Political Groups of the European Parliament and Social Structure[1]

Ioannis Andreadis & Theodore Chadjipadelis

Abstract

European voters can be classified into different groups according to the Political Group of the European Parliament the MEP they have voted for is attached to. In the first part of the paper we build clusters of EU countries according to the distribution of the country MEPs to the Political Groups. We find two large clusters of member-states. One of the two large clusters includes countries from the central and northern Europe and the other cluster includes countries from southern Europe. In the second part of the paper we study the social characteristics of the voters in each political group. Using a series of socio-structural variables, (i.e. subjective social class, education level, standard of living, and religiosity), from the PIREDEU voter survey data, we try to describe the social profile of the voters in each group. Then we study the social profiles of the voters in each group in these two large clusters of EU countries. There are political groups that display strong associations with the socio-structural variables and other political groups which are not strongly associated with them. The findings presented in this paper can help us understand the similarities and the differences between European voters with regard to their social characteristics.

Introduction

After the 2009 elections for the European Parliament the following political groups were formed: EPP: Group of the European People's Party (Christian Democrats), S&D: Group of the Progressive Alliance of Socialists and Democrats in the European Parliament, ALDE: Group of the Alliance of Liberals and Democrats for Europe, GREENS/ EFA: Group of the Greens/European Free Alliance, ECR: European Conservatives and Reformists Group, GUE/ NGL : Confederal Group of the European United Left - Nordic Green Left, and EFD: Europe of Freedom and Democracy Group. Finally there are some MEPs who are not attached to a political group but for the scope of the analysis in this paper they will be treated as a political group under the label NA (non-attached).

The power of each European political group varies from country to country. There are European Political Groups demonstrating significant power in almost every member state (i.e. the Progressive Alliance of Socialists and Democrats [S&D]). On the other hand, there are political groups in the European Parliament which include members

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[1] 6th ECPR General Conference, Reykjavik, Iceland, 25-27 August

from a limited number of European Union member-states. For instance, the European Conservatives and Reformists Group (ECR) includes representatives from only 8 EU member-states. More than 90% of the MEPs of this political group have been elected in only 3 member states. Another example is the Europe of Freedom and Democracy (EFD) with members from only 9 EU member-states.

The power of the political groups is not uniform across Europe. In the following section we use cluster analysis to build clusters of EU countries according to the distribution of the country MEPs to the Political Groups. We find six clusters but three of them include only two countries and one includes only one country. This leaves us with two large clusters of EU member-states. One of the two large clusters includes countries mostly from the central and northern Europe and the other large cluster includes countries mostly from southern Europe. Consequently we use the labels North and South for these two clusters.

In the second part of the paper we study the social characteristics of the voters of each political group in the European Parliament. Using a series of socio-structural variables, (i.e. subjective social class, education level, standard of living, and religiosity), from the PIREDEU voter survey data[2], we try to describe the social profile of the voters in each group. Then we study the social profiles of the voters in each group in the two large clusters (North-South) of EU member-states. The findings indicate that the relationship between socio-structural variables and party choice depends on the cluster the European country belongs to. We pay special attention to voters coming from different European countries which belong in different clusters, and vote for MEPs attached to different political groups even when they share similar social characteristics.

Cluster Analysis

Using the two-way table with the seats by political group in each Member State[3] we can calculate the share of seats for each political group in each Member State. This share is calculated by dividing the number of seats that a political group has earned in a Member State by the total number of European Parliament seats of the

corresponding member state. As a result we have a dataset with 27 cases – rows and 8 variables - columns. Each row corresponds to one of the EU Member States and the variables describe the share of seats of each political group.

Applying hierarchical cluster analysis to the aforementioned two-way table which includes the shares of seats in each member state, we end up with Diagram 1. In this Diagram we observe that the 27 Member States can be classified into six clusters. Cluster 1 includes the following member states: Belgium, Bulgaria, Germany, Finland, France, Ireland, Luxembourg, Latvia, The Netherlands, Sweden and Slovenia. The following two clusters consist of 2 member states i.e. cluster 2 pairs Czech Republic with United Kingdom and cluster 3 consists of Denmark and Estonia. Cluster 4 consists of Cyprus, Greece, Spain, Italy, Lithuania, Malta, Portugal, Romania and Slovakia. Cluster 5 keeps together Hungary and Poland. Finally Austria constitutes the single-member cluster 6.

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                  Rescaled Distance Cluster Combine

     C A S E     0         5        10        15        20        25
     Label   Num +---------+---------+---------+---------+---------+

     DE        5
     FR       10
     LU       15
     LV       13
     IE        7
     SI       23
     BG        2
     BE        1
     SE       26
     FI       25
     NL       18
     CY       12
     PT       21
     EL        8
     ES        9
     SK       24
     IT       11
     RO       22
     LT       14
     MT       17
     AT       19
     HU       16
     PL       20
     DK        4
     EE        6
     CZ        3
     UK       27
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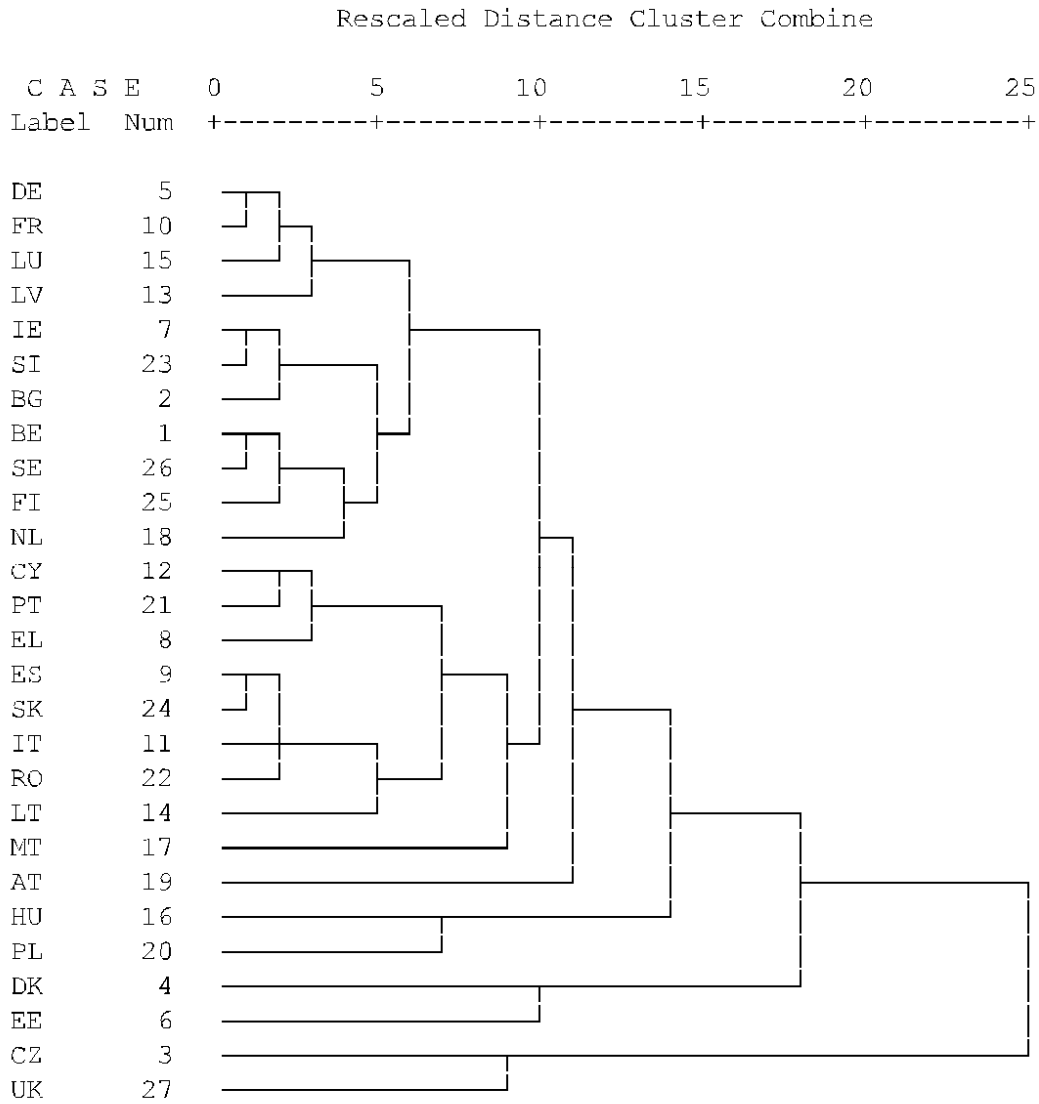
Diagram 1 Dendrogram using Average Linkage (Between Groups)

Table 1 shows the average share of seats per cluster. Cluster 2 is characterized by the large power of ECR and the significant losses for the EPP group. More than 1 out of 3 elected MEPs in the United Kingdom and more than 4 out of 10 elected MEPs in Czech Republic belong to the European Conservatives and Reformists Group (ECR). Denmark and Estonia which form Cluster 3 are distinguished from the rest member states of the European Union due to the high number of MEPs who belong to ALDE and GREENS/EFA and the simultaneous low number of MEPs who belong to EPP. Cluster 5 consists of Hungary and Poland, the two member states where EPP displays the largest share of EP parliament seats. Another common characteristic between these two member states is that they both have MEPs who belong to ECR. Cluster 6 is formed by only one EU member-state: Austria. The isolation of Austria in the

dendrogram was produced mainly by the large share (29%) of Austrian MEPs who are not attached to any of the political groups of the European Parliament.

Table 1 Average share of seats per cluster

Cluster	EPP	S&D	ALDE	GREENS /EFA	ECR	GUE/NGL	EFD	NA
1 North	35	21	22	11	2	4	1	4
2 CZ UK	5	25	8	3	38	10	9	3
3 DK EE	12	24	37	16	0	4	8	0
4 South	41	37	6	1	1	8	5	1
5 HU PO	60	16	0	0	17	0	0	7
6 AT	35	24	0	12	0	0	0	29
Total	36	25	11.4	7.5	7.3	4.8	4.3	3.7

In member states which belong to cluster 1 (North) ALDE and/or GREENS/EFA have earned a significant part of the MEPs, but cluster 1 member states are different from cluster 3 member states (Denmark and Estonia also display a large number of MEPs who belong to ALDE and/or GREENS/EFA), because in cluster 1 EPP remains strong with an average share of about 35%. Finally, in the 9 member states that belong to cluster 4, EPP and S&D groups are strong and ALDE and Greens/EFA groups are weak.

In the following sections of this paper we are going to study the associations between the political groups in the European Parliament and a set of socio-structural variable. Correspondence analysis[4] provides a means of displaying a two-way table in a two-dimensional graphical form by decomposing the chi-square associated with this table into orthogonal factors. This way it is possible to reveal how the variables are related i.e. to reveal which of the categories of the variables are associated. For each socio-structural variable we run three correspondence analyses: one for the whole group of the 27 EU member-states, one for the group of member-states which are classified in cluster 1 (North) and one for the group of member-states which are classified in cluster 4 (South).

Correspondence analysis findings

In this section we use data PIREDEU voter study. The European Election Voter Study 2009 is a mass survey about the elections for the European Parliament which were conducted in June of 2009. It includes data from the electorates of all the member

[4] Greenacre, M. (2007) Correspondence Analysis in Practice, Second Edition Chapman and Hall/CRC 2007

states of the European Union in 2009. The analysis in the previous section was based on the members of the European Parliament and the political groups they are attached to. This section deals with their voters.

From the total number of 27069 survey participants, 7948 (29.4%) did not cast their vote for the European Parliament elections of June 2009, and 277 have casted blank or non valid votes. 3346 have not given an answer to the question "Which party did you vote for?" Finally there are 1925 survey participants who have voted for a party that did not succeed to elect any of its candidates to the European Parliament.

The rest 13573 survey participants have voted for a party that has elected at least one of its candidates. The findings presented in the following parts of this section are the output of the analysis of this subset of survey participants. The distribution of the voters of this subset according to the political group of the MEPs they have elected is shown in Table 2.

Table 2 Distribution of votes by political group

Political Group in the European Parliament	N	%
European People's Party (EPP)	4903	36,1
Progressive Alliance of Socialists and Democrats (S&D)	3490	25,7
Alliance of Liberals and Democrats for Europe (ALDE)	1901	14,0
The Greens–European Free Alliance (Greens/EFA)	1256	9,3
European Conservatives and Reformists Group (ECR)	522	3,8
European United Left–Nordic Green Left (GUE/NGL)	722	5,3
Europe of Freedom and Democracy (EFD)	421	3,1
Non-attached (NA)	358	2,6
Total	13573	100,0

Social class

Social class has been recognized as having significant impact upon electoral choice. The vote choice differences of the different social classes are based on the idea that voters vote for parties which will promote their economic interests. For instance, leftist parties have been established to promote the interests of the working class and as consequence lower social classes are expected to prefer these political parties. According to Lipset "in virtually every economically developed country, the lower income groups vote mainly for the parties of the left, while the higher income groups vote mainly for the parties of the right" [5] This idea has been included in the model of

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[5] Seymour Martin Lipset, *Political Man,* 230.

Lipset and Rokkan[6] as the cleavage between workers and employers, between tenants and owners over the allocations of resources.

Today many scholars agree that the impact of social class on vote choice is decreasing. Social class is no longer the important determinant of party choice it used to be. In this section we try to describe the associations of social classes and the political groups in the European Parliament. The classification of the survey participants is based on their self-placement to one of a predefined set of social classes. The question used in the questionnaire is the following: "If you were asked to choose one of these five names for your social class, which would you say you belong to - the working class, the lower middle class, the middle class, the upper middle class or the upper class?" From the group of 13573 survey participants who have been identified as voters associated with one of the political groups in the European Parliament, 13213 (97.3%) have chosen one of the five classes as the social class they belong to. From these people only 210 (1.6%) have chosen the upper class. According to Blasius and Greenacre[7]: "Categories with very low relative frequencies should be carefully monitored in CA, and if they contribute too much to the solution, they should be combined with other categories in a substantively meaningful way." This is why the upper middle class was combined with the upper class into one category. The distribution of the variable social class is presented in Table 3.

Table 3. Frequencies of social classes

Social class	Frequency	Percent
Working class	2925	22,1
Lower middle class	1679	12,7
Middle class	6851	51,9
Upper/ upper middle class	1758	13,3
Total	13213	100,0

The total inertia of the two way table created by the variables social class and political group is 0,025. The largest part of the total inertia can be attributed to the first dimension of the solution. The first dimension (first principal inertia) accounts for 94.8% of the total inertia. This dimension is formed by working class and lower

[6] Lipset, S.M. and Rokkan, S. "Cleavage Structures, Party Systems, and Voter Alignments," in Peter Mair (ed.) The West European Party System, Oxford University Press, 1990, pp. 91-111
[7] Multiple Correspondence Analysis and Related Methods, Edited by Michael Greenacre and Jorg Blasius, Chapman and Hall/CRC, 2006

middle class, on the positive side of the axis and middle and upper class, on the negative side of the axis. Thus, this axis represents the social class dimension; as we move on this axis from the left to the right, the social class level gets lower. The second dimension is formed by the contrast of the lower middle class with the working class and the upper-upper middle class.
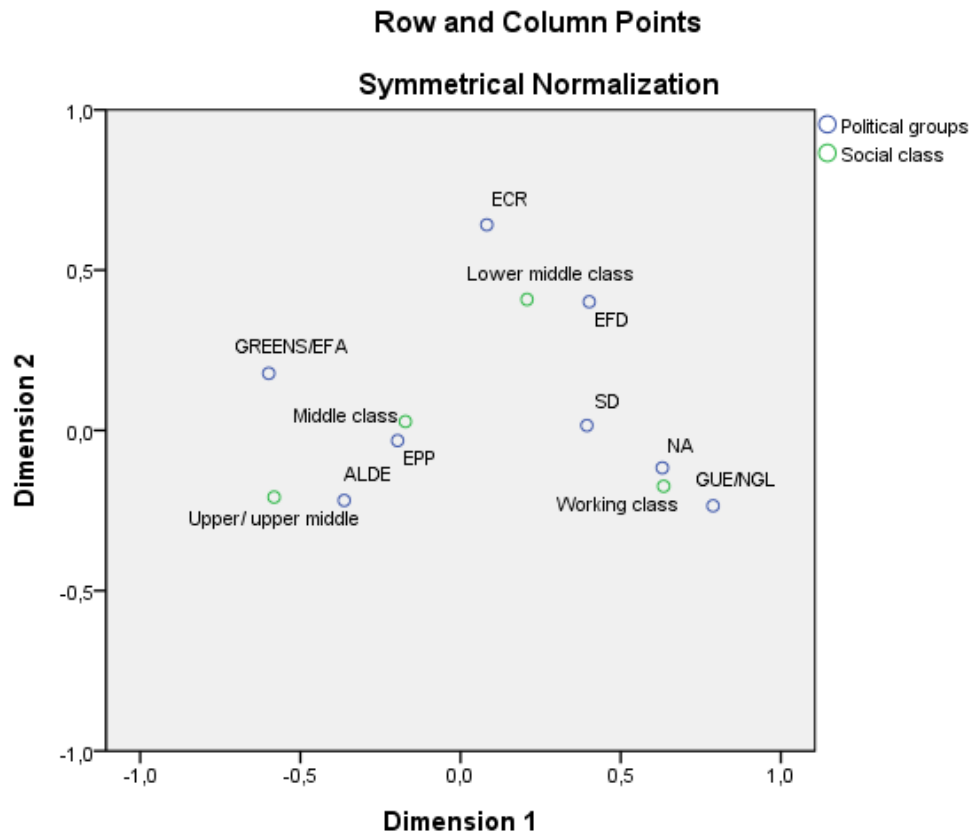

Diagram 2 Correspondence analysis for Political groups by social class

Diagram 2 shows the outcome of the correspondence analysis between the political groups in the European parliament and the social class of their voters. The contribution of the first dimension to the inertia of most of the political groups of the European Parliament is very high: For EPP=0.987, for SD=0.999 for ALDE=0.909, for GREENS/EFA=0.978, for GUE/NGL=0.980, for EFD=0.820 and for NA=0.981. Figures like these (very close to 1) indicate the high quality of representation of these political groups, i.e. very high correlation of the political groups with the social class dimension. The only political group in the European Parliament which is not strongly correlated with this dimension is ECR. But the overall quality of ECR is also high (0.933) due to the significant contribution of the second dimension to its inertia (0.868).

EPP, ALDE, and GREENS/EFA, located on the negative side of the axis are associated with higher social classes, while SD, GUE/NGL, EFD and NA are associated with lower social classes. A part of the inertia of EFD is explained by the second dimension, because EFD is associated with the lower social classes but it enjoys greater support among the group of lower middle class voters (which forms the second dimension). The aforementioned associations can be verified in Table 4 which includes the vote share of the political groups by social class. As we move from lower social classes to higher social classes the vote shares of SD, GUE/NGL, EFD and NA decrease and the vote shares of EPP, ALDE, and GREENS/EFA increase. On the other hand, ECR enjoys greater support among the group of voters who belong to the lower middle class.

Table 4 Vote share of political groups by social class

Political groups	Working class	Lower middle class	Middle class	Upper/ upper middle class	Total
EPP	31.8%	33.9%	37.5%	40.1%	36.1%
SD	32.1%	27.9%	24.1%	19.6%	25.8%
ALDE	11.2%	11.9%	14.4%	17.9%	13.8%
GREENS/EFA	5.4%	8.6%	10.3%	11.9%	9.3%
ECR	3.6%	5.1%	3.7%	3.4%	3.8%
GUE/NGL	8.3%	5.7%	4.7%	3.1%	5.4%
EFD	3.7%	3.9%	2.9%	2.1%	3.1%
NA	3.8%	3.0%	2.3%	1.9%	2.7%

Social class in Cluster 1 - North

In this group of countries the total inertia is 0.031, i.e. larger than the total inertia calculated for the total group of all EU countries (0.025). The first dimension accounts for 92.6% of the total inertia. This dimension is formed by working class and lower middle class, on the positive side of the axis and middle and upper class, on the negative side of the axis. Thus, similar to the first dimension formed by the CA for the total group of all EU countries, the first dimension is the social class dimension, i.e. as we move on this axis from the left to the right, the social class level gets lower. The second dimension accounts for 5.1% of the total inertia and it is again formed by the lower middle class (72.2% of the inertia of the dimension).
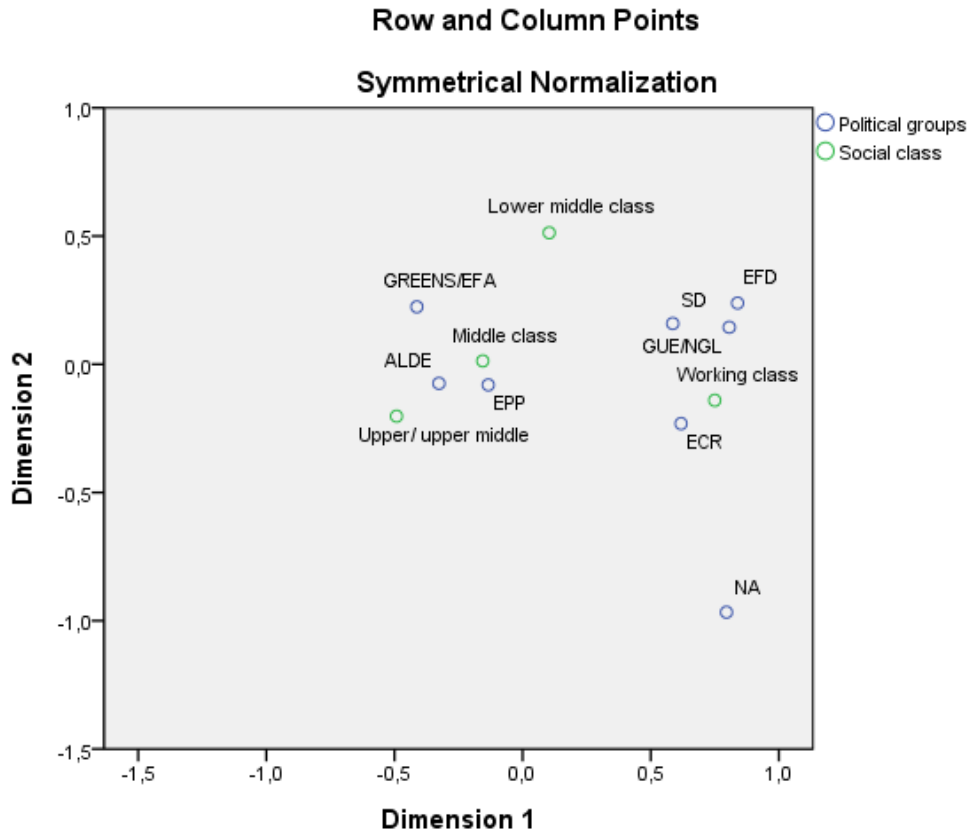
Diagram 3 Correspondence analysis for Political groups by social class (North)

Diagram 3 shows the outcome of correspondence analysis: EPP, ALDE, and GREENS/EFA, located on the negative side of the axis are associated with higher social classes, while SD, ECR, GUE/NGL, EFD and NA are associated with lower social classes. In this subset of countries ECR is not associated with the second dimension formed by the lower middle social class. Instead it is associated with the first dimension and especially with the working class. This means that the voters of ECR in the countries which belong to cluster 1 are different from the voters of ECR in the countries which belong in other clusters (they belong to lower social class). NA is still associated with the lower social classes, but the contribution of the first dimension to the inertia of NA has dropped to 73.8% (i.e. the correlation of NA and the first –social class- dimension is weaker).

Social class in Cluster 4 - South

In this group of countries the total inertia is 0.029, i.e. larger than the total inertia calculated for the total group of all EU countries (0.025) but smaller than the total inertia calculated for the countries of cluster 1 (North). The first dimension (first

principal inertia) accounts for 80.6% of the total inertia, leaving a significant proportion of the total inertia to be explained by the second dimension (14.6%). This means that the percentage of the total inertia explained by the first dimension is much lower in the South that it is in the North. The first dimension is formed by working class and lower middle class, on the positive side of the axis and middle and upper class, on the negative side of the axis. The second axis is formed by the contrast of the lower middle class (positive part) with the rest of the social classes (negative part) and especially the working class. Together the lower middle class (83%) and the working class (12.6%) contribute more than 95% of the inertia of the second dimension.
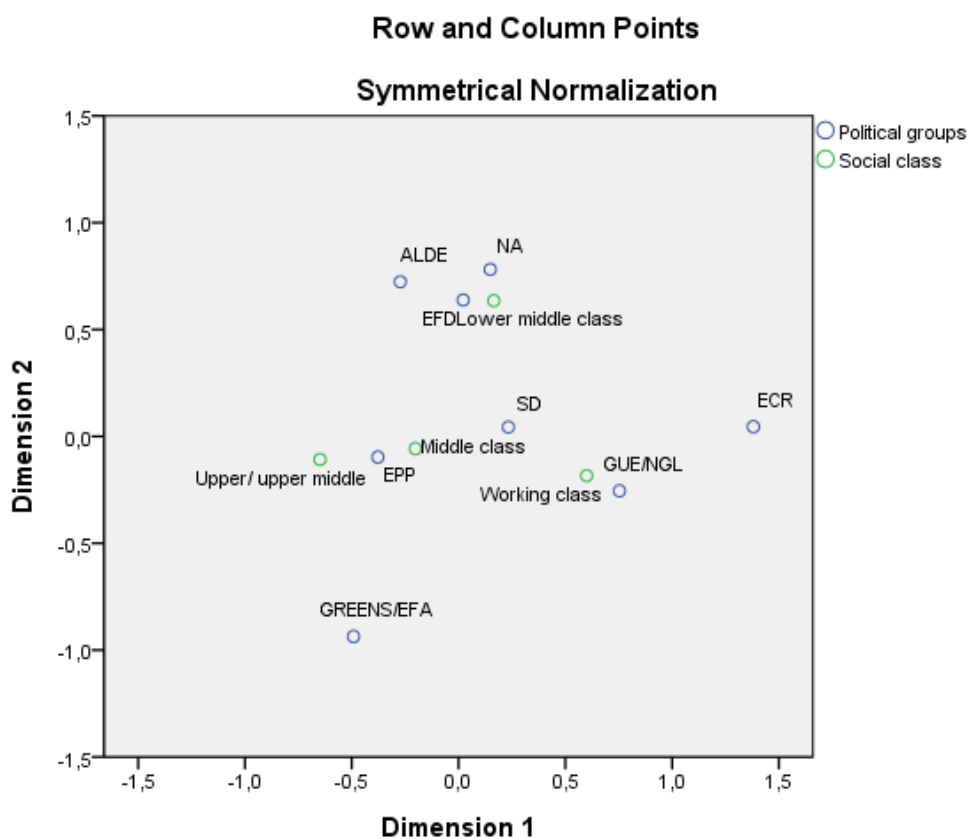

Diagram 4 Correspondence analysis for Political groups by social class (South)

Diagram 4 displays the map of the correspondence analysis for the countries of cluster 4 (South). The contribution of the first dimension to the inertia of three political groups of the European Parliament is very high EPP: 0.972, SD: 0.961 and GUE/NGL:0.931. EPP, located on the negative side of the axis is associated with higher social classes, while SD and GUE/NGL, located on the positive side of the axis, are associated with lower social classes. Especially GUE/NGL is strongly associated with the working class. On the other hand the contribution of the first

dimension to the inertia of ALDE, GREENS/EFA, EFD and NA is limited. These political groups display stronger association with the second dimension. ALDE, EFD and NA enjoy greater support among the lower middle class while the minimum support for GREENS/EFA is observed in the same social class, and this is why this political group appears near the other end of the second dimension (in the lower half of the diagram). Finally, the quality of ECR is low (0.568) but this not a big issue, because the vote share of ECR in the countries of cluster 4 is very limited.

As a general conclusion of the three applications of CA to the two subgroups clusters of member-states the following comments can be reported: Social class is associated with the political groups of the European Parliament. In the North all political groups are strongly associated with the dimension of the social class, i.e. all political groups display a high correlation coefficient (either positive or negative) with the axis that corresponds to the social class levels. In the South the explanatory power of the social class dimension is lower. Only EPP, SD and GUE/NGL are strongly correlated with the social class dimension. Another significant difference between South and North regarding the social class structure of its electorate is observed for EFD: in the South it is associated with the working class, but in the North it is associated with the lower middle class.

Religiosity

Church vs State cleavage is a division between religious and secular voters. According to Lipset and Rokan the church - state cleavage expresses an opposition over conceptions of moral right and over the interpretation of history and human destiny add as a result "membership is no longer a matter of multiple affiliation in many directions, but a diffuse '24-hour' commitment incompatible with other ties within the community; and communication is no longer kept flowing freely over the cleavage lines but restricted and regulated to protect the movement against impurities and the seeds of compromise".

Huber[8] argues that political conservatism and religiosity are correlated because both are affected by underlying stable psychological traits like ambiguity intolerance, need

[8] Huber, J. D., and P. Stanig. 2011. Church-state separation and redistribution. Journal of Public Economics.

for order and structure, and low openness. According to Knutsen[9]: "Although religious issues are not very prominent on the political agenda, religious values are related to a wide range of social and political beliefs: work ethics, achievement aspirations, lifestyle norms, parent–child relations, morality, social relations, attitudes toward authority, and acceptance of the state".

PIREDEU voter study questionnaire includes the following question: "On a scale from 0 to 10, where 0 stands for 'not at all religious' and 10 for 'very religious', where would you place yourself?" From the group of 13573 survey participants who have been identified as voters associated with one of the political groups in the European Parliament, 13333 (98.2%) have chosen one of the available eleven points and only 240 have not answered. In order to simplify the correspondence analysis plot, we have recoded the variable in the following way: categories 0 and 1 are combined into one new category under the label "Not at all religious", categories 2, 3 and 4 are combined into a new category under the label "Not religious", value 5 is given the label "Neither ... nor", categories 6, 7 and 8 are combined into a new category under the label "Religious" and finally the new category "Very religious" includes the original categories 9 and 10. Table 5 shows the frequency of each religiosity level.

Table 5 Distribution of voters by religiosity

Religiosity	Frequency	Percent
Not at all religious	2467	18,5
Not religious	2497	18,7
Neither ... nor	2441	18,3
Religious	4326	32,4
Very religious	1602	12,0
Total	13333	100,0

The total inertia of the two-way table created by the variables religiosity and political group is 0,061.The first principal inertia is 0.56. As a result, the first dimension accounts for 91.1% of the total inertia. This dimension is formed by the contrast of not religious citizens, on the positive side of the axis and religious citizens, on the

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[9] Knutsen, O. 2004. Religious denomination and party choice in western europe: A comparative longitudinal study from eight countries, 1970-97. International Political Science Review 25 (1): 97-128. Also regarding the impact of the religious - secular cleavage on the left-right self-placement see: Knutsen, O. (1995) 1995. Value orientations, political conflicts and left-right identification: A comparative study. European Journal of Political Research 28 (1): 63-93.

negative side of the axis. Thus, the first dimension created by the correspondence analysis can be named the religiosity dimension; as we move on this axis from the left to the right, the religiosity level decreases. The second dimension accounts for 7.2% of the total inertia.
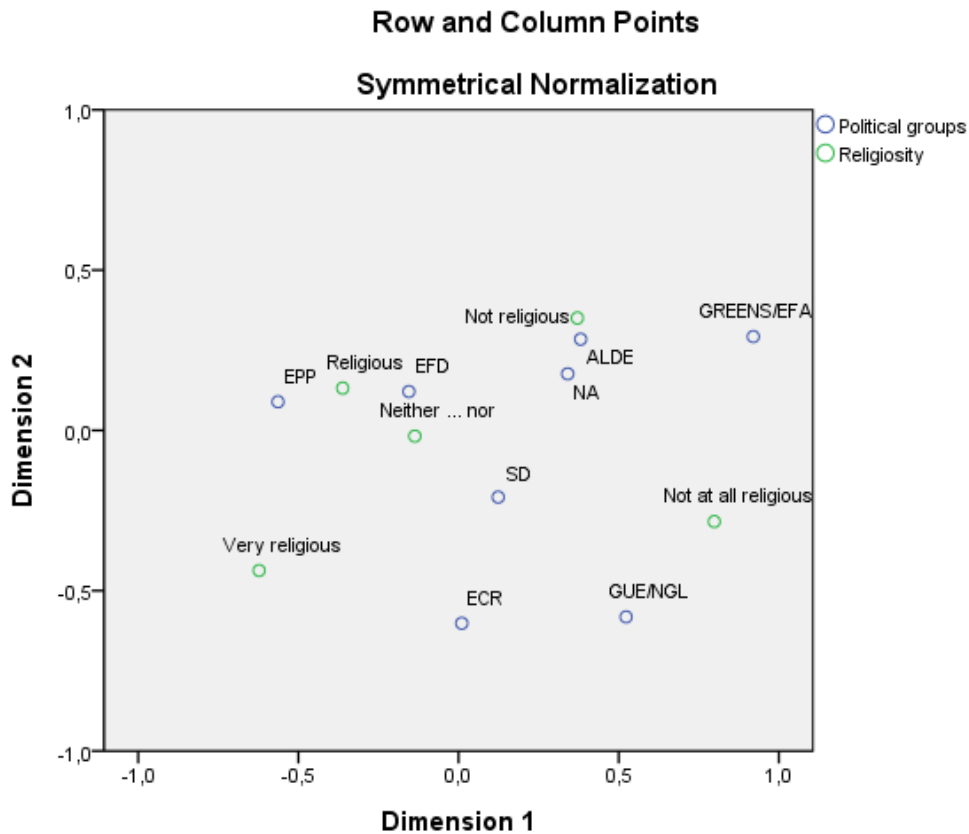

Diagram 5 Correspondence analysis for Political groups by religiosity

Diagram 5 displays the plot of the correspondence analysis between religiosity and the political groups. The contribution of the religiosity dimension to the inertia of most of the political groups of the European Parliament is very high: for EPP=0.991, for ALDE=0.836, for GREENS/EFA=0.960, for GUE/NGL=0.740, and for NA=0.864. EPP, located on the negative side of the axis is associated with high levels of religiosity while ALDE, GREENS/EFA, GUE/NGL and NA are associated with low levels of religiosity. EPP has the strongest correlation coefficient with the religiosity dimension. EPP support is lowest (19.1%) among the "not at all religious" group. EPP support is associated with the religiosity level with a monotonically increasing function. As religiosity level increases, EPP support also increases; among the very religious group the support for EPP increases to 47.5%. Table 6 includes the

vote share of political groups by religiosity. As we move from lower to higher levels of religiosity the vote shares of ALDE, GREENS/EFA, GUE/NGL and NA decrease.

Table 6 Vote share of political groups by religiosity

Political groups	Not at all religious	Not religious	Neither - nor	Religious	Very religious	Active Margin
EPP	19,1%	29,7%	37,8%	44,2%	47,5%	36,1%
SD	29,6%	25,2%	25,6%	23,5%	26,3%	25,7%
ALDE	17,2%	16,9%	14,1%	12,6%	8,2%	14,0%
GREENS/EFA	15,4%	13,7%	7,1%	6,7%	3,2%	9,3%
ECR	4,6%	3,0%	3,8%	3,6%	4,7%	3,8%
GUE/NGL	8,5%	5,2%	5,0%	4,0%	4,9%	5,3%
EFD	2,4%	3,2%	3,8%	3,0%	3,3%	3,1%
NA	3,2%	3,1%	2,8%	2,3%	1,8%	2,7%

Religiosity in North

For the subset of the countries included in Cluster 1 (North) the total inertia of the two-way table created by the variables religiosity and political group is 0,061. In this cluster of countries there are more voters who belong to the "not at all religious" group (23.2% instead of 18.5%) and to the "not religious" group (21.8% instead of 18.7%) and less voters who belong to the "religious" (29.1% instead of 32.4%) and "very religious" (7.8% instead of 12%) groups. This means that the overall religiosity level is lower in the countries of cluster 1 than in the whole EU. The first dimension (first principal inertia) accounts for 88.1% of the total inertia. This dimension is formed by the contrast of not religious citizens, on the positive side of the axis and religious citizens, on the negative side of the axis.
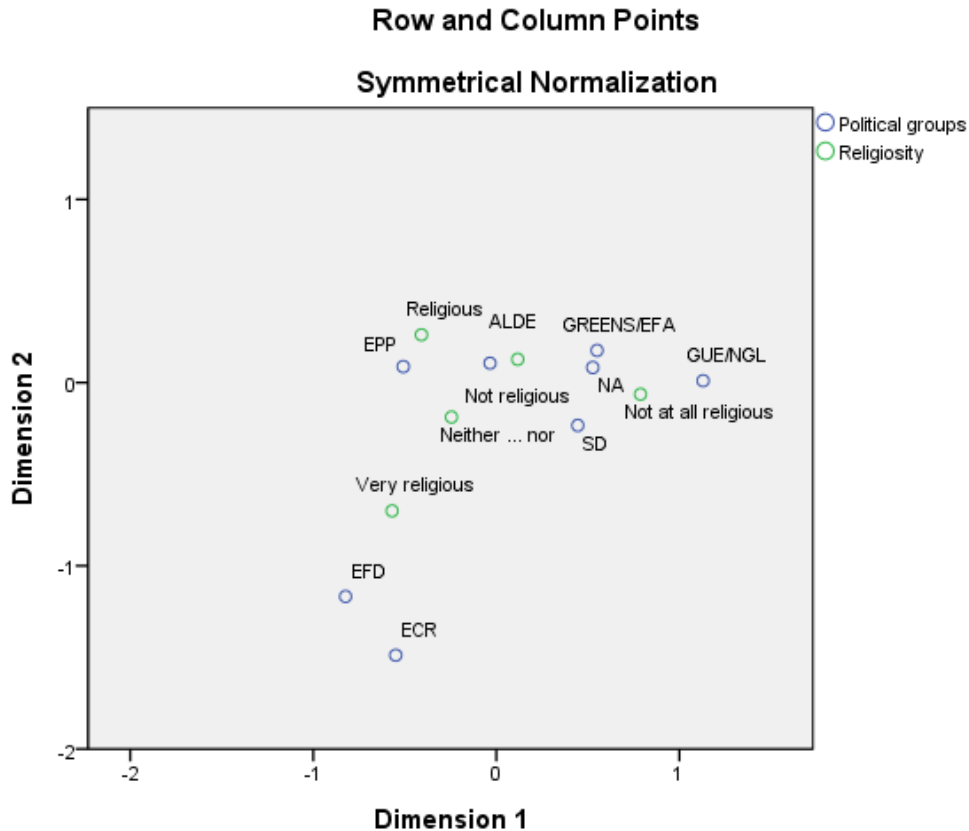
Diagram 6 Correspondence analysis for Political groups by religiosity (North)

EPP, located on the negative side of the axis is associated with high levels of religiosity while SD, GREENS/EFA, GUE/NGL and NA are associated with low levels of religiosity (Diagram 6). The quality of ALDE, i.e. the proportion of the inertia of ALDE explained by the two correspondence analysis axes is very low (36.5%). This finding indicates that there is not a strong association between religiosity and ALDE. In fact the support for ALDE is almost stable in all groups 20.9% in "Not at all religious" 19.6% in "Not religious", 20.5% in "Neither – nor", 22.6% in "Religious" and 20.0% in "Very religious".

Religiosity in South

For the subset of the countries included in Cluster 4 (South) the total inertia of the two-way table created by the variables religiosity and political group is 0,041 (smaller than the North, i.e. the association of political groups and religiosity is lower in the South than in the North. In this cluster of countries there are less voters who belong to the "not at all religious" group (9.4%) and to the "not religious" group (11%) and more voters who belong to the "religious" (40.5%) and "very religious" (20%) groups.

The first dimension (first principal inertia) accounts for 90% of the total inertia. This dimension is formed by the contrast of not religious citizens, on the positive side of the axis and religious citizens, on the negative side of the axis.
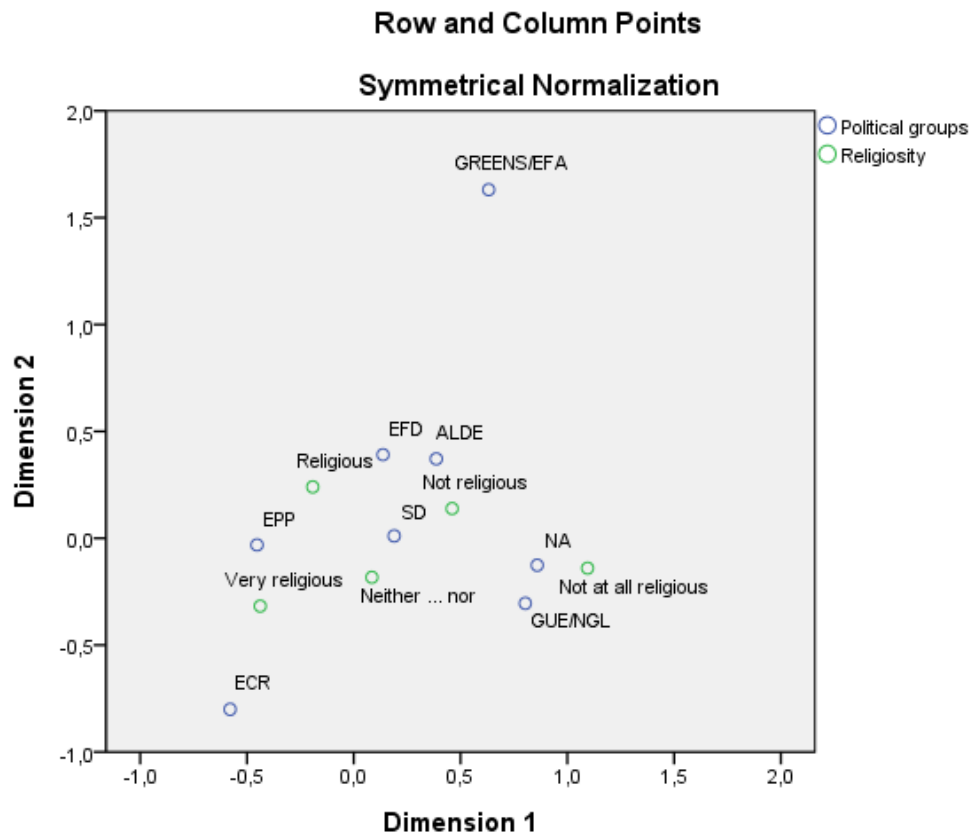

Row and Column Points

Symmetrical Normalization

Diagram 7 Correspondence analysis for Political groups by religiosity (South)

EPP, located on the negative side of the axis is associated with high levels of religiosity. SD, ALDE, GUE/NGL and NA are associated with low levels of religiosity (Diagram 7). In contrast with what is observed for the countries of cluster 1 (North), ALDE is associated with religiosity in the countries of cluster 4 (South). The electoral support for ALDE by religiosity level is 4,8% in "Not at all religious" 4,5% in "Not religious", 3,1% in "Neither – nor", 3,5% in "Religious" and 2,6% in "Very religious" groups.

Standard of living

Income is an important factor of vote choice. The support for leftist parties which advocate redistribution from rich to poor increases as income decreases. In the US, Republicans earn a vote share which has tended to be 5 to 20 percentage points higher among voters in the upper third of the income distribution than among voters in the

lower third. As Gelman et al[10] argue that income has a significant impact even after controlling for education level. They point out the Democrats' strength among well-educated voters is strongest among those with lower household incomes, i.e. ''the incomes of teachers, social workers, nurses, and skilled technicians, not of Hollywood stars, bestselling authors, or television producers, let alone corporate executives.''

PIREDEU Voter Study questionnaire includes the following question: "Taking everything into account, at about what level is your family's standard of living? If you think of a scale from 1 to 7, where 1 means a poor family, 7 a rich family, and the other numbers are for the positions in between, about where would you place your family?" From the group of 13573 survey participants who have been identified as voters associated with one of the political groups in the European Parliament, 13395 (98.7%) have chosen one of the available seven points and only 178 respondents have not answered this question. The categories located near the ends of the scale have been chosen by a limited number of people. To simplify the output we have combined categories 1 and 2 in to a new "poor family" category and categories 6 and 7 into a new "rich family" category. For the values 3, 4 and 5 we use the value labels lower, middle and higher (standard of living) respectively. The result was a new variable with five categories presented in Table 7.

Table 7 Standard of living frequencies

	Frequency	Percent
Poor	937	7,0
Lower	2211	16,5
Middle	5041	37,6
Higher	3852	28,8
Rich	1354	10,1
Total	13395	100,0

The total inertia of the two-way table created by the variables standard of living and political group is 0.015. The first principal inertia is equal to 0.011; i.e. the first dimension accounts for 76.1% of the total inertia. This dimension is formed by the contrast of poor families, on the positive side of the axis and the rich families, on the negative side of the axis. This dimension can be named "the wealth level" dimension because as we move on this axis from the left to the right, the wealth level decreases.

[10] Gelman, A., Kenworthy, L. and Su, Y.S. Income Inequality and Partisan Voting in the United States. Social Science Quarterly, Volume 91, Number 5, December 2010, p.957-973

The second dimension accounts for 16.6% of the total inertia. The second dimension is formed by the contrast of the families located near the center of the standard of living distribution (in the upper part of the dimension) with the families located near the extreme values of the distribution (in the lower part of the dimension).
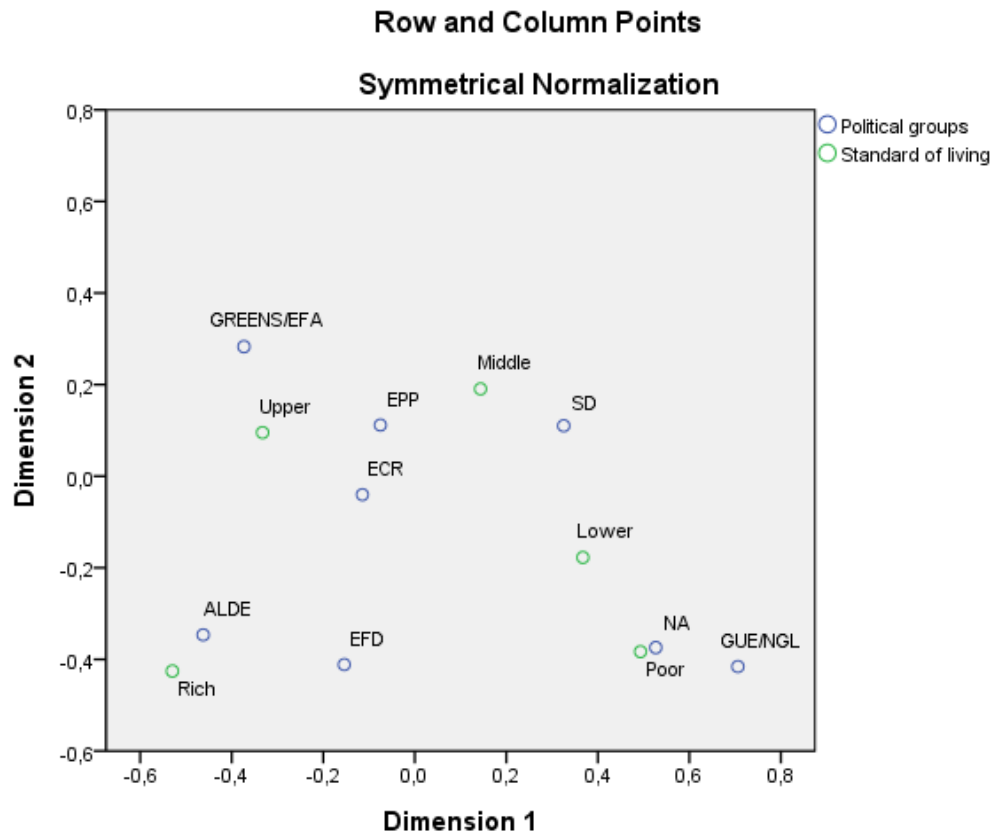

Diagram 8 Correspondence analysis for Political groups by wealth

Diagram 8 shows the location of the categories of the two variables on the two dimensions found by correspondence analysis. The contribution of the wealth level dimension to the inertia of most of the political groups of the European Parliament is very high SD:0.941, ALDE:0.785, GREENS/EFA:0.758, GUE/NGL :0.850 and NA:0.769. ALDE and GREENS/EFA, located on the negative side of the axis are associated with rich families while SD, GUE/NGL and NA are associated with poor families. This can be clearly shown in Table 8 which includes the vote share of political groups by wealth level. As we move from lower to higher wealth levels the vote shares of SD and GUE/NGL and NA decrease and the vote shares of ALDE and GREENS/EFA increase. EP is placed on the rich side of the axis, but it is stronger

associated with middle and higher wealth levels than with the maximum value of wealth level, which corresponds to the "rich family" category.

Table 8 Vote share of political groups by wealth level

	Poor	Lower	Middle	Higher	Rich
EPP	34,6%	33,4%	36,8%	37,3%	36,0%
SD	29,0%	28,4%	27,2%	23,5%	19,6%
ALDE	12,9%	12,1%	12,3%	15,5%	19,6%
GREENS/EFA	5,9%	8,0%	9,2%	10,6%	10,0%
ECR	2,7%	4,2%	3,8%	3,8%	4,4%
GUE/NGL	8,0%	7,0%	5,6%	3,7%	4,5%
EFD	3,5%	3,5%	2,5%	3,6%	3,3%
NA	3,4%	3,5%	2,7%	2,1%	2,4%

Standard of living (North)

In the subset of countries which are included in Cluster 1 there are more people who are wealthy than in the whole EU. The relative frequencies of the wealth categories are as follows: Poor 5.2% (instead of 7.0%), Lower 13.7% (instead of 16.5%), Middle 36.5% (instead of 37.6%), Higher 32.1% (instead of 28.8%) and Rich 12.6% (instead of 10.1%). The correspondence analysis of the two-way table created by the variables standard of living and political group for the subset of countries which are included in Cluster 1 gives a total inertia equal to 0.013. The first dimension (first principal inertia=0.009) accounts for 75.5% of the total inertia. This dimension is formed by the contrast of poor families, on the positive side of the axis and the rich families, on the negative side of the axis. The second axis formed by the contrast of the middle and the extreme wealth categories accounts for 19.7 of the total inertia.
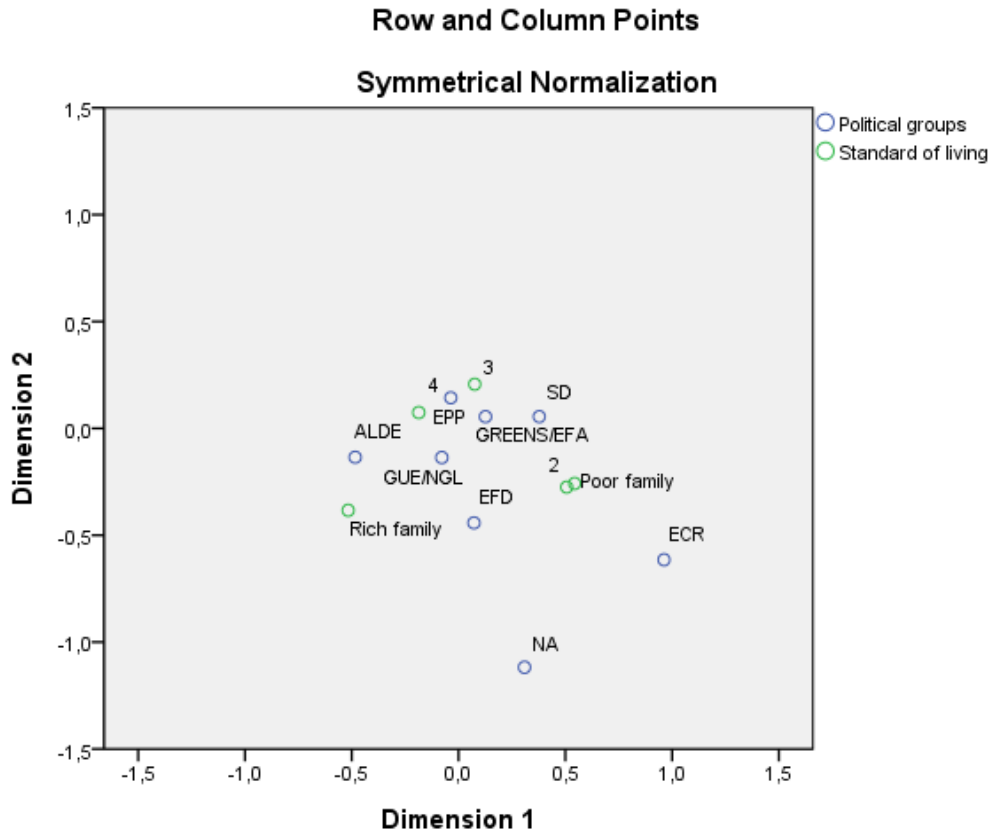
Diagram 9 Correspondence analysis for Political groups by wealth (North)

ALDE, located on the negative side of the axis, is associated with rich families. SD, located on the positive side of the axis, is associated with poor families (Diagram 9). EPP does not display a strong with the first dimension. In fact EPP enjoys the greater support among the voters who belong in the middle category: 38.2% and the support drops as we move towards both ends of the wealth dimension: Poor=35.0%, Rich=35.9%. An interesting difference from the comparison with CA findings on the total population is that GREENS/EFA is not placed near the rich families. In the countries included in Cluster 1 the support for GREENS/EFA does not follow any particular trend over the wealth categories: Poor=14.5%, Lower=15.5%, Middle=14.6%, Higher=14.4% and Rich=13.0%. If we had to choose direction for the association between standard of living and support for GREENS/EFA in the North we could say that the political group GREENS/EFA is supported more from the poor families than from the rich families. Another interesting difference is the strong negative correlation between ECR and the wealth dimension. In the subset of countries which are included in Cluster 1 (North) the support for ECR by wealth

category is: Poor=2.6%, Lower=2.5%, Middle=1.4%, Higher=1.2%, Rich=1.1%. This gives a different image from the image we get from the total EU population.

Standard of living (South)

In the South the percentage of people who have chosen for their standard of living a category above the middle category is smaller by 8% (30.1% instead of 38.1%). The correspondence analysis of the two-way table created by the variables standard of living and political group for the subset of countries which are included in Cluster 4 gives a total inertia equal to 0.024. This means that there is a stronger association between wealth level and the political groups in the South than in the North. The first dimension (first principal inertia) accounts for 74.1% of the total inertia. This dimension is formed by the contrast of poor families, on the positive side of the axis and the rich families, on the negative side of the axis. The second principal inertia, formed by the contrast between the middle category and the other categories, accounts for 13.7% of the total inertia. The cumulative proportion of explained inertia by the two dimensions is 87.8%.
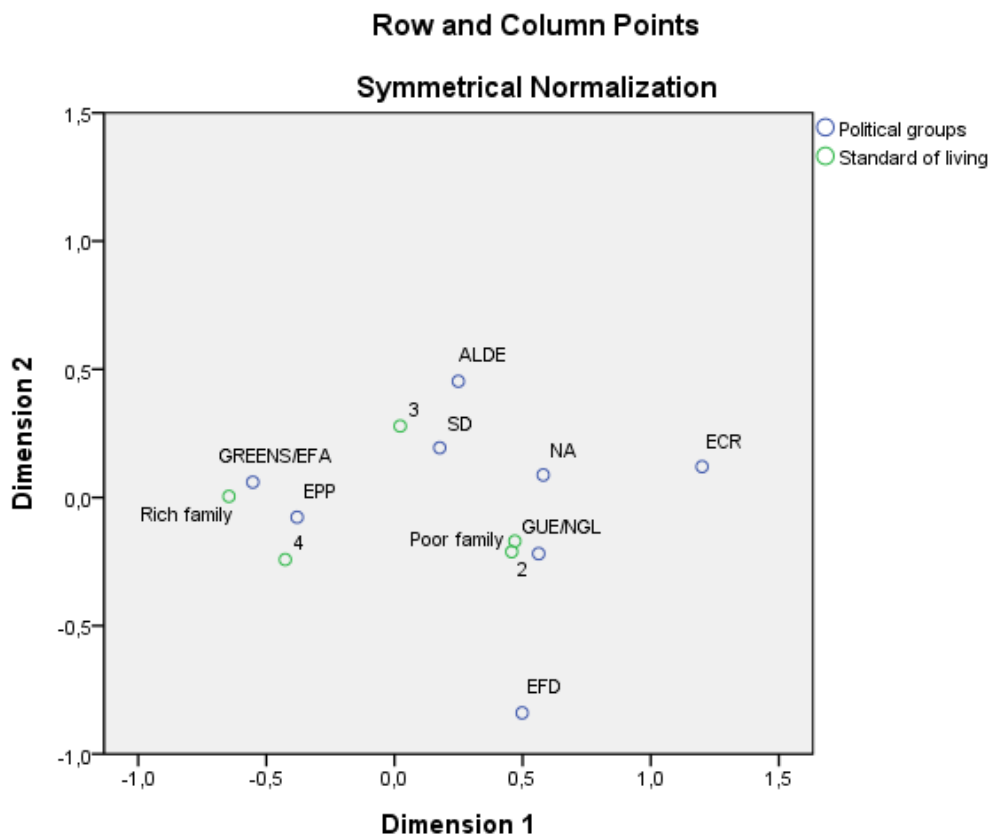

Diagram 10 Correspondence analysis for Political groups by wealth (South)

Diagram 10 shows the position of wealth categories and political groups according to their scores in each of the two correspondence analysis dimensions. In the countries included in Cluster 4 (South) the political competition between the rich and the poor takes place between the supporters of GUE/NGL (poor families) and the supporters of EPP (rich families). In the South the wealth dimension does not contribute to the inertia of SD in the same degree it does for the countries included in Cluster 1. In the South the support for SD is almost the same among the poor and among the group of people who place themselves in the middle of the scale. As a result, in the South voters of a middle standard of living are appealed both by EPP and SD on almost equal terms: EPP:40,8% SD: 38,9%. Considering the close competition in this category of large mass (41% in the South) and the superiority of SD in the other two lower income categories (the sum of their masses in the South is 29%), we can understand the strong competition of EPP and SD in the South. On the other hand, in the North the win of EPP over SD among the voters of middle income is very clear (EPP: 38,2%, SD: 20,8%).

Education

Past research has shown that there is a connection between education and political behaviour. Educated people are more likely to have an opinion on various issues, including political issues and as a result it increases political interest and political participation. Education is related to the conflict between authoritarian and libertarian values. High education groups tend towards the libertarian pole. Low education groups tend towards the authoritarian pole. Educated people are more tolerant to diversity. They learn that conclusions have to be justified by logical reasoning and evidence, and that respected authorities (including political authorities) may be mistaken[11]. Van der Waal et al[12] present a series of various interpretations of the relation between education and liberal views presented in previous research: "Some have argued that education undermines belief in the existence of such a thing as a "natural" social order, others that education reduces social conservatism through an increase in cognitive complexity, and yet others that education only reduces social

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[11] Weakliem, D. L. 2002. The effects of education on political opinions: An international study. International Journal of Public Opinion Research 14 (2): 141-157.
[12] Van der Waal, J., Achterberg, P. and Houtman D. Class Is Not Dead--It Has Been Buried Alive: Class Voting and Cultural Voting in Postwar Western Societies (1956 -1990) Politics Society 2007 35: 403-426

conservatism in liberal-democratic societies, where education instills democratic values". Van de Werfhorst & de Graaf[13] argue that education is more important with regard to cultural issues (i.e. gender role and participation to socially responsible organisations); social class is more important for economical issues.

Van der Waal et al. argue that the decline of class-party alignments i.e. the erosion of the alignment of the working class with the left and the middle class with the right, is explained by an increase of cultural voting, based on educational differences rather than a decline in class voting. They base their argument on findings supporting that the association between the rich and vote for right parties and the poor and vote for left parties is still strong (or even stronger), but on the other hand the higher educated increasingly vote for left parties and the lower educated increasingly vote for right parties.

The PIREDEU Voter Study questionnaire includes two questions regarding the education level. The first question is open ended: " How old were you when you stopped full-time education?" The second question is: "What is the highest level of education you have completed in your education?" and in each country it offers a series of country specific answer options. The answers to these two question were used by the research team of PIREDEU to construct a new variable that can be used as a comparative indicator of education level, based on the International Standard Classification of Education classification[14].

From the group of 13573 survey participants who have been identified as voters associated with one of the political groups in the European Parliament, 13146 were classified to one of the categories in ISCED classification. In order to simplify the representation of the points on the correspondence analysis map we have recoded the education variable into 3 categories: Primary, Secondary and Tertiary (Table 9).

Table 9 Frequencies of education levels

	Frequency	Percent

[13] Werfhorst, H. G., and N. D. Graaf. 2004. The sources of political orientations in post‑industrial society: Social class and education revisited. The British Journal of Sociology 55 (2): 211-35.
[14] The International Standard Classification of Education (ISCED) was designed by UNESCO in the early 1970's to serve 'as an instrument suitable for assembling, compiling and presenting statistics of education both within individual countries and internationally'
http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm

Primary	1147	8,7
Secondary	7359	56,0
Tertiary	4640	35,3
Total	13146	100,0

The total inertia of the two way table created by the variables education and political group is 0.041. The first principal inertia of the contingency table between education and political groups is equal to 0.029, i.e. it accounts for 68.2% of the total inertia. This dimension is formed by the contrast of the tertiary education level, on the positive side of the axis and the primary and secondary levels, on the negative side of the axis. This dimension can be named the education level dimension because as we move on this axis from the left to the right, the education level increases. The second dimension is formed by the contrast of the primary education level with the secondary education level.
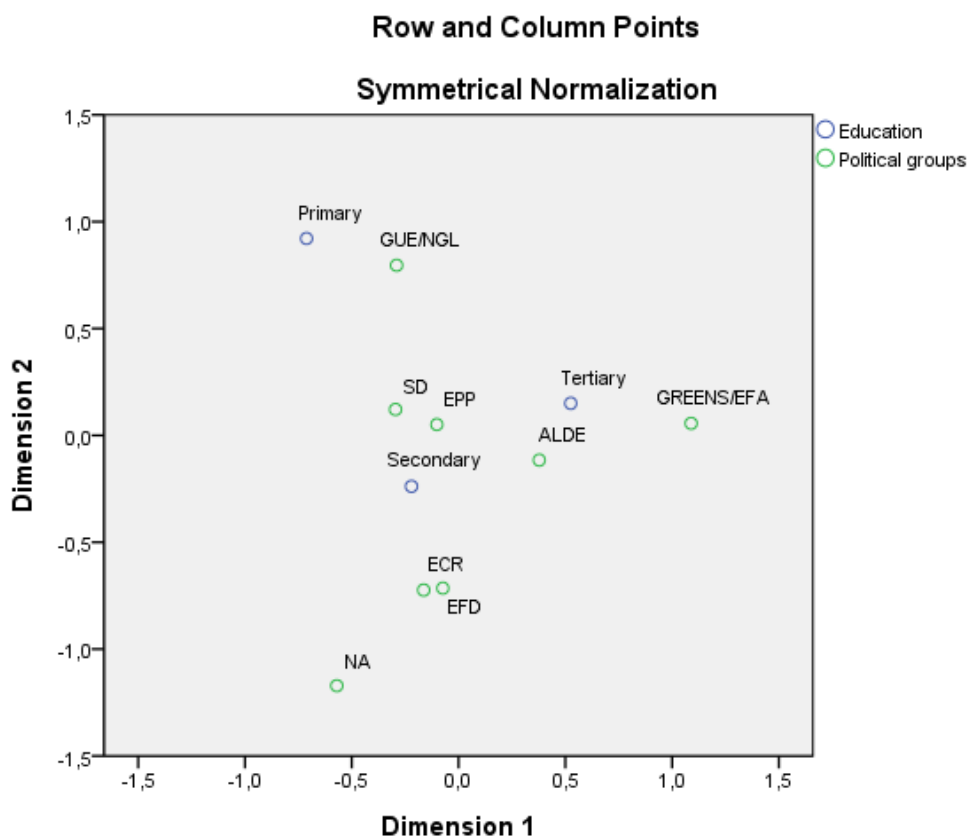

Diagram 11 Correspondence analysis for Political groups by education level

Diagram 11 displays the correspondence analysis map. The contribution of the dimension to the inertia of four political groups of the European Parliament is very high for EPP: 0.856, SD: 0.898 ALDE: 0.941 GREENS/EFA: 0.998. ALDE and

GREENS/EFA, located on the positive side of the axis are associated with tertiary education while EPP and SD are associated with the other two lower levels of education. This can be clearly shown in Table 10 which includes the vote share of political groups by education level. As we move from lower to higher education levels the vote shares of EPP and SD drop and the vote shares of ALDE and GREENS/EFA increase. For the rest of the political groups there is not such a clear trend, i.e. a monotonic function, but it should be noted that GUE/NGL seems to be associated with primary education.

Table 10 Vote share of political groups by education level

Political groups	Primary	Secondary	Tertiary
EPP	40,5%	36,5%	34,5%
SD	34,0%	26,6%	22,2%
ALDE	8,7%	13,2%	16,5%
GREENS/EFA	2,5%	6,8%	14,4%
ECR	1,7%	4,7%	3,1%
GUE/NGL	10,5%	4,7%	5,2%
EFD	1,2%	3,7%	2,7%
NA	0,9%	3,8%	1,4%

Education level (North)

The correspondence analysis between education level and political groups in the subset of countries which belong to cluster 1 gives a first dimension which accounts for 89.7% of the total inertia which is equal to 0.31. This dimension is formed by the contrast of the tertiary education level, on the negative side of the axis and the primary and secondary level, on the positive side of the axis. This dimension can still be named as the "education level" dimension, but in this case (countries included in Cluster 1) as we move on this axis from the left to the right, the education level decreases.
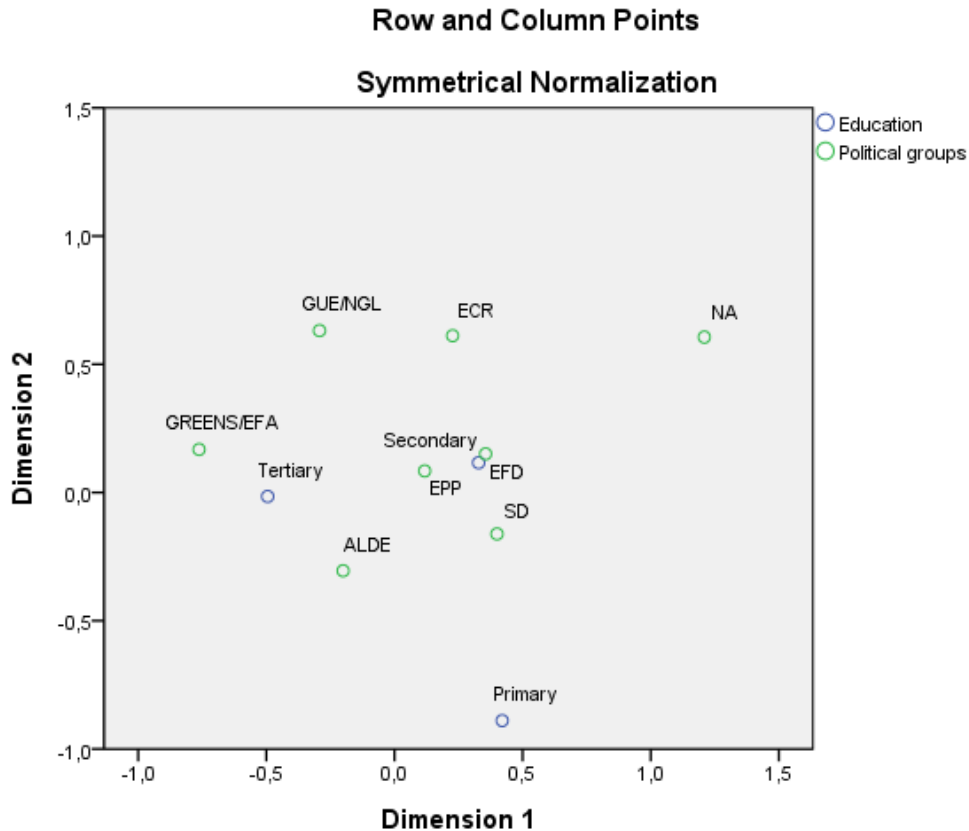
Diagram 12 Correspondence analysis for Political groups by education (North)

Diagram 12 displays the correspondence analysis map for the countries of Cluster 1. The contribution of this dimension to the inertia of the two larger political groups of the European Parliament is very high EPP: 0.852, SD: 0.948. It is also high for GREENS/EFA: 0.984. On the other hand, the contribution of the first dimension to the inertia of ALDE is only 0.561. This means that a large part of the inertia of ALDE is explained by the second dimension which is formed by the contrast of the primary with the secondary level of education. GREENS/EFA is associated with tertiary education, while EPP and SD are associated with the other two lower levels of education. This can be clearly shown in Table 11 which includes the vote share of political groups by education level. As we move from lower to higher education levels the vote shares of EPP and SD drop and the vote share of GREENS/EFA increase. ALDE performs better among those with tertiary education but also among voters with primary education.

Table 11 Vote share of political groups by education level (North)

Political groups	Primary	Secondary	Tertiary
EPP	35,8%	38,5%	34,5%

SD	26,5%	22,5%	16,2%
ALDE	25,1%	19,0%	23,3%
GREENS/EFA	7,6%	11,0%	19,7%
ECR	0,8%	1,8%	1,3%
GUE/NGL	0,8%	2,6%	3,0%
EFD	1,1%	1,3%	0,9%
NA	2,3%	3,4%	0,9%

Education level (South)

The first dimension (first principal inertia) accounts for 72.3% of the total inertia which is equal to 0.028. This dimension is formed by the contrast of the primary education level, on the positive side of the axis and the secondary (and partially the tertiary) level, on the negative side of the axis. The second dimension is formed by the contrast of the tertiary with the secondary and partially the primary level.
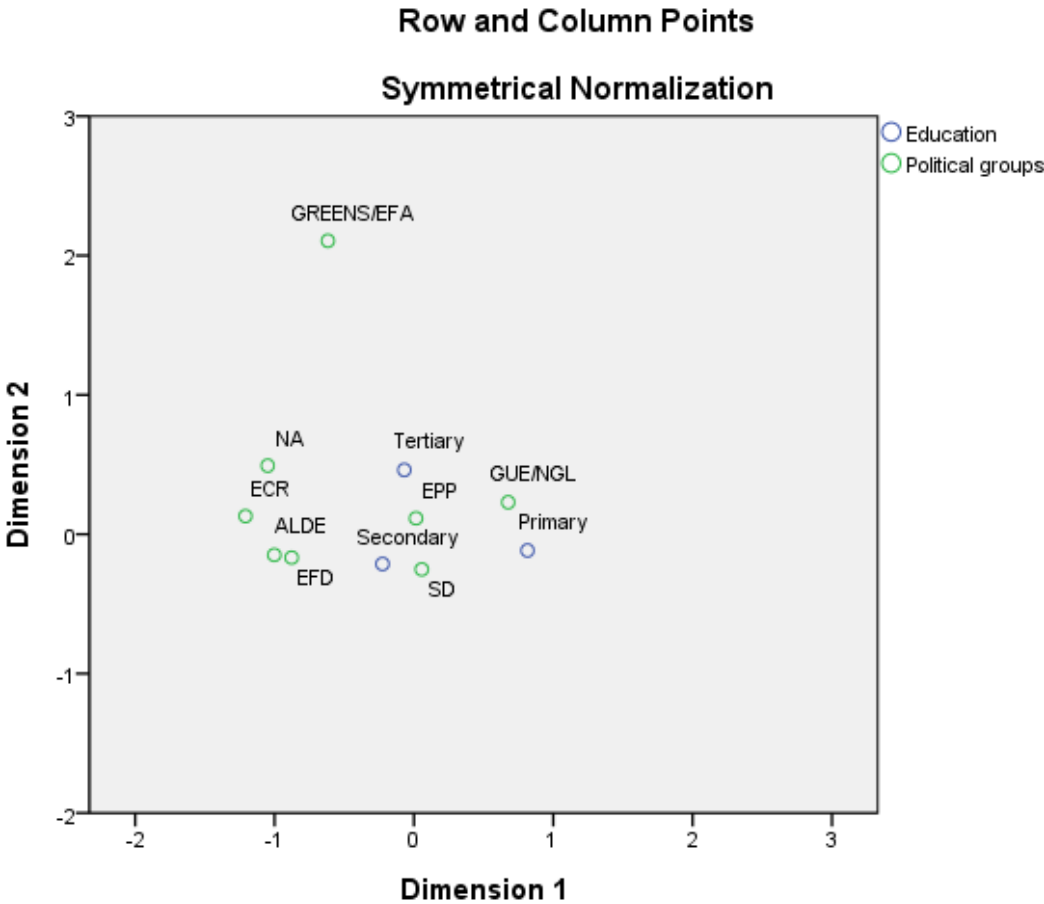

Diagram 13 Correspondence analysis for Political groups by education (South)

Diagram 13 displays the correspondence analysis map for the countries of Cluster 4. GUE/NGL is closely associated with primary education. In fact, GUE/NGL vote

share among primary education voters is 16.1% well above the average vote share in countries which belong in Cluster 4 (10.6%) and almost double the vote share among the group of voters with secondary level of education. A very different picture is presented for the political groups located near the other end of the first dimension. The support for ALDE is 0,7% among voters of primary education, 4,3% among voters of secondary education and 3,4% among voters of tertiary education. The support for EFD is 1,2% among voters of primary education, 5% among voters of secondary education and 4% among voters of tertiary education. Finally GREENS/EFA is strongly associated with the second dimension formed by tertiary education. The support for GREENS/EFA is 0.3% among voters of primary education, 0.8% among voters of secondary education and 2,2% among voters of tertiary education.

Discussion

Correspondence analysis gives the opportunity to observe more than just the existence of association between a socio-structural variable and the variable of political groups. It gives the opportunity to observe which of the categories of the socio-structural variables are associated with the political groups.

Facing the whole European Union as a uniform political system we find the following associations between socio-structural categories and political groups. EPP is associated with higher social classes, high levels of religiosity and secondary and primary education levels. SD is associated with lower social classes, lower wealth levels and the two lower levels of education. ALDE and GREENS/EFA are very similar because both are associated with higher social classes, low levels of religiosity, high standards of living and tertiary education. GUE/NGL is associated with lower social classes, low levels of religiosity, low wealth levels and primary education. EFD is associated with lower social classes

The comparison of correspondence analysis between the North and the South reveals the following differences: As a general observation, the associations in the North involve most of the political groups. On the other hand, the associations in the South are related to EPP, SD and GUE/NGL. In the North higher social classes support EPP, ALDE, and GREENS/EFA. In the South, higher social classes are more advantageous for EPP only and ALDE enjoys greater support among the lower middle class. In the North there is not a strong association between religiosity and ALDE. In the South

ALDE is associated with low levels of religiosity. In the North, SD is associated with poor families. In the South support for SD is almost the same among the poor and among the group of people who place themselves in the middle of the scale.

From the comparison of the total inertias calculated for each of the two-way tables we can order the socio-structural variables we have used according to their association with the political groups using as a measure the total inertia of the contingency table. For instance, comparing the total inertias we can observe that the standard of living is not so strongly associated with the political groups as the variable of religiosity.

This paper is an attempt to reveal the associations between the political groups in the European Parliament and some socio-structural variables. Some socio-structural variables (and some of their categories) are associated with some political groups, while other socio-structural variables are associated with other political groups. There are political groups that display strong associations with the socio-structural variables and other political groups which are not strongly associated with them. The findings presented in this paper can help us understand the similarities and the differences between European voters with regard to their social characteristics. This knowledge can facilitate the construction of models of voting behaviour of the European voter.

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