‘‘A turn towards values?’; Is there a common underlying values structure within the European Electorate?’ *(work in progress)*

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Abstract

The role of individual values has often been neglected, or marginalised, in traditional comparative models of electoral choice. Values have generally been subsumed within broader socio-structural or rational choice models of voting, such as party ID or spatial models. While analysing the role of individual values in structuring voter choice is substantively interesting on its own terms recent studies by Schwartz (2010) and Marietta and Barker (2007) suggest that values may represent a promising conceptual tool for exploring changing voter choice behaviour in response to social de-alignment. However, existing literature on values and voting has generally focused on analysing this relationship in a single electoral context and has struggled to highlight the causal mechanisms or demonstrate the wider substantive relevance of values to electoral research (Leimgruber 2011). Due to data limitations and the challenges inherent in measuring contested latent concepts such as values there has been relatively little comparative research (cross-sectional or cross-national) on values and voting. There is also little research examining the specific influence of value change on political preferences (Goren 2009). Prior cross-sectional electoral research on value change that does exist has often been limited to utilising broad, uni-dimensional, measures such as postmaterialism or proxy measures for value change such as religious belief (Van Deth and Scarborough 1995). This paper is part of a PhD thesis aimed at addressing this lack of comparative perspective in the electoral choice literature on values. The analysis uses individual level data from the European Values Survey (1981-2008) to develop more nuanced measures of values, and has eventual aims to link this to contextual data from the Comparative Manifesto's Project.

The specific emphasis of this paper is on the first stage of the empirical analysis for this project. This focuses on the development of a viable CFA Measurement model of values using indicators from the European Values Survey. The paper will present the results of this process starting by describing the background of the project, showing the results from the initial Exploratory Factor Analysis before presenting the full CFA model using the 2008 and 1990 waves of the EVS. This is work in progress so conclusions are tentative but the paper argues that it is possible to use the EVS data to demonstrate a common value structure across 13 European Electorates consisting of 4 latent values dimensions; Traditionalism, Conformity, Authoritarianism and Individualism (with an additional single item direct indicator for Egalitarianism). This measurement model will ultimately be used to model voter choice in these countries. The paper tests the quality and comparability of using the model for this model by applying it firstly to the pooled data of all countries at both time-points and then to each country individually. Finally, evidence is presented from tests of Measurement Invariance that highlight the difficulties in establishing robust measures for comparative research using latent constructs. The paper concludes by outlining how further analysis aims to use data linkage and multi-level techniques to overcome these issues.

Section 1 - Introduction and Background

Introduction

The aim of this paper is to ascertain whether there is a common political value structure within European Electorates and to establish what implications this has for comparative research into political values and voting. There have been numerous attempts to categorise the values of electorates along a number of key dimensions, but in general these have tended to focus on broad all-encompassing single dimensions (Left-Right, Libertarianism-Authoritarianism, Materialism-Postmaterialism) that are directly rooted in known political divisions and often restricted to single country analysis (Norris and Inglehart 2005, Heath *et al.* 1985, Van Deth and Scarborough 1994). Work on developing more multi-dimensional values measures to capture more nuanced distinctions within and between electorates has been a recent innovation (Schwartz 1992, Caprara et al. 2007). This has meant that the role of values in explaining political change and their role in structuring political choice has yet to be fully explored (Leimgruber 2011). This paper is focused on developing a viable set of latent values measures from the European Values Survey (EVS) with the ultimate aim of using these measures to assess the role of political context in defining the influence of values on voter choice preferences over time; which is the aim of the wider PhD thesis that this paper is part of.

1. *The value measure should represent the highest level of abstraction that it is possible to obtain from the indicators while still being a substantively useful construct.*

2. *The Latent values structures should be essentially multi-dimensional in nature.*

3. *The cross-national validity of the values measures must be established empirically.*

4. *The indicators used to construct the value measures should be as far removed from contextual influences as is reasonably possible.*

5. *The value measures must be standardised and they must be benchmarked against each other.*

Figure 1. List of 5 principles for measuring latent values

As the Schwartz values are not available in the EVS, the original starting point of the research design was to replicate values measures that had been identified in previous studies. This latent approach to measuring values has tended to be applied only to single N studies (Feldman 1988, Dunn and Singh 2011). ***Figure 1*** presents a list of 5 ideal principles for operationalising latent measures of political values so that they are sufficiently robust for comparative analysis. These principles were identified by carrying out a methods analysis of how values have been operationalised in prior empirical research. The analysis presented below has attempted to follow these principles using a confirmatory research strategy based on prior empirical practice where possible. However, even though it was possible to identify

these core principles from other papers that had used latent measures of values, there are few examples of this approach being applied to comparative research using cross-sectional data. Therefore, it should be stated that this paper is not purely confirmatory, despite the methodology it employs. Firstly, it is applying a latent approach to measuring political values in a comparative context, for which there is little precedent in the literature. Secondly, in developing a multi-dimensional latent values structure using the EVS the analysis is breaking some new ground in terms of the usage of this data (Van Deth and Scarborough 1994). While the above principles, and prior research, represented a solid guide to developing the model it is important to acknowledge that this paper ultimately takes a mixed approach because of the strong exploratory aspect it employs; both from a substantive and methodological perspective.

The paper will begin by outlining the background to the overall PhD project by arguing the case for a more central role for values in electoral research. It will then outline the contribution this paper makes to the field and define the 3 core research questions it aims to address. The results of the CFA analysis will then be presented alongside a discussion of the implications of cross-national variation in the fit of the model. This will include the presentation of the early stages of Measurement Invariance testing using Multi-Group SEM models. As this paper is written for a workshop on data linkage, there will be a brief outline of the strategy for the next stage of the research project that intends to use the Comparative Manifesto's Project data in a Multi-Level analysis of the impact of political context on the values-voting relationship. Finally, the paper will conclude with a brief discussion regarding the implications of these findings while considering the limitations of using these values measures to predict voter choice in the 13 countries of the study.

This paper assesses the viability of the CFA model that was developed using the pooled cross-national data from the 2008 wave of the EVS compared with the same model applied to the 1990 data. The model using the 2008 pooled EVS data identifies a reasonably well fitting 4 factor solution capturing the values of Moral Traditionalism, Conformity, Individualism and Authoritarianism with an additional single indicator for Egalitarianism. Applying the same model to the 1990 data provides some evidence that the values structure remains constant across the two time points. In fact evidence suggests that the retrofitted 1990 model fits the data better than for 2008. This is consistent with long standing theory of underlying human values, which suggests that they remain fairly constant at both the individual and aggregate level (Converse 1961 Rokeach 1974, Zaller 1992).

The paper also presents results of the same baseline CFA model applied to 13 countries on a single N basis and it is here that it is possible to identify considerable fluctuation in the fit of the model, and the stability of the values measures, between countries. Finally, this is supported by more recent findings that show a failure to establish Measurement Invariance. This opens up both some interesting avenues for enquiry regarding the variations in value structure between electorates, and at the same time poses serious challenges regarding the viability of using this measurement model to predict vote choice within a comparative research design. Ultimately, the results show that using latent values measures derived from the EVS to establish a viable value structure for both cross-sectional and cross-national comparison may be an unrealistic ambition. This may require limiting the comparative scope of the research project to some extent. In which case it is important to identify what reasonable substantive research problems can be addressed using these imperfect measurements and what inferences can be drawn, considering that current research suggests that even the Schwartz values measures do not achieve full metric invariance in cross-

national research (Datler *et al.* 2013). It should be acknowledged that values remain conceptually fuzzy constructs that are fiendishly difficult to measure comparatively due to their strong connection with cultural context. However, it is argued that this makes comparative work into the relationship between values and political choice even more relevant because of their contextual significance, and that it is still possible to develop strong substantive findings using imperfect values measures.

Background to Research Project

It has long been acknowledged, by both empirical researchers and social theorists, that individual values should occupy a central role in social science research (Easton 1953, Converse 1964). As a result there is a well-established theoretical and empirical literature focusing on the influence of values in determining social and political behaviours (Rokeach 1974, Inglehart 1971, Tetlock 1986, Schwartz 1992). However, while value change has been comprehensively established as a key determinant in transforming the political culture of established democracies, political science researchers have tended to be reluctant to measure the influence of values on voter choice. This is understandable due to problematic issues surrounding definition, measurement and substantive relevance. But it appears coupled to a general aversion to addressing the emotional aspects of voting. The need to re-examine the emotional associations of voting (as potentially distinct from classic sociological explanations) has achieved a degree of popular coverage (Haidt 2011) with much discussion regarding the failure of mainstream political actors to connect with the fundamental needs and desires of voters. Values represent one way of measuring these associations, yet the mechanisms that link underlying values and voter choice are little understood. Contemporary work in both European and American political psychology suggests that there is a strong case for re-examining the role individual values have in shaping voter choice decisions, and for addressing the mechanisms that define this relationship (Feldman 2003, Leimgruber 2011).

It is in applying broad definitions of the concept, as representing 'competing conceptions of the good', that the case for values being assigned a distinct role in the analysis of political behaviour, political competition and political outcomes becomes clear. By considering politics as a battleground for competing conceptions of the good this definition also emphasises the important role that value change can have in transforming political culture (Easton 1953, Inglehart 2004).

Therefore the research study that informs this paper holds to three fundamental defining principles of values:

1. Values represent competing conceptions of the good. (Rokeach 1974, Tetlock 1986, Schwartz 1992).
2. 'Politics is the authoritative allocation of values' (Easton 1953).
3. It therefore follows that values should hold a more central role in the analysis of electoral outcomes, from both supply and demand perspectives.

Ultimately, the existing literature on values and voter choice reflects the fragmented nature of values research overall and is generally subsumed within wider research agendas that hold neither values nor voter choice as their central topic of interest. This has led to three clear substantive gaps in the empirical literature to address, which offer promising avenues for PhD research. The first relates to the study of value change. There now exists a fairly comprehensive literature, alluded to above, on the role of values in shaping voter choice

decisions. But due to a lack of cross-sectional data work on the influence of value change and voting has so far been limited to broad brush measures of values. The development of large, long running, cross-national values surveys along with latent modelling techniques should now make it possible to identify more nuanced dimensions. Secondly, while there is a relatively substantial literature on the relationship between values and voting, there has been little attempt to empirically establish the nature of this relationship. Van Deth and Scarborough (1995) have outlined the importance of addressing the key question of how values are 'primed' in relation to voting, yet few researchers have addressed this challenge. Finally, there has been little work on the contextual relevance of values in differentiating voter choice. This project represents an attempt to use a comparative research design to address these key research problems. The first step is to adequately operationalise values using empirically justifiable latent measures – it is this initial challenge that this paper addresses.

***Research Questions**;*

1. ***Can a common latent political values structure across the European Electorate be identified in the European Values Survey?***

   The first research question measures the extent to which the EVS can be used to develop a multi-dimensional latent values structure. Existing values research utilising the EVS has tended to concentrate on one or two broad values measures (Knutsen 1994, Tilley 2002). It has generally not been used to capture several values simultaneously, which is the aim here. The limitations of using the EVS in this way are discussed below. However, the purpose of this research question is to establish the extent to which it is viable to use the EVS to measure a common value structure across European Electorates.

Hypothesis 1 – A common values structure across the European Electorate can be identified using the EVS.

Hypothesis 2 – The value structure of the European Electorate will remain constant between 1990 and 2008.

2. ***Does the values structure across European Electorates remain consistent cross-nationally**?*

   Question 2 measures the degree to which the value structure of the European Electorate varies between different countries. This defines whether the latent values measures are valid as a basis for cross-national comparison. As the 13 countries in the analysis are sufficiently similar in terms of political system, democratic stability and sample size, it is assumed that the basic values structure will show little variation between countries.

Hypothesis 3 – That the overall values structure holds for each of the 13 Countries in the analysis.

Hypothesis 4 – That any variation in the values structure will be clustered by country type (for example the factor model may not be as good a fit for Scandinavian countries).

3. ***Does the values structure provide a sufficiently robust measurement model for cross-national comparative analysis?***

Question 3 captures the key question that this paper addresses. It aims to establish the extent to which the latent model is stable enough across the time period and the varying national contexts to model voting at subsequent stages of the analysis. This has a substantial impact on the structure of future analysis in the thesis. Prior research acknowledging the complexity of measuring values suggests that establishing the cross-cultural validity that full Measurement Invariance implies will not be possible (Billiet *et al.* 2011). Even the Schwartz values, largely recognised as the most comprehensive cross-cultural measures for values, do not consistently achieve ideal levels of Measurement Invariance (Datler *et al.* 2013). Therefore it is likely to prove unrealistic for a partially exploratory approach to values measurement such as this to achieve full Measurement Invariance. However, partial invariance maybe sufficient for the purposes of this study and there is reason to believe that demonstrating variation in the values structure between countries may be a substantively relevant finding in itself.

Hypothesis 5a – If the CFA measurement model achieves Measurement Invariance conditions will have been met to carry out full comparative analysis.

Hypothesis 5b – If the CFA measurement model does not achieve Measurement Invariance then future analysis will have to follow a case study approach.

Section 2– Data and Methods

Data

The analysis utilised data from the 2008 and 1990 waves of the EVS. The EVS is a large scale repeated cross-national face to face survey that has 4 waves over a 27 year period (1981, 1990, 1999 and 2008). The EVS is used in this analysis because it aims to capture changing attitudes and values within the European Population. It has the widest chronological reach of any comparable Cross-National values survey (the Eurobarometer survey does not contain sufficient values indicators for this study) which makes it the most appropriate dataset for addressing research problems related to value change. The original intention was to generate a measure of value change over a 30 year period by developing CFA measurement models of the latent values structure at all 4 cross-sections in the survey. Therefore the original research approach was to focus on the 13/14 countries that were included in the original 1981 EVS survey in order to develop a comprehensive measure of change[1]. However, due to inconsistencies in questions asked from wave to wave and, crucially, the lack of any questions in the 1981 data that tap into aspects of the individualism dimension, the 1981 data was reluctantly dropped from the analysis for the time-being. With the 1981 data excluded the analysis is restricted to a 20 year period, and therefore the 1999 data (which had some additional problems of data quality) was also excluded as it was unclear what advantages there were in modelling the 1999 data. Therefore this analysis focuses exclusively on the 2008 and 1990 waves of the EVS. As the 1990 wave, rather than

[1] The number of 13/14 is dependent on whether Germany is split East/West from 1990 onwards. It also represents the exclusion of Northern Ireland for substantive and methodological reasons. In addition Canada and the United States were also included in the original 1981 wave of the EVS but are excluded here as they were not captured in subsequent waves and the research project has stated that its Geographical scope is limited to Europe.

the 1981 wave, is now being used as the baseline there is the potential to double the number of countries in the comparative analysis to 26, although there would have to be good substantive reasons for doing so. As the decision regarding the 1981 data was taken very recently the findings in this paper refer only to the original 13 countries. The 13 Countries included in this analysis are; Belgium, Denmark, France, Germany (which is being treated as unified in the analysis), Iceland, Ireland, Italy, Malta, Netherlands, Norway, Spain, Sweden and the UK. It should be stated that these countries have mainly been selected due to data availability rather than on a substantive basis. The implications of this, and other data limitation issues, will be discussed below in the data limitations section.

The original CFA measurement models were developed using the pooled data from all 13 countries in the analysis. For the 2008 data this produces an overall *N* of *18322* and for the 1990 data the *N* is *19797*. The CFA measurement model was then applied to each country on a single country basis and in a Multi-Group SEM model to test for cross-national variation and Measurement Invariance. The figures are recorded in detail in the results section but for 2008 the *N* ranged from *2075* (Germany) to 808 (Iceland). For 1990 the N ranged from 2791 (Belgium) to 393 (Malta). For the purposes of this analysis no weights were applied because the theory being tested was the extent to which there was cross-national equivalence within the values measurement model. Details regarding the values indicators are discussed in the descriptives section below.

Research Strategy

The original aim of the analysis was to use an entirely confirmatory approach in order to maximise the chances of developing valid latent values measures. The intention was to reference prior research into values that used the EVS and other datasets and then to use CFA-SEM models to establish the viability of these models in the EVS samples that were being used. However, due to the relative paucity of current research that has used the EVS in this way and the complexity of developing models that had both a cross-sectional and cross-national component, a mixed approach was settled on that used both exploratory and confirmatory approaches. It was decided that the best approach to developing robust measures of value change was to work backwards – to establish what the value structure for European Electorates was in 2008 and then see the extent to which that structure fitted the data from previous years. Therefore the initial stage of the analysis concentrated on identifying viable values measures using Exploratory Factor Analysis on key indicators in the 2008 wave of the EVS. Once the factor structure had been established using EFA, the confirmatory CFA measurement model was applied to the 2008 data. This necessitated the dropping of certain factor indicators in order to achieve parsimony and achieve an acceptable model fit. These reductions were only carried out if there were strong substantive reasons for doing so. Once a best fitting model for the 2008 pooled data was established, it was then applied to each country individually. The CFA model was then tested on the previous EVS waves at both the pooled and single country level. The final stage of the analysis involved testing the comparability of the model by using multi-group SEM analysis; applying the CFA model to each country separately but simultaneously, in order to test for Measurement Invariance.

The findings presented in this paper represent the final models that were settled on after considerable amendment to the models. A number of key substantive and methodological decisions were made in the construction of the measurement model, which are not presented here. For example, much influential previous research into values has identified 'Security' as

a key indicator both theoretically and empirically (Inglehart 1971, Rokeach 1974). The original Factor models identified a potential measure for this value. However, a substantive decision was taken to exclude this on the basis that it only tapped the idea of existential threat and was too easily conflated with other concepts such as prejudice. Therefore it was dropped on the basis that it could not reasonably be claimed to represent a distinct 'value'. Likewise attempts to develop measures for values that had a strong basis in the existing literature, such as Benevolence, were dropped because there were not sufficient indicators in the EVS to measure this value across time. In order to establish a best fitting CFA solution within these limitation modification indices were applied to the baseline model using the pooled data. However, these were only applied if there were good substantive reasons for doing so, which were grounded in the prior research findings.

All models presented in this analysis were run using M-PLUS, including the EFA models. The EFA models were run using M-PLUS because they were using mixed data that included categorical indicators and M-PLUS allows for this to be taken into consideration using the WRSMV estimator function.

Descriptives

There were sufficient indicators within the EVS for the requirements of this study to produce measures of 5 value dimensions; Traditionalism, Conformity, Individualism, Egalitarianism and Authoritarianism. The indicators used for all of these measures are consistent with previous research that captures these values as latent constructs. Four of these measures were developed through the CFA measurement model, with Egalitarianism represented by a single item indicator. The compromise of using the single item for Egalitarianism was made because it was seen as substantively critical to capture some aspect of this political value even if the EVS was generally lacking in sufficient measures of this dimension to include it in the complete CFA model. To develop the CFA measurement model the analysis used indicators drawn from two key question batteries in the EVS based on 10 point Likert scales, and one battery of categorical indicators.

To develop the 'Traditionalism' and 'Conformity' measures the question battery related to societal taboos is used. These questions present the respondent with a an activity or behaviour and then ask them to rank their opinion towards that act on a 1-10 scale running from Never Justified to Always Justified. The Traditionalism indicators relate to; Homosexuality, Abortion, Divorce, Euthanasia and Suicide. There is clearly a strong bias towards moral traditionalism as represented by traditional attitudes to the human body which may mean calling the composite latent measure 'Traditionalism' could be overclaiming. More precisely it is capturing one aspect of Traditionalism. The Conformity indicators relate to attitudes towards; Claiming benefits to which you are not entitled, Cheating on Tax, Joyriding, Marajuana use, Legal tax avoidance and Avoiding fare on public transport. These are clearly associated with rule following and have therefore been labelled 'Conformity' indicators.

The second key question battery referred to the Individualism questions. These are more directly political, the implications of which are discussed below, but represent recognised latent measures of individual values within the existing literature (Feldman 1988, Goren 2005, 2009). These are measured on 10 point Likert scales with the respondent given two opposing positions and asked to place where they position themselves on the scale in terms of extremity. The scale runs from 1 (the most individualist position) – 10 (the least individualist

position). The single indicator representing Egalitarianism (which is based on a 10 point question ascertaining the respondents support for equalising incomes) is also drawn from this question battery. Crucially, it does not appear to be strongly correlated with the other individualism indicators and thus it can be claimed that it is tapping into a distinct construct from the Individualism both theoretically and empirically. Early findings from running direct models of vote choice using value indicators also support this.

Continous Variables

N=19894

	Valid	Missing	Mean	Median	SD	Min	Max	Skew	Kurt	Range
CON1 (False Benefits)	19695	199	1.95	1	1.807	1	10	2.1	4.578	9
CON2 (Cheating ON Tax).	19667	227	2.2	1	1.989	1	10	1.904	3.226	9
CON3 (Joyriding)	19802	92	1.38	1	1.16	1	10	3.777	18.321	9
CON4 (Taking Soft Drugs)	19663	231	2.13	1	2.042	1	10	1.981	3.338	9
CON5 (Avoid tax)	19431	463	3.48	3	2.599	1	10	0.828	-0.297	9
CON6 (Avoid Fare)	19653	241	2.42	1	2.135	1	10	1.623	2.002	9
TRAD1 (Homosexuality)	18949	945	6	6	3.387	1	10	-0.238	-1.372	9
TRAD2 (Abortion)	19385	509	5.08	5	3.181	1	10	0.098	-1.297	9
TRAD8 (Divorce)	19394	500	6.22	6	2.923	1	10	-0.332	-0.946	9
TRAD9 (Euthanasia)	19191	703	5.46	6	3.253	1	10	-0.209	-1.189	9
TRAD10 (Suicide)	19127	767	3.01	2	2.667	1	10	0.981	0.131	9
IND1 (Responsibility)	19566	328	4.72	5	2.489	1	10	0.303	-0.707	9
IND2 (Unemployed Rights)	19584	310	4.5	4	2.63	1	10	0.331	-0.693	9
IND3 (Competition)	19329	565	4.13	4	2.295	1	10	0.581	-0.214	9
IND4 (Freedom v State)	18839	1055	5.28	5	2.506	1	10	0.114	-0.785	9
EG1 (Equalise Incomes)	19410	484	5.45	5	2.704	1	10	-0.076	-1.037	9

Binary Variables

	Valid	Missing	% Yes	% No
AUTH3 (Obedience)	19443	451	26.8	73.2
AUTH5 (Independence)	18813	1081	49.3	50.7
AUTH6 (Imagination)	19096	798	21.1	78.9

Table 1. 2008 Descriptive data

The Authoritarianism measure was developed according to Dunn and Singh's (2011) recent work suggesting that this value can be tapped via a composite measure of respondent's opinions regarding desirable traits to be instilled in children. Respondents are given a list of traits and asked to mention whether they think they are important in the bringing up of children. These are then coded as 1 = Mentioned 0 = Not Mentioned. The three items suggested by Dunn and Singh (2011), based on Feldman's (1988 and 2003) original development of the Authoritarian scale, are Obedience, Imagination and Independence. This represents the one current example of re-coding in the analysis. Obedience is reverse coded in order to create a differentiation between Authoritarian and Non-Authoritarian attitudes to the raising of children. There was an attempt to capture further wider aspect of Authoritarianism by including an indicator that asked about attitudes to the death penalty and

regarding respect for Authority but these did not load very well. Therefore, it was decided to return to a measure of Authoritarianism that is recognised in the literature.

For full details of the question wording and scales, please see ***Appendix 1***.

Continous Variables

N= 19798

	Valid	Missing	Mean	Median	SD	Min	Max	Skew	Kurt	Range
CON1 (False Benefits)	19554	244	2.15	1	2.064	1	10	2.082	3.952	9
CON2 (Cheating ON Tax).	19539	259	2.86	2	2.52	1	10	1.36	0.896	9
CON3 (Joyriding)	19681	117	1.34	1	1.076	1	10	4.225	22.163	9
CON4 (taking Soft Drugs).	19643	155	1.56	1	1.52	1	10	3.35	11.781	9
CON5 (Keeping money)	19428	370	3.24	2	2.74	1	10	1.09	0.091	9
CON6 (Avoid Fare).	19632	166	2.19	1	2.01	1	10	1.97	3.55	9
TRAD1 (Homosexuality)	18736	1062	4.11	3	3.24	1	10	0.594	-1.039	9
TRAD2 (Abortion)	18196	1602	4.41	5	2.74	1	10	0.372	-0.824	9
TRAD8 (Divorce)	19149	649	5.34	5	2.81	1	10	0.034	-0.923	9
TRAD9 (Euthanasia)	18746	1052	4.31	4	3.043	1	10	0.39	-1.078	9
TRAD10 (Suicide)	18945	853	2.77	1	2.476	1	10	1.249	0.751	9
IND1 (Responsibility)	19091	707	4.78	5	2.75	1	10	0.332	-0.959	9
IND2 (Unemployed Rights)	19207	591	4.56	4	2.87	1	10	0.365	-0.964	9
IND3 (Competition)	18826	972	3.75	3	2.35	1	10	0.828	0.106	9
IND4 (Freedom v State)	18048	1750	4.17	4	2.31	1	10	0.488	-0.316	9
EG1 (Equalise Incomes)	19230	568	6.08	7	2.76	1	10	-0.352	-0.954	9

Binary Variables

	Valid	Missing	% Yes	% No
AUTH3 (Obedience)	19747	51	35.3	64.7
AUTH5 (Independence)	19747	51	49.7	50.3
AUTH6 (Imagination)	19747	51	72.3	27.7

Table 2. 1990 Descriptive Data

Tables 1 and 2 present the descriptive statistics for each of these indicators for the pooled European data for both the 2008 and 1990 waves. There are a couple of anomalies that should be mentioned. Firstly, relatively high amount of missing data on the TRAD 1 (Homosexuality) indicator in 2008 can be explained by that question not being asked in the 2008 Italian survey. Likewise in 1990 the TRAD2 (Abortion) question was not asked in Denmark. However, the Individualism indicator IND4 (Freedom for firms v State interference) clearly stands out as having a disproportionate amount of missing data at both time points. This will be explored at a later date, but it may be related to the relative political complexity of the question.

With the exception of the indicators related to Individualism, which broadly show evidence of normal distribution, the data is strongly skewed. The Conformity indicators are strongly positively skewed, which is not surprising since that reflects the vast majority of people acknowledging that breaking societal rules is never justified. The Traditionalism indicators represent a multi-nomial distribution, with answers clustering around the extremes and the middle values. This suggests that there may be a case for recoding these indicators into a categorical variable but this has not been done for the purposes of this analysis. The Conformity, Traditionalism and Individualism indicators are treated as continuous. The categorical Authoritarian indicators remain fairly consistently distributed between the time-points, though there is considerably more missing data in the 2008 wave.

There is some very limited evidence of the liberalising of attitudes on the Conformity and Traditionalism indicators. With the means for all the Conformity indicators moving slightly away from the 'Never Justified' end of the scale between 1990 and 2008. Though there are not changes in the median values suggesting that this is probably just noise. This shift is much more in evidence for the Traditionalism indicators, where there is significant increase in the mean value on all indicators towards and the median increases for all indicators apart from abortion. This is promising as it points to some limited measure of value change but also suggests that the means of these indicators are likely to move in unison provided some anecdotal support for them tapping an underlying latent construct. Interestingly all of the means for the Individualism indicators have moved in the non-individualism direction between 1990 and 2008. However, these are likely to be far more volatile to political influence than the more abstract measures of Traditionalism and Conformity are, so any finding related to a specific indicator should probably be treated with caution, while still acknowledging that opinion seems to be moving in the same direction which is promising for any study of value change. Interestingly the mean of the Egalitarian indicator decreases, suggesting a small decrease in support for Equalising Incomes despite the decrease for individualism shown in the Individualism indicators. Again, that the Egalitarian indicator is behaving in opposite way to the Individualism indicators suggests that it is tapping a separate construct. The temptation is to very tentatively conclude that on the more political value indicators opinion was de-polarising in 2008 compared with 1990. Given that the 2008 EVS survey collection occurred before the current financial crisis started after a prolonged period of successful economic growth and security for the countries in the sample, this is perhaps a finding to be expected. A much firmer conclusion is that the data supports existing findings regarding the general trend in increased liberal attitudes towards social taboos among Western Electorate that would be consistent with the evidence of the postmaterialist literature (Norris and Inglehart 2004). However, there is also fairly clear evidence of a differentiation between attitudes to social behaviours, where increased acceptance appears the norm, and attitudes to issues of social order and rule following which appear fairly stable (Thorisdottir *et al.*, 2007). Further analysis of the underlying structure of this data is required to test these inferences.

Section 3– Results

Exploratory Factor Analysis

The strategy for developing the measurement model mixed exploratory and confirmatory analysis of the underlying data structure in order to take account of the duel nature of the data. On the one hand, the factor structure that was being applied to the data was determined by prior research using latent values dimensions and the measures established are rooted in

existing theory and empirical practice. On the other hand, to the best knowledge of the researcher the EVS has never been used to develop a multi-dimensional value structure in this way before. Some variation of the Traditionalism, Authoritarian and Individualism measures have all been operationalised before using the EVS but not simultaneously. Therefore it was important to use the Exploratory Factor Analysis to firstly identify the underlying factor structure; ie to identify the number of substantively viable factors in the data and their structure.

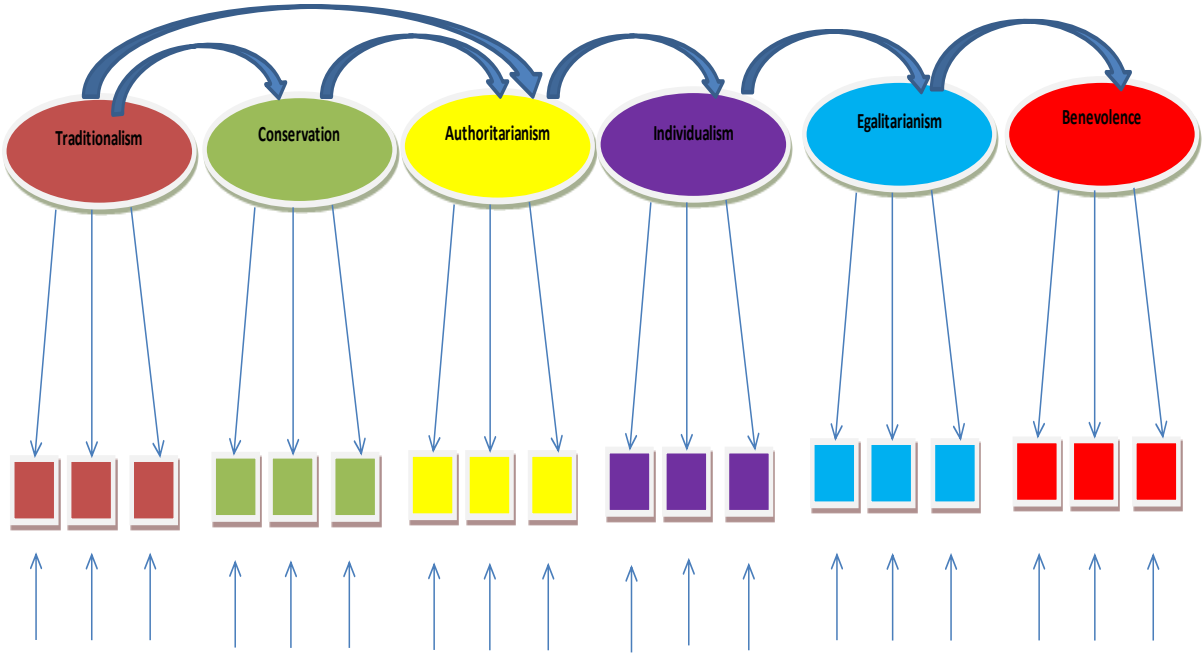

Figure 1. Original theorised ideal 6 Factor solution of Political Values

Figure 1 shows the original theoretical measurement model, which aimed to replicate a 6 factor solution based broadly on the Schwartz values. This was a model based entirely on theory, with no consideration of the limitations of the data. Briefly stated, previous research using the Schwartz values suggested that there are 6 values dimensions that define political division in different political contexts (Barnea and Schwartz 1998; Barnea 2003; Caprara *et al.* 2007)[2]. Despite the indicators not being included in the EVS, the Schwartz values were used to develop a possible theory of values. This was done for 2 reasons. Firstly, to ground the operationalisation of values in the existing research literature and secondly, because the Schwartz measures represent the gold standard in values measurement. At the same time it is acknowledged that a latent approach to capturing these values had to be taken. So research was carried out into how previous latent approaches using survey data had captured these values. This was how it was discovered that latent Authoritarianism is often captured by attitudes to child rearing and that the construct validity of this measure has actually been comprehensively, if somewhat weakly, established (Feldman 2003). Likewise, moral traditionalism and individualism have been operationalised as latent values measure in

[2] In this case the more political expression 'Individualism' is standing for the Schwartz value of 'Self-Direction' and 'Egalitarianism' for 'Universalism'. Other Schwartz values of Hedonism, Power, Achievement and Stimulation tend not to have a significant relationship to voter choice and so were not included in the conceptual factor model.

previous studies using similar indicators that have been used here (Peffley *et al.* 2001, Goren 2005). In fact there is a substantial literature in US Political Psychology, which highlights latent measures of Authoritarianism, Individualism and Traditionalism being operationalised in this way.

2008	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Eigenvalue	4.878	3.76	2.223	2.053	1.683
% of Variance Explained	15.16	12.15	7.55	5.83	5.38
Homosexuality (TRAD1)	**0.579**				
Abortion (TRAD2)	**0.763**				
Divorce (TRAD8)	**0.746**				
Euthanasia (TRAD9)	**0.68**				
Suicide (TRAD10)	**0.469**				
Children should be taught Obedience (AUTH3)		**-0.502**			
Children should be taught Independence (AUTH5)		**-0.538**			
Children should be taught Imagination (AUTH6)		**-0.393**			
Individual Responsibility (IND1)				**0.556**	
Unemployed Take any job - Right to refuse job (IND2)				**0.464**	
Competition good - harmful (IND3)				**0.579**	
Freedom - State control of firms (IND4)				**0.529**	
False Benefits (CON1)			**0.537**		
Cheating Tax (CON2)			**0.653**		
Joyriding (CON3)			**0.524**		
Soft Drug Use (CON4)			**0.44**		
Tax Avoidance (CON5)			**0.472**		
Avoiding Fare (CON6)			**0.58**		
EG1					**-0.338**
N	*18323*				
RMSEA	0.024				

Table 3. 2008 Final Exploratory Factor Analysis

1990	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Eigenvalue	3.8	2.02	1.61	1.21	1.01
% of Variance Explained	19.99	10.63	8.48	6.34	5.27
Homosexuality (TRAD1)	**0.57**				
Abortion (TRAD2)	**0.596**				
Divorce (TRAD8)	**0.743**				
Euthanasia (TRAD9)	**0.575**				
Suicide (TRAD10)	**0.517**				
Children should be taught Obedience (AUTH3)		**-0.536**			
Children should be taught Independence (AUTH5)		**-0.572**			
Children should be taught Imagination (AUTH6)		**-0.424**			
Individual Responsibility (IND1)			**0.547**		
Unemployed Take any job - Right to refuse job (IND2)			**0.363**		
Competition good - harmful (IND3)			**0.539**		
Freedom - State control of firms (IND4)			**0.578**		
False Benefits (CON1)				**0.533**	
Cheating Tax (CON2)				**0.619**	
Joyriding (CON3)				**0.346**	
Soft Drug Use (CON4)				**0.711**	
Tax Avoidance (CON5)				**0.481**	
Avoiding Fare (CON6)				**0.644**	
EG1					**-0.274**
N	*19798*				
RMSEA	0.03				

Table 4. 1990 Final Exploratory Factor Analysis

The exploratory stage was also used for trial and error purpose to test the viability of the speculative theoretical model, and ultimately exclude other potential measures of values or similar constructs. What is presented in this small section is the end result of the EFA process, but this involved quite a number of amendments form the starting position to achieve what is assumed to be the optimum Factor solution. Ultimately, the factor analysis process was successful because it identified the limits of the data before the Confirmatory stage and it also produced additional values dimension that was not anticipated at the beginning of the analysis; Conformity. Originally Conformity conceptualised as a component of the Traditionalism measure but it became clear in the EFA stage that it was in fact a separate

value. Likewise, it was possible to ascertain that the EVS did not contain adequate indicators to produce a comparatively robust measure for Benevolence or Security. In the case of Security, the sufficient indicators just did not exist. There are a number of indicators that could be said to represent the idea of threat; such as questions related to the increasing power of the EU or to immigration. When these variables were entered into the EFA they invariably represented a uniquely identifiable factor but the loadings tended to be weak with high cross loadings on other indicators. This suggested that an underlying 'Security' value could not be identified. It was also being driven by data, not by any existing measures of security. For example, Schwartz identified security as being as much about everyday personal safety as external threat and it was not possible to find an equivalent composite measure of this using the EVS. Therefore it was dropped for substantive and methodological reasons.
Benevolence was a more frustrating example. Reasonable measures of Benevolence exist in the EVS according to both the EFA and subsequent CFA model but the indicators are not repeated across the waves of the survey (see ***Appendix 2*** for example of EFA model from 2008 with Security and Benevolence Indicators Included). The only repeated Benevolence question battery occurs in 1999 and 2008, and so is unsuited to the purposes of studying value change. Therefore this dimension was reluctantly dropped from this analysis though may be incorporated in future analysis.

Tables ***3*** and ***4*** present the results from the EFA analysis of the 2008 and 1990 cross-sections. The models were run in M-PLUS using a WRSMV estimator to take account of the non-normal nature of the data and that it was a mixed model including both Continuous and Categorical factors. Varimax rotation was applied in order to achieve an optimal factor solution. As the initial EFA model was designed using the 2008 data, it could be argued that then applying the EFA to the 1990 data is incorrect because it is not a confirmatory technique, and that it would have been more appropriate to move straight to the Confirmatory stage of the analysis. However, this process was carried out in order to be sure that the factor structure was similar before moving on to the more complex CFA stage. It could be considered as an additional sensitivity test.

This final EFA model identifies an optimal 5 factor solution at both time points, with the eigenvalues of the first two factors (Traditionalism and Authoritarianism) representing double the amount of variance accounted for in the subsequent 3 factors. There is a slight difference in factor order – with the 3rd factor in 1990 representing Individualism while in 2008 the third factor is represented by Conformity. In both cases the single Egalitarian indicator represents a weak, though still methodologically viable, 5th factor distinct from the other 4. There is no significant cross-loading which is slightly surprising because it could be reasonably assumed that there would be a survey effect producing cross-loading on the Traditionalism and Conformity indicators as they are drawn from the same question battery. The loadings themselves are relatively weak, but in that respect are fairly consistent with loadings that are reported in previous EFA studies of values indicators (Feldman 1988, Marietta and Barker 2007). Generally, latent values measures rely strongly on theory to support their substantive viability – the strength of the loadings and cronbach's Alpha tests alone do not tend to provide sufficient evidence of construct validity. In this case there are consistently under-performing variables in each factor. The Imagination indicator in the Authoritarian factor for example was ultimately only retained for the CFA stage of the analysis for theoretical reasons.

To sum up, the EFA process has identified a 5 factor solution which, though relatively weak in terms of loadings, appears to be consistent at the 2 different time-points and is significantly

based on measures used in prior research that it can be used as the basis for constructing the full CFA measurement model.

Pooled CFA Model

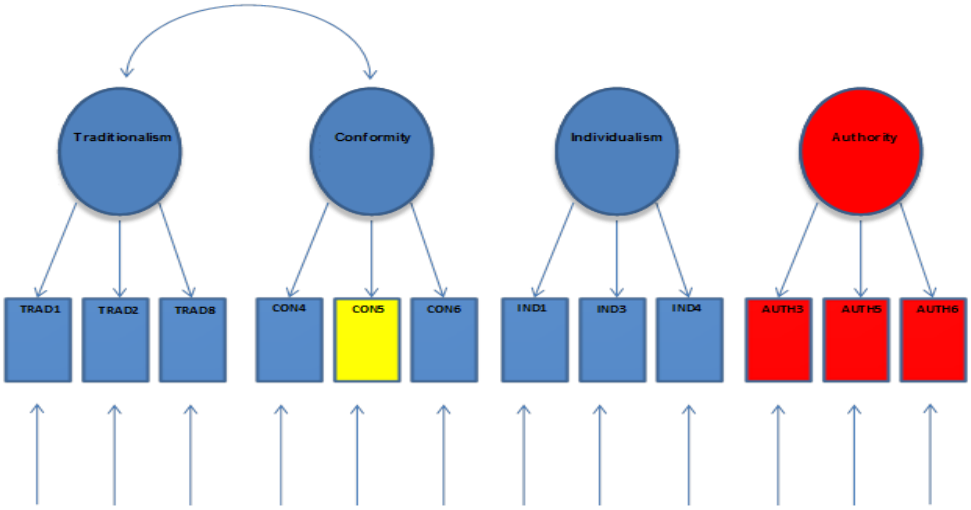

Figure 2 – Final CFA Model Specification

Despite the confirmatory nature of CFA modelling, the reality of the data and the research design meant that the method still had to be applied in a partially exploratory way. Further amendments being made to the EFA solution through modification of the CFA specification before a good fitting final model could be settled on. However, this was not a purely data driven process, decisions regarding the fundamental amendment of the model were justified largely on substantive terms. ***Figure 2*** presents the final 4 factor CFA model specification that was defined as a result of the EFA and subsequent amendments based on modification indices and other decisions taken to improve model fit. The most obvious amendment is the reduction in the number of indicators from the final EFA solution. This was a decision made mainly out of methodological necessity; the factor models with the original indicators from EFA produced unacceptable model fits in the CFA models. As it was possible to reduce the number of indicators in the factors without obviously compromising the substantive meaning of the values, a more parsimonious model was fitted which unsurprisingly produced a substantial improvement in the quality of the model fit. In the case of most of the factors it was decided to exclude the indicators with the smallest loading. For example, the indicator IND2 (Unemployed Rights) was removed from the Individualism value as this was consistently the most underperforming indicator in both the EFA and CFA models. The Traditionalism measure was reduced to the indicators TRAD1 (Justify Homosexuality) TRAD2 (Justify Abortion) TRAD8 (Justify Divorce), while the Conformity measure was reduced to 2 indicators largely due to problems with data limitations. There are a lot more examples of countries in which certain of the Conformity questions were not asked or were not quite consistent over time – therefore it was necessary to settle for the time being on

CON4 (Justify taking soft drugs) and CON6 (Justify Avoiding Transport Fare). This is not ideal but when combined with evidence from the EFA it still suggests that even a two indicator factor taps an underlying construct of Conformity.

The modification indices suggested constraining certain correlations between the factors; therefore the only factors allowed to correlate in the model are Conformity with Tradition, Conformity with Individualism, Conformity with Authority and Authority with Tradition. All of these associations make substantive sense – the freeing of other parameters between the factors was not carried out because the substantive case was not clear. It also makes substantive sense to freely estimate the residuals of AUTH3 (Obedience) with AUTH5 (Independence), AUTH5 (Independence) with AUTH 6 (Imagination) given the association with bringing up children. The freeing of the residuals between CON4 (Justify Soft Drugs) and AUTH6 (Imagination in children) and between TRAD2 (Abortion) and TRAD8 (Divorce) were also freed based on the modification indices; the substantive case for this is weaker but in both cases there is a logical association between the residuals and the improvement in the fits of the model were substantial when the parameters were freed. Other modification indices were rejected on the grounds that they could not be justified substantively.

As with the EFA analysis, these amendments were initially made to the model using the pooled 2008 data of all 13 Countries in the analysis before being fit to the pooled 1990 data. The model is identified by fixing the first indicator in each of the factors to 1. These models are run in M-PLUS using the WRSMV indicators. An example of the M-PLUS syntax used to estimate these models can be found in ***Appendix 3***.

The results of these final pooled CFA solutions are presented in Table ***5***, which highlight the factor loadings and model fit statistics of the model at each time point. While not ideal, the models fit the data adequately at both 2008 and 1990. The RMSEA for both models is <6, when combined with CFI figures above .95 suggest that these models are relatively stable. The Chi Square test is significant but that is to be expected with such a large sample size and is therefore not considered problematic. In general the fit statistics suggest a reasonable but not outstanding quality of fit for the data, which is a concern as the purpose of developing the measurement model is to apply in a full SEM mediation analysis. The fact that the models have very similar fit statistics is a promising sign suggesting there is some evidence for the stability of the value structure over time. However, the factor loadings themselves do not support this as strongly. The strength of the loadings varies considerably between factors; in the 2008 model the loadings on the Traditionalism factor are all over 0.7 suggesting a stable factor. However, this stability is not replicated in the 1990 data as the Abortion indicator falls to a barely acceptable 0.399. This variation is concerning, as it calls into question the stability of the Traditionalism factor in capturing the underlying construct. However, as will be demonstrated below in the cross-national analysis, it is likely that this is related to a lag effect from the model seriously underperforming in several specific nations in the 1990 data. The Individualism and Authoritarianism factor loadings show relative stability despite having lower than ideal loadings, although the mediocre loading of 0.417 on AUTH3 (Obedience) in 1990 is a cause for concern. It is difficult to draw too many conclusions from the Conformity factor given that it currently contains only two indicators. However, there may be some evidence suggesting that that the Individualism and Authoritarianism factors are more stable than the Traditionalism and Conformity measures. This could be explained by two influences. Firstly, the indicators used to develop the latent measures of Individualism and Authoritarianism have a stronger basis in existing empirical research; there is simply more

evidence for their wider construct validity. Secondly, it is possible to tentatively suggest that during this period European democracies were undergoing an ongoing period of attitude change towards social taboos (as demonstrated in the descriptive data). Therefore the values of Traditionalism and Conformity could be expected to display volatility between 2008 and 1990; this would be one explanation for the comparative instability of these 2 factors.

Pooled Models	2008	1990
N	19894	19797
Traditionalism		
TRAD1 (Homosexuality)	0.768	0.808
TRAD2 (Abortion)	0.747	0.399
TRAD8 (Divorce)	0.727	0.664
Conformity		
CON4 (Soft Drugs)	0.723	0.65
CON6 (Avoid Fare)	0.511	0.483
Individualism		
IND1 (Responsibility)	0.549	0.544
IND3 (Competition)	0.571	0.529
IND4 (State vs Freedom)	0.568	0.591
Authoritarianism		
AUTH3 (Obedience)	0.497	0.417
AUTH5 (Independence)	0.621	0.518
AUTH6 (Imagination)	0.479	0.589
CONF with TRAD	0.511	0.561
AUTH with TRAD	-0.557	-0.601
CONF with INDIV	0.138	0.253
CONF with AUTH	-0.302	-0.446
AUTH3 with AUTH5	0.183	0.158
AUTH5 with AUTH6	-0.141	-0.049
AUTH6 with CON4	-0.206	-0.084
TRAD 8 with TRAD2	0.249	0.322
X2 (DF)	335.96	556.309
DF	19	23
CFI	0.971	0.965
TLI	0.963	0.956
RMSEA	0.032	0.034

Table 5. Final CFA model on 1990 and 2008 pooled data

To sum up a; after further amending the existing specification of the factor model a substantively justifiable 4 factor CFA model was applied to the pooled European data in 2008 and 1990. This model showed sufficient evidence of a common factor structure, both when

applied to the pooled European data and at more than one time point in the EVS. The strength of the model fits suggests that there is some partial evidence for this factor structure applying to the European electorate. Therefore, the model is sufficiently robust to proceed to test it on a single N cross-national basis in order to test the wider validity of the model as an instrument for comparative analysis.

Individual country by country CFA model

Table 6 and 7 show the CFA model applied to each of the 13 countries in the analysis individually. There are a few necessary deviations from the base CFA model specified above. The freely estimated parameter between the residuals of TRAD2 and TRAD 8 remains constrained in this model as this was a late amendment to the baseline model and has not yet been included in the single country analysis. There were also a number of examples of models not reaching convergence when the residuals in the Authority indicators were freely estimated – in which case they were constrained in order to identify the factor model despite the minor issues of comparability this may cause. Additionally there are data limitation issues with some of these cases. In 2008 TRAD1 (Homosexuality) is not estimated in the Traditionalism factor for the Italian model because the question was not asked in the Italian survey, AUTH6 is not estimated in the Authority factor in the Irish model because when included the model did not achieve converge; the Irish result is included in the table but should be treated with caution as it is clearly not directly comparable. The loadings for AUTH3 (obedience) are not reported for the Spanish or Maltese model because they were not significant; this is a surprising and suggests that there may be a data issue or a coding problem with this variable in those samples, although the Authoritarian factor does generally load poorly in a number of countries including the UK and Italy and anomalous loading of over 1 in Iceland also suggests a problem with data reliability on this factor in the 2008 models generally. In the 1990 data AUTH3 (obedience) also fails to achieve significance in the French data – again this is more likely related to unreliable data or coding error than France being an outlier on this factor. In general the Authoritarian factor seems more stable across all countries in the 1990 data, with the exception of Iceland where it was not Positive Definitive. Again, the Icelandic result is included but should be treated with caution as the model did not converge properly. The only other data issue with the 1990 model is with the Danish data, where the question related to TRAD2 (Abortion) was not asked in the survey.

2008 Models	*Int*	Bel	Den	Fra	Ger	Ice	Ire	Ita	Mal	Neth	Nor	Spa	Swe	UK	AV.Ld
N	***18322***	*1509*	*1507*	*1500*	*2075*	*808*	*1010*	*1518*	*1500*	*1554*	*1089*	*1500*	*1187*	*1561*	
Traditionalism															
TRAD1 (Homosexuality)	***0.751***	0.67	0.736	0.722	0.696	0.631	0.719	N/A	0.489	0.737	0.772	0.796	0.836	0.786	0.716
TRAD2 (Abortion)	***0.795***	0.641	0.767	0.806	0.767	0.727	0.734	0.821	0.536	0.791	0.735	0.791	0.862	0.763	0.749
TRAD8 (Divorce)	***0.77***	0.602	0.72	0.778	0.755	0.691	0.669	0.867	0.777	0.814	0.757	0.725	0.793	0.742	0.745
Conformity															
CON4 (Soft Drugs)	***0.721***	0.818	0.836	0.797	0.824	0.719	0.605	0.82	0.706	0.715	0.697	0.761	0.5	0.734	0.733
CON6 (Avoid Fare)	***0.511***	0.284	0.46	0.521	0.52	0.363	0.581	0.418	0.501	0.439	0.517	0.59	0.888	0.474	0.504
Individualism															
IND1 (Responsibility)	***0.551***	0.347	0.621	0.48	0.667	0.587	0.573	0.469	0.41	0.514	0.497	0.433	0.725	0.638	0.535
IND3 (Competition)	***0.569***	0.27	0.436	0.597	0.505	0.483	0.683	0.499	0.524	0.532	0.585	0.593	0.765	0.694	0.551
IND4 (State vs Freedom)	***0.567***	0.704	0.633	0.538	0.604	0.554	0.458	0.476	0.461	0.501	0.618	0.448	0.716	0.534	0.557
Authoritarianism															
AUTH3 (Obedience)	***0.497***	0.503	0.593	0.585	0.638	0.243	0.413	0.216	N/S	0.578	0.755	N/S	0.37	0.298	0.472
AUTH5 (Independence)	***0.621***	0.673	0.338	0.76	0.597	0.964	0.677	0.582	0.366	0.594	0.505	0.511	0.257	0.179	0.539
AUTH6 (Imagination)	***0.479***	0.631	0.575	0.648	0.286	1.152	N/A	0.436	0.825	0.615	0.512	0.417	0.17	0.217	0.540
CONF with TRAD	***0.495***	0.43	0.394	0.384	0.406	0.481	0.625	0.58	0.474	0.599	0.461	0.605	0.297	0.577	
AUTH with TRAD	***-0.538***	-0.479	-0.504	-0.413	-0.507	-0.284	-0.318	-0.454	-0.242	-0.648	-0.461	-0.655	-0.874	-0.78	
CONF with INDIV	***0.138***	-0.024	0.14	0.147	-0.107	0.234	0.225	0.104	0.198	-0.055	0.198	0.371	0.113	0.202	
CONF with AUTH	***-0.303***	-0.271	-0.309	-0.326	-0.181	-0.238	-0.193	-0.446	-0.336	-0.545	-0.264	-0.729	-0.185	-0.774	
AUTH3 with AUTH5	***0.182***	0.044	0.388	-0.039	0.144	0.19	N/A	N/A	0.172	0.279	0.114	0.416	0.355	0.194	
AUTH5 with AUTH6	***-0.14***	-0.55	-0.273	-0.608	-0.263	N/A	N/A	N/A	N/A	-0.381	-0.368	N/A	0.173	N/A	
AUTH6 with CON4	***-0.206***	-0.291	-0.257	-0.133	-0.408	N/A	N/A	-0.028	N/A	-0.179	-0.097	N/A	-0.135	N/A	
X2 (DF)	***399.07***	***92.866***	***83.97***	***64.606***	***186.88***	**65.965**	**55.629**	**40.466**	**166.099**	**63.844**	**62.875**	**120.748**	**47.508**	**73.718**	**86.552**
DF	***21***	***26***	***20***	***20***	***21***	**20**	**17**	**20**	**28**	**19**	**18**	**28**	**18**	**21**	**21.231**
CFI	***0.969***	***0.932***	***0.933***	***0.957***	***0.895***	**0.889**	**0.929**	**0.973**	**0.873**	**0.968**	**0.932**	**0.908**	**0.954**	**0.948**	**0.930**
TLI	***0.961***	***0.909***	***0.916***	***0.947***	***0.859***	**0.877**	**0.916**	**0.968**	**0.846**	**0.959**	**0.924**	**0.919**	**0.938**	**0.938**	**0.917**
RMSEA	***0.032***	***0.041***	***0.046***	***0.039***	***0.062***	**0.053**	**0.047**	**0.026**	**0.057**	**0.039**	**0.048**	**0.049**	**0.045**	**0.04**	**0.046**

Table 6. 2008 CFA models by individual country.

1990 Cross National Models	*Int*	Bel	Den	Fra	Ger	Ice	Ire	Ita	Mal	Neth	Nor	Spa	Swe	UK	AV.Ld
N	***19797***	*2791*	*1030*	*1002*	*3437*	*702*	*1000*	*2018*	*393*	*1017*	*1239*	*2637*	*1047*	*1484*	
Traditionalism															
TRAD1 (Homosexuality)	***0.808***	0.767	0.799	0.847	0.754	0.604	0.712	0.78	0.683	0.72	0.813	0.833	0.794	0.783	0.761
TRAD2 (Abortion)	***0.399***	0.551	*N/A*	0.62	0.546	0.556	0.511	0.567	0.432	0.731	0.512	0.7	0.507	0.506	0.562
TRAD8 (Divorce)	***0.664***	0.663	0.617	0.61	0.64	0.552	0.613	0.66	0.724	0.786	0.527	0.68	0.598	0.525	0.630
Conformity															
CON4 (Soft Drugs)	***0.65***	0.653	0.737	0.645	0.617	0.677	0.571	0.778	0.323	0.759	0.567	0.76	0.409	0.671	0.628
CON6 (Avoid Fare)	***0.483***	0.514	0.415	0.549	0.716	0.212	0.314	0.401	0.655	0.571	0.453	0.462	0.409	0.331	0.462
Individualism															
IND1 (Responsibility)	***0.544***	0.525	0.647	0.59	0.503	0.514	0.553	0.455	0.377	0.593	0.578	0.376	0.61	0.62	0.534
IND3 (Competition)	***0.529***	0.593	0.426	0.524	0.496	0.579	0.66	0.517	0.496	0.284	0.449	0.417	0.608	0.625	0.513
IND4 (State vs Freedom)	***0.591***	0.559	0.703	0.622	0.634	0.642	0.487	0.553	0.357	0.497	0.471	0.618	0.641	0.563	0.565
Authoritarianism															
AUTH3 (Obedience)	***0.417***	0.412	0.601	*N/S (sur*	0.522	*N/A*	0.378	0.501	0.568	0.614	0.545	0.449	0.607	0.455	0.514
AUTH5 (Independence)	***0.518***	0.685	0.385	0.721	0.423	*N/A*	0.655	0.646	0.549	0.69	0.498	0.725	0.51	0.567	0.588
AUTH6 (Imagination)	***0.589***	0.634	0.734	0.51	0.507	*N/A*	0.783	0.565	0.855	0.752	0.729	0.52	0.345	0.627	0.630
CONF with TRAD	***0.561***	0.56	0.459	0.655	0.637	0.551	0.799	0.557	0.272	0.615	0.531	0.466	0.443	0.662	
AUTH with TRAD	***-0.6***	-0.477	-0.523	-0.521	-0.967	*N/A*	-0.604	-0.593	-0.115	-0.658	-0.634	-0.494	-0.732	-0.468	
CONF with INDIV	***0.253***	0.182	0.339	0.12	0.256	0.156	0.238	0.271	0.475	0.253	0.303	0.22	0.109	0.186	
CONF with AUTH	***-0.446***	-0.434	-0.451	-0.549	-0.605	*N/A*	-0.532	-0.459	-0.056	-0.587	-0.303	-0.473	-0.183	-0.338	
AUTH3 with AUTH5	***0.158***	0.096	0.419	*N/A*	0.202	*N/A*	0.088	0.066	0.001	0.116	0.155	0.103	0.108	0.258	
AUTH5 with AUTH6	***-0.049***	-0.403	-0.005	*N/A*	0.012	0.575	-0.295	-0.181	N/A	-0.518	-0.313	N/A	N/A		
AUTH6 with CON4	***-0.084***	-0.081	-0.115	-0.113	-0.07	-0.056	-0.072	-0.074	N/A	-0.1	-0.174	-0.026	-0.102	-0.111	
TRAD8 with TRAD2	***0.322***	0.459	*N/A*	0.505	0.378	0.266	0.222	0.529	0.331	0.235	0.414	0.393	0.483	0.449	
X2	***556.309***	**51.006**	**204.868**	**29.146**	**118.01**	**43.349**	**47.798**	**92.664**	**19.632**	**36.707**	**93.226**	**197.59**	**53.498**	**47.492**	**69.176**
DF	***23***	**21**	**16**	**21**	**20**	**22**	**23**	**24**	**21**	**18**	**21**	**21**	**20**	**22**	**21.167**
CFI	***0.965***	**0.983**	**0.747**	**0.989**	**0.966**	**0.95**	**0.965**	**0.946**	**1.001**	**0.979**	**0.923**	**0.901**	**0.95**	**0.982**	**0.961**
TLI	***0.956***	**0.979**	**0.715**	**0.987**	**0.959**	**0.931**	**0.957**	**0.936**	**1.008**	**0.974**	**0.901**	**0.886**	**0.928**	**0.975**	**0.952**
RMSEA	***0.034***	**0.023**	**0.107**	**0.02**	**0.038**	**0.037**	**0.033**	**0.041**	**0.001**	**0.032**	**0.053**	**0.056**	**0.04**	**0.024**	**0.033**

Table 7. 1990 CFA models by individual country.

The first observation to make is that in general the CFA model appears to fit the 1990 data much more strongly than the 2008 data (and this stands, even if the additional constraint of TRAD2 with TRAD8 is reported is freed in the 2008 models). The model fits are substantially better for 1990 than 2008 in nearly all countries, with the obvious exception of Denmark where there are problems of data quality that may explain its outlier status, and Spain where the model does not appear to fit the data well at either time point. It is interesting to observe that the model appears to fit the 1990 data better than the 2008, considering that it was the 2008 data that was used in the model building stage. This relative

stability is evidence that the model does have validity in capturing the underlying value structures of electorates and is not just capturing a value structure for a specific sample at a specific point in time. However, within this there are substantial differences between countries. With the exception of Germany in 2008, the model would appear to be a better fit for the larger, more established democracies though this pattern is inconsistent. If CFI<.95 is used as a cut off point for the acceptability of the model (this is strongly dispute in the CFA methods literature see Billiet *et al.* 2012, Brown 2010) then there is substantial variation between time points for individual countries. Norway and Spain represent countries where the model appears to fit comparatively badly while it appears to fit France, Netherlands, Sweden and the UK comparatively well at both time points. Most countries are just under the threshold in 2008 and just over it in 1990. There are no clear discernible patterns in terms of the type of country in which the model fits particular well or particularly badly, suggesting variations in fit are most likely related to noise and data quality issues. One test that must be done is to run split models for East and West Germany using the 2008 data to ascertain whether this is an explanation for the relatively poor fit of the German model compared with 1990.

Similarly to the pooled data the strength of the factor loadings are adequate rather than outstanding, with a few exceptions. There is no country that stands out as an outlier for having particularly low or particularly high loadings. However, there are some concerning findings which are likely to impact on the overall comparability of the measurement model. The strength of the loadings on the Authoritarian factor in 2008 is particularly weak in a number of countries. Table 6 shows that in the UK the highest loading on the Authoritarian factor is 0.298 for AUTH3 (Obedience) well below an acceptable threshold, with Indicators in the UK and in Sweden recording loadings lower than 0.200. This definitely calls into question the construct validity of the Authoritarian measure in those countries. However, it is possibly that there is a data quality or data error in these samples because they do stand out for their particularly weak loadings. While the strength of the loadings on the 2008 Authoritarian factor appear to vary considerably between countries for each indicator, it is only in Sweden and the UK all loadings are below an acceptable strength. Prior research does suggest that only weak construct validity can be demonstrated for these measures of Authoritarianism (Singh and Dunn 2011). The measure will ultimately be retained in the analysis because of the substantive significance of this value to the electoral division during this period but the findings do show that it is a volatile measure that should treated with caution when used to model an outcome variable. Interestingly, with the clear exception of convergence issues in Iceland and a data quality problem with the AUTH3 indicator in France, the Authoritarian factor appears much more stable in the 1990 models for all countries. There appears to be less variation in the strength of the loadings and they are generally stronger.

The other factors measures appear to remain fairly consistent between countries and conform to the findings of the models from the pooled data. There are a few underperforming weak variables but little evidence of any systematic inconsistencies, which is promising. The construct validity, comparability and stability of the Conformity measure would clearly be improved with the inclusion of a 3rd indicator but the factor generally holds up with only the conspicuously low loading in the 1990 models for the CON6 (Avoid Fare) indicator in Iceland (0.212) and Ireland (0.314) standing out as concerning. The Traditionalism and Individualism measures show the least variation across countries. There is evidence that the low loading for TRAD2 (Abortion) of 0.399 in the model of the 1990 pooled data may be something of an anomaly related to the absence of that variable from the Danish data because

it loads adequately on the Traditionalism factor in all other countries. The problems with the Danish data in 1990 and the poor model fit suggests that it may be worthwhile excluding Denmark from the analysis; a decision that would become much easier if the study eventually incorporates the 13 additional countries that were included in the 1990 EVS survey. A similar issue regarding general data quality appears to apply to the Icelandic models as well. It is also necessary to mention that the correlations between the factors are higher than is ideal in a number of countries – particularly the correlations between Conformity and Traditionalism, and Authoritarianism and Traditionalism. However, there are also sound substantive reasons for explaining why these factors should correlate so strongly.

However, in general the model would appear to be applicable to each country in the analysis and remains stable at both time points with notable exceptions. There are no clear examples of clustering among different country types and the outliers that do exist can be explained by issues of data quality rather than the applicability of the measurement. Therefore there t0 be appears some evidence to support the idea that the CFA measurement model captures aspects of an underlying political values structure that is common to European Electorates and could be used as a base model for addressing the comparative research questions in the wider study. It is therefore possible to complete the measurement model process by testing the extent to which this model achieves Measurement Invariance.

Measurement Invariance

The final section of the analysis highlights the ongoing work that has been carried out so far on Measurement Invariance. The previous section highlights the extent to which there is extensive variation in the quality of the model between countries. This is an unsurprising finding given the latent nature of the values measures and the fact that values are considered to be rooted in cultural context (Kluckhohn and Murray 1953, Tetlock 1986). The discovery of variation in the quality of fit between countries of this particular CFA model is to be expected given that it is dealing with imperfect data. Not even values measures as comprehensively rooted in the theories a universal human value system have achieved complete cross-cultural comparability (Schwartz 1994, Surridge 2010, Datler *et al.* 2013); such an aim is likely prove unattainable when dealing with a contested abstract construct such as values. This does not mean that it should be accepted that individual values cannot be adequately quantified; merely that improvements to the accuracy and scope of their measurement is an on-going process which incorporates many different approaches (Schwartz et al. 2012, Norris and Inglehart 2004, Charnock and Ellis 2004). However, this does pose some fundamental challenges to the viability of using latent measures to carry out comparative research on values, and it is worth restating at this point that there are few examples of the latent approach to values measurement being applied outside the context of single N studies (Goren 2009, Jacoby 2006). It is against this somewhat ambiguous background that the early stage of work on Measurement Invariance is presented here.

This analysis was carried out using the Multi-Group CFA function in M-PLUS. This allows the model for each country to be estimated separately but simultaneously. Measurement Invariance is established by testing certain assumptions in the model. There are 3 stages of Invariance, and each must be established before the next can be tested. Configural Invariance is the minimum base level – it assumes that the factor structure remains the same in all Groups and is assessed by model fit and substantive judgement (Billiet *et al.* 2012). This establishes that the same concept is being captured in across the different groups. Metric invariance is tested by constraining the factor loadings and factor variances to be equal across

groups. This tests the extent to which the latent measure is conceived as having a comparably similar structure across the groups. Finally, Scaler Invariance is tested by constraining the unique variances in the indicators. In all 3 cases, Measurement Invariance is established by showing that there is no substantial decline in the quality of the overall model fit when each constraint is added – thereby validating the decision to constrain. In the case of values Scaler Invariance is rarely established even for recognised measures such as the Schwartz values and Postmaterialism, but is technically required in order to compare mean scores across groups (Davidov 2012, Datler *et al.* 2013). In fact it is quite often the case that metric invariance is only established after making additional amendments to the model and excluding poorly performing countries; achieving some degree of imperfect partial metric or scaler invariance is the norm in cross-national values research. Billiet (2012) has stated that the struggle to achieve these higher levels of metric invariance using data derived from large scale cross-national surveys such as the EVS is a major threat to the integrity of comparative research.

In this case, Table 8 presents the model fit results of the first Multi-Group test. Essentially this is the results of the test for basic Configural Invariance. When the model is applied in this way, the quality of the fit completely collapses compared with both the model for the pooled data and the average model fit when the model is applied to each national sample on an individual basis. This was unexpected because, with the exception of Denmark in the 1990 data, the model fit statistics for each individual country were within or close to the margins of acceptability. However, the initial results from the early stages of multi-group analysis suggest that it will be very difficult to establish strong Measurement Invariance.

Year	*X2*	*df*	*CFI*	*TLI*	*RMSEA*
2008	11517.87	297	0.796	0.808	0.072
1990	2399.483	325	0.849	0.855	0.064

Table 8. Model fit results for Multi-Group test of Measurement Invariance

The model fit for both time-points are substantially below the margins of acceptability. As the fit of the model was so poor for the initial unconstrained Multi-Group test there was no justification for continuing to apply the tests for Metric and Scaler Invariance. This suggests that an alternative approach will have to be taken when advancing to the next stage of the analysis; modelling vote choice as the dependent variable. This is to ensure that the findings have some element of comparative validity or alternatively highlight the extent to which there is no underlying comparability in the values structure of European Electorates (at least not according the measures contained within the EVS). One option will be to use the failure to establish Measurement Invariance as a finding in itself and therefore apply a multi-level modelling strategy with country acting as the second level. However, in order to do this effectively it will be necessary to increase the number of observations. This is viable to the extent that the data exists to double the number of country observations. However, as the majority of the additional countries would be new democracies of Eastern Europe it is highly likely that the model will not fit the data well for these samples. The fall-back position is to accept that Measurement Invariance cannot be established and that the value structure of European Electorates does vary between countries. This would entail generating separate factor models for individual countries, or perhaps more realistically, for country groups. These issues will briefly be discussed below.

Section 4 – Discussion

Addressing the research questions

1. ***Can a common latent political values structure across the European Electorate be identified in the European Values Survey?***

It has been demonstrated that it is possible to use the European Values Survey to create a comprehensive, but incomplete, range of latent core political values measures. The four factor measurement model capturing Traditionalism, Conformity, Authoritarianism and Individualism when combined with a single measure for Egalitarianism represents a reasonable spread of 5 values dimensions that are generally consistent with prior measures using this approach (Mccann 1997, Jost *et al.* 2003)[3]. In addition these specific values dimensions are clearly relevant to political division and electoral research; they can be used to validate existing theory regarding voter intentions and electoral trends. This partially addresses Leimgruber's (2011) concerns regarding the substantive significance of values in empirical political research. These 5 values do not represent a complete range of core political values and they certainly do not reflect a unifying human value system on a par with the Schwartz values. However, the relative stability of the model fit for the four factor solution suggests that the study has been able to develop a valid multi-dimensional measure of latent values, which represents a small step forward compared with prior research that has normally been forced to focus on one or two dimensions. Despite some clear problems of data quality, a multi-dimensional structure has been developed that appears to have at least partial comparative validity. This will provide an important base for future analysis.

Hypothesis 1 – A common values structure across the European Electorate can be identified using the EVS ***is proven correct****.*

Prior research using latent values measures has tended to focus on only one or two specific measures, such as the extensive literature on Authoritarianism (Feldman 1988, Altemeyer 1998, Thorisdottir *et al.* 2007). Developing four valid measures simultaneously provides a broader depth to the analysis though clearly presents some fundamental challenges of model stability and comparison. This approach is sitting in an awkward middle ground on two levels. Firstly, it does not entirely differentiate between core political values and core individual values; research in this area appears relatively under developed and under theorised and the data does not really exist to look at these mechanisms comprehensively on a comparative basis (Schwartz *et al.* 2010, Aspelund *et al.* 2013). In fact this gets to the heart of one of the fundamental issues in political values research; the extent to which political researchers should be concerned primarily with underlying individual values or should concentrate purely on core political values. This is largely unresolved in the literature and appears tends to be based on the theoretical underpinnings of specific studies. Thus far this study has attempted to steer a middle ground between the two approaches because they both have valuable insights for this research, but the measures developed here are clearly more accurately defined as core political values in the Political Psychology tradition. Therefore,

[3] There are no directly comparable examples of the Conformity measure being captured in latent approaches. This may be related to the specific range of data that exists in the EVS. The EFA analysis also confirmed the validity of Conformity as a separate factor.

the study needs to guard against endogeneity problems when using these measures to model vote choice.

Secondly, due to limitations in the available data the study cannot claim to have developed ideal measures of the values concepts or to have captured the complete political value structure of European Electorates. It would have been particularly instructive to have been able to generate measures of broader collective values such as Security for example. The data did not allow for this as the European Values Survey seems strongly skewed towards capturing the Traditional versus Modern values divide and the value change this represents. In the context of political research this results in an emphasis on moral conservative values set against individualist liberal values. There is a lack of questions related to more collective value positions[4]. This means a somewhat imperfect single item measure will be used to operationalise Egalitarianism while other measures such as Security and Altruism (Benevolence as labelled by Schwartz) cannot be adequately captured. So while a multi-dimensional structure has been identified, it is slightly limited in terms of the type of political values that can be measured. However, despite these limitations the value measures developed in the analysis can clearly map on to existing political divides. Their relationship to key political indicators such as party choice and left-right political identities can be hypothesised based on previous findings in the literature (Heath *et al.* 1985, Jacoby 2006, Kriesi *et al.* 2008). These measures are also sufficiently similar to other values measures and indicators that it should be possible to compare findings using different surveys. This potentially increases the strength of the analysis and can provide further sensitivity tests of construct validity.

As regards the extent to which the values measures remain constant over-time. The CFA model appears to retain the same factor structure at both time points, and in fact the single country models generally fit the data better in 1990 than they do in 2008. This suggests that at the very least a level of Configural Invariance can be established across the two time points and that the overall values structure is therefore valid. Although there is some evidence of considerable variability between time-points on the individual factor loadings, particularly Authoritarianism, which may be consistent with recent research showing gradual change in the underlying structures of certain key political values dimensions (Surridge 2012). Whether a study that is primarily concerned with the influence of value change should allow the underlying structure of the value measures themselves to vary is a key substantive and methodological issue here. While most values theories hold the central tenet that values remain stable over-time, they all concede the possibility of values changing over-time (Rokeach 1973, Inglehart 1971, Schwartz 1992). Therefore, variance itself is not necessarily problematic theoretically and may generate some very interesting substantive findings. However, it is a problem methodologically because it makes it challenging to establish genuine Measurement Invariance and calls into question the validity of the measures. With only two data-points the emphasis should probably remain on identifying stable models over time. However, this remains uncompleted work because tests of Measurement Invariance of the CFA model over-time have yet to be applied. The analysis in further paper will have to assess the genuine cross-sectional comparability of these models by testing their capacity to predict the outcome variable accurately at both time points.

Hypothesis 2 – The value structure of the European Electorate will remain constant between 1990 and 2008 ***remains unproven****.*

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2. ***Does the values structure across European Electorates remain consistent cross-nationally****?*

The evidence for the common factor structure being valid in each of the 13 countries is fairly clear. The final CFA values model appears to be a reasonable fit when applied on a single N basis to each of the 13 countries in the analysis. There are a number of examples in which the data quality may restrict comparison, and there are examples such as Spain which show systematically underperforming fit suggesting that an alternative values structure may exist in that country. In general there is considerable evidence that the 4 factor values structure is valid for all 13 countries, which provides a promising basis for comparative analysis. There are no examples of countries for which the model does not fit adequately at either time-point. If there is a poor fit at one cross-section there tends to be at least an adequate fit at the other. However, it should be acknowledged that there is often considerable variation in both the quality of the model fit and the strength of the factor loadings between the time-points. This suggests that it is just as likely that there are some underlying data issues driving these poor fitting outliers rather than a misspecification in the model.

Hypothesis 3 – That the overall values structure holds for each of the 13 Countries in the analysis ***is proven****.*

Measuring values on a comparative basis using European data is a challenging task because of the large amount of variation in national level context that may influence respondent understanding (Billet *et al.* 2011 ,Aspelund 2013). This is why for the time-being the analysis has concentrated on the 13 countries in the original 1981 waves of the EVS, as it was assumed their relative similarity would lead to fewer challenges regarding the fit of the model. The intention is to eventually increase the N by testing this model on all 22 countries in the 1990 wave, which means introducing mainly newly democratised Eastern European countries into the analysis. It would be very optimistic to assume that a political values model developed using data from established Western European countries will apply to these newer democracies based on prior studies that have struggled to establish the validity of long-standing political concepts in a post-communist context (Evans 2006, Huber and Inglehart 1995). So for this iteration the analysis was restricted to the established democracies in order to simplify the process. Therefore, in truth 'European Electorates' is probably overstating the case – what has been established is a values structure in established Western European Democracies. Within that context, the model appears to fit each country adequately and there is little evidence of substantial variation between countries. There is sufficient variation in the quality of the fit of the model and in the strength of the factor loadings to suggest that the values concepts may be interpreted differently between countries. However, there is little evidence of identifiable clustering according to any identifiable country type – whether that be based on region, social and political history or electoral system. The variation may be noise or it may be linked to more specific national level political processes.

Hypothesis 4 – That any variation in the values structure will be clustered by country type (for example the factor model may not be as good a fit for Scandinavian countries) ***is proven incorrect.***

Despite some national level variation, the findings from the single N models provide some evidence for the comparative viability of these values measures. However, a serious problem

clearly occurs when the model is tested in a multi-group environment simultaneously for all 13 countries. Then all evidence for stability in the model as a potential basis for comparison disappears. It is hard to identify the precise reason for this in the existing literature on Multi-Group modelling (Billiet *et al.* 2011, Brown 2009). In theory if the fit is adequate for each group when measured separately, it should remain adequate when modelled simultaneously. This suggests there are potential data issues or problems of misspecification. Without empirically demonstrating the basis for cross-national comparability by establishing some form of metric or scaler measurement invariance, any comparative findings have to be treated with extreme caution. It may be possible to reduce the number of countries in the analysis and thereby improve the chances of establishing Measurement Invariance as other studies have done, but it is hard to see how this could be done for solid substantive reasons (Allum *et al.* 2011). This approach was not pursued in the analysis here for fear of the study becoming overly data driven.

The findings regarding the cross-cultural comparability of the CFA model are therefore ultimately ambiguous and more work is required if comparable measures are to be identified. However, while this is a potential problem, it is also a viable and interesting substantive finding in itself. There is no convincing theoretical justification for core political values themselves remaining consistent across different national level contexts, in fact Marietta and Barker (2007) have specifically warned against assuming this even when comparing local contexts within the same political system. The theory underpinning the Schwartz values claims universalism (and does not always establish this empirically). But there is no concurrent theory that says core political values are cross-culturally consistent, any more than one would expect the meaning of left-right to remain invariant across countries when it is known there is substantial variation in meaning (Piurko et al. 2011). Therefore, instead of interpreting this lack of Measurement Invariance as purely a problem, the study can proceed on the basis that the variation in the measures between countries is a substantively interesting and justifiable line of enquiry in itself.

3. Does the values structure provide a sufficiently robust measurement model for cross-national and cross-sectional comparative analysis?

Theoretically it should be possible to use the measures developed here to address the core research problems of the overall thesis; particularly those questions related to political context. These measures appear sufficiently robust to capture both the time and spatial aspects of the core research questions. Although they do represent a compromise regarding both the breadth and depth of political change that can be measured. These measures also provide a strong basis for developing specific values-voting hypotheses based on prior empirical research. However, the findings also highlight clear problems of comparability and data quality. This will impact on the extent to which analysis using these measures will be able to produce substantively meaningful comparative findings. While there can be a level of confidence that these measures capture key aspects of the values structure of European electorates, work is clearly required in subsequent analysis to ascertain the significance of the variation in measurement that exists between countries and over-time.

It is important to identify what reasonable substantive research problems can be addressed using these values measures and what inferences can be reasonably. This should be considered in the context of current research showing that even rigorously tested indicators such as the Schwartz values measures do not achieve full metric invariance in cross-national research in all studies, and researchers using these measures are often forced to compromise

the cross-national range (Datler *et al.* 2013). It is argued that values are contextually sensitive and variation in values structures between countries may therefore be more substantively relevant than equality of measurement (Marietta and Barker 2007). Given that the starting point of the study is to look at value change and variation across political contexts, finding variation in the measurement model is not necessarily a substantive problem for the study. It does not require a substantial reframing of the project or of the core research questions. In fact it strengthens the case made above regarding the non-applicability of the Schwartz values to the political research problems that the study addresses.

The assumption regarding the universal nature of values is rejected in this analysis; and this is justifiable in political terms because of the relatively large body of evidence showing political actors have the capacity to prime and change the core political values of the electorate (Mccann 1997, Goren 2005 2009). This is an argument rooted in the theory that values are primarily connected to electoral decision making through contextual influences. Aspelund (2013) and Leimgruber (2011) cast doubts on the viability of using universal human values measures to predict political behaviour and political attitudes on the basis that they represent too high a level of abstraction to be useful. This study has already conceded that it is taking a core political values approach, rather than a holistic one. Yet the main reason for doing so is not that the high level of abstraction in the universal measures disconnects values from political outcomes – though there is some evidence for this. It is that the higher level of abstraction understates the role of context in the values-voting relationship, because it assumes universalism rather than variation in the structure of value priorities. It is entirely reasonable to claim that humans have a hierarchy of needs and this leads to a universal underlying value system (Maslow and Frager 1954, Schwartz 1992). However, it is less clear how this would produce similar reactions to political stimulus across different cultures. Political decision making is not just an expression of human need and desire; it is also conceptualised as a statement of identity, an expression of judgement and a rational cost-benefit assessment (Campbell *et al.* 1960, Downs 1957, Stokes 1963). Therefore, a universal approach may understate the 'political' aspects of the relationship between values and voting. In fact the evidence already exists showing that universal values are mediated by core political values, in which the influence on voter choice is context dependent (Schwartz et al. 2010). Therefore, a comparative approach using core latent political values must find a way to treat evidence of variation as an asset rather than a liability.

The study will have to proceed by modelling the values-voting relationship in a series of single N studies and extrapolating comparative findings from these models. This is clearly not as methodologically robust as a comparative design, but it represents a more realistic model of the values-voting relationship. This may require re-running the factor analysis to establish the optimum value structure that exists in each country in the analysis, and then using each unique measurement model to predict vote choice in that country. However, ideally some form of stable model across countries will still be applied to allow for cross-national comparison. Another potential solution is to reduce the number of countries in the analysis. This would be unfortunate, as ideally the aim would to increase rather than decrease the range of countries in order to improve the range of contextual analysis and to develop a full multi-level modelling strategy. It is also difficult to see how countries could be excluded from the analysis for good substantive reasons, so this remains the fall-back option. There is still the potential to develop and infer comparative findings, but the analysis presented here suggests that this will need to proceed within the structure of a case-study research design. Evidence from this analysis supported by more recent findings that show a failure to establish Measurement Invariance in other values measures (Datler et al. 2013,

Meuleman and Billiet 2011). This opens up both some interesting avenues for enquiry regarding the variations in value structure between electorates.

Hypothesis 5a – If the CFA measurement model achieves Measurement Invariance conditions will have been met to carry out full comparative analysis ***is proven incorrect****.*

Hypothesis 5b – If the CFA measurement model does not achieve Measurement Invariance then future analysis will have to follow a case study approach is ***rendered necessary.***

Ultimately, the results show that using latent values measures derived from the EVS to establish a viable value structure for both cross-sectional and cross-national comparison may be an unrealistic ambition. This may require limiting the comparative scope of the research project to some extent. It should be acknowledged that values remain conceptually fuzzy constructs that are fiendishly difficult to measure comparatively due to their strong connection with cultural context. This contextual significance actually renders comparative work on the relationship between values and political choice more relevant but also more fraught with research problems.

Assessing the wider validity of the values measures

The starting point for assessing the overall substantive worth of these latent values measures is to refer back to the criteria for developing robust latent values originally developed in a previous meta-analysis. The measures produced in this paper will be briefly assessed according to that 5 point typology;

1. *The value measure should represent the highest level of abstraction that it is possible to obtain from the indicators while still being a substantively useful construct.*

This principle represents an ideal measure for latent values and was always likely to require considerable compromise when working with the data that is contained within the EVS. It is also more relevant to identifying an underlying human values system as opposed to the identification of core political values. The EVS appears more suited to the identification of core political values, so that requires compromising the level of abstraction that can be represented in the values measures. Nevertheless, the indicators that have been used in this analysis are not easily conflated with the contemporary issue agenda – they genuinely represent latent underlying values rather than clear political attitudes. The exception may be the Individualism dimension and the Egalitarian indicators which does contain questions that are likely to conflate with political attitudes. This is a data quality problem, but it was thought that these value dimensions were so important to capture it was worth the compromise on the level of abstraction. It should also be stated that as far as was possible the values measures in the factor analysis were genuinely confirmatory in the sense that they were based on the findings of previous studies. In addition all the value dimensions have been used in prior studies to model voting allowing for the generation of falsifiable hypotheses. Therefore, it can be claimed that they are substantively useful constructs for the purposes of this study.

2. *The Latent values structures should be essentially multi-dimensional in nature.*

This principle was based on Haidt's (2011) theory that political values are multi-dimensional in nature so it is important to develop nuanced value structures in order to capture the range

that exists within the electorate. The key point is that political division is not just a case of individuals positioning themselves at opposing ends of a given political spectrum but genuinely having different value priorities, and recognising those value priorities that might conflict with your own. This is also relevant in identifying which values are 'primed' by electoral context. If it is vote choice that is being modelled then latent value measures should be sufficiently wide ranging in order to capture these subtleties. The analysis managed to generate 5 values. While this does not represent a complete theorised set of political values, it represents a broad enough range of values to identify how value divisions differentiate electoral choice in European Electorate. Most importantly it should allow for an identification of subtleties in the contextual mechanisms that 'prime' certain values in certain political context, and also effect the overall strength of the relationship between values and voting.

3. *The cross-national validity of the values measures must be established empirically.*

As has been stated above in answer to the third research question, this has only been partially established by the values measures. Broad cross-national validity of the values measures has been established. There is evidence that this structure is valid for the whole dataset and for most of the constituent countries that make it up. However, there is substantial variation in measurement quality between the countries that could make future comparative analysis challenging. In general, the theoretical case for the cross-national validity of the values measures is ultimately stronger than the empirical one. According to the existing theory and prior research that has driven this analysis there is strong evidence of Configural Invariance. But empirical tests for Metric and Scaler invariance, vital for generating true comparative findings, have not been established. The definition of cross-national validity in this principle is sufficiently vague to suggest that this condition has at least been partially satisfied. A case study approach can still retain strong comparative aspects, so the measures are remain valid. But the strength of the cross-national validity is currently fairly weak.

4. *The indicators used to construct the value measures should be as far removed from contextual influences as is reasonably possible.*

This is linked to the level of abstraction principle, and so has been largely dealt with in point 1. The original purpose of this additional principle was to acknowledge the importance of context to this study. As the study is assuming political context as a primary mediator of values on voting, it was important that the indicators used to construct the values measures were not subject to significant contextual influence. This is to avoid problems of endogeneity and feedback loops in the overall structural model. Ultimately, the extent to which there may be strong contextual bias in these indicators is related to each specific national context. However, beyond the possibility of political parties being identified with specific societal attitudes (for example, liberal parties being associated with gay rights campaigns), the EVS were specifically designed to capture cross-national effects. The indicators are therefore at a sufficient level of abstraction that they should not be subject to any external contextual influences. There is a danger that they are influenced by political actors taking specific positions at specific times. But this can be considered an example of 'priming' and therefore relevant to the study.

5. *The value measures must be standardised and they must be benchmarked against each other.*

This principle is designed to establish the comparability of these values measures with other measure of values. It is trying to assess the extent to which the findings in this study are likely to be comparable with other studies in the values research field. This paper did not attempt to address this broader issue of external validity. However, the stability of the models at the two time points suggests that there is at least some promising evidence for internal construct validity.

Conclusion

This analysis represents the first empirical stage of the wider PhD project investigating the relationship between values and voting. The aim was to take the core principles for developing values measures established previously and use these to create the base values measures to be used in the study. In doing so the paper assessed the viability of developing a common underlying latent values structure across European Electorates, something which has not previously been demonstrated. It also aimed to establish the cross-national viability of the values measures and assess whether the values structure was consistent over time. The analysis was carried out by applying Confirmatory Factor Analysis to indicators drawn from the European Values Survey at the 1990 and 2008 time points. The data was drawn from 13 countries in the analysis, these 13 were the countries originally surveyed in the 1981 EVS. This decision was taken in order to retain the possibility of extending the timespan of the study.

The CFA analysis identified a stable 4 factor solution which captured the values dimensions of Conformity, Traditionalism, Authoritarianism and Individualism. An additional single indicator can be used to capture a 5^{th} value; egalitarianism. This paper has shown that the CFA model is stable when applied to the pooled data of all 13 countries at both the time points. It has also shown that there is sufficient evidence to suggest that this 4 factor solution can be applied to each country on an individual basis. However, when a multi-group model is applied to test the cross-national comparability of the value structure, the fit of the model is collapses. Full Measurement Invariance can therefore not be established, meaning that a full comparative research design using these values measures is unlikely to generate substantively useful findings. After consideration and discussion of the relative compromises the decision has been taken to apply this values model on a case study basis in further analysis. This limits the comparative scope of the study, but still allows for a substantial assessment of the influence of political context on the value change-voting relationship, which is the primary focus of this study. In doing so this paper has rejected the universal values model as proposed by Schwartz (1992) as not being appropriate to the research questions of this study. The questions this study is trying to address are based on an assumption of cross-national variation in values and not of stability, whereas the Schwartz values assume stability of measurement. The analysis has shown that it is possible to develop comparative measures of latent political values using the EVS, even if they are imperfect ones. However, the ultimate assessment of this measurement model will be the extent to which it can predict voting.

Despite the compromises that have been made in this paper, the measurement model that has been established should be sufficiently robust at the national level to produce a nuanced assessment of the association between values and voting. Modelling this direct relationship will be the focus of the next stage of the analysis.

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Appendix 1 – Details of values indicators taken from the 2008 EVS Data

'Traditionalism' indicators

TRAD1 = v240 (Homosexuality) **Please tell me for each of the following whether you think Homosexuality can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

TRAD2 = v241 (Abortion) **Please tell me for each of the following whether you think Abortion can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

TRAD8 = v242 (Divorce) **'Please tell me for each of the following whether you think Divorce can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

TRAD9 = v243 (Euthanasia) **'Please tell me for each of the following whether you think Euthanasia can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

TRAD10 = v244 (Suicide) **'Please tell me for each of the following whether you think Suicide can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

'Individualism' Indicators

IND1 = v194 (Individual responsibility) **How would you place your views on this scale?** Individuals should take more responsibility for providing for themselves - The state should take more responsibility to ensure that everyone is provided for ***(Running on a 10 point scale)***.

IND2 = v195 (Unemployed tale any job-have right to refuse) **How would you place your views on this scale?** People who are unemployed should have to take any job available or lose their unemployment benefits - People who are unemployed should have the right to refuse a job they do not want ***(Running on a 10 point scale)***

IND3 = v196 (Competition good v harmful) **How would you place your views on this scale?** Competition is good. It stimulates people to work hard and develop new ideas - Competition is harmful, it brings out the worst in people ***(Running on a 10 point scale)***

IND4 = v197 (Freedom for firms v more state control of firms) **How would you place your views on this scale?** The state should give more freedom to firms - The state should control firms more effectively ***(Running on a 10 point scale)***

Conformity

CON1 = v233 (False Benefits) **Please tell me for each of the following whether you think claiming state benefits to which you are not entitled can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

CON2 = v234 (Cheating Tax) **Please tell me for each of the following whether you think cheating on tax if you have the chance can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

CON3 = v235 (Joyriding) **Please tell me for each of the following whether you think taking and driving away a car belonging to someone else can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

CON4 = v236 (Marajuana use) **Please tell me for each of the following whether you think taking marijuana or hash can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

CON5 = v245 (Tax avoidance) **Please tell me for each of the following whether you think paying cash for services to avoid tax can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

CON6 = v247 (Avoiding fare) **Please tell me for each of the following whether you think Avoiding a fare on public transport can always be justified, never be justified** ***(10 point scale running from Never Justified to Always Justified)***

'Authoritarianism' Indicators

AUTH3 = v180 (Obedience in Children) **do you consider Obedience to be especially important in the bringing up of children? (Mentioned = 1, Not Mentioned = 2).**

AUTH5 = v180 (Independence in Children) **do you consider Independence to be especially important in the bringing up of children? (Mentioned = 1, Not Mentioned = 2).**

AUTH6 = v180 (Imagination in Children) **do you consider Imagination to be especially important in the bringing up of children? (Mentioned = 1, Not Mentioned = 2).**

Other Indicator

EG1 = v198 (Egalitarian indicator) **How would you place your views on this scale?** Individuals should take more responsibility for providing for themselves - The state should take more responsibility to ensure that everyone is provided for ***(Running on a 10 point scale)***.

Appendix 2 – Example of EFA Results including Benevolence and Security Indicators

2008	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Eigenvalue	4.878	3.76	2.223	2.053	1.683	1.522	1.068
% of Variance Explained	15.16	12.15	7.55	5.83	5.38	4.11	3.36
Homosexuality (TRAD1)	0.645						
Abortion (TRAD2)	0.749						
Co-Habitation (TRAD3)	-0.477						
Homosexual Adoption (TRAD4)	-0.62						
Divorce (TRAD8)	0.72						
Euthanasia (TRAD9)	0.698						
Suicide (TRAD10)	0.454						
Death Penalty (AUTH1)				-0.315			
Children should be taught Obedience (AUTH3)				-0.496			
Children should be taught Independence (AUTH5)				-0.491			
Children should be taught Imagination (AUTH6)				-0.353			
Loss of National Power (SEC1)							-0.887
Loss of National Identity (SEC2)							-0.846
Individual Responsibility (IND1)					-0.563		
Unemployed Take any job - Right to refuse job (IND2)					-0.463		
Competition good - harmful (IND3)					-0.573		
Freedom - State control of firms (IND4)					-0.53		
Care about All Humans (BEN1)			0.466				
Care about Immigrants (BEN2)			0.716				
Care about Unemployed (BEN3)			0.574				
Care about Elderly (BEN4)			0.755				
Care about Sick and Disabled (BEN5)			0.873				
Care about Children in Poor Families (BEN6)			0.817				
False Benefits (CON1)						0.545	
Cheating Tax (CON2)						0.634	
Joyriding (CON3)						0.527	
Soft Drug Use (CON4)						0.455	
Tax Avoidance (CON5)						0.462	
Avoiding Fare (CON6)						0.581	
Immigration Numbers (SEC3) Equalise Incomes (EG1)							
N	*19823*						
RMSEA	0.037						

Appendix 3 – Example of Final CFA Model M-PLUS Syntax

```
TITLE:  13 Country Integrated EVS 2008 model.

Data:
  FILE = "C:\Users\msrajtl3\Documents\data\EVS2008file.dat";
VARIABLE:
  NAMES = study id year c1 c2 weight case
        TRAD1 TRAD2 TRAD3 TRAD4 TRAD5 TRAD6 TRAD7 TRAD8 TRAD9
TRAD10
        SEC1 SEC2 SEC3 IND1 IND2 IND3 IND4 BEN1 BEN2 BEN3 BEN4 BEN5 BEN6
BENEN
        CON1 CON2 CON3 CON4 CON5 CON6 AUTH1 AUTH2 AUTH3 AUTH4 AUTH5
AUTH6 AUTH7
        EG1 OTH1 OTH2 OTH3 OTH4 OTH5;


   USEVARIABLES = TRAD1 TRAD2 TRAD8 IND1 IND3 IND4
     CON4 CON6 AUTH3 AUTH5 AUTH6;

   CATEGORICAL = AUTH3 AUTH5 AUTH6;


    Missing are all (-1);


ANALYSIS:
   TYPE = GENERAL;
   ESTIMATOR = WLSMV;
   ITERATIONS = 1000;
   CONVERGENCE = 0.00005;



MODEL:
   TRADIT by TRAD1 TRAD2 TRAD8;
   INDIV by IND1 IND3 IND4;
   AUTH by AUTH3 AUTH5 AUTH6;
   CONFORM by CON4 CON6;

   AUTH3 with AUTH5;
   AUTH5 with AUTH6;
   AUTH6 with CON4;


   INDIV with AUTH@0;
   INDIV with TRADIT@0;

OUTPUT:
   STAND MOD;
```