

Multivariable Evaluation via Conjoint Analysis of the Factors that Influence Voting Behavior in Networks

Evangelia NM* and Theodore C

Department of Political Science, Aristotle University of Thessaloniki, Greece

Abstract

With this study, we examine which combination of personal features and network features most influences the vote as well as which combination is most influenced in voting activity.

People belong in networks and influence each other. We examine how intense is the influence on political behavior of the factors such as the gender, the type of the relationship in the network, the different spheres of action as well as the involvement in politics.

We use the Conjoint Analysis method adopted from the discipline of marketing, where we can assess at the same time different factors via multidimensional analysis. This method examines representative combinations of factors that represent profiles of people. The respondents assess and prioritize the different voters' profiles and scenarios of political influence revealing the mechanism with which the political influence is exerted in networks. The research took place in Greece. The sample consisted of 1.103 questionnaires collected.

The current research methodology as well as the research design could be a useful tool in political campaigns, political consulting and political marketing because it permits professionals to measure and assess different parameters comparatively.

Keywords: Networks; Conjoint analysis; Behavioral analysis; Political marketing

Networks and the Relationships in Networks as Influential Factors on Political Preferences

Most surveys on political behaviour, both in US and Europe, focus more on voting behaviour and less on the formation of political preferences, considering that voting behaviour is more a result of a personal process and less a result related to the influence exerted in the networks which exist in the different spheres of action. [1].

The environment where we live is divided in different spheres of action. There are three fundamental spheres of action [2]:

- The first sphere of action is the personal which includes the relationships with the family as well as others personal relationships (for example a couple that live together). The familial and personal relationships create networks that involve people with whom we live together.
- The second sphere of action is the professional which includes the relationships created with the colleagues and the people at the workplace.
- The third sphere of action is the social which includes friends and people with whom we have social contacts such as people with whom we go out for dinner or drink.
- The formation of political preferences is a complicated process closely connected to the interactions. These interactions are part of the different spheres of actions where we live and which consist of networks.

The interactions in the networks within the above spheres of action, influences the way we perceive politics. Thus, even if it is believed that the political behavior is formed in a very personal way, it is intensively influenced by the interactions with the family members, friends and colleagues in the different spheres of action [3].

In each of these spheres there are networks. 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]. The network has specific characteristics such as structure and topology [3]. Scientists believe that people create their networks but they are also influenced by others even if they do not know them [3].

The existence of networks by itself cannot explain why and how networks can influence people's behavior [4]. Most of the times, information about the structure and the characteristics of the network can help us to understand how influence is exerted in networks [4]. Network analysis is a subcategory of sociology that examines the actors, the relations, the connections as well as the structure of the network without focusing in peoples' characteristics [3,5,6].

The influence on political behavior is related to the characteristics of the network. To understand how influence is exerted in networks, it is also necessary to understand how people are connected in networks where we undertake roles and we interact [3].

Interactions can be formal and informal [7]. The informal interaction is considered to be very important because it exposes people to information in a spontaneous way and thus exerts influence unconsciously. That is why scientists mainly focus in interactions and connections between husband and wife, between colleagues and between friends. These types of relationship are simple, in a daily basis and penetrating. The more a person interacts with people, who share

*Corresponding author: Evangelia NM, Department of Political Science, Aristotle University of Thessaloniki, Greece, Tel: +30 231 099 60; E-mail: markakie@polsci.auth.gr

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the same ideas, the more likely is to share the same political views or the same political behavior [3]. People participate in social and political networks with different level of empowerment [8]. The empowerment is closely connected to the frequency and the intensity of the contacts in networks. As the total number of the empowered social and political contacts increases, increases also the possibility to vote for the same political party and vice versa. That means that if a person's contacts (family, partners, friends and colleagues) have the same political preferences, it is more likely to vote in the same way. In addition, as the interaction becomes more intense, there is a bigger possibility for people who interact to vote for the same political party [8]. It is true that people who do not have intense interactions form their political preferences in a more spontaneous way [9].

In familial networks the political behavior is much more influenced. According to Richey [10] as we interact with other people the possibility to form the same political preferences augment 7% because people take into consideration different points of view before they decide what to vote for.

Interactions in networks have not been thoroughly investigated. Simple interactions like playing cards with someone, going out to eat or just being married with someone, drive people to develop with each other confidence, identify themselves with networks and be influenced concerning their political preferences [11-13].

The concept of the effect in the network is configured based on the relationship between network members which shows how a person is related to another in the network [4,9,14].

Family networks are places where political information is produced and consumed [15]. This happens for example between spouses or between parents and children. The research of Coffé and Need [15] explores the phenomenon of political influence and the formation of the same preferences among spouses (marital homogamy). These assumptions were based on the select effect that means people choose partners with common characteristics and mutual influence (mutual effect). Spouses choose the same political party because there is a relationship between them that creates effect [15]. In their research they examined married couples and couples living together. 70% turned out to have the same preferences. Certainly the common political preference is not a criterion to choose a partner but possibly it is the result that comes with the impact due to their relationship [15]. This can occur between roommates, spouses and generally people who live in the same network. Zuckerman, Dasovic and Fitzgerald 'survey [16] reports that the frequency of the political discussion with a spouse increases considerably the chances for change in political attitude. Interpersonal family relationships are a special and unique interaction activity because the family is an important decision making center and is influenced by the values, the skills, the strategy and the communication of its members [17]. In a family factors such as animation and strengthen in the family, parental and marital stability are catalysts in the influential role of interpersonal networks in shaping political behavior [17]. Ikeda, Midooka and Yamada [18] support that the respondents in their survey on the effect of interpersonal relationships they have reported correctly what their partners voted [5]. The experiments also show that about 60% of the intention for vote passes from the one house member to another. When people are asked to name the one with which they talk often for politics refer to their partner [19]. It is proven that the most direct and first attempts to political influence have been in the context of family relationship [20]. High frequency of interaction, intimacy, respect and trust with people with whom we coexist facilitate the political discussion and common

political preference [20]. Research shows that the interpersonal relationship is the main reason for the existence of many common political preferences in couples [15]. According to Huckfeldt and Sprague [8] the relationship in couples has three times greater influence than other relationships. The Nadeau et al. [20] experiment show that all interpersonal influence determine the behavior of people living in the same house. The trust and the strength of the relationship is much more contagious there than in other networks.

The research of Alford, Funk, and Hibbing [21] about the influence exerted in the familial and interpersonal relationships shows that:

- Parents who have the same political preferences are likely to have children with the same political preferences.
- Mothers do not exert greater influence on daughters about their political preferences.
- The intensity of the relationship between parents and children does not affect the formation of the political preferences.
- The balance of "power" between mother and father does not affect the influence exerted on the child's political preferences.
- The father does not influence more the formation of political preferences.
- The frequency with which the family discusses about politics does not affect the formation of political preferences.

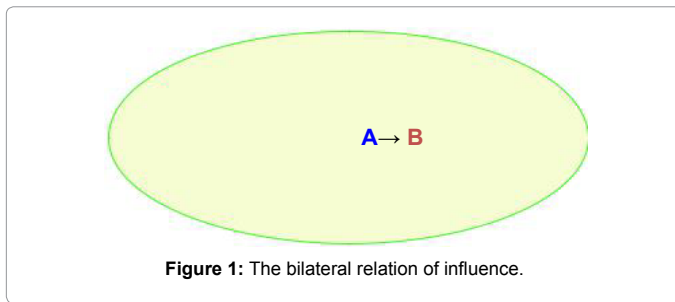
In the social networks it is not entirely clear how the relationship influences the political preferences [10]. According to McClurg [7] a few researches show some influences on political behavior via the social relationships even if it is clear that not every social relationships can influence the formation of political preferences. Other researches [8] show that the political preferences are influenced by the relationships in social networks only under particular conditions related to the frequency, the identification and the interaction among people such as friends or neighbors [8,20].

According to Martinez and Fiorito [22] professional relationships or relationship with trade union members have not been thoroughly investigated but relevant studies show that trade unions do not influence intensively the political preferences. In other researches the 84% of respondents consider the influence of the professional relationships or the relationship with trade union members as low on political behavior while the 49% indicated that they vote affected by the influence of their professional networks [23]. According to Godard [24] there are also additional reasons, such as lack of trust, fear of conflict, injustice and working values that make less influential the professional relationships or relationship with trade union members.

However, there are many negative stereotypes about trade unions and about those who are involved as members in trade unions [22,25]. In a survey among professional partners 30% vote the same as their colleagues, 45% have slight differences on their political preferences and between 14% and 37% the survey notes bigger differences on political behavior [26].

We assume that there is a bilateral relation between two persons: A and B. The arrow shows the direction of the influence. The influence is defined as the attempt made by the person A to convince person B so as to vote for the candidate that the person A supports (Figure 1).

1st Hypothesis: when the influence is exerted within the familial network is more intense than within other networks (professional or social).



2nd Hypothesis: in the network, the relationship between two persons plays an important role in the influence.

Involvement in politics and its influence on political preferences

Research on networks deals with many challenges. One of them is to understand how the involvement in politics is connected with the influence exerted on political preferences [4]. In networks, there are connections and interactions as well as political knowledge which is produced, consumed and recycled via political discussion. These functions exert influence on political preferences and on political behavior because they develop the political interest and involvement in politics [9,10,14].

People in networks interact with persons with different level of involvement in politics. The level of political involvement depends on different factors such as the party identification, the politicization, the political interest and the demographic characteristics [27].

Political parties are involved in networks via their party officials. Party officials can exert systematic influence via interaction. The contact with them has not always the same form, intention or characteristics. These persons work like “vote sellers” exerting pressure and influence on political preferences [28].

According to Kenny [29] when a person is having a discussion with people with strong participation in politics the probability is increased by 20% to vote the same political party or candidate as this people do, to participate in political campaign by 80% and to be motivated in political activities by 40%. If family and friends are politically active it is highly probable that he or she will participate in politics and will be influenced by them. Active behaviors towards politics as well as the political identification remain important factors for the motivation of a person in politics [14].

Hence involvement in politics remains the main influence factor for the formation of political preference [7]. Klofstad [30] using an innovative experiment has proved that the high involvement in political discussion increases the party identification and the involvement in politics by 13%.

Greece is a country with highly politically aware people. Surveys of public opinion such as the Hellenic National Election Study [31] and the True European Voter indicate that in Greece there is intense political interest, high participation in the election process as well as low abstention from the elections. In every network but also in all kind of relationships there are people highly involved in politics and in political discussion. Participation in trade unions that are strongly politicized is also very intense in Greece.

According to McClurg [14] the notion of involvement in politics as example by involvement in labor unions, by engagement in politics or

being political personnel/actor has an important influence in forming political preference. When in networks there are people who are highly involved in politics, they have knowledge in politics and are active in politics, then their influence becomes more important and intense in influencing the political preference [7,30,32-34]. The political behavior and the political preference are connected to political parties as well as political personnel. The connection with political parties may influence the ability of getting someone a job, of having opportunities for education or having friends. Frequently these political connections have different implications such as organize and motivate politically networks of voters and supporters [9,35].

In researches that examine the role of persuasion within the networks a critical influence factor has proved to be the level of involvement in political party, something that has been measured via questions such as whether the respondent knew someone highly ranked in a political party as well as the level of communication with the party personnel or politicians. [15,36]. People who have an interest in politics and have an intense political participation have also an improved quality in political discussion and more intense influence [14]. Other researches [20,37] prove that the political interest as well as the involvement in politics determine the influence in political preferences.

We assume that there is a bilateral relation between two persons: A and B. The arrow shows the direction of the influence. The influence is defined as the attempt made by the person A to convince person B so as to vote for the candidate that the person A supports (Figure 1).

3rd Hypothesis: The degree of involvement in politics plays an important role in the influence. This Hypothesis is specialized in two separate hypothesis.

Hypothesis 3a: directly proportional: the more someone is involved in politics the more influences the formation of political preferences.

Hypothesis 3b: inversely proportional: the less someone is involved in politics the more is influenced as far as it concerns the formation of political preferences.

The gender and its influence on political preferences

The demographic characteristics may be associated with the political behavior but are not particularly informative as to how these characteristics exert or produce extensive influence [38]. For this reason their influential role varies in intensity and severity. The key features that have over time been examined are the gender, the age, the educational level and the professional status. In most studies the demographic characteristics such as gender are examined further.

It has been shown that women are influenced in their voting behavior more than men than the vice versa [15]. It has also shown that a partner in a relationship puts special emphasis on the values of the other partner regarding the political preferences [15].

Gender political differences tend to be eliminated and that means that in recent years there is no strong ideological and political gap between men and women. Men and women have differences in political preferences and this is the result of different values and beliefs rather than difference in life style. The gap is more pronounced in younger than in older age as women increase their participation in public life.

We assume that there is a bilateral relation between two persons: A and B. The arrow shows the direction of the influence. The influence is defined as the attempt made by the person A to convince person B so as to vote for the candidate that the person A supports (Figure 1).

4th Hypothesis: in the influence the gender plays an important role. This Hypothesis is specialized in two separate hypotheses.

Hypothesis 4a: when at the position A there is a man he influences more the formation of political preferences.

Hypothesis 4b: when at the position B there is a woman she is more influenced as far as it concerns the formation of political preferences.

Methodology

Conjoint analysis

In this study using conjoint analysis we suggest a different method for measuring the influence in the formation of political preferences. This method is already used to areas such as the cognitive psychology as well as the sociology but not very extensively in voting behaviour studies. Conjoint Analysis represents a hybrid type of technique to examine dependent relations [39] and combines methods such as Regression or Anova permitting researchers to depict a person's preference about a concept, an idea or a product taking into account different characteristics or factors [39]. The present technique analyses the components of the total preference where the researcher can estimate the relative importance for each characteristic or factor. These characteristics - factors are pre-defined by the researcher. The relative importance of each characteristic - factor shows its contribution to the "total preference" [39-41].

Conjoint Analysis is a very effective methodology for researches which focus on the formation of behavior via the scenario technique. In the present study we examine the formation of political preferences in networks using two scenarios so as to answer the main research questions about which combination of personal features and network features most influences the vote as well as which combination is most influenced in voting activity.

Conjoint Analysis has been extensively used in research, such as in marketing, in order to explore and capture the hidden and latent processes with which people form their preferences. Each preference is constituted by different characteristics - factors.

This method explores, via a complicated design, all possible combinations of factors. The combinations are presented in different profiles of persons, arising from the main trunk of the script concerning the formation of political behaviour - preference. The different options that the respondent assesses during the survey are presented via different sets of characteristics.

Presentation of the experimental design

In the present study we examine four factors that influence the political preferences in networks. The factors as well as their levels are:

- The variable "gender". The values - levels of the variable are: "man" and "woman".
- The variable "relationship in network". The values - levels of the variable are: "friend - child", "parent - supervisor" and "colleague - spouse".

The choice of these levels is representative concerning the relationship in networks. Their combination is not based on hierarchy but on the institutional character and intimacy that characterizes them. As we see the level "colleague or husband" is considered to represent relations with equity and intimacy.

At the second factor level named "parent or supervisor" there are

described relations based on the value of respect which is developed either institutionally or substantially with parents or supervisors at work. The parent remains a respectable person even if the years pass and the relationship with children changes.

The last level of the variable "relationship in network" is named "friend or child". The relationship with friends or with children has some common characteristics. This level describes relations with intimate and mutual respect. For children, parents remain always parents keeping in mind the characteristics that define the parental relationship. However, the child as an adult creates an equal relationship with his parents. That is why we include the "child" in this factor level [35].

The third factor that participates in the analysis is the "network". The levels of the factor "network" are:

- The familial network that includes the familial and personal relationships that are developed with people with whom we cohabit.
- The social and professional networks that include the relationships with people with whom we interact in the social and professional sphere of action.
- The fourth factor is the "degree of involvement in politics". This factor has three levels.
- Party official: he has a strong relationship with the party and an active participation in politics. He operates as a party propagandist rather than a typical organized party official.
- Member of Trade Union: he has a moderate strong relationship with the party focusing on issues relating to the organization to which he belongs, with positions that may be identified with these of the party. He focuses on policies that appear independent by the central political choices.
- No involvement in politics: the person has limited interest in politics and political issues. He is not a party's or a politician's propagandist.
- We choose the orthogonal design plan as it is the most commonly used, its permits us to have the least number of choices. More than 10 profiles cannot be easily assessed by the respondent. Using the orthogonal design we examine the basic influences among factors and no other types of interactions among these factors. We should also take into account that there are interactions among the different factors as it is mentioned in recent studies concerning conjoint analysis [42]. This study is a first attempt to examine these factors using the conjoint analysis method so as in the future to realize a more advanced study.

Based on above factor levels, there is a plan from the orthogonal design with nine combinations that represent nine profiles.

In Table 1 below there are presented the nine combinations. In the rows there are presented the four factors and in the columns are presented the levels of each factor.

Using these combinations we create nine profiles. Then we created two scenarios. In the first scenario we asked the participants to classify the nine profiles presented in Table 2 assessing which profile they believe, influences most someone to vote for another candidate or political party. The ranking scale is from 1 to 9. The number "1" represents the profile that influences most and the number "9"

Profile	Gender	Relationship	Sphere of Action	Involvement in Politics
1	Man	Friend	Social Network	No involvement in politics
2	Woman	Colleagues	Professional Network	Member of Trade Union
3	Woman	Supervisor	Professional Network	Party Official
4	Man	Father	Familial Network	Member of Trade Union
5	Woman	Daughter	Familial Network	Member of Trade Union
6	Woman	Mother	Familial Network	No involvement in politics
7	Woman	Daughter	Familial Network	Party Official
8	Man	Husband	Familial Network	Party Official
9	Woman	Wife	Familial Network	No involvement in politics

Table 1: The nine combinations from the orthogonal design.

A man friend with no involvement in politics
A woman colleague who is involved in a trade union
A woman supervisor who is party official
The father who is involved in a trade union
The daughter who is involved in a trade union
The mother with no involvement in politics
The daughter who is party official
The husband who is party official
The wife with no involvement in politics

Table 2: The profiles.

represents the profile that is believed to influence less a person to vote for another candidate or political party.

In the second scenario, we asked the participants to classify the nine profiles assessing which profile they believe, is most influenced to vote for another candidate or political party. The ranking scale is also from 1 to 9. The number “1” represents the profile which is most influenced and the number “9” represents the profile that is believed to be less influenced to vote for another candidate or political party.

The nine profiles presented below were classified by the participants in the survey who answer the main research questions:

- 1) Who influences most?
- 2) Who is most influenced?

The results using Conjoint Analysis present a Constant which represents the average response to the different profiles and a set of useful path-worths each of which represents the contribution of each level of each factor (independent variable) to the “total utility”. «Utility» is the value for each factor level. From the path-worth it is also possible to calculate the Relative Importance for each factor.

The research

The survey was conducted in Greece. The questionnaire used for the first time containing questions to assess comparatively through the conjoint analysis the main effects of the factors of “involvement in politics”, “gender”, “type of network” and “relationship in the network”. 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 spheres of action with starting point the researchers producing that way a snowball [43].

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 ratio 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.

Results

The sample

From 1103 respondents, percentage 48.4% were men and percentage 51.6% were women.

Percentage 20.5% is between 18 years old and 25 years old, percentage 33.5% is between 26 years old and 35 years old, percentage 18.4% is between 36 years old and 45 years old, percentage 13.5% is between 46 years old and 55 years old, percentage 9.5% is between 56 years old and 65 years old and percentage 4.6% is 66 years old and over.

Percentage 78.6% leaves in urban regions while percentage 21.4% leave in rural regions.

Percentage 47.1% works as “Employee” in the public as well as in the private sector, percentage 5.6% belongs to the category “Unemployed”, percentage 23.5% works as “Freelancer”, percentage 4.0% belongs to the category “Household”, percentage 7.7% belongs to the category “Retired” and finally percentage 12.0% belongs to the category “Student”.

Percentage 1.7% are graduates from primary schools, percentage 25.5% have graduated from secondary schools, percentage 19.5% are graduates from colleges or professional schools, 25% are graduates from universities, percentage 14.1% are graduates from technological institutes and percentage 14.2% have a master degree.

Implementing Conjoint Analysis we examine who, according to the respondents, influences most someone else so as to make him vote for another candidate or political party. The results are presented below.

Conjoint analysis results

Table 3 below consists of an intercept (constant), which represents the average response to the different profiles and a set of useful path-worths each of which corresponds to the contribution of each level of factor (independent variable) to the total utility. Thus the table shows

Factors	Levels of factors	Utility Estimate	Std. Error
Gender	Woman	-0.489	0.083
	Man	0.489	0.083
Relation	Friend/Child	0.045	0.11
	Parent/Supervisor	-0.034	0.11
	Husband/Colleague	-0.011	0.11
Sphere	Familial Network	0.379	0.083
	Professional and Social Network	-0.379	0.083
Involvement in politics	Party Official	904	0.11
	No involvement	-1,487	0.11
	Member of Trade Union	582	0.11
Constant	5.036	0.087	0.11

Table 3: Conjoint Analysis for the first research question: “who influences most”.

the scores of the utilities and the relevant path-worths as well as the standard error for each level. If we add the utilities we can have the total utility. Higher utility values indicate greater preference. Minus before the value shows a less preferable level of factor.

Using the Wald statistic criterion we check whether differ significantly from zero the utilities that we have so as to include them or not to the profile of the person that appears to influence most.

As we observe the levels of factors that have the highest values are “man” (0.489) concerning the “gender”, “friend” or “child” (0.045) concerning the “relationship”, “family network”(0.379) concerning the “sphere of action” and “party official”(0.904) concerning the “degree of involvement in politics”. Using the Wald Statistic criterion we observe that the factor “relationship” is not statistically important and thus it is not included in the profile of the person that influences most.

That means that if we ask: “who is going to influence most?” The answer will be: a man in the familial network with intense involvement in politics as party official.

The choice of the factor level with the highest value defines the profile of a person whose utilities are calculated in a single numerical scale and all together create the total utility of that profile. Higher utilities show greater influence of the level of the factor.

The second table of the Conjoint Analysis depicts the relative importance of each factor at the total influence. The results can be read in percentages and sum 100 (Table 4).

Importance values for the first research question: “Who influences most”

In the influence the “degree of involvement in politics” that means the intensity of political activity is the most important factor with a percentage 57.32%. The “gender” affects the total influence with a percentage 23.27%, the “sphere of action” affects the total influence with percentage 17.87% and finally, “relationship” that means the kind of the relation in the network affects the total influence with a percentage 1.52%.

According to the relative importance of the factors, it is obvious that the most important factor that affects the total influence is the “degree of involvement in politics”. Then it is the “gender” and after it is the “sphere of action”. The “relationship” in the network does not affect the total influence.

Finally, the last table presents the coefficients of Pearson’s R and Kendall’s tau, which show the correlation between the model we created and the data received from the sample. The method allows us to test the validity and reliability of the data. High coefficients of Pearson’s R and Kendall’s tau show that the measurements for the profile of the

Factors	Importance values
Gender	23.276
Relationship	1.528
Sphere of action	17.876
Involvement in politics	57.32

Table 4: Importance Values for the first research question: “who influences most”.

Correlations ^a	Value	Sig.
Pearson's R	0.996	0
Kendall's tau	1	0

^aCorrelations between observed and estimated preferences

Table 5: The coefficients Pearson’s R και Kendall’s tau.

person we investigate are assimilated to the cumulative model of the analysis (Table 5).

From Table 1 we can estimate all the possible profiles taking one level from each factor. Below we present the total utility for some profiles. Conjoint Analysis permits to estimate the total utility for every possible profile. In this way it is possible to understand how the sample assesses every profile with its characteristics and the combinations which may arise. Using the factors and the levels of factors it is possible to have 36 profiles (2 × 3 × 2 × 3).

The highest total utility arises for four values: man, child or friend, familial network and party official. Thus, for the son that is party official the total utility is estimated as below: 0.489+0.045+0.379+0.904=1.817

In the same way it is possible to estimate the utility for every four values, one from each level, because every four values represent one profile. In the examples below we estimate the total utility for some profiles.

For the son who is involved in a trade union the total utility is estimated as below: 0.489+0.045+0.379+0.582=1.495.

For the son who is not involved in politics the total utility is estimated as below: 0.489+0.045+0.379-1.487=-0.574.

For the woman supervisor at work who is involved in a trade union the total utility is estimated as below: -0.489+(-0.034)+(-0.379)+0.582=-0.32.

For the wife who is not involved in politics the total utility is estimated as below: -0.489+(-0.011)+0.379+(-1.487)=-1.608.

For the mother who is not involved in politics the total utility is estimate as below: -0.489+(-0.034)+0.379+(-1.487)=-1.563.

Using the total utility it is easy to understand which profiles exert intense influence and which profiles exert less influence. Thus, the wife with no involvement in politics influences less than the son who is involved in a trade union. Also, the supervisor at work who is involved in a trade union influences more than the son who is not involved in politics.

Then we implement Conjoint Analysis so as to see the profile of the person who is going to be most influenced to vote for another candidate or political party. The table below (Table 6) presents a constant that represents the average response to the different profiles and a set of utilities each of which corresponds to the contribution of each level to the total utility.

From the Table 6 we see the utility for each level. Using the Wald

Factors	Levels of factors	Utility Estimate	Std. Error
Gender	Woman	0.099	0.072
	Man	-0.099	0.072
Relation	Friend/Child	0.144	0.096
	Parent/Supervisor	0.038	0.096
	Husband/Colleague	-0.182	0.096
Sphere	Familial Network	0.076	0.072
	Professional and Social Network	-0.076	0.072
Involvement in politics	No involvement	1.681	0.096
	Member of Trade Union	-0.431	0.096
	Party Official	-1.251	0.096
Constant		4.942	0.076

Table 6: Conjoint Analysis for the second research question: “who is most influenced”.

Statistic criterion we check whether differ significantly from zero the utilities we have so as to include them or not in the profiles of people that emerge.

As we see the values with the highest utilities are: the “woman” concerning the “gender” (0.099), “child or friend” concerning the “relationship” (0.144), in the “familial network” concerning the “sphere of action” (0.076) and “no involvement in politics” concerning the “degree of involvement in politics”.

Using the Wald Statistic criterion we understand that except from the factor “degree of involvement in politics” all the other factors are not statistically significant so as to be included to the profile that emerges.

Thus, answering the question: “who is going to be most influenced?” The answer is that the person who is most influenced is the person who has no involvement in politics.

In the second table we see the relative importance of each factor and its contribution to the total influence (Table 7).

As we see, the “degree of involvement in politics” that means how much the person who is influenced is involved or not in politics, plays the most important role at the total influence with a percentage of 81.27%. The second important factor with a percentage of 9.0% is the “relationship” in network that means how the person who is influenced is connected with someone else in the network. The next important factor with a percentage of 5.49% is the “gender” that means if the person who is influenced is a woman or a man. The fourth important factor with a percentage of 4.18% is the “sphere of action” that means the networks where we meet the person who is most influenced.

It is obvious that the “degree of involvement in politics” exerts much more influence than any other factor.

In the third table of the Conjoint Analysis high values in coefficients Pearson’s R and Kendall’s tau show that that the measurements for the profile of the person we investigate is assimilated to the cumulative model of the analysis (Table 8).

According to the factors and their levels we can have 36 profiles (2×3×2×3, Table 6).

Below we present the total utility of some profiles so as to compare them and find out who is going to be more influenced as far as it concerns the formation of political preferences.

The highest utility arises for the following levels of factors: woman, child or friend, familial network, no involvement in politics. Thus, the total utility for the daughter who is not involved in politics is estimated as below: 0.099+0.144+0.076+1.681=2.

Factors	Importance values
Gender	5.495
Relationship	9.041
Sphere of action	4.189
Involvement in politics	81.275

Table 7: The importance values for the second research question: “who is most influenced”.

Correlations ^a	Value	Sig.
Pearson’s R	0.996	0
Kendall’s tau	0.944	0

^aCorrelations between observed and estimated preferences

Table 8: The coefficients Pearson’s R και Kendall’s tau.

In the same way, we can estimate the total utility for every four values because every four values depict one profile.

The total utility for the woman colleague who is involved in a trade union is estimated as below: 0.099+0.038+(-0.076)+(-0.431)=-0.37.

The total utility for the father who is not involved in politics is estimated as below: -0.099+(-0.182)+0.076+1.681=1.476.

The total utility for the supervisor at work who is a party official is estimated as below: -0.099+(-0.182)+(-0.076)+(-1.251)=-1.608.

As we understand, the daughter or the father who is not involved in politics is more influenced than the colleague who is involved in a trade union or the supervisor at work who is a party official.

Using conjoint analysis for demographic variables such as the gender, the age, the education and the profession we do not see any difference in the general results that we presented above. That means that there is no difference between men and women or among persons of difference age, different education or different professional background.

Summing up the main results in the following figure we see the bilateral relationship between two people who interact. In position A is the person who affects the person at the position B. The arrow shows the direction of the influence exerted by the person A to the person B. Person A tries to convince person B to vote the candidate that the person A supports (Figure 2).

In this bilateral investigated relationship we add the following factors: the gender, the relationship, the sphere of action and the degree of involvement with politics, as shown in the following Figure 3.

Then, we add the percentages (taken from Tables 4 and 7) which reflect the importance of each factor and its contribution to the overall influence. In each factor we observe two percentages. With light blue it is the percentage showing the importance of the factors for the person who influences most. With dark blue it is the percentage showing the importance of the factors for the person who is most influenced.

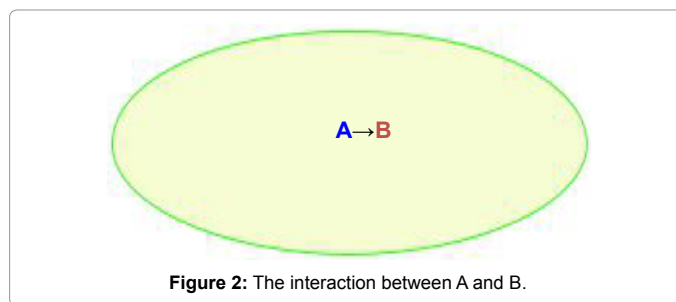


Figure 2: The interaction between A and B.

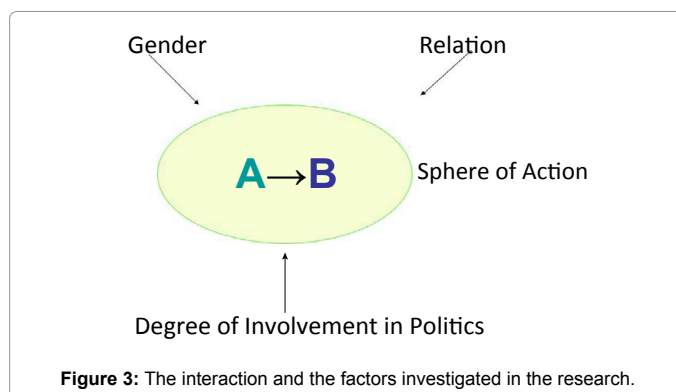


Figure 3: The interaction and the factors investigated in the research.

The survey does not explain why the hierarchy of factors is the one presented above (Tables 4 and 7) or why there are differences between “affect” and “affected”. This could be investigated in a future research. The concepts of “affect” and “affected” are opposite, but not inverse. At least there are no results to prove it. That means that if we know how much someone can influence another person, we cannot in an automatic way estimate how much this person is influenced.

Watching carefully Figure 4 we understand that during an interaction where A exerts influence to B, the factor that plays the most important role in the total influence is the “degree of involvement in politics”. The importance of this factor exceeds the percentage of 50% of the overall influence. The factor “gender” is the second factor with the percentage of 23%.

Then important role (around 20%) plays the “sphere of action” that means where someone meets the person who influences the formation of political preference. Finally, the factor “relationship” that describes the way person A is connected to person B contributes a very small percentage to the overall influence with a percentage of 1.5%. As we understand the kind of relationship does not have any impact in influencing political preferences.

On the other hand, regarding the person who is most influenced we observe that the “degree of involvement in politics” contributes with a percentage over 80% to the total influence. The other factors have smaller percentages. The factor “relationship” contributes with a percentage of 10% to the total influence. The factor “gender” and the factor “sphere of action” have very small contributions to the total influence.

Discussion and Limitations

In this study we examine which combination of personal features and network features most influences the vote as well as which combination is most influenced in voting activity.

People belong in networks and influence each other. We examine how intense is the influence on political behavior of the factors such as the gender, the type of the relationship in the network, the different spheres of action as well as the participation in politics.

The respondents assess and prioritize the different voters’ profiles and scenarios of political influence revealing the mechanism with which the political influence is exerted.

The importance of the sphere of action where networks exist is not particularly strong, but it has a rate close to 20% for the person who

influences most the formation of political preference (Figure 4). On the other hand, for the person who is most influenced the sphere of action is not an important factor because the percentage is close to 4%, as we observe in Figure 4.

As far as it concerns the utilities of the levels of the factor “sphere of action” presented in Tables 3 and 6, we can easily understand that the familial network exerts more intense influence than the professional or the social network. Thus, it is confirmed the hypothesis that when the influence is exerted within the familial network is more intense than within other networks (professional or social).

In the present research we investigated the familial, professional and social networks. In most surveys, professional networks do not attract the researcher’s interest as much as the personal, social and familial networks for the formation of political preference [7,10,17,29,44]. However, there are studies that have identified the influence of the professional networks in the configuration of political behavior [1,22,23]. Their influence is mainly connected to the privileges that someone can have adopting a specific political behavior.

The relationship has been proven to affect the political behaviour [8] Although in the present study we see that the factor “relationship” does not influence intensively the political behaviour. For the person who influences most has an importance of 1.5% (Figure 4), while for him who is most influenced it seems to be the second most important factor in influence, however, it has a low rate of 9% (Figure 4). Thus, our hypothesis that in the network the relation between two persons plays an important role on the influence cannot be accepted.

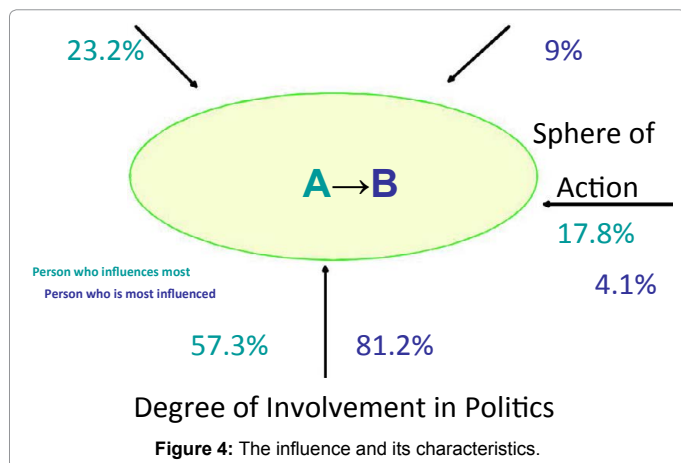
In the present study we observe (Table 3) that the levels of the factor “relationship” are classified according to their intensity as follows: friend or child, husband or colleague and parent or supervisor. This classification applies not only to the person who influences most but also for the person who is most influenced (Tables 3 and 6).

People choose their networks but also the people who will influence or of from whom they will be influenced [3]. For example we choose our friends or our partners. The relationship with them is flexible and dynamic [7]. These relationships contain characteristics such as bonding, mutual trust, frequency that cannot be found easily to other types of relations. It is not surprising that surveys observe most the familial relationships where many influences take place [15,20] These types of relations influence most because they are specific, stable and invigorating [8]. In interpersonal relations, influences happen in an “unconscious” way that is considered to be very important [17,20,21].

In any case, the influence via the relationship is an unconscious process part of the interaction between two persons characterized by the frequency, the familiarity and the confidence [4,14]. In networks there are types of relations without strict norms, where people feel close to each other and meet frequently not because they feel enforced to do so but because they want to. In that way we choose our relatives, we discuss with them about politics, we share information and we exert influence without knowing how this happens [24].

The “gender” for him who influences most participates with a percentage of 23% (Figure 4) in the total influence while for the person who is most influenced participates with a percentage of 5% in the total influence (Figure 4).

The differentiation in political influence due to gender tends to decrease [15]. According to the utilities of the factor “gender” (Tables 3 and 6) men influence more than the women and women are more influenced than men. Thus, it is confirmed the hypothesis



that the 'gender' plays an important role on the political preferences. More specifically in the bilateral relationship $A \rightarrow B$ when A is a man influences more than the woman. It is also confirmed the hypothesis that when in the bilateral relationship $A \rightarrow B$, B is a woman she is more influenced.

The present study shows that the "degree of involvement in politics" is the most important factor as far as it concerns the influence exerted in networks. From Table 3, we observe that for the person who influences most the levels of the factor "degree of involvement in politics" are classified as follows: party official, member of Trade Union, no involvement in politics. Therefore we understand that the more someone is involved in politics, the more influence he exerts in political preferences. Thus, it is confirmed the hypothesis that the more someone is involved in politics the more he influences the formation of political preferences.

The involvement in politics as party official means preoccupation with political issues, access to political knowledge, dealing with political issues, access to information and frequent political discussions [10]. The party official is considered to be an opinion leader offering information and exerting influence in networks.

On the other hand, when someone does not deal with politics, he is not involved in political issues, he more vulnerable so as to be influenced in the formation of political preferences. For the person who is most influenced the classification of the levels of the factor "degree of involvement in politics" (Table 6) is as follows: no involvement in politics, member of Trade Union, party official. The less someone is involved in politics the less influence he exerts. Thus, it is confirmed the hypothesis that the less someone is involved in politics the more is influenced as far as it concerns the formation of political preferences.

Conjoint Analysis helped us to explore and capture the hidden and latent processes by which people make decisions about their preferences. With this study we would like also to propose the conjoint analysis method for political science surveys so as to comparatively assess different factors that form the political preferences.

The present study does not examine either the function of networks or the way the different factors interact with each other. We do not focus in the way the influence is exerted but in the combination of a few personal features that most influences and that is most influenced. Additional features as well as the interactions of the different factors should also be taken into consideration in a future study.

The conjoint analysis and the orthogonal design we used sets some important limitations in our study. It does not permit the examination of the interaction among the different factors we used in this survey as well as the creation of a bigger number of profiles with more factors and possible combinations.

During the research period many social and political changes happen in Greece and influence the political behavior of the Greek voters [31]. The financial conditions change and the political system enters a cycle of change and turbulence. New political parties emerge and others that had a minor importance now play an important political role. The survey does not take into consideration these changes.

The study does not examine the influence that is exerted among people in the same network or people in pairs. That means that we do not follow a normal "snowball" method that would help to better understand how two persons interact.

There is also the phenomenon of social bias in some "sensitive" questions. With the conjoint analysis method, the use of profiles and

the scenarios we tried to eliminate the social bias and reveal the latent thoughts of the respondents.

Conclusion and Future Implications

The formation of political preferences is a multidimensional process, consists of different stages and is related to different factors.

Firstly, there is the sphere of interpersonal and familial relations that includes people with whom we live together (partners, parents and children). Secondly, there is the professional sphere of action that includes the contact with colleagues. The third sphere of action includes friends and people with whom we have social contacts such as people with whom we go out for dinner or drink.

In these spheres we shape networks. We participate in networks and we interact with other people. Even if the networks exist everywhere and it is expected to have a role much more influential, the network by itself does not influence the formation of the political preferences.

In the networks there are relationships. The strength and the characteristics of the relationship are influenced by the time, the intensity, the intimacy and the mutual trust that exist between people. The relationship is an important feature in the network but it cannot exert an intense influence for the formation of political preferences. We also examine the "gender" as an influential demographic characteristic, something that was not extensively confirmed by the study.

The degree of involvement in politics seems to influence intensively the configuration of political preferences. The involvement in politics allows us to have access to a large amount of political information which is diffused, "consumed" and "recycled" via the political discussion and the interaction, it exposes people to political information and finally affects the political preferences.

This study shows the voters' multidimensional behavior which also indicates the existence of interactions among different factors that influence the political preferences and that must be examined in a future study. The current research methodology as well as research design could be a useful tool in political campaigns, political consulting and political marketing because it permits professionals to measure and assess different parameters comparatively. Thus they can create different voters' profiles and address to them targeted campaign actions that could motivate them to vote for a candidate or a political party. They can also assess the role of some factors in the pre-elections campaigns so as to include these factors or not in the central political marketing strategy of a political party or candidate.

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