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How data management helps the information management: regrouping data using Principal Components Analysis.

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Abstract

The present study estimates the central factors that influence political behavior. We use data of 1995-1996, of 2006 and of 2010 so as to see how people understand, evaluate and regroup different factors using Principal Components Analysis. The PCA method reveals hidden or latent structures in the data. PCA is used as an exploratory tool in a complex phenomenon such as political behavior so as to get structural components (factors). Instead of using the original variables we use the proper similarity coefficients. So, the matrix of similarity coefficients was analyzed, since it is difficult to check the normality assumption for the original variables. Our sample was constituted by 681 individuals that participated in the interview process. This research is one of the first attempts to depicture different voters' profiles. From this research exist, today, only some data. Thus, the relationship or the differences among variables cannot be explored. The study presents a historical research that took place in a period when many political and social changes happened, e.g. the change of the main leading figures of the Greek political scene, the deregulation of radio and television as well as the development of internet.

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1. Formation of Political Preferences: different aspects of a complicated process

The formation of political preferences is based on social, individual and often technological conditions (Apospori, Avlonitis, & Zisouli, 2010) influenced by the mediating role of political persons and political institutions (Abelson, Kinder, Peters, & Fiske, 1982). Their role is particularly important in the configuration of voters' political behavior (Huckfeldt & Sprague 1992) even though today people form their political behaviour less ideologically oriented. Thus, the role of political personnel gains more and more importance in political life (Drummond, 2006; Kaase, 1994).

Democracy requires citizens' active participation in public life (Rosenthal, 1998). Participation takes many forms such as participation in campaigns, financial support towards parties and candidates, participation in the elections (Davidson & Cotter, 1989), activity via new forms of social networking (Kaplan & Haenlein, 2010).

According to Riley (1983) politics are considered via three levels:

- the cognitive: includes people's convictions and experiences
- the valuable: includes values, rules and moral codes
- the sentimental: includes people's feelings and sentiments.

But these levels are not constant and permanent; They are redefined functioning in the context of democratic pluralism (Pildes & Anderson, 1990). The paper presents characteristics that constitute the above levels and demonstrate their importance. In these characteristics is based the modern design of social networking (Kaplan & Haenlein 2010).

The formation of political preferences is not only influenced by media or political marketing practices. On the contrary, people's political preferences are influenced and depend on many other factors: moral, demographic and social (Achen, 1992; Deblinger et al., 1999) which can be very deeply political and at the same time very deeply personal (Brody & Sniderman, 1977).

Beck et al. (2002) pointed out that the configuration of political preferences is influenced by five basic factors categorized as follows: cultural, social, personal, mercenary and psychological.

The study shows in a descriptive way how the candidates' characteristics, the identity of a political party, the mass media influence, the social issues as well as the integration of a country in a wider European environment can exert influence in voting behavior.

2. Methodology

The data collection took place in Athens and in the Prefecture of Arkadia, in 1995-1996. 681 individuals participated in the interview process. The questionnaire contained 66 questions, which aimed to analyze the criteria that Greeks use in order to make specific voting choices.

We used structured interviews with closed questions. This method provided us with certain type of factual, descriptive information (De Vaus, 2002). For the measurement of the answers it is used the 5 point Likert scale, as well as ranking and multiple choice options.

Principal Components Analysis (PCA) is a way of identifying patterns in data, and expressing the data in such a way as to highlight their similarities and differences. Since patterns in data can be hard to find in data of high dimension, where the luxury of graphical representation is not available, PCA is a powerful tool for analyzing data.

The method reveals hidden or latent structures in the data. Generally speaking PCA is used as an exploratory tool in a complex phenomenon such as electoral behavior in order to get structural components (factors). Instead of using the original variables we use the proper similarity coefficients. So, the matrix of similarity coefficients was analyzed. This is due since it is difficult to check the normality assumption for the original variables.

Taking into account the original data, further analytical techniques should be used. The extracted factors give evidence for the structure of the data and especially the main latent theoretical factors such as "party identification", "issue voting", "media orientation" and "candidates-voter proximity".

3. Results

3.1. The Sample

59% of the respondents were men and 41% of the respondents were women. Their ages varied from 18 years old to 65 years old and above: at the age between 18-24 were 15.4% of the respondents, at the age between 25-34 were 17.9% of the respondents, at the age between 35-44 were 33.3% of the respondents, at the age between 45-54 were 2,6% of the respondents at the age between 55 - 64 were 20.5% of the respondents, at the age between 65 and above were 7.7% of the respondents. As far as it concerns their education level 23.1% of the respondents were of primary education level, 17.9% of the respondents were of secondary education level, 38.5% of respondents of

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