are very similar to the economic and cultural dimensions identified in the two-dimensional EUvox solution. The economic dimension includes eight items on taxing the wealthy, nationalising the railways, benefit cuts, private sector involvement in healthcare, free schools, university tuition fees, extraction of shale gas and the Trident nuclear missile system, while the cultural dimension includes thirteen items on inheritance tax, wind farms, forcing young people to work for benefits, gay marriage, the role of Christianity, localism, EU membership, foreign aid, immigration, English votes for English laws and the European Convention for human rights. However, some of these items are substantively ambiguous or contradict the substantive meaning of the dimension. Thus Item 3 (on the abolition of inheritance tax) could be seen as support-

Table 1: Mokken Scales Identified from EUvox Dataset

	Full Dataset			Representative Dataset		
	1D Solution	2D Solution		1D Solution	2D Solution	
	Dim 1	Dim 1	Dim 2	Dim 1		
Item	Hj (crit)	Hj (crit)	Hj (crit)	Hj (crit)	Hj (crit)	Hj (crit)
1	0.48 (32)	0.54 (0)	(0.36)	0.42 (73)	0.46 (11)	(0.28)
2	0.39 (59)	0.46 (21)	(0.29)		0.39 (40)	(0.22)
3	0.53 (0)	0.64 (0)	(0.35)	0.51 (6)	0.58 (0)	(0.26)
4_rev	0.42 (59)	0.47 (53)	(0.30)			
5_rev	0.48 (0)			0.43 (48)		
9_rev	0.53 (59)	0.63 (0)	(0.36)	0.51 (45)	0.55 (5)	(0.28)
11		(0.25)	0.44 (57)		(0.19)	0.39 (31)
12	0.44 (6)			0.34 (44)		
13	0.38 (24)	(0.34)	0.43 (0)		(0.26)	0.38 (0)
14_rev	0.45 (19)			0.40 (33)		
15	0.41 (25)	(0.37)	0.46 (0)	0.34 (46)	(0.30)	0.41 (0)
16	0.33 (46)					
19	0.40 (37)	(0.36)	0.44 (0)	0.33 (46)	(0.28)	0.39 (0)
20	0.35 (72)					
21	0.51 (2)	0.58 (0)	(0.37)	0.48 (5)	0.53 (0)	(0.28)
25_rev	0.41 (40)	0.49 (0)	(0.28)	0.36 (46)	0.41 (9)	(0.21)
28	0.48 (41)	0.57 (11)	(0.33)	0.46 (11)	0.51 (3)	(0.25)
29_rev	0.50 (7)	0.56 (0)	(0.35)	0.49 (26)	0.52 (1)	(0.29)
30	0.52 (1)	0.61 (0)	(0.37)	0.52 (26)	0.57 (0)	(0.29)
H	0.45	0.56	0.44	0.37	0.50	0.39

Table 2: Mokken Scales Identified from WhoGetsMyVoteUK Dataset

| | Full Dataset | | Representative Dataset | |
| | Dim 1 | Dim 2 | Dim 1 | Dim 2 |
Item	Hj (crit)	Hj (crit)	Hj (crit)	Hj (crit)
2_rev	0.31 (0)	(0.19)	0.34 (21)	(0.20)
6_rev	0.40 (0)	(0.11)	0.42 (0)	(0.07)
7_rev	0.32 (47)	(0.20)	0.34 (57)	(0.19)
8_rev	0.41 (0)	(0.17)	0.42 (0)	(0.15)
14_rev	(0.12)	0.30 (45)	(0.10)	0.35 (49)
15	(0.15)	0.39 (26)	(0.14)	0.40 (22)
17	(0.08)	0.41 (8)	(0.06)	0.43 (33)
19_rev	0.33 (0)	(0.09)	0.36 (12)	(0.08)
20_rev	0.34 (0)	(0.14)	0.36 (0)	(0.13)
21_rev	(0.15)	0.45 (7)	(0.14)	0.50 (8)
22_rev	(0.15)	0.46 (35)	(0.14)	0.51 (34)
24	(0.15)	0.51 (37)	(0.14)	0.55 (53)
25	(0.14)	0.49 (0)	(0.14)	0.52 (28)
26	(0.18)	0.48 (0)	(0.17)	0.51 (10)
27	(0.20)	0.35 (36)	(0.22)	0.40 (40)
30	(0.21)	0.46 (9)	(0.21)	0.51 (6)
H	0.35	0.43	0.37	0.47

ing tradition (i.e. cultural) or as a means of allowing more wealth to be transferred between generations (economic). Similarly, Item 9 (on forcing young people to work for benefits) could be seen as a call for order and discipline (cultural) or as a means of cutting benefits (economic). Environmental items can also be seen as both cultural and economic; while Marks et al. (2006) define green issues a defining element of their Tan/Gal cultural scale, environmental issues are seen by some through the prism of dangerous multinationals riding roughshod over the common people (and therefore economic Left/Right). The fact that one environmental issue (fracking, Item 12) forms part of the economic scale, while another (wind farms, Item 13) belongs to the cultural scale illustrates further the ambiguities involved. Finally, in the economic scale there is one item that does not fit in at all with the substantive meaning of the scale and that is item 23 (on Trident). Having removed substantively ambiguous or incongruous items (Items 3, 9, 12, 13 and 23), we are left with ten items in the cultural scale and six in the economic scale. These scales are shown in Table 2.

After repeating the analysis on a sample of the EUvox dataset that is made to be representative in terms of vote intention (containing 16,824 entries, see above), we find we have to remove a number of further items

from the scales. From both the overarching Left-Right scale (in the one-dimensional solution) and the cultural scale (in the two-dimensional solution) we find that Item 4 now violates the monotonicity criterion, so we remove this item. We also have to remove another three items of the overarching scale (Items 13, 16 and 20) either because the value of H_j drops below 0.3 or because there is a violation of the monotonicity requirement (associated with "crit" values of greater than 80, see footnote 3). Overall, we find that values for H_j are somewhat lower than those we obtained for the full sample and for the two-dimensional solution we need to reduce c to 0.35 in order to maintain the dimensional structure intact, as keeping c at 0.4 would lead to a fracturing of the dimensional structure. The outputs are provided in the last three columns of Table 1. Finally, if we retest the scales that we identify from the WhoGetsMyVoteUK dataset on a sub-sample of this dataset that is representative in terms of vote intention (4,513 entries), we find that both scales still satisfy all criteria and do not need to be altered.

Overall, the outputs we obtain by analysing the two datasets are very similar, especially if we consider the two dimensional solution for the EU-vox dataset. Such a solution was also obtained for this dataset in Wheatley (2015a) and this is therefore the model we will consider in the analysis in the rest of the paper. In both cases, the cultural dimension consists of items that are strikingly similar to the above mentioned conceptualisation of the communitarian-cosmopolitan dimension, or what Kriesi et al. identify as the salient political differences between "winners" and "losers" of globalisation, given the prevalence of items that focus on differences between the "in-group" (the community) and the "out-group" ("others" such as immigrants, outsiders, gays and the EU). Looking at the overall values of H (Loevinger's H) for each scale, we see that the communitarian-cosmopolitan scale is strong ($H \geq 0.5$) in the EUvox dataset and medium ($H \geq 0.4$) in the WhoGetsMyVoteUK dataset, while the economic scale is medium in EUvox and weak ($H \geq 0.3$) in WhoGetsMyVoteUK.

Let us now move on to the second stage of the analysis and plot the positions of party supporters and of the party as coded by experts with respect to the two dimensions (as identified from the datasets that have been made representative according to vote intention). The maps, which are shown in Figure 1, include the mean positions of party supporters (in a filled circle), the contour lines that enclose 50 percent of party supporters and the positions of the parties as coded by experts (marked by an asterisk). Turning first to the positions of party supporters, the map shown in Figure 1 is virtually identical to the map shown in Wheatley (2015a) in which the dimensions were identified from the EUvox dataset using another method (factor analysis), which makes the findings appear all the more robust. Similarly Figures 1 and 2 appear to show party supporters in very similar positions, although here there are one or two subtle differences. First, in the WhoGetsMyVoteUK map the position of the Green Party is rather more
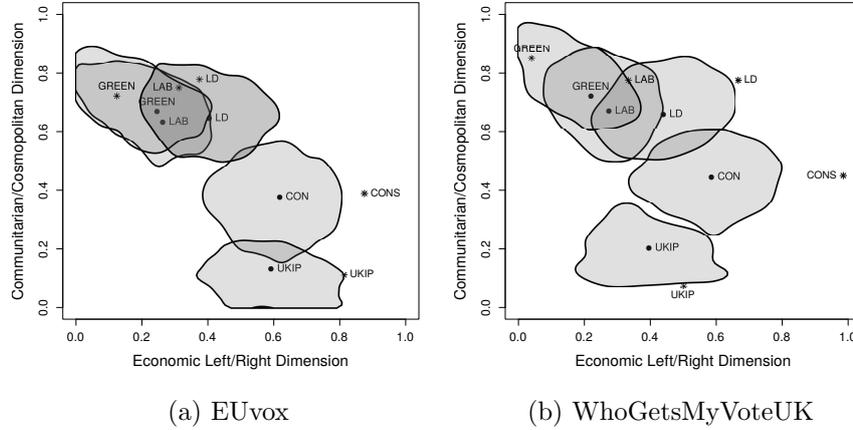
(a) EUvox (b) WhoGetsMyVoteUK

Figure 1: Party Maps

left-wing economically relative to the Labour Party in comparison with the EUvox positions. In Wheatley (2015a) the EUvox position of this party was already flagged as an anomaly, given the Green Party's strong anti-austerity rhetoric, but it was suggested that many Green party supporters were protest voters, rather than hardcore leftists, and that this explained the positioning of party supporters as rather more centrist than the party itself. In this context, the position of party supporters as mapped from the WhoGetsMyVoteUK dataset seems more coherent with the party's overall position and suggests that the increased publicity given to the Green Party after the EP elections may have provided greater clarity to voters about where this party stands.

The second—and rather more notable—discrepancy between the two maps in Figure 1 relates to the position of UKIP supporters. In WhoGetsMy-VoteUK UKIP supporters appear further to the left economically than they do in EUvox. A possible explanation for this is that as UKIP support declined after the EP elections (around the time of the EP elections UKIPs opinion poll ratings in the UK as a whole averaged close to 20 percent, while UKIPs vote in the general elections was 12.6 percent), the more economically right-wing of UKIP supporters switched to the Conservatives. This would appear to be consistent with the fact that in the 2015 general elections the Conservatives were not badly damaged by the UKIP threat, as many pundits had predicted, while UKIP often performed rather well in Labour heartlands.

Turning now to the positions of the parties as coded by experts, as we would expect users are rather more fickle in their responses to issue statements than parties and this is shown by the fact that party supporters are less dispersed than are the parties themselves. After all, parties generally

15

need to take a consistent ideological position (which ordinary voters do not) and if they take a "left" position on one issue, they are also likely to take a "left" position on another, similar issue. At the same time, we see that while the parties themselves are only slightly more dispersed along the cultural axis than party supporters, along the economic axis they are far more dispersed, suggesting that competition along the economic dimension is more relevant for party elites than for voters. In both maps the position of the Conservative Party as coded by experts is very significantly to the right along the economic axis in comparison with the positions of Conservative supporters.

I now analyse the sub-samples of both datasets that have been selected according to age, education and political interest. Here we compare measures of the overall scalability coefficient (Loevinger's H) for the different sub-samples. The results are shown in Table 3. We see that the strength (or coherence) of both scales declines when we move from older voters (40 years old or more in 2015) to younger voters (less than 40 years of age). This trend is observed in analysing both datasets. When we move from university educated voters to less well-educated voters, we find that the strength of the economic scale decreases significantly, but the coherence of the cultural dimension either remains unchanged (in the case of the EUvox dataset) or actually increases (in the case of the WhoGetsMyVoteUK dataset). But probably the most dramatic effects are observed when we move from voters with a high interest (or attention) in politics towards less interested (or attentive) voters. Here we observe that while both scales become weaker with decreasing interest, this decrease is far more dramatic for the economic scale in both datasets. Indeed, for the less interested (or attentive) group, the economic scale does not form a coherent scale at all in either dataset, with H<0.2, despite the fact that the cosmopolitan-communitarian scale remains a scale of medium strength (in the case of EUvox) or weak (in the case of WhoGetsMyVoteUK). All in all, the analysis would suggest that the economic left-right scale is barely coherent as a scale amongst younger, less well-educated and, most importantly, less politically interested voters.

Given the dramatic changes observed when we separate our overall samples into sub-samples with differing levels of political interest (or attention), it is perhaps worth checking the mean positions of party supporters when each group of supporters is disaggregated according to the three levels of political interest (or attention) we have identified. We would expect that, as the dimensions become less coherent with lower political interest, the mean position of each party's supporters would move towards the centre and this trend would be particularly noticeable along the economic dimension. If parties' relative positions with respect to one another does not change, however, this would suggest that there is little systematic bias in the positioning of the parties shown in Figure 1. If, however, some parties move faster towards the centre than others when we change the level of political interest, this would suggest that Figure 1 is indeed subject to a certain level of bias.

Table 3: Comparison of Samples

Sample	H (comm.-cos.)	H (econ.)
Overall (EUvox)	0.58	0.44
Overall (WhoGetsMyVoteUK)	0.43	0.35
Politically Representative (EUvox)	0.50	0.39
Politically Representative (WhoGetsMyVoteUK)	0.47	0.37
Older (EUvox)	0.60	0.50
Older (WhoGetsMyVoteUK)	0.48	0.42
Younger (EUvox)	0.50	0.40
Younger (WhoGetsMyVoteUK)	0.42	0.33
Higher education (EUvox)	0.54	0.49
Higher education (WhoGetsMyVoteUK)	0.40	0.38
No higher education (EUvox)	0.54	0.36
No higher education (WhoGetsMyVoteUK)	0.43	0.30
High political interest (EUvox)	0.64	0.59
High political attention (WhoGetsMyVoteUK)	0.49	0.51
Medium political interest (EUvox)	0.56	0.39
Medium political attention (WhoGetsMyVoteUK)	0.41	0.28
Low political interest (EUvox)	0.46	0.19
Low political attention (WhoGetsMyVoteUK)	0.34	0.16

This is because our self-selected sample of VAA users is likely to be more interested in politics than the average voter by virtue of the fact that they have used an online app on politics.[4] The results of this analysis are shown in Table 4.

Table 4 does suggest that there may be some bias with respect to the relative positions of party supporters. While for the economic dimension all parties tend to move strongly towards a range of 0.4-0.5 in the case of EUvox and 0.35-0.4 in the case of WhoGetsMyVoteUK as interest decreases, the communitarian-cosmopolitan dimension reveals a more complex pattern of variation. The least politically interested amongst Labour Party supporters are located 0.13 units more "communitarian" than their most politically interested counterparts in the EUvox dataset and 0.14 more "communitarian" in WhoGetsMyVoteUK, while the corresponding figures for the similarly "communitarian" Liberal Democrats are 0.12 and 0.10, while for the Green Party they are 0.10 and 0.12. The Conservative sub-samples vary lit-

---

[4]Indeed there is data to confirm this. For example, among EUvox respondents 33 per cent claimed to be "very interested in politics", 48 per cent "somewhat interested", 15 per cent "a little interested" and 2 per cent "not at all interested" (with a further 3 per cent preferring not to say). Corresponding figures for the same question in the more representative European Elections Study carried out in 2009 were 19, 36, 35 and 10 per cent, respectively. Source: GESIS Data Catalogue 2.1 at dx.doi.org/doi:10.4232/1.10202, accessed 14 December 2014

tle, settling around 0.375 in the case of EUvox and around 0.45 in the case of WhoGetsMyVoteUK. Meanwhile UKIP supporters remain rather stubbornly stuck near the communitarian pole, moving only 0.05 and 0.07 units towards the centre as we move from the most politically interested to the least politically interested group. Indeed it is such users that appear to maintain the coherence of the cultural dimension, while in the case of the economic dimension *all* less politically interested users appear to converge towards the centre. In terms of Figure 1, probably the main source of bias is the fact that the politically interested, self-selected group of VAA users may pull the mean of Labour Party supporters further in the cosmopolitan direction than supporters of other parties.

Table 4: Mean Party Positions in Sub-Samples

Group	Dim	CONS	LAB	LD	UKIP	GRN
EUVOX						
High Int	eco.	0.678	0.208	0.409	0.630	0.179
Med. Int	eco.	0.591	0.297	0.395	0.566	0.281
Low Int.	eco.	0.551	0.416	0.419	0.548	0.384
High Int	cult.	0.372	0.666	0.683	0.112	0.699
Med. Int	cult.	0.381	0.618	0.629	0.143	0.659
Low Int	cult.	0.367	0.536	0.565	0.162	0.597
WHOGETSMYVOTEUK						
High Int	eco.	0.675	0.235	0.465	0.436	0.154
Med. Int	eco.	0.538	0.284	0.415	0.386	0.244
Low Int.	eco.	0.479	0.322	0.378*	0.336*	0.309
High Int	cult.	0.437	0.724	0.700	0.165	0.776
Med. Int	cult.	0.446	0.641	0.621	0.217	0.701
Low Int	cult.	0.461	0.586	0.600	0.234	0.652

*No. of users<100 (LibDems 75, UKIP 65)

Conclusion

This paper has departed from more-commonly used methods for identifying ideological dimensions and mapping political parties first by looking at the "party-in-the-electorate" (i.e. ordinary voters) and second by generating ideological dimensions inductively by identifying latent traits from voters' opinions on a set of varied issues. I should, perhaps, more accurately use the term "quasi inductively" (Germann et al. 2015) as the issue statements have been pre-determined by the researchers designing the VAA. However, the

fact that very similar results are obtained from two different sets of issues statements—involving very different sets of issues given that the EUvox questionnaire was designed for the EP elections and WhoGetsMyVoteUK for the general elections—confirms the robustness of the findings.

Analysis of both datasets suggests that two ideological dimensions define adequately the policy space in England: one economic left-right dimension and one cultural communitarian-cosmopolitan dimension. While they co-vary to a significant degree with economic rightists tending to be more communitarian and economic leftists tending to be more cosmopolitan, these tendencies do not always hold and the two dimensions should be considered as separate. The identification of the communitarian-cosmopolitan dimension lends weight to the hypothesis of Kriesi et al. (2006) that politics is increasingly defined by a cleavage between "winners" and "losers" of globalisation with "losers" tending to adopt a position of cultural demarcation and to perceive "outsiders", such as immigrants and the EU, as a threat.

Ford and Goodwin (2014) infer that UKIP draw support from those voters who feel that they have "lost" in an increasingly globalised world, or—in their terms—have been "left behind". As we have seen, UKIP supporters are firmly entrenched near the cosmopolitan pole of the communitarian-cosmopolitan dimension, even amongst less politically interested users. Increasingly they tend to be drawn from the economic left as well as the economic right, which also supports Ford and Goodwin's contention that they are often older blue-collar workers who may have voted Labour some time in the past.

If UKIP supporters are located at the communitarian end of the communitarian-cosmopolitan pole, then the Green Party and the Liberal Democrats lay claim to the cosmopolitan end of this spectrum, although not to such an unambiguous degree. While Labour Party supporters also tend towards the cosmopolitan pole, their position shown in Figure 1 may be exaggerated due to the selection bias that favours politically interested users.

Indeed both the Labour Party and the Conservatives occupy a rather ambiguous position with respect to the communitarian-cosmopolitan dimension and this is already reflected in divisions within both parties. Within the Conservative Party there has recently been a degree of tension between more "cosmopolitan" Tories such as George Osborne and Matthew Parris and "communitarians" such as Tim Montgomerie and Owen Patterson and suggestions of a split in the Cabinet over the 2017 referendum over whether to remain within the EU may be systematic of a more fundamental split. While the Labour Party is divided between economic liberals and economic leftists, this split is compounded by a further split between the cosmopolitan "Islington Labour" of some close colleagues of former prime minister Tony Blair and the more communitarian "blue Labour" of political guru Maurice Glasman and his colleagues.

The most striking finding of all is the fact that the main variable that

affects the coherence of the responses to the issue statements along both dimensions is interest in politics and this variable has significantly more influence than age, education or political affiliation. Given that VAA users tend to be self-selected in terms of high political interest, this means that treating a VAA dataset as if it were representative of the population at large is likely to be problematic. However, if we rather treat VAA users has a "panel of interested citizens" then it is valid to use the data they generate to tell us about the political landscape, providing we make any selection bias explicit. Indeed ideological positions of political parties are often identified from the opinions of political elites, who are clearly far less representative of voters. In each case we have to be clear about the data we draw from and about the strengths and pitfalls of each approach.

The fact that the economic dimension is far less coherent than the cultural communitarian-cosmopolitan dimension amongst less politically interested voters is striking. This suggests that among probably a majority of citizens the economic dimension is not the primary axis along which they organise their political views, but that it is the cultural communitarian-cosmopolitan dimension that provides the guiding role. The economic axis, on the other hand, is more important for a rather narrow stratum of politically interested voters and political elites (as evidenced by the strong dispersion of the parties as coded by experts along the economic axis). At the same time, a subsection of English citizens—including those who have little interest in politics—remain wedded to communitarian values. These, I would suggest, are Ford and Goodwin's "left behind voters, Kriesi et al's "losers" of globalisation.

Bartolini and Mair (1990) hypothesise that the cleavages identified by Lipset and Rokkan, or at least the party systems they generated, somehow became frozen in the twentieth century. This research would suggest that the opening up of a new cleavage may have "unfrozen" them with the emergence of new "communitarian" parties such as UKIP, the Sweden Democrats and the Finns party. It is interesting to note that further analysis from EUvox datasets carried out in other EU countries also shows that, in most cases, the economic dimension becomes far less coherent than the cultural dimension as political interest decreases. If an economic dimension pitting Left against Right (or labour against capital) defined the political arena in the United Kingdom and other European countries in the twentieth century, maybe it is a cultural cleavage that pits cosmopolitans against communitarians that defines politics in the twenty-first.

References

Bakker, R., De Vries, C., Edwards, E., Hooghe, L., Jolly, S., Marks, G., Polk, J., Rovny, J., Steenbergen, M. and Vachudova, M. A. (2015). Measuring

Party Positions in Europe: The Chapel Hill Expert Survey Trend File, 1999–2010. *Party Politics*, 21(1):143–152.

Bartolini, S. and Mair P. (1990). *Identity, Competition, and Electoral Availability: The Stability of European Electorates, 1885-1985*. Cambridge: Cambridge University Press.

Budge, I., Klingemann, H. D., Volkens, A., Bara, J., and Tanenbaum, E. (2001). *Mapping Policy Preferences, Estimates for Parties, Governments and Electors 1945-1998*. Oxford: Oxford University Press.

Dalkey, N. and Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science*, 9(3): 458–467.

Emons, W. H., Sijtsma, K. and Pedersen, S. S. (2012). Dimensionality of the Hospital Anxiety and Depression Scale (HADS) in Cardiac Patients. Comparison of Mokken Scale Analysis and Factor Analysis. *Assessment*, 19(3): 337–353.

Ford, R. and Goodwin, M. J. (2014). *Revolt on the Right: Explaining Support for the Radical Right in Britain*. Abingdon and New York: Routledge.

Gemenis, K. (2014). An Iterative Expert Survey Approach for Estimating Parties Policy Positions. *Quality and Quantity*, 1-16. DOI: 10.1007/s11135-014-0109-5.

Germann, M., Mendez, F., Wheatley, J., and Serdlt, U. (2015). Spatial maps in voting advice applications: The case for dynamic scale validation. *Acta Politica*, 50(2): 214–238.

Germann, M., Mendez, F. (2015). Dynamic Scale Validation Reloaded. *Quality and Quantity*, 1-27. DOI: 10.1007/s11135-015-0186-0.

Huber, J. and Inglehart, R. (1995). Expert Interpretations of Party Space and Party Locations in 42 Societies. *Party Politics*, 1(1):73–111.

Kitschelt, H., Mansfeldova, Z., Markowski, R. and Toka, G. (1999). *Post-Communist Party Systems. Competition, Representation, and Inter-Party Cooperation*. Cambridge: Cambridge University Press.

Kriesi, H., Grande, E., Lachat, R., Dolezal, M., Bornschier, S., and Frey, T. (2006). Globalization and the Transformation of the National Political Space: Six European Countries Compared. *European Journal of Political Research*, 45(6):921–956.

Inglehart, R. (1977). *The Silent Revolution (Vol. 8)*. Princeton: Princeton University Press.

Inglehart, R. (1990). *Culture Shift in Advanced Industrial Society*. Princeton: Princeton University Press.

Key V.O. (1964) *Politics, Parties and Pressure Groups*. New York: Crowell.

Kitschelt, H. (1995). Formation of Party Cleavages in Post-Communist Democracies: Theoretical Propositions. *Party Politics*, 1(4): 447–472.

Kitschelt, H. (1994). *The Transformation of European Social Democracy.* Cambridge: Cambridge University Press.

Lipset, S. M. (1959). Some Social Requisites of Democracy: Economic Development and Political Legitimacy. *American Political Science Review*, 53(1):69–105.

Lipset, S. M. and Rokkan, S. (1967). Cleavage Structures, Party Systems, and Voter Alignments: An introduction. In Lipset, S. M., and Rokkan, S. (Eds.). *Party Systems and Voter Alignments: Cross-national Perspectives (Vol. 7).* New York: Free Press, pp. 1–64.

Marks, G., Hooghe, L., Nelson, M., and Edwards, E. (2006). Party Competition and European Integration in the East and West Different Structure, Same Causality. *Comparative Political Studies*, 39(2):155–175.

Meek, J. (2014). In Farageland. *London Review of Books*, 36(19):5–10.

Mokken, R. J. (1971). *A Theory and Procedure of Scale Analysis: With Applications in Political Research*, (Vol. 1). Berlin: Walter de Gruyter.

Sijtsma, K. and Molenaar, I. W. (2002). *Introduction to Nonparametric Item Response Theory.* Thousand Oaks, CA: Sage.

Straat, J.H., van der Ark, L. A. and Sijtsma, K. (2013). Comparing Optimization Algorithms for Item Selection in Mokken Scale Analysis. *Journal of Classification*, 30(1): 75–99.

van der Eijk, C. (2001). Measuring Agreement in Ordered Rating Scales. *Quality and Quantity*, 35(3): 325–341.

van der Eijk, C., Rose, J. (2015). Risky Business: Factor Analysis of Survey Data—Assessing the Probability of Incorrect Dimensionalisation. *PloS one*, 10(3), e0118900.

Wheatley, J. (2015) Restructuring the Policy Space in England: The End of the Left–Right Paradigm? *British Politics*, 1–18. DOI: 10.1057/bp.2015.35.

Wheatley, J. (2015) Identifying Latent Policy Dimensions from Public Opinion Data: An Inductive Approach. *Journal of Elections, Public Opinion & Parties*, 25(2):215–233.

Wheatley, J., Carman, C., Mendez, F., Mitchell, J. (2014). The Dimensionality of the Scottish Political Space: Results from an Experiment on the 2011 Holyrood Elections. *Party Politics*, 20(6): 864–878.

Wheatley, J. (2012). Using VAAs to Explore the Dimensionality of the Policy Space: Experiments from Brazil, Peru, Scotland and Cyprus. *International Journal of Electronic Governance* 5(3-4), 318-348.

Appendix

Table 5: Issue Statements, EUvox

Item no.	Item
1	The United Kingdom should never adopt the Euro
2	A single member state should be able to block a treaty change, even if all the other members states agree to it
3	The right of EU citizens to work in the United Kingdom should be restricted
4	There should be a common EU foreign policy even if this limits the capacity of the United Kingdom to act independently
5	The EU should redistribute resources from richer to poorer EU regions
6	Overall, EU membership has been a bad thing for the United Kingdom
7	EU treaties should be decided by Westminster rather than by citizens in a referendum.
8	The EU should impose economic sanctions on Russia, even if this jeopardises gas supplies to EU countries
9	The United Kingdom should remain within the European Union.
10	The United Kingdom should hold an in or out referendum on EU membership as soon as possible.
11	Free market competition makes the health care system function better
12	The number of public sector employees should be reduced
13	The state should intervene as little as possible in the economy
14	Wealth should be redistributed from the richest people to the poorest
15	Cutting government spending is a good way to solve the economic crisis
16	It should be easy for companies to fire people
17	External loans from institutions such as the IMF are a good solution to crisis situations.
18	When a state rescues a bank it should take control over it
19	The top rate of income tax should be reduced further.
20	The government should go ahead with the exploitation of underground shale gas (fracking).
21	Immigrants must adapt to the values and culture of the United Kingdom
22	Restrictions on citizen privacy are acceptable in order to combat crime
23	To maintain public order, governments should be able to restrict demonstrations
24	Less serious crimes should be punished with community service, not imprisonment
25	Same sex couples should enjoy the same rights as heterosexual couples to marry
26	Women should be free to decide on matters of abortion
27	The recreational use of cannabis should be legal
28	Islam is a threat to the values of the United Kingdom
29	The United Kingdom should welcome a larger number of asylum seekers from war-torn countries.
30	The United Kingdom should be allowed to set quotas on the number of EU immigrants entering the country.

Table 6: Issue Statements, WhoGetsMyVoteUK

Item no.	Item
1	Government spending should be cut further in order to balance the budget.
2	A "mansion tax" should be levied on high-value residential properties.
3	Inheritance tax should be abolished.
4	Special concessions for pensioners (e.g. winter fuel allowance, free TV licences) should only be provided to the less well-off.
5	The top rate of income tax should be reduced.
6	The railways should be renationalised.
7	The government should scrap what is commonly known as the bedroom tax.
8	Private sector involvement in the NHS should be reduced.
9	Young people out of work, education or training for six months should be made to do unpaid community work in order to get benefits.
10	The option of imprisonment should be retained for the possession of drugs for personal consumption.
11	To fight terrorism and other serious crimes, internet service providers and telecoms companies should keep and surrender details of users' activities if required by government agencies.
12	The government should allow the extraction of underground shale gas (fracking).
13	The government should end subsidies for wind farms.
14	Same sex and heterosexual couples should enjoy the same rights to marry.
15	England should be more confident about its Christian heritage.
16	The current legal entitlement of two weeks paternity leave should be increased.
17	For social housing, priority should be given to people whose parents and grandparents were born locally.
18	State schools should be able to select pupils according to ability.
19	Free Schools and Academies should be brought back under Local Authority control.
20	University tuition fees should be scrapped.
21	The UK should remain within the European Union.
22	The UK should maintain its support to developing countries through foreign aid.
23	The Trident nuclear weapons system should be scrapped.
24	The UK should be able to restrict the number of EU immigrants entering the country.
25	The National Health Service should give priority to British citizens.
26	State benefits should only be available to those who have lived in the UK for at least five years.
27	Only English MPs should have the right to vote on issues that only affect England.
28	The House of Lords should be replaced by a directly elected chamber.
29	Young people should be given the right to vote at the age of 16.
30	The UK should withdraw from the European Convention on Human Rights.