

Measurement of Supranationalism

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Which policies should the European Union (EU) regulate? Which issues should national governments regulate? This is a crucial issue within the EU. Citizens in EU member states have had little influence on decisions allocating political decision-making powers between the supranational and the national/regional levels. Given this situation, it is important to study the supranationalism of people in different European countries. The issues addressed here are the following:

- How can one determine the supranationalism of European citizens?
- Is the homogeneity of these opinions such that one scale can be used for the whole of Europe?

Data used are obtained from the first round of the European Social Survey. The paper reports on an effort to develop a cumulative (Mokken) scale of supranationalism. The paper concludes that one unique scale does not exist that is applicable to all European countries; however, different cumulative scales can be constructed for four clusters of countries. Finally, cross cultural comparisons are carried out testing different hypotheses relating the level of supranationalism with political trust, age, education and establishment in the area.

Keywords: cross-cultural comparison, supranationalism, mokken scaling, comparative politics, trust, European Parliament

1 Introduction

A crucial issue in the European Union (EU) involves dividing regulatory power between the EU and national governments. Political decisions taken by national governments are related to the principle of subsidiarity. This principle stipulates that policy decisions should be taken as closely as possible to the citizen. In other words, one should choose the lowest effective level of governance (Dekker et al. 2007; Ederveen, Gelauff and Pelkmans 2006; Føllesdal 1998).

The level of political decision-making powers between the supranational and the national/regional levels has so far been made with little input on the part of the citizens of member states. Thomassen and Schmitt (2004) pointed out that a key factor in deciding whether subsidiarity can be efficient is legitimacy or credibility. In general, legitimacy will be low when no clear information is available regarding political decisions and/or the capacity to impose collective sanctions, norms or rules is minimal. The way a government is perceived and how its legitimacy is determined by elections, law, and other systems of accountability, among other factors, are crucial to citizens' acceptance of a government (Scott 2007; Scharpf 1999, 2001). A common way of measuring legitimacy is by investigating political trust. The more citizens trust a political institution, for instance a parliament, the more legitimacy that institution will possess in deciding political issues.

With respect to Europe, it is important to study the level of supranationalism of people in its various constituent coun-

tries. Therefore, the issues studied here the following:

- How can one determine the supranationalism of European citizens?
- Is the homogeneity of these opinions such that one scale can be used for the whole of Europe?

Before studying these issues, next section introduces previous studies, the data collection process, the question employed and descriptive statistics for the data.

2 Study design and citizens' preference results

Eurobarometer studied the proportion of European citizens that prefer policies be decided at the European level. Results from 2002 showed that citizens generally believe that policies involving such global issues as international terrorism (84%), humanitarian aid (70%), fighting against organised crime (70%) and drugs (69%) should be decided at the supranational level. For issues closer to the people, such as those implicating the police (31%), education (33%), health and social welfare (33%) and roles for broadcasting and press (35%), citizens prefer decision-making at a lower level.

On an aggregate level, Berg and Hjerm (2008) found that long-term member countries of the EU have higher levels of support for EU decision-making processes. That study concentrated on the Scandinavian countries, where Denmark is more in favour of supranationalism than other countries.

Thomassen and Schmitt (2004) found two sets of policies. One set is located at the European level and is composed of policies addressing international conflicts, environment, drugs and migration; the other set is located at the national level and is composed of policies involving taxation, education and health care. They pointed out that national govern-

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Table 1: Proportion of supranational level of governance in 21 countries for each policy

Countries	Organized aid	Organized crime	Environment	Immigration	Defence	Interest rates	Agriculture	Welfare	# of supra level policies*
Austria	.787	.835	.655	.554	.374	.487	.342	.372	4
Belgium	.798	.815	.689	.699	.724	.548	.593	.384	7
Czech Rep.	.766	.815	.555	.560	.685	.174	.343	.159	5
Denmark	.503	.719	.605	.453	.600	.409	.493	.138	4
Finland	.594	.762	.566	.311	.326	.461	.263	.147	3
France	.862	.778	.585	.694	.610	.538	.528	.376	7
Germany	.820	.892	.778	.547	.725	.576	.501	.342	7
Greece	.744	.602	.590	.581	.289	.390	.290	.281	4
Hungary	.700	.563	.449	.422	.547	.207	.236	.148	3
Ireland	.583	.346	.374	.417	.292	.343	.309	.122	1
Italy	.774	.528	.294	.576	.571	.632	.324	.223	5
Luxembourg	.740	.811	.677	.580	.704	.369	.548	.370	6
Netherlands	.772	.849	.776	.707	.736	.608	.628	.303	7
Norway	.613	.766	.732	.392	.531	.337	.285	.139	4
Poland	.770	.555	.344	.651	.439	.230	.251	.104	3
Portugal	.715	.629	.535	.614	.374	.349	.278	.234	4
Slovenia	.715	.641	.533	.560	.529	.398	.421	.315	5
Spain	.673	.666	.585	.578	.452	.403	.348	.357	4
Sweden	.503	.749	.669	.372	.381	.330	.337	.290	3
Switzerland	.813	.905	.821	.651	.486	.236	.478	.308	4
United K.	.697	.494	.559	.466	.481	.193	.328	.166	2
Total	.710	.698	.590	.541	.513	.393	.384	.254	

* Number of policies which more than 50% of citizens answered that should be decided at supranational level.

ments ought to control those issues that are most important in the eyes of citizens.

Our study's data, collected in 21 countries, are taken from the first round of the European Social Survey (ESS), which was administered in 2002. There are no newer ESS data on this topic. In each country, a representative sample of the population was drawn. Special attention was paid to the comparability of the samples (Lynn and Häder 2007) and to the comparability of the translations of the questions into different languages (Harkness 2007). The question was formulated as follows:

“Policies can be decided at different levels. At which level do you think the following policies should mainly be decided?”

The policies incorporated into the question were chosen on the basis of the results of the Eurobarometer study in such a way as to cover the full range of support in the EU. The policies chosen are ‘protecting the environment’, ‘fighting against organised crime’, ‘agriculture’, ‘defence’, ‘social welfare’, ‘aid to developing countries’, ‘immigration and refugees’, and ‘interest rates’. Four possible answer categories were available for each policy: International level, European level, National level and Regional or local level. Responses were transformed into dichotomous scores (0 = national or regional policy level; 1 = international or European).

Table 1 shows the proportion of citizens in each country that chose a supranational level for decision-making with regard to the various policies.

To illustrate how to interpret the data displayed in Table 1, take France with regard to the policy on aid to developing countries. It has the highest proportion of support for this policy. French respondents clearly understand this to be a supranational policy because 86% prefer this policy be decided at the supranational level. The other data, addressing the eight items in the various countries in which the survey was administered, can be interpreted in the same way.

An examination of Table 1 shows, according to the last row, that the most preferred supranational policies are those involving aid to developing countries, fighting against organised crime and environmental protection. On the other side, welfare, agriculture and interest rates are the policies people most prefer be decided at a lower level. This preference is especially strong with regard to welfare policy, which has the lowest score in almost every country.

Policies can be ranked according to what proportion of individuals in all countries preferred a supranational level of governance. Policies are considered at the supranational level if more than half (>.50) of the respondents in a country preferred that option. Respondents clearly preferred that the first three policies, country aid (all countries), fighting against organised crime (18 countries) and environment (17 countries), be decided at the supranational level of governance. Immigration (14 countries) and defence (11 countries) are ranked in the middle of the scale. The lowest levels of preference for supranational governance are indicated for policies addressing interest rates (5 countries), agriculture (5 countries) and welfare (none of the countries). These results display a pattern in which respondents tend to prefer

supranational levels of governance for global measures and national levels of governance for personal policies. This pattern was also identified in the Eurobarometer and Thomassen and Schmitt (2004).

The last column in Table 1 counts, for each country, the number of policies that at least 50% of respondents preferred to be decided at supranational level. This is an overall score for supranational preference for each country. For instance, a score of 4 means that four policies are preferred at the supranational level of governance (by more than 50% of respondents) in a specific country. The overall score shows considerable differences across countries, in the sense that some countries are more favourable to a European level of governance (Belgium, The Netherlands, Germany and France) than others (Ireland, Great Britain, Finland and Sweden, among others).

3 Measurement of Supranationalism on an individual level

While the picture on the aggregate level is rather clear, it is another matter to develop a meaningful measure of supranationalism at individual level. It would be very useful for policy decision making if a cumulative scale could be used for this purpose because then, by definition of cumulative scale, people and policies can be ordered according preferences and politicians could have a clearer vision of policy preferences by citizens. Different methods exist to carry out such cumulative scale. A perfect deterministic cumulative scale (Guttman 1950) in this situation would have the formal characteristic such that a person who supports a policy with a generally low level of supranationalism also supports policies with a higher proportion (generally more preferred) of supranational decision-making. If that is the case, the score of these persons with respect to supranationalism could be the sum of all items supported or, what is the same, the value of the highest item supported by a person. In this case, the score indicates exactly which policies are supported by the respondent.

Such perfect deterministic cumulative scales are not very likely to exist for two reasons. First, people make errors in their responses, and second, all concepts do not necessarily satisfy these criteria. In order to relax these strict conditions, a less rigorous probabilistic cumulative scale can be used, the so called Mokken scale (Mokken 1971, 1997; Molenaar and Sijtsma 1984; Sijtsma and Molenaar 2002). The Mokken scale procedure is a probabilistic model that is used for scaling items and scoring respondents on an ordinal scale. Basically, the idea of Mokken scaling is that the probability of a positive response to an item can be seen as a function of the subject's latent trait score and the properties of the item. The probability that subjects possessing a different position on the latent trait (supranationalism) provide positive answers to each item can be represented by an Item Response Function (IRF). This is not a deterministic relationship, but rather a probabilistic one; this means that one does not expect to find a perfect relationship between the responses to different items as indicated above.

Two requirements are necessary for testing whether the data satisfy the criteria of a probabilistic cumulative Mokken scale. The first requirement is known as Monotone Homogeneity (MH), which tests whether a set of items measure a single or unidimensional latent trait (θ) (Mokken 1971; Sijtsma and Molenaar 2002). In order to fulfil MH, the dichotomous items must satisfy the following assumptions (Mokken 1997; Paas 1998; van der Ark, Croon and Sijtsma 2008):

- Responses by the same subject are locally stochastically independent. It is assumed that all systematic variation in people's responses is due only to the respondents' positions on the latent trait, which means that an individual's response to an item is not influenced by his or her responses to the other items in the same set.
- Item Response Functions (IRF's) for different items must be monotonically nondecreasing. This means that the higher the position of the respondent on the latent trait, the higher the probability should be of a positive response to each item.
- Unidimensionality (also known as homogeneity or consistency) of the latent trait means that all items measure a single or unidimensional latent trait. This assumption is tested by using Loevinger's Homogeneity coefficient (H) (Loevinger, 1948; Mokken 1971; Molenaar 1991; Molenaar and Sijtsma 1984). Homogeneity is defined by relating the number of model violations observed to the number of violations that can be expected under the model of stochastic independence (van Schuur 2003).

If the data satisfy these three MH assumptions, only subjects, not items, can be ordered on a latent continuum scale (Paas 1998).

The second criterion, which is a stricter requirement, is known as Double Monotonicity (DM) or Invariant Item Ordering (IIO). This criterion requires identical ordering of response probabilities on a set of items for all subjects, regardless of the number of items a subject answers positively. If the data satisfy the DM requirement, then the order of items is the same for the different group of subjects (Mokken 1971; Molenaar and Sijtsma 1984; Sijtsma and Molenaar 2002).

4 Testing an European cumulative Scale

Based on the criteria indicated above we test if there exist a cumulative scale for supranationalism for all people of Europe involved in this study. In order to test MH, we first test for monotone non-decreasing IRF's using the rest score method (Mokken 1971). In order to illustrate this procedure we will show the approach for the item 'aid to developing countries'. First of all the total number of positive responses to all remaining items are calculated for all respondents, excluding the item 'aid to developing countries'. This score is mentioned in Table 2 as 'Rest score value'. Next, the groups

Table 2: Monotone Homogeneity for Aid to Developing countries

Group	Rest score value	N	Frequency 0 for item	Frequency 1 for item	Proportions of positive responses
1	0-0	4602	3673	929	.202
2	1-2	10214	3746	6468	.633
3	3-3	7137	1827	5310	.744
4	4-4	7022	1470	5552	.791
5	5-5	5796	943	4853	.837
6	6-7	7588	573	7015	.925

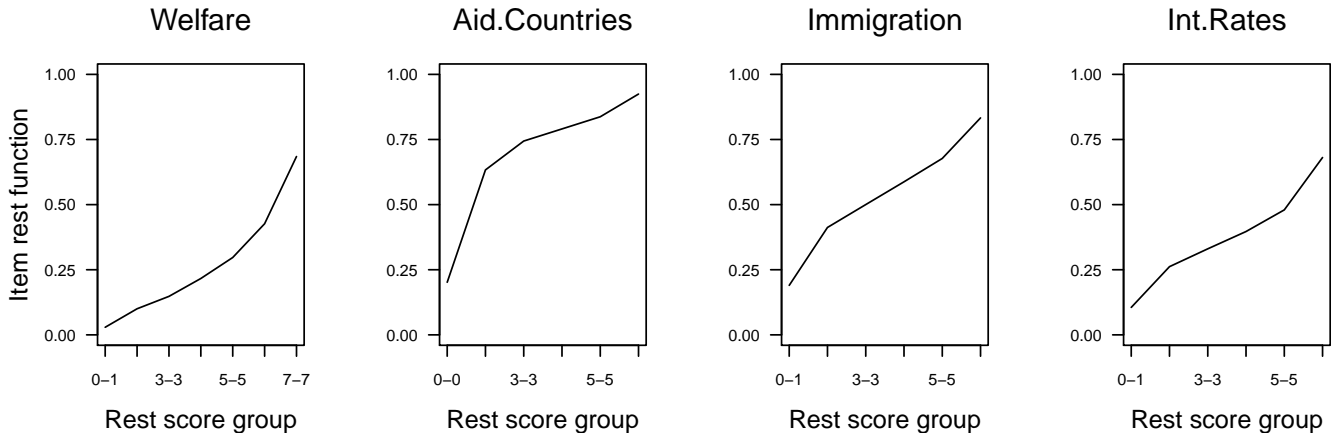


Figure 1. Non-decreasing probability requirement for Monotone Homogeneity

are forms of sufficient size for the further analysis. Therefore the people with rest score 1 and 2 and the people with rest scores 6 and 7 places in the same group. The next step is the calculation of the proportions of positive reactions to the item 'aid to developing countries'. This being done, we can see if the proportions are non-decreasing if the groups score increases (van der Linden and Hambleton 1997). Analyses are performed using the statistical R package for Mokken scale (van der Ark 2007) and MSP 5.0 (Molenaar, van Schuur, Sijtsma and Mokken 2000). As can be seen in Table 2 this is indeed the case for this item.

In the same way the monotone non-decreasing IRF's are checked for all items. And it turned out that this assumption is satisfied for all policies. As an example, IRF's for four policies are shown in Figure 1.

The homogeneity on a cumulative scale is tested with Loewinger's H coefficient, also known as criteria for scalability, which is satisfied if the score for each individual item (H_i) and the whole cumulative scale are higher than .3, and positive for each pair of items (Mokken 1971). The H coefficient varies from 0 to 1. A rule of thumb is that values below .3 for the scale as a whole mean no cumulative scale exists; values between .3 and .4 indicate a weak scale; values between .4 and .5 are indicative of a medium scale, and values larger than .5 are indicative of a strong scale.

The results show that the H coefficients based on the sample of 42359 respondents for the different policies are: Welfare (.45), Agriculture (.40), Interest rates (.34), Defence (.37), Immigration (.35), environment (.37), organized crime

(.43), and aid to developing countries (.39). The H coefficient for the complete scale is .38, which means that the cumulative scale is weak. All H coefficients are statistically significant. Scores (not reported) for each pair of items are all positive ($H_{ij} > 0$) and statistically significant. The reliability of the scale's score (Molenaar and Sijtsma 1984, 1988) is acceptable (.75).

In summary, Monotone Homogeneity holds for the total sample with all countries; therefore, subjects, not items, can be ordered on a unidimensional scale of supranationalism. This result is crucial because if subjects can be ordered in a unidimensional scale, this requirement would be sufficient to compare the scores of the respondents on a supranational scale across countries.

The next step is to test whether the eight policies have the same order using the Double Monotonicity (DM) requirement: the non-intersection of the IRF for the different items, which means that the IRF's are not allowed to intersect. Several different testing methods (p++/p-matrices or Item-split, e.g.) can be founded in the literature (Hardouin, Bonnaud-Antignac and Sébille 2011; Mokken 1971; Molenaar and Sijtsma 1984; Sijtsma and Junker 1996; Sijtsma and Molenaar 2002; van der Ark 2007; van Schuur 2003). We have used the rest score procedure to test for DM. For this procedure the pairwise comparison for all policies, i.e., 28 plots are needed. In order to demonstrate how DM is tested, two examples are shown in Figure 2a and Figure 2b.

Figure 2 represents the proportions of positive responses (IRFs) per item step for each item. The horizontal axis shows

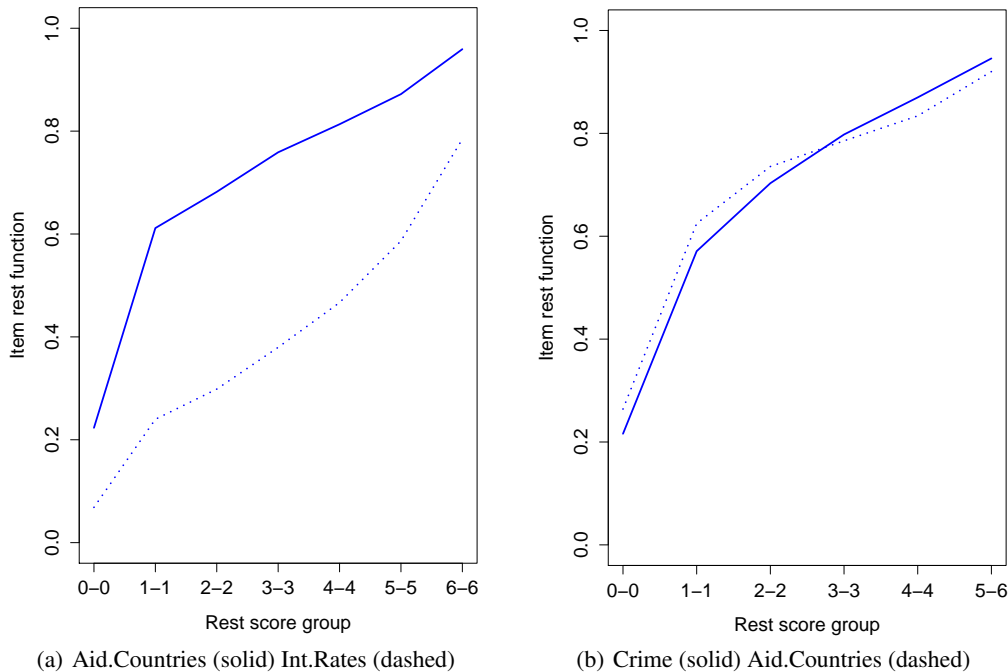


Figure 2. Item Response Functions for pairs of items

the rest score groups, which represent an aggregation of homogenous respondents for the latent trait. Figure 2a presents the results of the test for the items interest rates (dashed) and aid to developing countries (solid). Aid is above interest rates for all groups, which means that the proportion of positive responses for aid to developing countries is higher than for interest rates. Therefore, aid to developing countries is considered a more supranational policy than interest rates for all groups of respondents. Figure 2a shows DM for these two items and permits its ordering of these items.

A violation of the DM requirement is shown in Figure 2b, where the IRF functions of fighting against organised crime (solid) and aid to developing countries (dashed) intersect; in this case, analysis reports the intersection as statistically significant, therefore DM does not hold for the total sample with all countries, violations of the intersection requirements exist for four policies, which are fighting against organized crime, agriculture, aid to developing countries and interest rates.

Concerning to the creation of a European cumulative scale for supranational policies, it is found that only subjects (Monotone Homogeneity), not items (Double Monotonicity), can be ordered on a latent continuum scale. Consequently, the policies cannot be ordered according preferences at European level.

A reason for the lack of DM might be that, although political decision trends exist between countries, there are large differences across them. In some countries (Spain, Greece, Great Britain, Poland and Portugal), the policy 'countries aid' is associated with the highest level of supranationalism, while in others (Austria, Belgium, Switzerland, Germany,

Denmark, Finland, Norway and Sweden) the highest level is associated with 'fighting against organised crime'.

Despite the lack of homogeneity across these countries, similar patterns on supranational level for some groups of countries appear to exist. In order to inspect whether a single cumulative scale exist for similar countries, a cluster analysis and posterior Mokken tests are studied within the different clusters.

5 Clustering by policies

Cluster analysis was used in order to classify countries into homogeneous groups with regard to their supranationalism proportion for each policy; information at the country level from Table 1 was used for this analysis. Ward's cluster analysis with Euclidean squared distance resulted in four clusters:

- Scandinavian countries: Norway, Sweden, Finland and Denmark.
- Mediterranean countries: Spain, Slovenia, Greece and Portugal.
- Euro-sceptic countries: Great Britain, Ireland, Hungary and Poland.
- Central countries: Belgium, The Netherlands, Germany, France and Luxemburg.

A particularity of the last group is that these countries (along with Italy) signed the Treaty of Rome in 1957 that established the European Economic Community (EEC).

Table 3: Proportion (θ_i) and ranking (*rank*) of supranationalism for cluster classification

Policies	Euro-Sceptical		Scandinavian		Mediterranean		Central	
	θ_i	rank	θ_i	rank	θ_i	rank	θ_i	ranking
Welfare	.134	8	.181	8	.302	8	.350	8
Agriculture	.283	6	.334	7	.328	7	.558	6
Interest rates	.245	7	.382	5	.396	6	.542	7
Defence	.434	4	.450	4	.405	5	.707	4
Immigration	.494	2	.377	6	.565	4	.639	5
Environment	.430	5	.646	2	.574	3	.718	3
Organized crime	.486	3	.751	1	.630	2	.839	1
Aid to developing countries	.687	1	.557	3	.703	1	.799	2
Support >50%	1		3		4		7	

Table 4: Loevinger's H coefficients

	Euro-Sceptic	Scandinavian	Mediterranean	Centre
Welfare	.45	.37	.47	.41
Agriculture	.39	.31	.46	.33
Interest rates	.33	.23	.41	.29
Defence	.35	.29	.44	.32
Immigration	.31	.31	.43	.29
Environment	.34	.30	.46	.32
Organized crime	.37	.36	.50	.39
Aid to developing Countries	.46	.28	.52	.29
Complete scale	.36	.30	.46	.33
Molenaar & Sijtsma reliability	.74	.68	.80	.69
Sample size	7893	7541	9824	10237

Hence, this group can be considered the promoters (or founders) of the current EU.

Italy, Austria, the Czech Republic and Switzerland were discarded during the cluster analysis procedure because these countries have their own very different characteristics with respect to the level of decision-making for these policies. Individually, none could be included in any of the other groups, and collectively they do not have enough in common to form their own group.

Table 3 provides the proportion of supranationalism (δ_i), policy ranking (*rank*), and the number of supranational policies supported by more than 50% of the sample for each cluster of countries.

Table 3 can be interpreted in the same way as Table 1. The major difference among the clusters is the number of supranational policies supported by each group (the last row in Table 3). The Euro-sceptical group supports only one policy (aid to developing countries) at that level. Scandinavian and Mediterranean support three and four policies, respectively, while the Central group supports seven policies at the supra-national level. These results provide a clear differentiation between the least and most pro-European groups.

The procedure used to test the requirements for the European cumulative scale is also used to test the scales for the different clusters. In order to test MH Table 4 shows the H coefficient for each item and a global measure for the complete scale in each cluster.

The cumulative scale for the Mediterranean group can be considered medium (.46) and for the remaining groups is considered weak. All H coefficients in Table 4 are statistically significant. Scores (not reported) for each pair of items in the four clusters are all positive ($H_{ij} > 0$) and statistically significant. The reliability of the scale's score (Molenaar and Sijtsma 1984, 1988) is acceptable, varying between .68 (the Scandinavian group) and .80 (the Mediterranean group). Monotone non-decreasing IRF's are found for all policies in the four clusters. The Figures of these non-decreasing probabilities are not shown because of space.

In summary, Monotone Homogeneity holds for all clusters; therefore, subjects, not items, can be ordered on a unidimensional scale of supranationalism.

The stricter requirement of Double Monotonicity holds in the Mediterranean and Central clusters but neither in the Euro-sceptical nor in the Scandinavian clusters.

Therefore, the full cumulative scale can only be ordered according to the proportions (δ_i) on supranationalism in the Central and Mediterranean clusters. The results for the proportions (δ_i) on supranationalism and the ranking for the different clusters are already shown in Table 3.

Even though in both clusters the DM requirement is satisfied, ranking for Central and Mediterranean clusters show that the ordering of the items is not the same. However, if the interest is to measure the same underlying dimension, the difference in ordering will not harm the unidimensionality found in the scale (Mokken 1971); consequently, cross

cultural comparison of scores of people can be carried out.

Another type of cross-cultural comparison is the comparison of the level of supranationalism support for the different policies measured by its proportion of support. For instance, the item fighting against organised crime has a support of .84 in the Central cluster and .63 in the Mediterranean cluster. Thus, by comparing the proportions one can interpret the level of supranationalism for each policy. Both clusters have a similar level of supranationalism on welfare (.30 and .35 for the Mediterranean and Centre clusters, respectively). Although these differences exist, the sum score in both groups presents the number of policies the respondents support with respect to supranational decision making. This holds even though the items and the popularity of the items may be different.

In the case of Scandinavian and Euro-sceptic clusters with eight policies, violations of the DM requirements exist, but not for MH requirements. For these groups, we considered the possibility of creating a cumulative scale with fewer items that fulfils both MH and DM requirements.

Data from the Euro-sceptic cluster show statistically significant intersections of immigration with other policies. Thus, immigration policy does not fulfil the Mokken scaling requirements; moreover, its homogeneity coefficient was the lowest one for this cluster (Table 4). The worst item with respect to its H coefficient, immigration ($H=.31$), was eliminated in order to increase the cumulative consistency of the scale with the remaining items. Table 5 shows the consistency (H coef.) and the level of supranationalism proportion (δ_i) for the remaining seven items.

Table 5: Mokken scale for Euro-sceptic cluster

	θ_i	H coef.
Aid to developing countries	.69	.47
Organized crime	.49	.32
Defence	.43	.40
Environment	.43	.36
Agriculture	.28	.40
Interest rates	.24	.32
Welfare	.13	.47
Complete scale		.39
Molenaar & Sijtsma reliability		.72
Sample size		7893

Table 5 shows the items ordered from the highest (aid to developing countries) to the lowest (welfare) with regard to supranationalism. Individual H coefficients improved compared with Table 4 and the complete scale H coefficient rises from .36 to .39. The supranationalism scale for these seven items fulfils both MH and DM requirements.

Data from the Scandinavian cluster show significant violations of non-intersection for defence and interest rates. Double Monotonicity is not fulfilled; these policies are also those with the lowest homogeneity coefficient (Table 4). Table 6 presents supranationalism proportions (δ_i) and the consistency coefficient for the cumulative scale with six items omitting these two items.

Table 6: Mokken scale for Scandinavian cluster

	θ_i	H coef.
Fighting against organized crime	.75	.37
Environment	.65	.32
Aid to developing countries	.56	.30
Immigration	.38	.36
Agriculture	.33	.32
Welfare	.18	.29
Complete scale		.34
Molenaar & Sijtsma reliability		.64
Sample size		7541

These policies can be ordered for all groups of respondents in a unidimensional scale, where fighting against organised crime policy is the most preferred at the supranational level and welfare the least preferred. The cumulative scale for this cluster with six items cannot be compared with the previous scales because it does not have the same meaning due to the different items composing the cumulative scale.

Given that the scores across the groups can be compared we can look at the distribution of the scores on supranationalism across the different clusters. The results are presented in Figure 3.

The scores obtained for the different groups show relatively strong homogeneity within clusters and heterogeneity between them. The mean score for the policies determined at the supranational level is 5.2 for the Central cluster, 3.9 for the Mediterranean group, 2.8 for the Scandinavian group and 2.7 for the Euro-skeptical group.

Figure 3 shows that the Central cluster has a negatively skewed distribution, which indicates that the respondents are notably supranationalistic. The Mediterranean cluster has a normal distribution except for the extreme scores, which have high values. The Euroskeptical cluster has a high frequency of zeroes, and only a few people exhibit high scores for supranationalism. The Scandinavian cluster has a frequency distribution that is similar to that of a normal distribution. The trends for the respondents in the different clusters are different, which means supranational policies are viewed differently in the different clusters.

We found that the clusters fulfil the MH requirements for the eight items; therefore it is possible to compare individual orderings for these clusters. In the next section, this comparison is carried out looking at the relationship with other theoretically related variables such as trust in the European Parliament or education.

6 Validity of the supranationalism scales

A valid measure of supranationalism should have relationships with education, age, establishment in the area and political trust at the European level. These variables have also been used in other related studies (Berg and Hjerm 2008; Gabel 1998) and were measured in the European Social Survey in the following manner:

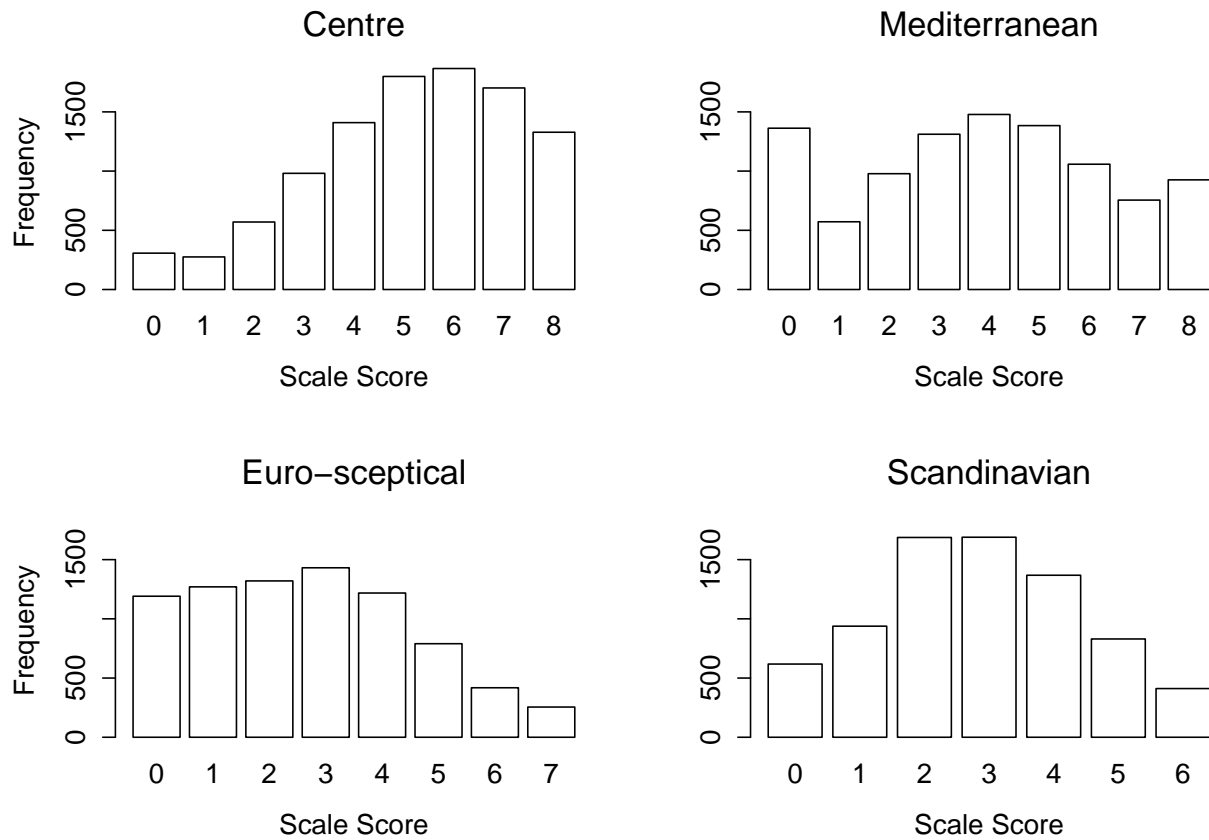


Figure 3. Frequency score distributions

For the education variable, the question was: “How many years of full-time education have you completed?”, where responses were reported in years.

The question regarding the length of time residing in an area was asked as follows: “How long have you lived in this area?”, where responses were reported in years.

Age was asked in the form of the year of birth and was later transformed to years of age.

Political trust at the European level was asked using the following question: “... on a score of 0-10 how much you personally trust in the European parliament”, where 0 means “not trust the institution at all” and 10 means “complete trust”. Trust in the European Parliament is considered a highly relevant variable that should be related with the supranational scale.

Scores on the scales for supranationalism are expected to be positively related with education and trust in the European parliament and negatively related with age and establishment in the same region. Three hypotheses will be tested. The first hypothesis is that more highly educated people will support supranationalism because they can easily understand the importance of different political levels (Inglehart 1970).

The second hypothesis is that older people and those who are resident in the same area for a longer time are expected to prefer more national or regional policies. The third hypothesis is that people who have a higher level of political

trust (legitimacy) in the European Parliament will prefer that more policies be decided at the supranational level. Therefore, the correlation with supranationalism will be higher for those who have more trust in the European Parliament.

Because measurement error has a considerable influence on the estimated effect, correction for measurement error (Lord and Novick 1968; Saris and Gallhofer 2007) was used and disattenuated correlations between explanatory variables and the scores for supranationalism were obtained. These correlations are presented in Table 7.

Table 7 shows that, in all groups, the correlations signs are as expected and coefficients are statistically significant. These findings confirm the validity of the scores obtained for supranationalism; therefore, the hypotheses are supported.

Hypothesis 1 is supported because years of full-time education is positively correlated with supranationalism. This variable has the highest correlation with supranationalism. Thus, education plays a very crucial role in understanding support for the various levels of political decision-making for all four clusters.

Age is negatively related to supranationalism, which means that older people prefer decisions to be taken at a lower level. This finding is especially significant in the Mediterranean and Euro-sceptic clusters, while for the remaining clusters age has lower correlations. Similar results are obtained for residents staying for long periods of time

Table 7: Correlations between explanatory variables and supranationalism scores

	Centre	Mediterranean	Euro-sceptic	Scandinavian
Education	.247	.375	.279	.273
Age	-.069	-.348	-.325	-.085
Establishment in the area	-.138	-.321	-.286	-.144
Trust in the European parliament	.191	.076	.221	.222

the same area; the longer people are established in an area, the more likely they are to prefer national or lower levels of decision-making. This finding is also more important in the Mediterranean and Euro-sceptic clusters. These two negative correlations with supranationalism confirm the second hypothesis.

The differentiations between the Mediterranean and Euro-sceptic clusters with the other clusters with respect to age and long-term residence in the same region might be explained through a relationship with the number of years countries have been members of the EU. Citizens from the Central and Scandinavian clusters are longer-term members of the EU, and people from different age groups could have more experience in supranational policies. In contrast, people in the Mediterranean cluster and in some countries in the Eurosceptic cluster have had shorter experiences of belonging to the EU. This characteristic means that older people have been living with a national level of decision-making, and they could be reluctant to embrace the new European reality.

The third hypothesis is also confirmed; trust in the European Parliament is positively related with the supranationalism scale in the Central, Euro-sceptic and Scandinavian clusters. In other words, the level of supranationalism in the clusters is related with the level of legitimacy on a supranational political institution (European Parliament), this legitimacy might contribute to more credibility to those policies. The Mediterranean cluster has a lower, but significant, correlation with political trust; for these countries, the level of supranational decision-making is more correlated with education (hypothesis 1) and age and establishment in the area (hypothesis 2).

7 Conclusions

This paper has answered the two questions identified in the introduction: "How can one determine the supranationalism of the European citizens?" and "Is the homogeneity of these opinions such that one scale can be used in the whole of Europe?"

The study of supranationalism demonstrates heterogeneity across European countries; however, we found similar patterns for some groups of countries. Cluster analysis classified European countries into four general groups (Central, Mediterranean, Scandinavian and Euro-sceptical) with regard to their level of supranationalism displayed for different policies.

The supranationalism of European citizens was tested with a probabilistic cumulative scaling technique, the Mokken Scale (Mokken 1971). A first requirement was

Monotone Homogeneity, which requires monotone non-decreasing probability and homogeneity of the items; when MH is fulfilled, individuals can be compared. A stricter requirement is Double Monotonicity, which is based on the non-intersection of item probabilities; when DM is fulfilled, individuals and item ordering can be compared. The results show that the DM requirement is only fulfilled for the Mediterranean and Central clusters. Therefore, different clusters cannot be compared while assuming the same item ordering. The less restrictive requirement of Monotone Homogeneity holds for all clusters. This result is essential because if subjects can be ordered in a unidimensional scale, it is sufficient to compare a supranational scale made up of the eight policies in the different clusters without the requirement of displaying the same order in terms of policies.

The results for the unidimensional scale clearly show that the items and the order of the items in the scales are not the same; however, in all four clusters supranationalism can be measured on a cumulative scale.

Cross cultural comparison of scores of people is carried out for all clusters, and these scales were validated using the expected correlations with education, age, duration of time living in the same area and trust in the European parliament. All the expected correlations have been found. These findings provide support for the validity of these measures and support to the hypotheses. 1) More educated people are more supranationally oriented because such people can easily understand the importance of different political levels. 2) Older people and those who have lived in the same area for a longer period of time prefer more national or regional decision-making; this preference is related to the principle of subsidiarity. 3) Higher levels of trust (legitimacy) in the European Parliament are related to preferring that more policies be decided at the supranational level.

Differences in correlations between clusters support the cluster aggregation for European clusters and again demonstrate the lack of homogeneity in expressions of supranationalism in Europe.

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