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A Typology of Voters: Creating Voters' Profiles via Clustering

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Abstract

With the present study we examine how and in which level some factors influence the creation of vot-ers' profiles during the formation of political preferences People act in an environment with social, personal as well as professional networks where they interact, they develop activities, they undertake roles and they react. The influence that the network can exert on its members is also combined with external factors as networks are not only interactive but also interrelated or interconnected. In networks there are persons who influence more the others and others who are most influenced while forming their political preference. We examine some factors that influence political preferences in networks creating voter's profiles. The data collection took place in Greece. 1.103 persons participated. For the data analysis we used the ACP and Cluster Classification. From the results we see that 35% consider the personal interest as the crucial factor while forming political preferences. 33% evaluate more the position of the political parties on social, financial and national issues, 11% form political preferences assessing the positions of the political parties as well as the personal interest and finally 7.5% is influenced by the environment that means by personal, professional and social networks while forming political preferences.

Keywords: Voting behavior; Political preferences; ACP; Cluster classification; Networks

Introduction

Many factors influence the formation of political preferences. Most researchers use multiple regression analysis with different variables such as "political involvement", "interaction in networks", "ideology", "environment", "political identification". In our democracy [1] the political parties are important for the creation of political preferences via regulation, program, ideology and political persons [2].

The political though as well as the formation of political preferences are complicated processes which consist of different stages but that are directly connected to interactions in the different spheres of action in which we live [3]. These interactions are part of the different spheres of actions where we live and which are typeset by networks. These spheres are the following:

- Firstly, there is the sphere of interpersonal and familial relations that includes people with whom we live together or people who are our family (partners, parents and children).

- Secondly, there is the professional environment that includes the contact with colleagues.

- The third sphere of action is the social life that includes our friends and people who belong to our social environment.

In these spheres we shape our networks, we participate in networks and we interact with other people. The network is defined as a sum of people that are connected with each other and that can have one or more common characteristics [3]. Scientists believe that people create their networks but they are also influenced by others even if they do not know them [3].

People belong in networks and influence each other [3]. The influence in political behavior is related to different characteristics and factors that can be found in people in networks. We are units with many votes and we exert influence consciously or unconsciously [3]. We are the mediators of different factors such as political knowledge, ideology, political identification etc. in our own networks, we shape them, we grow them but the networks affect us and mediate in the formation of political preferences [3,4].

Political bahavior is also connected to political persons as well as to personal interests. The connection with the political parties can influence somebody to take a job, have opportunities for education and find new friends. It is not rare that these political connections can motivate politically networks of voters and supporters [5-7]. In Greece the political system is directly connected to the clientelistic benefits that can have the voters [8]. Research [9] showed that younger voters form their political behavior using clientelistic criteria. John Wilson and Robert E. Lane [10] support that people vote having in minded not only a specific political ideology and their interests but also the rewards or the benefits of a political choice.

Formation of Political Preferences: Factors and Influences

In order to examine the formation of political preferences studies use mostly multiple regression analysis with different variables such as the involvement in politics, the evaluation of the network as a place of interaction, ideology, the voter's social, personal and professional environment and the political identification. In the modern democracy where political parties participate, in a dynamic way, in the formation of political preferences via their political personnel, their political program, the regulations and their ideology, political identification seems to be the most important characteristic that is build via [1,2,5]:

- The identification with the political leading figure of the party.

- The identification with the political program of the party [4,11-16].

- The contact with political persons and political personnel [17].

The interaction or the contact with political persons or the political

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personnel can be formal or informal [18]. The informal interaction is considered to be very important because exposes people to different messages mostly in a simple and unconscious way. The participation in networks makes people develop their political knowledge, be familiarized to politics and thus the formation of political preferences seems to happen in an easy way [13].

The participation in social networks such as in citizens' groups, in professional networks but also the involvement in personal networks promotes the participation in politics, the political motivation as well as the political influence [14,16]. Different characteristics influence the different voter's profiles [4]. These characteristics can be the political knowledge, the political identification with the positions, the leading figure, the program of a political party, the contact with political persons or the political personnel and the political interest that needs monitoring of politics and of the public affairs.

The interaction in social and personal networks exposes people to political information in a different way than in professional networks [5,19]. Firstly, it is more flexible and secondly it does not conflict directly with other relationships, participation in networks or influences [18].

The political behavior and the political preferences are connected to political parties, political personnel as well as to personal interest. The contact with political parties can help someone find a job, have opportunities for studies or make new friendships. These political contacts have also different projections: they organize and politicize networks with voters and supporters [5-7]. In Greece political preferences are closely associated with the 'redemption' that is why our political system is characterized fundamentally clientelistic [8]. It is already referred in previous studies that the younger voters choose taking into consideration the satisfaction of their personal interests and thus they form their political preferences at the end of the pre- elections campaign [9]. According to John Wilson and Robert E. Lane [10] the political preferences are connected not only to rewards but also to the voter's personal interest. Additionally Steven G. Rosentstone and John M. Hansen [10] support that people decide easier about their political preferences when these preferences give them specific benefits.

The retreat of the "left-right" antagonism, as is was illustrated by the continuous interchange of the two major parties (PASOK and Nea Dimokratia) in office (1974-1981 Nea Dimokratia, 1981-1989 PASOK, 1990-1993 Nea Dimokratia, 1993-2004 PASOK, 2004-2009 Nea Dimokratia, 2009-2011 PASOK) shows that today the importance of the axe "left-right" as well as the political identification has reduced. and this "left-right" antithesis gradually evolved as a "government-opposition" antithesis, without any ideological terms [20]. There is also the perception of the crisis from the political personnel. For the major part of the electorate, the economic crisis has its roots to the diachronic biased decisions and clientelistic structures of the State formation itself, which proves accurate what Anthopoulos [21] states in his work. Consequently, the economic crisis is actually a crisis of the quality of Democracy, which does not pertain to the economy but to the characteristics of governance. In addition to that, the attention of citizens is moved away from welfare issues towards issues that pertain to the quality of Democracy [22]. The two major parties that interchanged in the government over the previous years received most of the citizens' disappointment. In many cases, decisions of the previous period were questioned.

Another important factor is the connection of the political party to the social action so as to deal with social problems [5,23]. The socially oriented political parties gain more supporters [5,24].

Methodology

For the analysis we use a two step procedure, computing firstly, via multivariate correspondence analysis, principal axes and loadings and secondly, through cluster analysis, the attitudes are grouped in clusters. Through this analysis, specific axes emerged, describing the data in less dimensions.

The Correspondence Analysis [25] is a statistical method for the representation of rows and columns of a data table in a space of fewer dimensions than the original. Analyzing data in a space of fewer dimensions can reveal typological patterns of data and group the data into homogeneous clusters. This is a two step process. The analysis is implemented through the use of two-way cross tabulation, contingency tables, and correspondence analysis by using the pioneer program "M.A.D." [Méthodes de l'Analyse des Données], developed by Prof. Dimitrios Karapistolis . In "M.A.D." [Méthodes de l'Analyse des Données], Prof. Karapistolis (2010) has integrated and implemented digitally an abundance of methods created manually by the distinguished mathematician Jean-Paul Benzécri [26]. In order to identify specific attitudes of the population and form clusters that showcase the same attitude, we used the data of a study of 2011.

At first, we analyze the use of ACP columns (variables) of the data table [25]. From the original variables, which are measured in device scale (1-5: agree slightly-strongly agree) the correlation coefficient table SPEARMAN is formed, which is also analyzed. Then variables are grouped using CAH [25] based on the coordinates of the principal components that derived from the ACP. Thus, groups of variables are exported which demonstrate typological standards which are established by attitudes. In the second stage, using the hierarchical classification for the lines (objects) in Table 1 of the original variables

Factors	Little Important	Relevant Important	Medium Important	Quite Important	Very Important
Ideology	5.3%	9.0%	9.9%	33.7%	42.1%
Familial environment	20.3%	20.1%	22.9%	27.4%	9.3%
Social Environment	31.8%	29.6%	27.1%	9.6%	1.9%
Professional Environment	52.1%	24.4%	16.1%	5.7%	1.7%
Political Program	26.4%	18.9%	19.1%	25.4%	10.3%
Leading Figure of the political party	25.3%	15.0%	18.2%	25.1%	16.4%
Position of parties on national issues	14.2%	12.9%	16.8%	29.8%	26.3%
Position of parties on financial issues	11.0%	10.0%	14.4%	31.0%	33.7%
Position of parties on social issues (Health, Education)	9.6%	8.5%	12.4%	29.8%	39.7%
Personal Interest	31.0%	17.6%	16.9%	16.9%	17.7%
Contact with political persons or political personnel	49.7%	18.2%	14.8%	11.5%	5.7%
Familial tradition	44.2%	17.3%	15.3%	12.7%	10.5%

Table 1: The relevant frequencies (%) of the factors that influence political preferences.

[25] the homogeneous clusters of objects connecting stops and thus defining typologies of people behavior are formed. Via VACOR method we are able to identify the values of variables that characterize the classes of a hierarchy.

Data collection

The survey was conducted in Greece. The questionnaire used for the first time containing questions a) to assess through the conjoint analysis the main effects of the variables of "political mobilization", "gender", "position in communication network" and "communication network" as well as b) questions about the parameters that shape political behavior. 1103 persons participated in the research from urban centers (such as Athens) and the periphery (islands and provincial regions).

Respondents were reached partly on the basis of ease of approach and partly to the method of snowball while completing part of the questionnaires was done with personal interviews (face to face). People were approached from the familial, social and professional environment with starting point the researchers producing that way an snowball.

Although, we cannot typically consider the sampling as random because the reference population from which we realized the selection has not systematical characteristics of selection and thus it can be considered that it covers a range of people that gives a representation guarantees.

The selection of respondents was an attempt to maintain pergies on gender (male/female), age group (18-35, 36-50, 50-65, 65+) and urbanization (urban center/periphery). The survey was conducted in the first half of 2011, from January through June. The average time of completion of the questionnaire did not exceed 20 minutes.

The sample size is considered satisfactory given that this analysis is considered as exploratory of typological models. Because of sampling weaknesses the results can hardly be generalized but give the impetus for further exploration. Besides, for this reason we used methods of data analysis describing structural characteristics despite population distributions.

Results

The participants of the survey were asked to evaluate the importance of different factors for the formation of political preferences. The relevant frequencies are presented in the Table 1.

From the results of the Table 1 we see that more than the 70% of the respondents believe that ideology can influence the formation of political preferences. In each case people vote today less ideologically oriented than in the past because in the past ideology was based on social classes and this has changed [27,28]. Social classes were connected to class identity According to Lipset (as mentioned in ref. [10]) the political dimension of social classes changed because many different factors such as mobility and lack of social cohesion have contributed to this phenomenon. A typical example is that of the labor class which is no longer represented by one and only political party.

Even if the political reality, the ideological and political criteria have changed, the context of the political parties is different, the ideological differentiation is smaller and more difficult to be observed, ideology seems to motivate and prioritize the political behaviour [10]. As far as it concerns the three basic spheres of action we observe that almost 40% of the respondents understand the influence that can have the familial

environment on the formation of political preferences. On the other side 40% of the respondents believe that they are not influenced by their family on the formation of the political preference. The social as well as the professional environment are not considered to be influential for the formation of the political behavior. The importance of the family for the formation of political behavior has already be investigated because it has specific characteristics such as frequency, trust, intensity and intimacy characteristics that intensify the influence on political behavior. Additionally, influences on political preferences happen in a unconscious and not always evident way.

As far as it concerns the importance of the program as well as the leading figure of the political party 40% of the respondents believe that these are as not important factors for the formation of the political preference. We also see that 50% of the respondents believe that the way the political parties deal with social, national and financial issues is a very important factor for the formation of political preferences. This may happen because the way politicians deal with these issues influence the everyday life of citizens.

As far as it concerns the personal interest 30% of the respondents believe it plays an essential role for the formation of political behaviors. Many political preferences are based on personal interest that is why our political system is considered as clientelistic [8]. People vote today less ideologically oriented. Thus, they form their political preferences trying to ameliorate their life and this is a clearly politically motivated decision.

On the other hand there are voters that they believe that their personal interest is not an important factor for the formation of the political preferences (50% of the respondents). During the last period the voters do not trust anymore the clientelistc political system.

As far as it concerns the contact between the voters and the politicians or the political personnel 70% of the respondents believe that this is not important factor for the formation of the political preference. This probably depicts the negative impression of a contact that could represent the propaganda or the political pressure towards voters [8].

About the familial tradition as factor for the formation of the political preference 70% of the respondents believe that they are not influenced by the political behavior of their family that as we have already said can happen in an unconscious way.

Results ACP and hierarchical clustering

Using the variables in the table below that represent some factors that influence the formation of political preferences we proceeded in ACP and Hierarchical Clustering to properly reflect criteria groups and conflicts between them (Table 2).

Q1	Ideology
Q2	Familial environment
Q3	Social Environment
Q4	Professional Environment
Q5	Political Program
Q6	Leading Figure of the political party
Q7	Position of parties on national issues
Q8	Position of parties on financial issues
Q9	Position of parties on social issues (Health, Education)
Q10	Personal Interest
Q11	Contact with political persons or political personnel
Q12	Familial tradition

Table 2: The variables-factors that influence political preferences.

The Principal Components Analysis and classification using the main factors extract 4 groups of variables (criteria) (Figure 1).

The first group is consisted of the criteria (Q1, Q5, Q6) and represents the ideological dimension. The second group is consisted of the criteria (Q7, Q8, Q9) and represents the influence of the positions of the political parties on the formation of the political preferences. These two groups are linked in the classification dendogram in one group.

A second branch is divided in two new groups of criteria. The third group is consisted of the criteria (Q2, Q10, Q11, Q12) connecting the familial environment, and the familial tradition to the personal interest and the contact with the political persons. The fourth group is consisted of the criteria (Q3, Q4) that refer to social and professional environment.

After, we did classification of the subjects in groups via the VACOR method. Six groups are formed: one branch of the dendogram is divided in groups I1 and I2 and the second branch in groups I3 and the group (I4, I5, I6) that is divided consecutively in (I4, I5) and I6 as well as in I4 and I5 (Table 3).

From the description of the statistically important variables for each class derive the variables that are important for each junction (group from the six above). Thus, for I2 the important variables are (Q1,15, Q7, Q8, Q9) that form the ideological dimension and the dimension connected to the positions of the political parties. So, for 33.1% of the total the formation of political preferences is mostly based on the ideological dimension and the dimension related to the positions of the political parties. The person who belongs in this group can be characterized as "idealist collective voter". For the group I1 the important variables (Q7, Q8, Q9, Q10, Q11) connect the positions of the political parties and the personal interest defining the "utilitarian voter". The groups I4 and I5 connect the interest and the familial tradition defining the "individualistic – familial voter" (34.7% of the total). In particular the I4 is connected with (Q2, Q10, Q11, Q12) and I5 with (Q10, Q11, Q12). The group I3 is related to the variables of the familial environment, and the variable of the familial tradition defining the "familial voter" (14.2% of the total) and group I6 describes the "ideologist – social voter" because it is related to the variables (Q1,

Q2, Q3, Q4) that connect the ideological perception, the familial, professional and social networks.

Briefly we have five types of voter:

- Idealist collective voter (33.1%) [I2]

- Utilitarian voter (14.2%) [I1]

- Individualistic – familial voter 34.7%) [I4 and I5]

- Familial voter (14.2%) [I3]

- Ideologist – social voter (7.3%) [I6]

Therefore, we see that 35% of the total considers the personal benefit important factor shaping political preference, 33% evaluate mostly the party positions on national, social and economic issues for the preference policy. 11% of the total shapes political preference based on the positions and personal interest, 14% of the total forms its political preference taking into account mostly the familial environment and finally 7.5% of the total is influenced by the environment (familial, social, professional) as well as by the ideology.

As far as it concerns the intensity for each criterion we observe that for the Group I1 the positions of the political parties for national, financial and social issues are important enough and very important factors for the formation of political preferences. The personal interest and the contact with the politicians or the political personnel are quite important or very important factors for the formation of political preferences.

In the Group I2 the ideology, the political program and the position of the political parties for the national, financial and social issues are quite important factors for the formation of political preferences.

In the Group I3 the familial environment is a factor of medium importance for the formation of political preferences.

In the Group I4 the familial environment, the familial tradition and the contact with the politicians or the political personnel are factors of relevant importance for the formation of the political preference and the personal interest is a very important factor for the formation of the political behavior. In the Group I5% the familial tradition, the personal interest and the contact with the politicians or the political personnel are factors of medium importance for the formation of the political preference.

In the Group I6 the ideology constitute a factor of relevant importance, the familial environment is a factor of medium importance, the social environment is considered as a factor of relevant importance and the professional environment is believed to be a factor important enough for the formation of political preferences.

Discussion and Conclusion

With the present study we do not investigate the way the influence is exerted on people but its characteristics. We focus on the elements that can form typologies – voters' profiles. These elements that create the different profiles do not cover every possible characteristic a profile can have. Additional variables such as the frequency of interactivity, demographic or psychological factors are not included in the present study.

The research took place during a period where financial, social and political conditions were particularly intensive and difficult with changes and conflicts. Political parties do not exist anymore in the parliament and others which traditionally played a secondary role
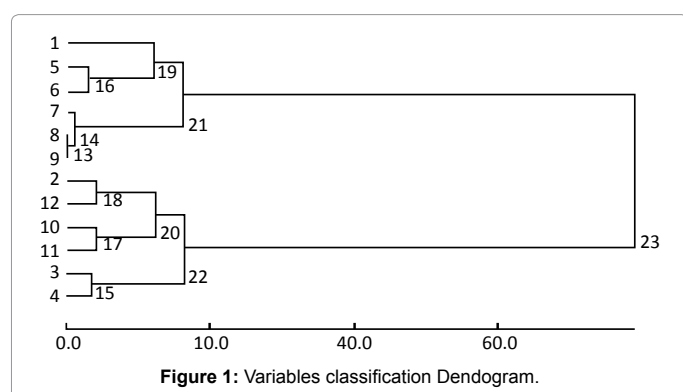

Figure 1: Variables classification Dendogram.

Group	Number of Subjects	Relative Frequency
I1	114	14.2%
I2	353	33.1%
I3	151	14.2%
I4	100	9.4%
I5	269	25.3%
I6	78	7.3%

Table 3: Groups and number of subjects.

emerged as parties of the first line with significant political power. The changes were not included in the present study. The political scene in Greece has changed after 2010. The research took place on 2011 where changes as well as the emersion of many new political parties for example "To Potami" were not incorporated to the present study that is referring to a previous period.

The research does not investigate the influence on people in pairs as it happens with the traditional snowball researches. We examine them mostly individually. Social bias also influence the way people answer about influences they receive or they exert. Additional factors that can be social but at the same time profoundly personal or characteristics of the elections [29] are not included in this study.

The formation of political preferences is also influenced by cultural, social, personal, and psychological factors. The total of someone's values can motivate not only himself but also others. The culture, the experience and the desires as well as the needs can influence the political preferences. In the modern era the way relationships are formed and the way of thinking as well as the social role people undertake can motivate specific political preferences.

With the present study we examined the way some factors influence the formation of voters' profiles. In the table below we see in the total the groups of variables in rows (last column), the size of each group of subjects (last row) as well as the level of each variable that characterizes the group (in cell: VM very much, SS so and so, M medium, EN enough) results that were analytically described in the results chapter (Table 4).

Our environment is not united, it includes different networks which interact or are interrelated. Each person lives in an environment which includes social, professional and interpersonal networks. There, he participates, he interacts and he develops activity undertaking different roles. Even if networks exert important influences, the formation of political preferences is also influenced by external factors.

In networks there are people who influence more the others and others that are influenced most concerning their political preference. We investigated the factors- criteria that influence political preferences in networks evaluating five different types of political behavior.

With the present study we examined how and in which level some factors influence the creation of voters' profiles during the formation of political preferences. People act in an environment with social, personal as well as professional networks where they interact, they develop activities, they undertake roles and they react. The influence that the

network can exert on its members is also combined with external factors as networks are not only interactive but also interrelated or interconnected. We examined the factors that influence political preferences in networks. From the results we see that 35% consider the personal interest as the crucial factor while forming political preferences. 33% evaluate more the position of the political parties on social, financial and national issues, 11% form political preferences assessing the positions of the political parties as well as the personal interest and finally 7.5% is influenced by the environment that means by personal, professional and social networks while forming political preferences.

Correspondence Analysis helped us to display the rows and columns of a data matrix as points in dual low dimensional space and Cluster Analysis using hierarchical clustering defines groups of points assigning attitudes and so defining typologies of behaviour among people.

The importance and the implementation of the present study to the filed of the electoral studies is that the study describes the attitudes that are connected to political parties and relates the axes of confrontation of the political parties with the axes of confrontation of attitudes. Thus we can delineate cleavages such as age, religiosity, urbanization, gender.

The existence of networks by itself cannot explain why and how networks can influence people's behavior [4]. The influence in political behaviour is related to different characteristics of the network. In networks, there are connections and interactions as well as different factors that influence voting behaviour such as political knowledge which is produced, consumed and recycled via political discussion, political identification, the assessment of political issues, the environment itself, ideology, and political interest. These elements exert influence on political behaviour because people "distribute" them to others as they develop the political interest and involvement in politics [5,18,20,30].

Connecting factors and networks for the creation of political preferences there are also issues concerning the rationality of the voter, the circumstances or the protest voting as well as the online social life and networking. These are very interesting issues that can be answered in a future research.

Column1	Groups Variables/Variables	I4	I5	I6	I3	I1	I2	Column²	Groups (classification after ACP)
Q1	Ideology			M			VM		1
Q5	Political Program						EN		1
Q6	Party Leader								1
Q7	Party Positions on political issues					EN	EN		2
Q8	Party positions on financial issues					VM	EN		2
Q9	Party Position on social issues					VM	EN		2
Q10	Personal Interest/Benefit	VM	SS			VM			3
Q11	Contact with political persons or political personnel	M	SS			M			3
Q12	Family Tradition	M	SS		SS				3
Q2	Familial Environment	SS		SS	SS				3
Q3	Social Environment			EN					4
Q4	Professional Environment			M					4
	Clusters	100	269	78	151	114	353	1065	
		9.40%	25.30%	7.30%	14.20%	10.70%	33.10%		

Table 4: Table of groups' variables.

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