Economic voting in post-communist Romania. The case of the 2000 and 2004 elections

By

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Abstract

The aim of this paper was that of carrying out an analysis of the voting behavior of the Romanian public. The research question posed was whether economic evaluations shape the vote in Romania. Moreover the role of education and perceived income within this process was assessed and finally, the make-up of the perceptions of the national economy was examined.

The analysis was carried out on the individual level by the use of survey data collected before the 2000 and 2004 parliamentary elections. The data was analyzed using binary logistic regressions, log linear analysis and linear regressions.

The results show that the Romanian electorate tends to utilize retrospective evaluations of the national economy when casting their vote but this practice not directly influenced by the level of education. Finally, it has also been determined that the personal financial situation and the perceived state of the local economy do influence the way the national economy is perceived.

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I. Introduction

Rational choice has dominated the research on voting behavior even since Anthony Downs introduced the concept of economic rationality into political science. In this respect one of the best examples of rational choice applied to the study of voting behavior is the theory of economic voting. Studies researching this issue are often carried out in traditional democracies (see Lewis-Beck 1984; Belluci, 1984; Miller, 1984; Witheley, 1984) but they are seldom done in regards to new democracies. The aim of this paper is to carry out such an analysis on Romania, as up to this point there is no significant research done in this field in Romania. Moreover, given the economic fluctuations that people have been subjected to during the past decade, economic voting seems to be the appropriate explanation in trying to understand Romanian electoral behavior.

"Generally, economic voting is seen as an expression of self-interest, a straightforward demand for the amelioration of economic grievances" (Weatherford, 1983). According to this, in a democracy, citizens will vote for the opposition if they perceive the state of the economy negatively. Further more, Powell and Whitten state that "considerations of the ideological image of the government, its electoral base, and the clarity of its political responsibility are essential to understanding the effects of economic conditions on voting for or against incumbents" (Powell and Whitten: 1993, 391).

The theory of economic voting is far form being cohesive or unitary. It compiles a wide variety of models which are extremely different in assumptions and methodology, but all of them share one basic assumption: the economy has an influence on the vote. Economic voting can be viewed as dealing with individual perceptions on economy, or with objective economic understandings or it also can be speaking of aggregate macro-economic indicators.

Aside from these differences, a classification of economic voting evaluations can be made. Firstly economic voting can be egocentric versus sociotropic. *Egocentric (pocketbook)* economic voting refers to people casting their vote on the basis of their personal (household's) financial well being. *Sociotropic* economic voting refers to people casting their vote on the basis of the state of the national economy (this can be measured either by objective economic indicators or by the individual perceptions regarding the state of the economy). Secondly a differentiation can be made between prospective versus retrospective voting. *Retrospective* voting assumes that people vote based on the evaluation of a party's past performances (it is outcome oriented) while *prospective* voting assumes that people cast their vote according to how they think the party will perform in the future (it is policy oriented).

Having built a base of what economic voting refers to the research questions can now be posed. There are two main research questions which this study will examine. The first deals with the *presence and propensity* of economic voting in post-communist Romania. While the second is concerned with *how* economic voting is manifested, that is, what type of individuals use economic evaluations. The analysis of these contentions will also be carried out is two stages corresponding the two basic research directions.

The first stage is more straight-foreword and examines if economic evaluations can be considered as predictors of vote-choice. The second stage will be developed by looking at the influence of education and of the perceived income on the way the relation between economic evaluations and the vote is manifested. The theoretical expectation, based on the findings of Belanger (2005), is that given an equally negative view of the state of the economy, more educated people should have a higher probability of voting for the opposition, irrespective of which party is in the opposition. Also, people who perceive themselves as having less income should be more prone to vote economically. Finally, the third stage of the analysis will have the aim to shed light on the links between the economic evaluations.

So as to be able to observe if the patterns are consistent over time, the analysis will be carried out for two election years (2004 and 2000). Keeping with the 'tradition' built by economic voting studies, logistic regression will be used to analyze the data. But considering the fact that this type of regression, when applied to social data, most often yields unfitting models, log linear analysis will also be used. Log linear analysis has the power to generate fitting models and is more appropriate to be used to test relationships such as this paper aims to observe.

The results the analysis generates show that, contrary to the theoretical expectations presented above, economic voting might constitute only a weak explanation of vote choice in the case of Romania. It seems that economic voting highly depends on the political and electoral context. Moreover, education is shown not to assume the role of mediating the propensity of economic voting. The evidence seems to suggest that peoples' position in regards to the Social Democratic Party might be a more plausible explanation of vote choice, especially as it is shown that these political preferences also tend to influence the way the economy is perceived.

The paper will be structured as follows: the next section will devise a conceptual framework by revising the most important and relevant literature in the field of the theory of economic voting. The next step will be to specify the applicable theoretical framework for the analysis on the case of Romania. The hypothesis which will be tested will be outlined. The following section will present the general methodology. Next I will present and discuss the results of the analysis. In the last section I will draw conclusions and propose new avenues of research.

II. Theoretical Overview

This section will be structured in two subsections. The first will present the relevant literature on the subject of economic voting via a mildly historical perspective. The second part will go into a discussion on some conceptual aspects which I consider to be crucially important for this paper.

II.1 Basic Literature Review

Any pertinent discussion on economic voting should start by mentioning Anthony Downs (1957) and his development of the model of political rationality coupled with the preliminary development of the idea of the potential connection between economy and politics. The development of this idea was continued by the work of Campbell et.al (1960). Campbell includes in the analysis of the formation of vote-choice the "nature of times" (bad versus good) indicating that depression is linked with actions oriented towards political change. But more importantly, a second measure is introduced: "economic outlook". This is "a politically significant economic attitudinal variable" (Campbell, 1960, 400) which transcends social classes, party identification and socio-economic conditions (Campbell, 1960, 393-4) and can be divided in the voter's personal economic state and "business condition". Due to there work, Downs and Campbell can be viewed as the precursors of economic voting theory, but it is Gerald Kramer (1971) who is the first to expressly test the effects of economy on the vote.

Concurrently V.O. Key (1966), working on a different strand of rational explanations of the vote and also building on Downs, developed the model of retrospective voting that is most widely used. The model is based on punishment versus reward. Voters, if not satisfied with the government's activity, will punish it by not voting for it. Contrarily, if they are satisfied, they will vote for the incumbent. Early work on retrospective voting was also carried put by Morris Fiorina (1978), who referring to retrospective voting, quotes Downs: "retrospective voting is a decision rule which cuts informational and decision making costs" (Downs quoted by Fiorina, 1978, 5).

These two strands within the rationalist theories of voting behavior (economic voting and retrospective voting) were combined by Morris Fiorina (1978). By doing so he set the core of what is now named the theory of economic voting: voting retrospectively on the bases of evaluating the economy. From this point on the field was extended to the point the economic voting is now equated to four types of evaluations: egocentric retrospective, egocentric prospective, sociotropic retrospective and sociotropic prospective.

Following Campbell, Kinder and Kiewiet (1979) are the first to distinguish between egocentric (one's personal financial well being) and sociotropic (the state of the national economy) evaluations of the economy (Lewis-Beck, 1984). Kinder and Kiewiet argue that egocentric evaluations are not realistic because voters do not place the 'guilt' for their personal financial state on the government but look for the guilty party in other places. At the same time, they do admit that the sociotropic evaluation is not purely altruistic, as people believe that if the national economy will perform better, their personal financial well being will increase also. Conversely, Samuel Popkin argues that, in fact, voters have the capacity and they do differentiate between changes brought to their personal economic well-being and changes of the state of the national economy (Popkin, 1994, 32). Moreover, it has been shown that the use of economic evaluations is heterogeneous. That is, voters in a society oscillate between egocentric versus sociotropic voting (Duch, 2001; Duch, Palmer and Anderson, 2000). In the same line of though, Weatherford (1983) portrays the two evaluations as being the extreme points on a continuum and voters are placed at any point on

that continuum (Weatherford, 1983). Markus carries on by saying that even if the two evaluations are placed at different levels, they are not necessarily exclusive (Markus, 1988).

All in all, there are studies that attest to the presence of the egocentric evaluations (Lewis-Beck, 1983, 1984, 1985, 1986; Heath, 1991), along with studies that show the use of sociotropic evaluations (Feldman, 1982; Conover and Feldman, 1986, Harper: 2000; Kinder and Kiewiet, 1979, Duch and Stevenson, 2008).

Now, referring to retrospective versus prospective voting, Lewis-Beck (1984) contends that typically retrospective evaluations were equated to citizens' interest for outcomes, while prospective evaluations indicate interest for policies. On the other hand, going back to Downs, he argues that prospection in based in some form on retrospection, a point also shown by Duch and Stevenson (2008). Conversely, Conover et. al. (1986) show that the elements which constitute (influence) prospection do not contain retrospective evaluations. In their opinion, prospection is a political guess or a hope expressed in regards to the economic future. Nonetheless, aside from these differences in interpretation, studies of voting behavior have shown the prevalence of both retrospective (Fiorina, 1979; Nadeau and Lewis-Beck, 2001; Norpoth, 2001; Clarke and Stewart, 1994, Duch and Stevenson, 2008) and prospective economic evaluations (Conover et. al. 1986; Clarke, 1994; Peffley, 1984: Clark and Stewart, 1994).

Before moving on, one more thing should be stated. In his 1984 paper Lewis-Beck, much like Weatherford and Markus, argues that evaluations within the theory of economic voting are not separable or exclusive in a given electoral context. The importance of Lewis-Beck's claim is that he extends the ideas of Weatherford to all four economic evaluations. "A voter looks backward and foreword, at the economics of self, community, and government, forming reasoned and not-so-reasoned opinions that decide his or her party preference" (Lewis-Beck: 1986, 322).

What has been discussed up to this point is crucial when speaking of existence of the link between economy and vote-choice. But as Anderson and Wlezien (1997) put it, this is only the first stage in the research regarding economic voting. More recent studies, building on the concepts developed by the above mentioned scientists, have started looking into how the influence of the economy is manifested (Anderson and Wlezien, 1997, 3). In this quest a few critical aspects have emerged (the level of analysis, perceptions, responsibility, and contextual effects) which I believe should be taken into account by any researches carried out on this field. Thus the aim of the next section is that of discussing such issues that are most pertinent for this paper.

II.2 Conceptual Framework

The most important aspects here, as anticipated in the prior section, are methodological and conceptual. The substantive findings of studies are very much influenced by the level of analysis employed and the view towards the role of perceptions. These issues will be covered in this section, also along with connecting aspects, such as assigning of responsibility and contextual effects.

When trying to explain his results, which were mainly not indicative of a relation between economy and vote-choice, Fiorina contends that maybe not the objective state of the economy is of interest, but how people perceive economic fluctuations as they are influenced by their personal problems. The issue identified by Fiorina quickly became one of the key points of debate within the field: what should studies analyze? Should the analysis be carried out on objective economic performance and the level of people's income or perceptions of these? I contend that people's perceptions of economic issue are the ones the matter and not the objective economic reality. Let me give an example. Imagine two people: the first earns 10 000\$ per month while the second earns a more modest 2000\$. If I were to consider that objective economic well-being is the one that counts I could infer that according to the theory, person one should vote for the incumbent, while person two should vote for the opposition. But, consider the following fact. What if the goal of person one is to indulge in such a luxurious life style that the 10 000\$ are not sufficient for him to do so to the extent he would like. Meanwhile person two is very much satisfied with covering his basic needs for subsistence. In such a case, according to his subjective needs, person one would probably be dissatisfied with his income, while person two might actually be satisfied. Thus, if I apply again the theory, the expectation would be for person two to vote for the opposition, while person one should vote for the incumbent. I contend that what is of relevance in the study of egocentric economic voting are indeed how people feel about their financial well-being, and not the actual amount of money they make. Anderson and Wlezien (1997) state that "perceptions of economic performance vary across individuals, depending on socioeconomic status, economic experiences, cognitive abilities, and political preferences (...) this can vary over time independently of actual economic conditions" (Anderson and Wlezien, 1997, 2).

Second, taking the case of the national economy, again I contend that perceptions are the ones that matter, but for quite a different reason. A pertinent analysis of the state of national economy is only possible when the capacity of analysis and evaluating economic issue exists and is coupled with the correct attribution of responsibility (Peffley quoted by Conover et. al., 1986).

On the one hand, the capacity for economic analysis is not naturally present in people. Conover and Feldman (1986) identify three types of biases regarding the perception of the state of the economy. First, information about the economy can be low, structured on personal experiences or on information gathered from the media (take for instance the case that a voter in thinking in the context of high unemployment rate or form the perspective of just loosing his/her job). Second, voters might utilize old information regarding the economy,

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and thus have a different perception of the economy then what is real at the moment in time. Thirdly, the authors show that newer information has a higher effect, even if its objective importance is lower. Point also extensively argued by Popkin (1994). Moreover, Duch et. al. (2000) shows that by way of media effects governments tend to distort economic reality. If the economy is regressing governments try to divert people's perception of this, or they try to build expectations in regards to future economic situations (Clarke and Stewart, 1994, 19). Further more, perceptions are shaped, altered or sustained by an issues being repeatedly presented in the media (in positive or negative light) (Mutz, 1994, 707) or in the course of electoral campaigns (Matthews, 2005).

On the other hand, there is the issue of attribution of responsibility for economic conditions. Peffley (1984) offers a frame of responsibility attributing. The government is responsible if at least one of the following statements is true: 1. the government caused the problem; 2. the government has control over the problem; 3. the government can be involved in remedying the problem. Of course, Peffley shows a 'best-case' scenario. The issue of attributing reasonability is not that straightforward, it is linked with the structures of the political system. In systems with majority governments responsibility is clear, while in systems with coalitional governments the attribution of responsibility is quite difficult (Powell and Whitten, 1993). This finding is also supported by Nadeau and Lewis-Beck (2001) in reference to the differences in economic voting between the US and Europe and by Duch and Stevenson (2008) in regards to cross-national differences in economic voting in Western Europe. In the case of the latter, the attribution of responsibility is not so clear, and thus, it decreases the levels of economic voting, while in the US the President has the clear responsibility for the economy. Even though Norpoth (2001) also shares this view, he points out that a divided government does not pose any restrictions for economic voting.

Lastly, the issue of responsibility has major implications in regards to egocentric voting. Lewis-Beck (1983) and Feldman (1982, 1984) point out that egocentric economic voting cannot exist without the responsibility for the personal well-being being attributed to the government. Specifically Feldman contends that in the US egocentric voting is less potent due to the dominant political culture which imposes individualism and auto-responsabilization of people.

All in all, the view an author takes on the issue of perceptions has far reaching implications on the methodology used in economic voting studies. The first studies which researched economic voting did so by the use of aggregate measures (Fiorina, 1978; Kinder and Kiewiet, 1979). The use of aggregate measures can test both egocentric and sociotropic evaluations, but only based on objective economic indicators: level of personal income and respectively GDP, unemployment rate, inflation, *et cetera*. As argued above, the use of such objective indicators can be counterproductive as they do not describe the relevant reality: that of people. This is why studies carried out on the aggregate level (which cannot accommodate the role of perceptions) do not show the existence of egocentric evaluations (see Kinder and Kiewiet, 1979 or van der Burg et al., 2007). Thus, in order to be able to study the effects of the 'economy as perceived by people' on vote choice, individual level data needs to be used.

A final point I would like to touch upon is the issue of contextual effects on economic voting. It has been shown that the local context can play an important role (Jones et. al., 2002) on how people form perceptions about national economy and consequently how they vote (Brooks and Prysby, 1999; Niemi et. al. 1999; Johnston et. al., 2000).

A different contextual issue is that of the specific case of new democracies. Duch (2001) argues that in such states economic voting will start increasing in propensity with the increase of the understanding of how democratic institutions work and with the increasing of the level of trust in these institutions. This is to say that economic voting increases as the

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ambiguity between the relation between government and economy decreases. Nonetheless, through this analysis, he does offer evidence towards showing that economic voting does exist in Hungary and Poland.

On the other hand, Pacek (1994, 1995) looking and developing states and post communist Eastern European states, contends that if the economy is seen as not doing well the incumbent will be punished, but if the economy is indeed seen to be doing well the incumbent will not be rewarded.

Conversely, in a study carried out on Bulgaria, Hungary and Lithuania, Marcus Harper (2000), shows that economic voting does not occur in those states neither in an egocentric nor in a sociotropic way. But the conclusions he draws are somewhat weak due to the fact that the sociotropic evaluation, due to lack of data, could only be tested for the case of Lithuania

Having presented the major issues within the field of economic voting, I can now derive a theory on issue of economic voting in Romania.

III. Theoretical specifications for the case of Romania

The research question this paper is tackling is if economic voting can be an explanation of vote-choice in Romania. Further more, I am concerned with *how* economic voting is manifested, that is, what type of individuals use economic evaluations. The analysis of these contentions will be carried out is two stages corresponding the two basic research directions. The first stage will is more straight-foreword and examines if economic evaluations can be considered as predictors of vote-choice. The second stage will be developed by looking at the influence of education and of the perceived income on the way the relation between economic evaluations and the vote is manifested.

I contend that indeed Romanians vote economically and primarily use sociotropic retrospective evaluations, as Rose and Haerpfer (1994) showed, sociotropic evaluations are important in Eastern Europe as the difficulties within these states are political and economical and the new regimes are expected to overturn the difficulties created by the old regimes.

Also, I contend that given an equally negative view of the state of the economy, more educated people should have a higher probability of voting for the opposition. The level of education is linked with the ability to attribute responsibility, and in order to attribute responsibility one needs to have knowledge about the system. It is a generally attested fact that the level of education has high impact on vote-choice and turnout, interest in politics and information about politics. Furthermore, Belanger (2005) shows the importance of political sophistication (for which education can be a proxy: Sinderman, Brody, Tetlock, 1991 quoted by Belanger, 2005) on the way economic voting is used.

Lastly, I believe that people who perceive to have less income should be more prone to vote economically.

The specific model I will be using is, as presented in the previous section, constituted by the four economic evaluations: egocentric retrospective evaluation, egocentric prospective

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evaluation, sociotropic prospective evaluation and sociotropic retrospective evaluation. Differentiating between the numerous ways in which "economic effect" can be viewed this paper embraces methodological individualism and will only be dealing with *perceptions of the economy*. This, of course, implies that the analysis will be conducted at an individual level, by the use of survey data. No macro-economic indicators will be used. At the same time, given the Romanian dual-executive (president and prime-minister) this paper will only be focusing on the government and will exclude the issue of presidency from the analysis as earlier work done by myself (manuscript, 2007) on this subject shows that people do not view the President as being responsible for the economy.

Consistent with the research questions and the theory I propose, the core theoretical hypothesis can be stated:

H₁: A negative evaluation (perception) of the economy will raise the likelihood of voting for the opposition.

This theoretical hypothesis will be tested by the use of four work hypothesis. These are based on the idea of heterogeneity of economic voting evaluations (Weatherford, 1983, Lewis-Beck, 1984, Markus, 1988, Duch, 2001):

 H_{1a} : A negative evaluation (perception) of the personal financial well-being will raise the likelihood of voting for the opposition (egocentric retrospective).

H_{1b}: A perceived decline (in the near future) of the personal financial well-being will raise the likelihood of voting for the opposition (egocentric prospective).

 H_{1c} : A negative evaluation (perception) of the state of the national economy will raise the likelihood of voting for the opposition (sociotropic retrospective).

H_{1d}: A perceived decline (in the near future) of the state of the national economy will raise the likelihood of voting for the opposition (sociotropic prospective).

The second stage hypotheses are:

H₂: *If the state of the economy is perceived as negative, more educated a given person is, the higher the likelihood of that person voting for the opposition (economically).*

H₃: Very poor to middle class people will be more likely to vote economically (to vote for the opposition if they feel the economy is worse off).

H₄: *Richer people are less likely to use economic evaluations in voting.*

The third stage hypothesis is:

H₅: Sociotropic evaluations are highly influenced by perceptions of the personal financial well being and by the perceived state of the local economy.

III.1 Electoral context

As I mentioned in the Introduction, the analysis will be carried out for two different electoral contexts: the case of the 2004 elections and the case of the 2000 elections. Including at least two different settings in the analysis is necessary so that it can be observed if a similar pattern emerges in both contexts or if the use of economic evaluations is dependent on the political context.

Given the fact that the dependent variable, consistent with the theory of economic voting, will not differentiate between parties in general but only between parties in government and parties in opposition, it is necessary to briefly describe the political context specific to the two years analyzed.

The main parties of the Romanian political system were, at the time, the Social Democratic Party (PSD), the National Liberal Party, the Democratic Party and two smaller parties: the Grater Romania Party, a nationalist extremist party and the UDMR, the Hungarian ethnic party. The Social Democratic Party (PSD) is the party the Romanian Communist Party turned into following the revolution of 1989. As such, it became the largest and best institutionalized party in Romania (Curt, 2002). It has been in government (although

under a different names such as The National Salvation Front and the Romanian Social Democratic Party) from 1990 to 1996 (winning the elections in 1992) and from 2000 to 2004. In all three terms in office the party was able to govern on its own, either forming single party majority government (1992 to 1996) or minority governments (2000 to 2004; with parliamentary support form the UDMR).

In the 1996 – 2000 period the PSD was in the opposition while the government was formed by a Coalition consisting of all the major political parties, except the Grater Romania Party. This party was constantly in opposition since 1990.

As far as this research is concerned the following are important to be considered. In the case of 2000 the incumbent was the grand Coalition while the opposition is mainly represented by the PSD. Meanwhile in 2004 the incumbent was solely the PSD and the opposition consisted of all other political parties.

IV. Methodological overview

IV.1 Data

In order to test the hypothesis I will be using the data sets collected in the Public Opinion Barometer program of the Open Society Foundation Romania (Soros Foundation Romania)¹. Data sets collected in 2000 and 2004 will be used. The exact choice of the years included in the analysis is motivated by the fact that these were electoral years, and so the answers to the question which I use to operationalize the depended variable can be seen as more accurate². This is because in non-election years or when the election is at a considerable length of time in the future, the subjects response might not effectively show voting intention. Instead they might only show satisfaction with how the government works; further more it easily can be influenced by specific scandals at the time of the data collection.

IV.2 Variables

The surveys were conducted on national representative samples of 1775 subjects and 1800 subjects, respectively. The sampling procedure was probabilistic, tri-stage, bi-stratified.

The dependent variable is operationalized by the measure of vote-choice for parties in Romania which was recoded in vote for opposition parties versus vote for incumbents³. Given the issues of the attribution of responsibility in the context of coalition government all parties in government at the time of the election are coded as incumbent parties. Of course, as Burg et al. (2007) point out this is a potential weakness of the research because it assumes that voters attribute to all parties in the coalition the same weight of responsibility, which might not be the case. Nonetheless such an analysis is appropriate as this paper is only

¹ The data sets are collected bi-annually, by running two surveys each year from 1994 to 2007.

² The question is: "if election were held next Sunday, who will you vote for?"

³ The translated survey items for all the variables can be found in Appendix 1.

interested in the general effect of the perception of the economy on vote choice and how actual parties within a coalition are punished or rewarded is of no consequence in this context. Moreover, not differentiating between parties in government could only negatively bias the results, that is, decrease the intensity of the potential relationship.

Non-responses and non-voters were declared missing system. Moreover, the cases which represented voting intention towards the UDMR (Hungarian ethnic party) were declared missing system and were not included in the analysis. This is due, on one hand, to the fact that the UDMR is an ethnic party voted almost exclusively by Hungarians and thus voting or not voting for this party is not expected to be a function of economic performance of any sort⁴. On the other hand in the concrete electoral context of 2004 it is very difficult to place UDMR on either side (incumbent or opposition) as it was not in government but was sustaining the PSD⁵ government (a minority government) in Parliament according to a collaboration protocol.

The independent variables used to measure the different economic evaluations are operationalized through six specific items from the questionnaire. In 2004 these items are based on the same type of question: the respondent is given a choice in stating his or her opinion regarding the state of the economy on a 5 point scale where 1 means 'very good' and 5 means 'very bad'. Two of the four items refer to the state of the national economy (sociotropic evaluation), one question asking the respondent to compare the state of the national economy in 2004 with the state of the national economy in 2000 (retrospective evaluation). Conversely, the second question asks the respondent to compare the state of the national economy in 2004 with what he/she thinks the state of the national economy will be like in 2008 (prospective evaluation). The second set consisting two questions works in the

⁴ Running a Pearson correlation between nationality (recoded as Hungarian or other) and vote-choice (recoded as UDMR or other) yields an R of .623 with p>.001, N = 1799 (for 2004). ⁵ The Social Democrat Party

exact same way but the subjects are asked to refer to their own financial state instead of that of the national economy. The third set of two questions refers in a similar fashion the state of the local economy. The variables were recoded in order to exclude non-voters and nonresponses.

For the survey conducted in 2000 similar six items are to be found only, this time, the respondents are asked to provide their answer on a ten point scale. The variables were thus recoded into five-point scales so as to mimic the measures used in 2004. Similarly non-responses and non-voters were coded system missing. Due do the differing measurement scale for the surveys these items are not perfectly comparable but given the lack of other data sources this study will have to accept this as a limitation.

Given that it is common knowledge that the electorate of the PSD (the main opposition party in 2000 and the incumbent party in 2004) is mainly concentrated in rural areas and given the high correlation between the place of residence and education, the level of education will need to be introduced as an independent variable. This is operationalized (in both surveys) by the item in the survey which asks the respondents to declare what type of school they graduated from. The variable has 12 values corresponding to the different types of degrees the Romanian educational system offers and it ranges from no schooling at all to graduate studies. The variable in this form can be argued to be a nominal variable. It will be transformed into a scale variable by recoding it so that it measures the years of schooling a person has. This is done by replacing the value of the given degree by the minimum number of years of study the given degree requires (see Appendix 1). The resulting variable will be a scale variable ranging from 0 to 17 years. By using the minimum number of years required to earn a specific degree the level of education might be underestimated. This bias will have the probable effect of decreasing the propensity of the impact of education. Meanwhile, the perceived level of income will be operationalized by a variable which measures how well a family thinks they can survive with the income they have. The variable has five values ranging from: "our income is not even enough for necessary things" to "we can regularly afford expensive (luxurious) items". The variable was recoded to have three values. These are: (1) 'our income is not even sufficient for the strictly necessary things'; (2) 'our income is sufficient for strictly necessary things' and 'out income is enough for decent life'; (3) 'we can afford more expensive items' and 'we can have everything we desire'. For the sake of simplicity these values will be labeled as follows: (1) poor; (2) better off; (3) rich.

Finally, I will be including three control variables: age, sex and residence.

IV. 3 Statistical Instruments

The statistical instruments used in the analysis will be binary logistic regression and log linear analysis.

Logistic regression is an appropriate tool to be used when the dependent variable is dichotomous (Agresti, 2002) and, along with probit analysis, it is the most widely used instrument to test the theory of economic voting. As such this analysis will use it too. Nonetheless, even though this type of regression is appropriate for dichotomous dependent variables, it is not clearly appropriate for social data. Due to the fact that logistic regression uses the dosage response curve (which works well with medical data) and the cut-off point (of regularly 0.5), when applied to social data, it might cause cases to be misclassified. This in turn leads to severe decreases of model fit.

Moreover, logistic regression assumes equal distances between the values of the independent variables in the sense that an increase of one unit at any point on the scale will have the same effect on the dependent variable. But we need to consider that the independent variabels used are not strictly scale variables (that is, they are not measured on an interval or

ratio scale), but they are ordinal variables with 5 values. Thus, it might be more in-tone with reality to consider that a move form a very positive perception of the economy (value 1) to a pozitive perception of the economy (value 2) is not equal (that is, it does not have the same effect) to a move from a neutral opinion (value 3) about the economy to a negative one (value 4).

Even though this type of analysis will be used, mainly to follow the 'methodological tradition' in studying economic voting, the results will necessarely have to be looked at with caution. Even more, based on what was stated above, none of the hypothesis can actually be confirmed or rejected solely on the results obtained in logistic regressions.

To overcome this problem and to be able to offer valid results log linear analysis will be used, which in fact constitutes the novelty of the methodological approach this paper takes. To the extent of my knoledge, log linear analysis has never been used to test the theory of economic voting. Thus aside form the substantial findings this paper will obtain, it will also show how log linear analysis can succesfully be applied the study of voting behavior. Also, it will illustrate to what extent the findings generated by the two approaches differ.

Log-linear analysis is well suited in the case of categorical variables and is a more powerful tool to use then logistic regression. The reason for this is the fact that the model can be designed in such a way that would decrease model misfit compared to the logistic regression, and actually, as I will show, fitting models can be developed.

Given all this, in order to able to firmly confirm or reject a hypotheses the results of the log linear analysis will be the most important.

Finally, OLS stepwise regression will be used to test how economic evaluations are formed.

As follows, the results of the analyses carried out these methods will be presented. The next chapter will present the results of the analysis, for the first two stages of the

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research, obtained by the use of logistic regression. The following chapter will show the results obtained again for the first two stages of the study, but employing log linear analysis. Finally, the results obtained by through the OLS regressions used to test hypothesis 5 will be presented.

V. Economic voting, the 'if' and the 'how': Applying logistic regression

The first stage hypothesis (H_{1a-d}) will be investigated in the following way. Models A through D will include, besides the control variables (age, sex, residence, education) a single independent variable representing a single type of economic evaluation. Model E will include all independent variables representing all types of economic evaluations. The first models are based on the assumption that at a given time a single type of economic evaluation persists in a given state while model E is a testament for the idea of heterogeneity, that is, voters are split between the use of economic evaluations (Lewis-Beck, 1984). Of course by entering all variables in the same equation the effects of any such variable can be observed while the effects of other variables are held constant.

Regarding hypothesis 2 the independent variable will be the level of education, while the dependent and control variables will remain the same. Moreover, given the fact that the effect of the level of education is only of interest in the case of people how view the economy negatively a selection variable needs to be introduced which would enable the regression to be carried out only on such cases. The selection variable will be the index of economic voting. This index is obtained by adding up and averaging the distinct variables measuring the four types of economic evaluations. The new variable will have values ranging from 1 to 5, 1 being the most positive view and 5 the most negative appreciation of the economy⁶. The reason behind this index is that the effects of education on economic evaluation in general are of interest, not just on a given type of economic evaluation.

The utilization of the selection variable is the best solution as the conceptual framework does not allow for an interaction term to be used; the interaction terms would show how the level of education influences vote choice depending on the view of the state of the economy. This is based on symmetry: if it is assumed that education has a positive

 $^{^{6}}$ Due to the operation of averaging the variable will also have values between the units (e.g. 1.25).

influence on the vote-choice if the economy is viewed negatively then education must have a negative influence on the vote-choice when the economy is viewed positively. But the theory I am proposing states that education has a high positive impact on the vote when the economy is viewed negatively, and a small positive effect (or no effect) when the economy is viewed positively. Due to the fact that the model I am proposing is not based on symmetry (the effect is in the same direction but differs only in intensity) an interaction term between education and economic index cannot be used.

In the case of hypothesis 3 and 4 two types of models will be used. The first model (model G) will apply a selection procedure to model E (outlined above). The selection criteria will be represented by the variable "income". Thus, there regressions will be constructed. Each regression will be run only on the case which exhibits the selected value of the "income" variable. The aim of this model is to observe how people of different perceived economic status use economic evaluation in voting.

The second model (model H) will employ a double-selection procedure. The first step is similar to the one described above. Cases will be selected in accordance with the values of the "income" variable. The second step will be that of running models G and H (as described above) for each of the selections. This will lead to a number of six regressions. The scope of this procedure is to illustrate the link between the level of education and perceived income, and how this link affects voting.

The goodness-of-fit (performance) of the models will be determined by value of the Nagelkerke R^2 coefficient. Moreover given the fact that in SPSS the output coefficients for the binary logistic regression are not standardized, in order to obtain standardized coefficients each variable entered into the regression will need to be standardized by setting the mean to be equal to 0 and the standard deviation equal to 1. This will be done by the use of Zscores.

V. 1 First stage analysis

V.1.1 The case of 2004

An overview of the results of the regressions carried out in the simple models (A through D) would lead to the observation that economic voting, in all of its forms, might be considered as a possible explanation of vote of the Romanian electorate. The results are presented in Table 1.

Table 1

Binary Logistic Regression results for vote choice, opposition parties versus incumbents, 2004									
Variables ^a	SD	Model A		Model B		Model C		Model D	
		exp(β)	Zscore	$exp(\beta)$	Zscore	$exp(\beta)$	Zscore	$exp(\beta)$	Zscore
			$exp(\beta)$		$exp(\beta)$		$exp(\beta)$		$exp(\beta)$
Egocentric	.962	1.362	1.346	-	-	-	-	-	-
retrospective		***	***						
Egocentric	.859	-	-	1.478	1.399	-	-	-	-
prospective				***	***				
Sociotropic	.944	-	-	-	-	1.754	1.700	-	-
retrospective						***	***		
Sociotropic	.879	-	-	-	-	-	-	1.763	1.645
prospective								***	***
Education	3.66	1.137	1.601 ***	1.138	1.607 ***	1.141	1.622	1.127	1.548
Age	17.7	.978 ***	.669 ***	.976 ***	.648	.981 ***	.712	.977 ***	.660 ***
Sex	.497	.811	.901	.854	.924	.806	.898	.857	.926
Residence	1.91	.825 ***	.693 ***	.830 ***	.700 ***	.808 ***	.665 ***	.805 ***	.661 ***
Constant	-	.945	.415	.831	.372	.422	1.154	.617	.237
Nagelkerke		.191		.191		.221		.221	
R^2									
N		98	37	8	349	950		834	
a Definition of variables: Dependent – dichotomous for vote choice (1) vote of the opposition (0)									

a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the opposition, (0) vote for the incumbent. Dashes indicated variable not employed for the model ***p > 0.001

In regards to each model the first column reports the exponent of the unstandardized coefficient (exp (B)) while the second column reports the exponent of the coefficient

computed when the independent variables have been a priori standardized (mean = 0, SD = 1).

First, it is important to asses model fit. In order to do this one needs to look at the levels of the Nagelkerke R^2 . They generally show that the models do not attain a good enough level of fit. Technically, this means that the interpretation of the coefficients is not appropriate. Nonetheless, the level of model fit attained by these models is equal or grater then that of most models on which economic voting studies are based (e.g. Harper, 2000). Thus, following what has become acceptable practice in the domain of economic voting the coefficients will be interpreted. But, it is very important to keep in mind that the regularities discovered by the interpretation of the coefficients would be valid only if the models were fit, and technically they are not. Consequentially, the results will need to be looked at with caution and the hypotheses will not be confirmed or rejected based only on these results.

I prefer the interpretation of the exponent for standardized variables as this allows for a certain degree of comparability between the effects of the independent variables entered in to the equation (Rotariu et. al., 2006)⁷. Model A is designed to specifically test H_{1a} – egocentric voting. The value of exp (B) is highly significant and can be interpreted as follows: if there is a one unit decrease in the positivity of the evaluation of the one's personal economical well being compared to 4 years ago there will be 1.36 more chances for the person to vote for the opposition. Alternatively, interpretation of the exponent computed for standardized variables is as follows: if the level of positivity towards ones personal economic well-being compared to 4 years ago is decreased by .962 (SD = .962) there are 1.34 more chances for that person to vote for the opposition. The advantage is that an approximate comparison might be preformed with the values of the control variables.

⁷ Although I do recognized that a comparison is not very accurate given the fact that what in fact is compared is how much of the left-over variance is explained by an independent variable, that is, the variance after the other variables have explained as much as they can.

Models B through D also produce highly significant coefficients for the respective economic evaluations. The interpretation is similar to that in model A, thus I will not do that at this point. Although, I would like to point out the differences between the explanatory power of the independent variables across the models. Comparison of the values of the exponents is possible between the models as the independent variable is the only one that differs across the models. Thus I will be comparing how much of the left-over variation can each economic evaluation account for. I will not be using standardized coefficients as the variables are measured on the same scale. In this respect the strongest effect is that of the sociotropic prospective evaluation: a decrease of one point in positivity about the state of the economy (i.e. to move form "bad" to "very bad") increases the odds of voting for the opposition with 1.76, while the same move in the case of the sociotropic retrospective evaluation would have the same effect on the odds of voting for the opposition (an increase of 1.75). Egocentric evaluations have a smaller effect: 1.47 (prospective) and 1.37 (retrospective). All in all we can see that the sociotropic evaluations have a higher effect on the chance of voting with opposition.

In all models, all control variables (except sex) are highly significant, with education having the strongest effect. The values for the exponent in age show that the effect of age can go up to .948 (Model B) decline in the odds of voting for the opposition with an age increase of 17.79 years. The effect of education goes up to raising the odds to vote for the opposition by 1.622 in the event that education is increased with 3.66 years (Model C). Moreover, as the place of residence gets smaller the odds of voting for the opposition decrease. This is not a surprising fact because education and region of residence, in theory, are expected to be positively correlated: the smaller the locality the lower the education level. It is precisely the case. The output of a nonparametric Spearman correlation shows a correlation coefficient of -.437 (p>0.01; N = 1795). The negative sign is only due to the coding scheme of the

"residence" variable: small values indicate large cities and large values indicate villages.

The reason for this correlation is in direct link with the incumbent party, the PSD. It is a matter of public knowledge that the main voters of this party are concentrated in rural areas, and are less educated. Thus in this particular case the regression results in regards to

Table 2

Binary Logistic Regression results for vote choice (opposition versus incumbent parties) – all economic evaluations included, 2004

v al lables	Model E				
	exp(β)	Zscore exp(β)			
Egocentric	.990	.991			
retrospective					
Egocentric	1.143	1.122			
prospective					
Sociotropic	1.614***	1.571***			
retrospective					
Sociotropic	1.159	1.138			
prospective					
Education	1.156***	1.702***			
Age	.978 ^{***}	.674***			
Sex	.859	.927			
Residence	.800***	.653***			
Constant	.245	1.113			
Nagelkerke R ²	.24	44			
Ν	773				
a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the opposition (0) vote for the incumbent					

education and type of locality (residence) are not related to the concepts of incumbency or opposition, but to the actual incumbent party, the PSD. But as PSD is the sole incumbent party, this analysis cannot possibly differentiate between vote for PSD and vote for opposition. Thus, at this point, it would be wrong to draw the conclusion that in general more educated people or city-dwellers vote for the opposition, as this might just be a vote against the PSD, who coincidently happens to be in opposition. Consequentially, a more in depth analysis is needed. Such an analysis is undertaken in section V.2.

Given these results it seems that economic evaluations are used in Romania, but to thoroughly check which of these has the higher propensity they all need to be introduced into a single regression equation so the effects of each could be observed while controlling for the effects of the other. Model E is designed to do this. The results are presented in Table 2.

The striking observation here is that most of

***p >0.001

the economic evaluations loose significance (both egocentric evaluations and the sociotropic prospective evaluation), only the sociotropic retrospective evaluation remains highly significant. The conclusion that can be drawn is that the Romanian electorate considers past

Table 3

Table 4

Binary Logistic Regression results for vote choice (opposition versus incumbent parties) - economic index included, 2004

Variables ^a	Model F			
	exp(β)	Zscore exp(β)		
Economic	2.142***	1.723***		
index .71				
Education	1.154***	1.689***		
Age	.975***	.642***		
Sex	.867	.932		
Residence	.804***	.659***		
Constant	.270	1.052		
Nagelkerke R ²	.233			
N	773			
a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the				

dichotomous for vote choice (1) vote of the opposition, (0) vote for the incumbent. ****p > 0.001

Tuble 5	
Spearman Nonparametric Correlation Coefficients between all economic 2004	on variables,
Egocentric retrospective –	.472**
egocentric prospective	
Egocentric retrospective –	.526**
sociotropic retrospective	
Egocentric retrospective –	.390**
sociotropic prospective	
Egocentric prospective –	.417**
sociotropic retrospective	
Egocentric prospective –	.693**
sociotropic prospective	
Sociotropic retrospective –	.538**
sociotropic prospective	
**p>0.01	

performances of the national economy and they penalize the incumbent party if they perceive the state economy negatively.

Given the loss of significance of the other three economic variables, an issue which needs to be considered is that of multicolinearity. Performing a Spearman correlation between the four economic variables I produced the results shown in Table 3. All coefficients are highly significant and express quite high positive correlations between the variables. Given the issue of multicolinearity an index of economic voting is computed (by averaging the four independent variables) and entered into the equation⁸. The results are presented in Table 4. The new variable attains high significance. The newly created economic index represents the general view on economy. The results show that if the perceived negativity of the economy is augmented by 0.71 on a scale from 1 to 5 then the odds of voting for the opposition increase with 1.72. The control variables do not largely change; they express the same type of relationships as described earlier in the case of the simple models.

All in all, based on these results and if the models would fit the data, I would have to say that H_1 was confirmed for 2004: the Romanian public does rely on economic consideration when voting, specifically on the retrospective evaluation of the national economy. But, as mentioned previously, the models do not fit and as such the results obtained here are, at best, illustrative, and cannot be used to confirme the hypothesis.

V.1.2 The case of 2000

The results of the analysis carried out on the data set preceding the 2000 elections show slightly different tendencies in the use of economic evaluations in voting. But before the results of the analysis are presented it is important to note a key differentiating fact between the 2000 and 2004 elections: while in 2004 the PSD was the incumbent party, in 2000 it was the party in opposition.

Thus, Table 5 presents the findings for models A through D. It can be observed that differing form 2004 the prospective evaluations (Models B and D) do not attain statistical significance. Thus a primary observation is that voters in 2000 were past-oriented. It is the case that a one point decrease in the level of positivity in regards to ones own financial well-being produces an increase of 1.56 in the odds of voting for the opposition. Similarly, a decrease of 0.94 units in how positive the state of the national economy is perceived to be

 $^{^{8}}$ Crombach's Alpha (0.816) shows that this is possible, as the variables measure the same phenomenon.

leads to an increase of 1.47 in the odds of voting for the opposition. In both cases the coefficients are highly significant.

Table 5						
Diana La idia Dana dia amarka fananda akaina ana idia ana dia amarka 2000						
Variables ^a	C Regres	Model A	Model B	Model C	Model D	
, and the s	52		iniouer D		inouch D	
		Zscore exp(β)	Zscore exp(β)	Zscore exp(β)	Zscore exp(β)	
Egocentric	1.02	1.563***			-	
retrospective			-	-		
Egocentric	1.17	-	1.166		-	
prospective				-		
Sociotropic	0.94	-		1.471***	-	
retrospective			-			
Sociotropic	1.16	-			1.070	
prospective			-	-		
Education	3.68	.747**	.725**	.691***	.703**	
Age	16.73	1.437***	1.572***	1.527 ***	1.636***	
Sex	0.5	.868	.979	.895 [*]	.941	
Residence	1.92	1.449***	1.430***	1.419***	1.462***	
Constant		3.741***	3.598***	3.790***	3.795***	
Nagelkerke		.180	.148	.187	.160	
R^2						
Ν		619	760	685	737	
2. Definition of variables: Dependent – dichotomous for vote choice (1) vote of the opposition						

a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the opposition,
(0) vote for the incumbent.
Dashes indicated variable not employed for the model

***p > 0.001; **p > 0.01; *p > 0.05

As mentioned previously, in order to be able to compare the importance of the economic variables between two models one needs to look at the unstandardized regression coefficients. This is appropriate as the two models differ only by the single independent
variable. The unstandardized coefficient (exp (B)) for the egocentric evaluation (1.550) is almost identical to that of the sociotropic retrospective evaluation (1.508). This signifies that within the two models (A and C) the specific economic evaluation included accounts for virtually the same amount of the variation of the dependent variable. A modification of the values of either of these variables produces almost the same effect on the chances of voting for the opposition.

Table 6

Binary Logistic R	egression results for		
vote choice (opposition versus		
incumbent parties	s) – all economic		
evaluations include	ed, 2004		
Variables ^a	Model E		
	Zscore $exp(\beta)$		
Egocentric	1.126		
retrospective			
Egocentric	1.098		
280000000	1.070		
prospective			
Sociotropic	1 435**		
boelotropic	1.435		
retrospective			
Sociotropic	756		
boelotropic	.750		
prospective			
Education.	740*		
Education	./40		
Age	1.586***		
8			
Sex	.998		
Residence	1 483***		
Residence	1.105		
Constant	3.927***		
$M_{\rm max}$, $M_{\rm max}$, D^2	106		
Nageikerke K	.180		
Ν	690		
a Definition of yes	riables: Dependent –		
dichotomous for vo	te choice (1) vote of		
the opposition (0) vote for the incumbent			
***p >0.001; **p>	0.01		
· · ·			

The effects of the control variables are all highly significant (except sex) in each model, but these effects dramatically differ from those identified in 2004. In this case the effects of all control variables (except sex) are reversed compared to the 2004 case. Looking at the variable 'age' it can be noted that an increase of 16.73 years leads to an increase in the odds of voting for the opposition that ranges from 1.43 (Model A) to 1.63 (Model D).

Similarly, the role of education is inverted. It is now the case that *less* educated people vote for the opposition. A mean increase in the level of education of 3.68 years decreases the odds of voting for the opposition with 0.747 in model A and with 0.691 in model C. Furthermore, the effect of 'residence' is reversed but consistent with the findings presented for 2004. This variable is indeed correlated with the education. The nonparametric Spearman correlation coefficient (-.409, p>0.001, N=1775) confirms this. Again, the apparent inverse relationship is due to the negative sign of the coefficient is caused by the coding of the variables. Similarly to the explanation offered in the 2004 analysis this correlation can be accounted for by the voter base of the PSD, party which was in opposition in 2000.

Table 6 present the results of the regression containing all the economic variables. Such an analysis is appropriate for testing the effects of single economic variables while controlling for the effect of the other variables. The results are similar with the ones obtained

Table 7	
Spearman Nonparametric Correlation Coe	efficients
between all economic variables, 2000	
Egocentric retrospective – egocentric	.589**
prospective	
	SK SK
Egocentric retrospective – sociotropic	.667
retrospective	
	**
Egocentric retrospective – sociotropic	.383
prospective	
Egocentric prospective – sociotropic	.419**
retrospective	
Egocentric prospective – sociotropic	.733***
prospective	
Sociotropic retrospective – sociotropic	.531**
prospective	
**p>0.01	

for 2004: only the sociotropic retrospective evaluation attains statistical significance. Seemingly the effect in 2000 (exp (B) = 1.47) is close to the identified in 2004 (Zscore exp (B) = 1.61), but such a comparison might be misplaced due to the differing levels of model fit (Nagelkerke R^2 is .244 in 2004 and .186 in 2000).

Due to the fact that the issue of multicolinearity also arises in 2000 (Table 7 presents the Spearman nonparametric correlation coefficients for the bivariate correlation between

the economic variables) Model F is constructed by including an economic index to replace the economic variables. This index is computed in a similar way as in the 2004 analysis. Table 8 presents the results. The newly created variable attains significance at a lower level (p>0.05). Forcing a comparison (even though model fit differs: Nagelkerke R^2 equals .233 in 2004 and .164 in

Binary Logistic Regression results for vote choice (opposition versus incumbent parties) - economic index included, 2000

Variables ^a	Model F		
	Zscore $exp(\beta)$		
Economic index 0.86	1.241*		
Education	.722*		
Age	1.588***		
Sex	.976		
Residence	1.463***		
Constant	3.718***		
Nagelkerke R ²	.164		
N	690		

a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the opposition, (0) vote for the incumbent. ***p > 0.001; *p > 0.05 2000) to the case of 2004, the results differ largely. The unstandardized exp (B) coefficient in 2004 was 2.142 (p>0.001) but it is only 1.283 (p>0.05) in 2000. Thus, in 2000, a decrease in the level of positivity in general towards the situation of the economy leads to an increase of the odds of voting for the opposition of 1.28.

Finally, the control variables mainly exert the same effect as outlined above.

Based on the evidence presented in reference to the case of 2000 one would have to conclude that indeed it seems that economic evaluations could explain the electoral behavior of the Romanian electorate. But as the models do not fit the data such a conclusion is not appropriate.

Nonetheless the results obtained for both 2000 and 2004 tend to illustrate that economic voting seems to be used in the retrospective form and regarding the national economy. Nonetheless the importance of the economic

evaluations in voting for the opposition is lower in the 2000 context compared to the 2004 context.

V.2 The second stage analysis

V.2.1 The case of 2004

Table 9			
Binary Logistic Regression results for vote choice (opposition versus incumbent parties), only selected case included – people who have a negative view of the economy			
Variables ^a	Mo	del G	
	exp(β)	Zscore exp(β)	
Level of Education	1.361***	3.099***	
Age	1.081	1.366	
Sex	.853	.924	
Residence	.793*	.642*	
Constant	.118	2.071***	
Nagelkerke R ²	.283		
Ν	173		
a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the opposition, (0) vote for the incumbent. Selection variable: economic index; Selection rule: economic index >=3.25			

p > 0.05; p > 0.001

The second Hypothesis, the role of education in increasing the propensity of votes for the opposition when a person has a negative view of the economy, was also tested by using logistic regression (model G). The economic index was used as a selection variable in order to include in the analysis only people who view the economy negatively. The cut-off value was set at 3.25 as this way all persons who have stated they see the economy in a negative way, in at least one item, were be included.

The same coefficients are reported as describe above, the results are presented in Table 9. As expected, it is shown that education has an important effect on votes for

the opposition for persons who view the economy negatively. Thus in the case of such persons an increase of 3.66 years in the level of education leads to 3.09 more odds in favout of voting for the opposition. This result is highly significant. The control variables do not attain significance, with the exception of residence. This result could also be interpreted as a vote against specifically the PSD, and not be linked to economic considerations. In order to clarify this issue, I constructed a base-line against which to compare Model G. This was

done by running another regression (Model H) and selecting only people who view the economy positively. The cut-off value was set at 2.75 so all people who stated that they view the economy positively in at least one item were included. If the values of the coefficient in the base-line model are largely the same as in Model G then education and economic

considerations are probably not linked. But as Table 10 presents, the base-line coefficient indicates that a 3.66 year increase in education will increase the odds of voting for the opposition with only 1.37 and also the significance of the coefficient drops to 0.05. This result shows on one hand, that indeed more educated people do tend to vote more for the opposition irrespective of the state of the economy (which might be equated to voting against PSD). But on the other hand, the difference (which is quite large) between the coefficients clearly indicates the role of the state of economy: more educated people who view the economy negatively are more likely to vote for the opposition then more educated people who view the economy positively.

Table 10

Binary Logistic Regression results for vote choice (opposition versus incumbent parties), only selected cases included – people who have a **positive** view of the economy

Variables ^a	Model H		
	$\exp(\beta)$	Zscore	
	4	$exp(\beta)$	
Level of	1.091*	1.379^{*}	
Education			
Age	.966***	.541***	
Sex	1.083	1.041	
Residence	.804***	.659***	
Constant	3.118	.725**	
Nagelkerke R ²	erke .202		
Ν	487		
a. <i>Definition of variables: Dependent = dichotomous</i>			
for vote choice (1) vote of the opposition, (0) vote for			
the incumbent.			
Selection variable: economic index;			
Selection rule: economic index <=2.75			
$p > 0.05; \ p > 0.01; \ p > 0.01$			

Even though this finding is encouraging the question which needs to be asked is how perceptions regarding the state of the economy are formed? More exactly, could it be the case that dissatisfaction with the government, or vote choice itself influence how the economy is perceived by the more educated? Studies (Wlezien et. al, 1997) have shown that this is possible. The present research will attempt to offer an answer to this question in section VII.

Binary Logistic regression results for vote choice					
(opposition ver	sus incumbent	parties) for s	elected cases		
based on the in	come variable,	2004			
Variables ^a	Model I	Model J	Model K		
	Income $b(1)$	Income (2)	Income (3)		
	Zscore $exp(\beta)$	Zscore $exp(\beta)$	Zscore $exp(\beta)$		
Egocentric	1.472***	.793	.642		
retrospective					
Egocentric	.938	1.262	3.473		
prospective					
Sociotropic	1.348	1.702***	1.715		
retrospective					
Sociotropic	1.034	1.298	.895		
prospective					
Education	1.862**	1.616**	1.248		
Age	.916	.580***	.569		
Sex	.898	.897	1.048		
Residence	.632**	.665***	.908		
Constant	.901	1.220	2.301		
Nagelkerke	.229	.281	.224		
R^2					
N	274	438	55		
a. Definition of variables: Dependent = dichotomous for vote					
choice (1) vote of the opposition, (0) vote for the incumbent.					
b. The labels for t	the value of the in	come variable a	re: 1 – poor; 2-		
better off; 3 – rich					
- ****n >U ()() ***)	$***n > 0 001 \cdot **n > 001$				

Models I, J and K are constructed to try to offer further explanations regarding how

economic voting is used (hypothesis 3 and 4). These models test how people of different perceived income economic statuses use evaluations⁹. As such, Model I is computed including only people who see themselves as poor, Model J includes people who are better off, while Model K in designed to measure the propensity of the use of economic evaluation in vote choice for people who think of themselves as being rich. The results of the analyses are presented in Table 11.

The results show that in Model I only the egocentric retrospective evaluation attains statistical significance, while in Model J only the sociotropic retrospective evaluation can be seen as a predictor of vote choice. In model K no economic evaluation is statistically significant.

11.11

⁹ The income variable is appropriate to be used as the correlation between it and the economic evaluations is minimal, approaching 0.

Generally the control variables are shown to produce the same effects as presented in the previous section.

The analysis, thus, shows that for the case of 2004 poor people think of their own financial well being when voting, while people who are better off consider the state of the national economy. Given a poor person a .962 decrease in how he evaluates his financial situation will lead to an increase of 1.42 in the odds of voting for the opposition. At the same time, for people who are better off the odds of voting for the opposition will increase with 1.7 if they feels that the national economy is doing worse (a decrease of .944 in the level of positivity, measured on a five point scale).

On the other hand, it for the case of rich people a result which could be generalized cannot be offered as none of the economic evaluations attained statistical significance. Of course, this result might also be produced by the extremely low number of cases included in the analysis (55). Nonetheless the results presented here sustain the confirmation of hypothesis 3 and 4.

A final attempt in trying to explain how economic voting is manifested is an analysis which considers the combined effects of income and education. This analysis (presented in table 12) combined the selection procedure used in models G and H with the procedure used in models I, J and K. The end results will show the role of education in voting for the opposition for people who view the economy a certain way (positive or negative) and have a certain income status (poor, better off or rich).

The first observation is that, as one can observe, the analysis could not be carried out for people who see themselves as being rich due to the extremely low number of cases in the sub-category of rich people who view the economy negatively. Thus the results can only be interpreted for 'poor' and 'better off' people.

Table 12

Binary Logistic regression results for vote choice (opposition versus incumbent parties) for selected cases based on **income** and **the economic index**, 2004

Variables ^a	Incom	e ^e (1)	Income ^e (2)		Income ^e (3)	
	Economy positive ^b	Economy negative ^c	Economy positive ^b	Economy negative ^c	Economy positive ^b	Economy negative ^{c, d}
Education	1.602+	2.723**	1.174	3.701**	2.263	
Age	.701+	1.833	.477***	.875	.488+	
Sex	1.033	1.130+	1.040	.628	.946	
Residence	.605*	.738	.655**	.733	.861	
Constant	.702+	1.466	.737	3.052***	.609	
Nagelkerke R ²	.170	.189	.196	.401	.119	
N	138	90	297	77	48	5

a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the opposition, (0) vote for the incumbent.

b. Selection variable: economic index; Selection rule: economic index >= 3.25

c. Selection variable: economic index; Selection rule: economic index <=2.75

d. Not enough case to produce variance in the dependent variable. The analysis cannot be performed

e. *The labels for the value of the income variable are:* 1 – poor; 2- better off; 3 – rich.

****p* >0.001; ***p*>0.01; **p*>0.05; ⁺*p*>0.1

The results are consistent with the findings form models G and H. If a person views the economy negatively he is more prone to vote for the opposition if he is highly educated. This finding is valid both for poor people and for better off people, but it is in the case of people who are better off that the level of education exerts a higher influence: if education increases with 3.66 years, the odds of voting for the opposition, if economy is seen negatively, increase by 3.7 while in the case that economy is seen positively the odds increase only by 2.7.

A striking fact is the level of model fit. In general regressions run until did not fit the data, but as one can observe in the case of the regression carried out on people who are better

of and see the economy negatively the model fit increases to .401, which could be considered a border-line fit. Thus, it could be stated that for people who see themselves as being 'better off' the retrospective state of the national economy could be a plausible explanation of vote choice, but not the only one, of course.

All in all, for the case of 2004 it has been shown that for people who view the economy negatively, it is more educated people that are more likely to vote for the opposition, irrespective of the level of the perceived income. Moreover it has been shown that as opposed to better off people, poor people use the egocentric retrospective evaluation when voting for the opposition, and again it is more educated poor people who are more prone to use this evaluation in voting. This could be explained by the fact that people whose income is not even enough for the needs of subsistence are more interested in the alleviation of their personal suffering.

As follows the results of the similar analysis carried out for the case of 2000 will be presented.

V.2.2 The case of 2000

For the 2000 case the analysis of Hypothesis two, three and four was performed similarly. Tables 13 and 14 present the results of the analysis in regards to the effect of education on vote choice for people who view the economy negatively and positively, respectively.

As it can be observed, the effect of education on the vote is manifested in the direction contrary to that observed in 2004, that is, more educated people are less likely to vote for the opposition, and there is virtually no difference in this regard between people who view the economy negatively and people who view the economy positively. Nonetheless the

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Table 13	
Binary Logistic Regre	ession results for vote
choice (opposition ver	sus incumbent parties),
only selected case inclu	ided – people who have
a negative view of the	economy, 2000
Variables ^a	Model G
	Zscore exp(β)
Level of Education	.772
Age	1.700**
Sex	1.056
Residence	1.724 ***
Constant	4.841***
Nagelkerke R ²	.151
N	348
a. Definition of va	riables: Dependent =
dichotomous for vote	choice (1) vote of the
opposition, (0) vote for the	e incumbent.
Selection variable: econo	mic index;
Selection rule: economic	index >= 3.25
***p >0.001: **p>0.01	

Table 14

Binary Logistic Regression results for vote choice (opposition versus incumbent parties), only selected cases included – people who have a **positive** view of the economy, 2000

-	÷	
Variables ^a	Model H	
	Zscore $exp(\beta)$	
Level of Education	.751	
Age	1.478^{*}	
Sex	.972	
Residence	1.332	
Constant	2.729***	
Nagelkerke R ²	.126	
N	244	
a. Definition of variables	: Dependent = dichotomous	
for vote choice (1) vote of	of the opposition, (0) vote for	
the incumbent.		
Selection variable: economic index;		
Selection rule: economic index <=2.75		
***p > 0.00; 1*p > 0.05		

standardized exponents of the regression coefficients are not statistically significant, thus no conclusion can be drawn on the population level.

Regarding hypotheses three and four the findings (Table 15) for the 2000 case are again affected by the lack of statistical significance of the coefficients. Nonetheless, there is one case in which a variable measuring an economic evaluation attains significance at the 0.05 level: in the case of poor people the sociotropic retrospective evaluation is significant. Consequentially, it can be said that poor people, when making an electoral decision, think retrospectively about the national economy. If the perception of the economy decreases in positivity by 0.94 points the odds of voting or the opposition will increase by 1.8. This, of course, is contrary to the result obtained for the 2004 case, where it was shown that poor people actually vote using the egocentric retrospective evaluation. The reason behind this

Table 15

Binary Logistic regression results for vote choice (opposition versus incumbent parties) for selected cases based on the **income** variable, 2000

Variables ^a	Model I	Model J	Model K
	Income ^b	Income ^b	Income ^b
	(1)	(2)	(3)
	Zscore $exp(\beta)$	Zscore $exp(\beta)$	Zscore $exp(\beta)$
Egocentric	1.085	1.067	.685
retrospective			
Egocentric	.745	1.191	2.015
prospective			
Sociotropic	1.797*	1.202	1.808
retrospective			
Sociotropic	.937	.793	.652
prospective			
Education	.612	.813	1.284
Age	1.321	1.842***	.596
Sex	.991	1.002	.677
Residence	1.521*	1.400*	1.748
Constant	5.093***	3.727***	.785
Nagelkerke	.193	.164	.214
R^2			
Ν	247	406	35
a. Definition of v	ariables: Depe	ndent = dichot	omous for vote
choice (1) vote of	the opposition,	(0) vote for the l	incumbent.
b. <i>The labels for the value of the income variable are: 1 – poor;</i>			
2- better off; $3 - r$	ich.		
***p >0.001; *p	>0.05		

difference is not obvious in any way and, at this point, might only be answered by pure speculation. As such, this paper will not pursue to offer such an explanation.

The final analysis carried out for the 2004 case regarding the joint effect of income and education was performed for the 2000 case as well. Table 16 documents the results.

In this instance, as well, there is no single regression in which the education variable would become statistically significant, although in the case of poor people who view the economy negatively, education becomes significant at a 0.1 level. Conversely to the 2004 case, the results here indicate that if

education increases with 3.68 years, the odds of voting for the opposition will decrease by 0.574. Thus, it seems less likely for a more educated person to vote for the opposition even if he (she) perceives the economy negatively. This can vary well be explained by the fact that the Social Democratic Party (PSD) was in the opposition, and as outlined before, more educated people tend not to vote for this party.

All in all, the results for the 2000 case are not as encouraging as those obtained for the 2004

Table 16

Binary Logis	tic regression	results for vot	e choice (opposition	n versus incumbent
parties) for se	lected cases ba	sed on income	and the economic i	idex , 2000

Variables ^a	Incom	e ^e (1)	Income ^e (2)		Income ^e (3)	
	Economy positive ^b	Economy negative ^c	Economy positive ^b	Economy negative ^c	Economy positive ^b	Economy negative ^{c, d}
Education	1.074	.574+	.699	.968	1.468	
Age	1.070	1.558	1.884**	1.805*	0.507	
Sex	.673	1.096	1.143	1.000	.649	
Residence	1.381	1.674 [*]	1.286	1.576 [*]	1.505	
Constant	3.267**	5.869***	3.050***	4.145***	.451	
Nagelkerke R ²	.074	.162	.182	.112	.157	
N	49	169	167	172	27	7

a. Definition of variables: Dependent = dichotomous for vote choice (1) vote of the opposition, (0) vote for the incumbent.

b. Selection variable: economic index; Selection rule: economic index >= 3.25

c. Selection variable: economic index; Selection rule: economic index <=2.75

d. Not enough case to produce variance in the dependent variable. The analysis cannot be performed

e. The labels for the value of the income variable are: 1 - poor; 2- better off; 3 - rich.

****p*>0.001; ***p*>0.01; **p*>0.05; **p*>0.1

case. Due to the lack of statistical significance of the great majority of the coefficients this analysis cannot establish how economic voting was manifested. Moreover, combining this finding with the low levels of model fit indicate the very limited outcome of this analysis. Moreover, contrary to the 2004 case, it has been shown that education has an opposite effect on vote choice, that is, more educated people are less likely to vote for the opposition.

Looking at the results provided for the two years regarding the second stage of the research, the conclusion is that due to very low levels of model fit neither hypotheses can be confirmed or rejected. Nonetheless, there is the exception for the 2004 case, where one model did attain a more acceptable level of model fit (0.4): people who see themselves neither as being rich nor as being poor, tend to use evaluations of the national economy in voting, if they perceive the economy negatively.

V.3 Discussion

This analysis was designed to study the patterns of voting behavior of the Romanian electorate, particularly whether economic voting can explain, at least, partly, the way citizens cast their votes. The results illustrate that Romanians might also look at the economy when casting their vote, specifically at the state of the national economy in a retrospective light. But as I previously mentioned, the results presented up to this point are very uncertain due to the fact that most of the logistic regression models did not properly fit the data and as such none of the hypothesis could be confirmed.

Nonetheless, the results seem to be consistent with the claim of Rose and Haerpfer (1994). They show that sociotropic evaluations are important in Eastern Europe as the difficulties here are both political and economic and the new regimes are expected to overturn the difficulties created by the old regimes.

Thinking now of hypothesis 2, that is, the effect of the level of education, the results are not as straight forward. The reversed effect of education in the 2000 case compared to the 2004 case points towards the conclusion that in fact education is more likely linked to people's attitude towards the PSD then to the use of economic voting: the case is that the intent to vote against the PSD, in 2000, supersedes economic considerations. The conclusion

which might be draw is that in Romania voting in general, and specifically economic voting is highly contingent on the specific political and electoral context.

As mentioned previously a limitation of this analysis is the statistical instrument itself. Logistic regression is the most common instrument used in the literature to test the theory of economic voting, which represents the reason for which it was chosen in this research. But, due to the fact that this type of regression analysis uses the dosage response curve, it very often fails at accurately predicting (clasifying) the value of the dependent variable which the cases included in the analysis take. Consequentialy the fit of the models is very low and so they do not propely corespond to the real data. Moreover, logistic regression assumes equal distances between the values of the independent variables and, in reality this most certainly is not the case.

Given all this, the paper at hand will, in the following chapter, replicate the analysis by using log linear analysis.

VI. Economic voting reexamined: Applying log linear analysis

Log linear analysis is well suited to be used in the case of categorical variables and is a more powerful tool to use then logistic regression. The reason for this is the fact that the model can be designed in such a way that would decrease model misfit compared to the logistic regression.

Given the fact that log linear analysis is an extension of, and is based on the analysis of the relation between the cases in the cells of a contingency table and considering that the size of the sample which will be used, a number of changes need to be made to the data. First, the independent variables will have to be recoded so as to have fewer values. This is performed in order to avoid having a large number of cells with zero frequency, as this would artificially inflate model fit. Thus, the variables will be recoded as follows.

The independent economic variables were recoded to 3 category variables by joining values 1 and 2 ('very good' and 'good') and values 4 and 5 ('bad' and 'very bad'). The variable measuring education was transformed into an ordinal variable by recoding it so that 3 categories will emerge. These categories are: 8 years of schooling or less; 8 to 12 years of schooling and more then 12 years of schooling. The income variable was kept as it was recoded in the previous section.

Second, to avoid cells containing no cases the number of variables, itself, needs to be kept at a minimum, as with every extra variable included in the model the number of cells increases exponentially with the number of values that variable has. Thus, the control variables used in the logistic regression were omitted.

This paper will use two versions of log linear analysis. Hierarchical log linear analysis will be used in the model selection procedure, described below. But the main analytical instrument will be the logit log linear analysis. The main difference between the two is that while the logit log linear accommodates the existence of a dependent variable, the

hierarchical does not. This makes the logit log linear analysis similar in some ways to regression analysis, and as such it is suited for examining the effect of the economic variables on vote choice.

VI. 1 Model selection

The first step in carrying out a log linear analysis is specifying an appropriate model which would describe the structure of the data. Of course, a saturated model could be used in order to test the theory of economic voting but the aim of this analysis is quite different. I am interested in finding the model(s) which can most accurately describe the relations and interactions within the data. Technically, I do not set out to test assumed or hypothesized relationships but, on the contrary, we explore the data to observe what kinds of relationships exist. In the end, such an approach might be seen as more powerful as it is less "contaminated" by the interference of the researcher. Such an approach would permit the creation of a balance between model fit and model parsimony: I am trying to find the most parsimonious model which fits the data, that is, which can accurately describe the data. This can be achieved in two ways. The first is represented by adjusting the number of variables entered into the model, specifically, the decision to enter all economic variables versus exclusion of one economic variable at a time. Also the same principle applies to the inclusion of the education variables. Thus all versions of the models will be built twice: once with the 'education' variable included and once without.

The second way of attaining such a balance is represented by the use of the "Model Selection" algorithm offered by SPSS (which is based on hierarchical log linear analysis). This algorithm works on a similar (but inverse) principal as the stepwise linear regression. It starts from a saturated model and eliminates unnecessary interactions until it reaches the point at which all interactions in the model are significant and cannot be excluded. As such, based on these two criteria I created ten potential models which are presented in the following tables. Table 17 and 18 present the models obtained for 2004 and 2000 respectively.

Table	Table 17				
Model	s obtained through hierarchic	al log linear analysis, 2004			
	Variables in the model	Result of the model selection technique	Model fit. P-value for the Pearson X ²	Comments	
I.	All economic variables and vote	Vote*ER*EP*SP, Vote*SR, ER*EP*SP*SR	0.906		
II.	All economic variables and vote + education	7 4-way interactions	1.000	Not enough cases	
III.	Excluding SR	Vote*ER*SP*EP	1.000	Saturated model	
IV.	Excluding SR + education	Vote*ER*SP*EP, ER*educ, vote*SP*educ	0.879		
V.	Excluding SP	ER*SR, Vote*SR, EP*SR, Vote*ER, ER*EP	0.126		
VI.	Excluding SP + education	vote*ER*EP*SR, ER*EP*SR*educ, vote*SR*educ	0.607		
VII.	Excluding ER	EP*SR*SP, vote*SR	0.696		
VIII.	Excluding ER + education	vote*SR*educ, EP*SR*SP	0.539		
IX.	Excluding EP	SP*ER, vote*ER, SR*ER,Vote*SR, Vote*SP, SP*SR	0.553		
X.	Excluding EP + education	Vote*SP*educ, SR*ER, Vote*SR*educ, SR*ER, Vote*ER, ER*educ, SP*SR	0.831		
Note: ER – egocentric retrospective, EP – egocentric prospective; SR – sociotropic retrospective; SP –					
III. IV. V. VI. VII. VII. IX. X.	Excluding SR Excluding SR + education Excluding SP Excluding SP + education Excluding ER Excluding ER + education Excluding EP Excluding EP + education Excluding EP + education	Vote*ER*SP*EP Vote*ER*SP*EP, ER*educ, vote*SP*educ ER*SR, Vote*SR, EP*SR, Vote*ER, ER*EP vote*ER*EP*SR, ER*EP*SR*educ, vote*SR*educ EP*SR*SP, vote*SR vote*SR*educ, EP*SR*SP SP*ER, vote*ER, SR*ER, Vote*SR, Vote*SP, SP*SR Vote*SP*educ, SR*ER, Vote*SR*educ, SR*ER, Vote*SR*educ, SR*ER, Vote*SR*educ, SR*ER, Vote*SR*educ, SP*SR c, EP – egocentric prospective; SR – choice, Educ – level of education.	1.000 0.879 0.126 0.607 0.696 0.539 0.553 0.831 sociotropic retro	spective; SP –	

The patterns of interactions in the models lead me to draw a preliminary conclusion: the most important evaluations (both in 2004 and 2000) appear to generally be the sociotropic and retrospective evaluations. But of preeminent or specific importance for the vote is the sociotropic retrospective (SR) evaluation. To establish whether this is indeed the case the models on which to compute the conditional odds and conditional odds ratios need to be selected.

Table	Table 18				
Model	ls obtained through hierarchic	al log linear analysis, 2000			
	Variables in the model	Result of the model selection technique	Model fit. P-value for the Pearson X ²	Comments	
I.	All economic variables and vote	Vote*ER*EP*SP, EP*SP, ER*SR, SR*SP	0.880		
II.	All economic variables and vote + education	2 4-way interactions, 6 2-way interactions	1.000	Not enough cases	
III.	Excluding SR	Vote*ER*SP*EP	1.000	Saturated model	
IV.	Excluding SR + education	Vote*ER*SP*EP, Vote*educ,	0.566		
V.	Excluding SP	Vote*ER*EP*SR	1.000	Saturated model	
VI.	Excluding SP + education	vote*ER*EP*SR, ER*educ, Vote*educ, Educ*SR	0.977		
VII.	Excluding ER	vote*SR, EP*SP, SR*SP	0.355		
VIII.	Excluding ER + education	Vote*Educ, Vote*SR, EP*educ, SP*Educ, EP*SP, SR*SP	0.755		
IX.	Excluding EP	Vote*ER, SR*SP, SR*ER	0.272		
Х.	Excluding EP + education	Vote*ER, Educ*ER, Vote*Educ, SR*SP, SR*ER	0.566		
Note: ER – egocentric retrospective, EP – egocentric prospective; SR – sociotropic retrospective; SP – sociotropic prospective, Vote - vote choice, Educ – level of education.					

Regarding the 2004 case, first I chose to include in the analysis model no. I as it contains all the relevant variables usually used in studies of economic voting. Model number II, the equivalent version of model I which also includes the 'education' variables cannot be used. This partly is because it lacks parsimony but also the level of the p-value associated with the Pearson chi² test is artificially increased due to the low number of valid cases included in the analysis (~ 700 – due to item non-response).

Moving on, I continue with choosing between models which lack one of the economic variables. As we mentioned before, this decision needs to be made so that there is a balance between model-fit and parsimony. Looking at model fit we can easily see that the null hypothesis lacks statistical significance in all models, meaning the models fit the data. Looking now at the models which do not contain the education variable, models V and VII

can be considered as being most parsimonious. On the other hand, in reference to models which contain the education variable, model VIII is by far the most parsimonious and as such it will be selected for analysis. Thus models V, VII and VIII will be included in the analysis Although, based on the fact that the number of interactions is close and considering that model VII shares the same variables as model VIII (chosen to be included in the analysis) and that, based on theoretical considerations (Duch and Stevenson, 2008), the elimination from the model of egocentric indicators is more tolerable than the exclusion of sociotropic evaluations (as is the case of model V).

Thus in the end of the model selection procedure the decision was to introduce in the analysis models I, V, VII and VIII.

In regards to the 2000 case, based on the same considerations as above, models I, VII, VIII, IX and X were initially considered to be included. But a closer look at the last two models forced their exclusion. While the level of significance associated with the p-value of the Pearson Chi² coefficient exceeds 0.05 which indicates that the models fit the data, the level of significance associated with the Likelihood Ratio is 0.017 and 0.000 respectively for the two models. In such conditions the models could not be considered to fit the data and were excluded.

The following section will present the results of the logit log linear analysis (for both stages of the research) for the year 2004. The subsequent section will offer the results for the analysis carried out on the 2000 case.

VI. 2 The case of 2004

In the following analysis the distinction between stage one and two of the research will not be as clear as in previous analysis. Such a distinction will be made through the models which will be used. As such, the analysis using models I, V and VII will represent the first stage of the study, while the analysis regarding how economic voting is manifested, that is, what 'type' of people vote economically will be carried out through model VIII in regards to the effect of education. In order to test the effect of income a selection procedure will be applied by which all four models will be re-run including only one of the three types of people (poor, better off, rich).

Starting with the first stage analysis, the conditional odds of voting for the opposition versus the incumbent, given certain values of the economic variables will be computed. The conditional odds will be computed based on the log linear coefficients (log odds) computed by SPSS. Consequentially, conditional odds ratios will be computed so as to observe the effect of an increase in the independent variable(s) on vote choice. In order to be able to generalize the results to the whole population confidence intervals will be constructed for the odds ratios.

The analysis was started with model I, but due to the high number of empty cell the SPSS software was not able to compute all the estimates¹⁰. Not knowing which estimates

Table 19			
Conditional odds and Condit Model V, 2004	ional Odds Ratios for		
Condition	Cond. odds of voting		
	for the opposition vs.		
	incumbent		
	0.07		
1. SR perceived positively	0.95		
2.SR perceived negatively	2.38		
Conditional Odds Ratio = 2.51; C.I. 95%: Lower			
bound (1.6); upper bound (3.	94)		

were set to zero and in order to avoid generating biased results, no conditional odds were computed for model I, and the model was abandoned.

Moving on to model V, Table 19 presents the results of the analysis. Given the model (the full mathematical formula is presented in

Appendix 2), the only economic evaluation which has impact on vote choice in the

¹⁰ The SPSS software message indicated that some estimates were set to be zero, because the Hessian matrix was singular and it could not be inverted, thus a generalized inverse was used.

sociotropic retrospective economic evaluation. The results show that if the economy is viewed positively the odds of voting for the opposition versus the incumbent decrease by 0.95. While, if the economy is viewed negatively the odds of voting for the opposition increase dramatically (2.38). The conditional odds ratio of respondents perceiving the economy positively over the economy perceived negatively is 2.51. Thus if the perceived state of the economy moves from positive to negative the odds of voting for the opposition increase 2.51 times. This result is significant at the 0.05 level (1 is not included in the 95% confidence interval).

Table 20			
Conditional odds and conditional odds ratio for Model VII, 2004			
Condition	Cond. odds of voting		
	for the opposition vs.		
	incumbent		
1. SR perceived positively	0.80		
2. SR perceived negatively	2.35		
Conditional Odds Ratio = 2.93; C.I. 95%: Lower			
bound (2.43); upper bound (3.57)			

The results form analyzing model VII (Table 20) are consistent with and strengthen the results obtained for Model V. Considering the fact that even if a different variable is excluded from the model the results hold speaks towards their robustness, but also attest to the importance of the sociotropic

retrospective evaluation. Moreover, the results presented here are similar with the results obtained in the first stage of the research for the 2004 case by the use of logistic regressions. It seems that the vote choice of the Romanian public, at least in 2004, can be partially explained by the sociotropic retrospective evaluation.

Moving to the second stage of the research the results referring to the effect of education (Model VIII) are presented in Tables 21 and 22. Observing the conditional odds and the conditional odds ratios one can see that if the economy is perceived positively the

Tabl	Table 21				
Con	ditional odds for Model VII	I, 2004			
	Condition – economy	Condition –	Conditional		
		education	odds		
1	SR perceived positively	Low	0.27		
2	SR perceived positively	High	0.77		
3	SR perceived negatively	Low	1.36		
4	SR perceived negatively	High	11.52		

Table 22	Table 22				
Conditional odds ra	Conditional odds ratio for Model VIII, 2004				
	Conditional	95 % Confidence Interval			
	Odds Ratio	Lower	Upper		
		bound	bound		
Between situation	2.83*	1.99	3.81		
1 and 2					
Between situation	8.48^{*}	1.82	38.86		
3 and 4					
Between situation	4.96*	2.39	10.49		
1 and 3					
Between situation	14.87^{*}	8.75	88.23		
2 and 4					
Between situation	42.02*	9.12	198.34		
1 and 4					

odds of voting for the opposition are smaller then 1, which means that people who think that the economy is doing better are more likely to vote for the incumbent.

Moreover, it is obvious that taking people of opposing economic views, having the same level of education, those who view persons the economy negatively are more prone vote for the to opposition. Lastly, if we are to take people of similar

economic perceptions, with differing educational levels, those more educated are more likely to vote for the opposition. In this respect the most eloquent example is the odds ratio constructed between people who view the economy negatively and are highly educated versus people who perceive the economy in a positive way and are less educated. In this case, the odds of voting for the opposition increase by 42.02 times when education is high and the economy is perceived negatively as opposed to when education is low and the economy is perceived positively. This shows the importance of the combined effect on vote choice of education and the evaluation of the economy. This finding is consistent with the results of the logistic regressions and tends to confirm Hypothesis 2. Of course, the same limitation stands: the perception of the economy might not be exogenous and indeed the way

70.11

22

the economy is perceived might just be a function of party preference. Moreover, given the data, the analysis performed here cannot possibly dissociate between 'vote for the PSD' and 'vote for the opposition'.

Finally, the analysis aimed at testing the effect of perceived income on the use of economic evaluation could not be completed for neither of the models due to the very low number of cases (generally less then 200 – which given the number of variables in the model generated a large number of empty cells) obtained because of the selection procedure. As such the results would have been biased and could not have been generalized.

All in all, the results of the analysis performed with logit log linear analysis are similar to the results of the logistic regression but they have the power, due to the fitting models, to allow to use them to confirm or reject the hypothesis. But before that, the case of 2000 needs to be discussed.

VI.3 The case of 2000

Table 23			
Conditional odds and conditi	onal odds ratio for		
Model VII, 2000			
Condition	Cond. odds of voting		
	for the opposition		
1. SR perceived positively	1.81		
2.SR perceived negatively	3.94		
Conditional Odds Ratio = 2.17; C.I. 95%: Lower			
bound (1.29); upper bound (3.45)			

As mentioned previously the models selected for the 2000 case are Models I, VII and VIII. The analysis was carried out in a similar fashion as for the 2004 case. Once again Model I was excluded as SPSS set certain estimates to be 0.

Model VII (table 23) shows

that people are more prone to vote for the opposition irrespective of the state of the economy, but the odds of voting for the opposition increase 2.17 times if the perception of the economy moves from positive to negative. Thus a person perceiving the national economy negatively is more likely to vote for the opposition.

Moreover, the fact that the conditional odds of voting for the opposition for people who perceive the economy positively are not below 1 (as in the 2004 case) indicates that economic voting is a less plausible explanation of vote choice for the 2000 case. Furthermore, this might imply that in 2000 economic voting functions in a somewhat peculiar way: people punish the incumbent for bad economic performance but they do not reward them if the economy is doing well. This is consistent with the findings of Pacek (1994, 1995) for Eastern Europe and for developing democracies.

Tab	Table 24					
Con	ditional odds ai	nd conditiona	al odds ratio fo	r Model VIII,		
2004	1					
	Condition – e	conomy	Condition –	Conditional		
			education	odds		
1	SR perceived	positively	Low	3.52		
2	SR perceived	positively	High	0.64		
3	SR perceived	negatively	Low	7.63		
4	SR perceived negatively		High	1.39		
Tab	Table 25					
Con	ditional odds ra	tio for Mode	el VIII, 2004			
Conditional 95 % Confidence Interval						
		Odds Ratio	Lower	Upper		
			bound	bound		
Between situation		0.18*	0.038	0.85		
Retv	veen situation	0.18*	0.12	0.26		
3 and 4		0.10	0.12	0.20		
Between situation		2.17^{*}	1.27	3.69		
1 and 3						
Between situation		2.17	0.55	8.55		
2 an	a 4	0.00	0.12	1.21		
Betv	veen situation	0.39	0.12	1.21		
1 an	u 4					

Following, the effect of education (model VIII) on the propensity of economic voting will be observed. The presented results are in Tables 24 and 25, and again, they paint a very different picture then in the 2004 case. Looking at the conditional odds and the conditional odds ratios the first observation which springs to mind is the predominant importance of the level of education (as opposed to that of the perceived state of the

economy) on vote choice. A discernable pattern emerges: people with high levels of education, irrespective of how they feel about the economy are more prone to vote for the incumbents, while people who are less educated are more prone to vote for the opposition. Nonetheless, it is also the case that if the level of education is held constant (high or low) people who view the economy negatively are more prone to vote for the opposition. Finally, the patterns outlined above show are opposite to the patterns identified for the 2004 case. In 2004 it was shown that more educated people vote for the opposition.

A further difference between this case and the 2004 case is that the last two odds ratios presented in table 25 do not attain statistical significance at the 0.05 level. Thus any potential comparison with the 2004 case cannot be performed. Nonetheless, these results are also consistent with the results obtained in the logistic regression analysis.

Finally, trying to measure the effect of income led to the same problems (as for the 2004 case) caused by the low number of cases and as such the analysis was abandoned.

All in all, as the case with year of 2004, the log linear analysis yields similar results with those obtained by using logistic regressions.

VI. 4 Discussion

Through the employment of log linear analysis and through the use of models which clearly fit the data the similar results were obtained as in the analysis carried out by the use of logistic regressions. Thus, Hypothesis 1 can now be confirmed: Romanians generally seem to utilize the sociotropic retrospective evaluation when casting their vote. But, it is important to stress out that this economic explanation of the vote is not holistic or comprehensive by any measure. It is merely a partial explanation of vote choice. Thus, a more appropriate formulation of the finding would be that this analysis cannot exclude the role of the perceptions of the national economy as a potential explanation for vote-choice. So, it might be the case that Romanian electors when voting also, among other things, consider the state of the national economy, comparing it to past performances, but of course, alternative or concurrent explanations could and should also be considered.

Even though a superficial look at the results regarding Hypothesis 2 (the effect of education) would suggest that the hypothesis should be confirmed, it in fact was *not* confirmed. Instead, the analyses point towards education being linked to the opinions relating to the Social Democrat Party: more educated people vote for the opposition when the PSD is in power and vote of the incumbents when the PSD is in the opposition, and this choice seems not to be influenced by considerations of the economy. As such, the pattern observed in the 2004 case might be caused purely by coinciding contextual events.

Hypothesis 3 and 4 could not be tested by the use of log linear analysis due to the very low sample size (due to the selection procedure), which led to a large number of empty cells. As such, the results obtained in the logistic regression cannot be checked. Moreover, considering the fact that the logistic regression models do not fit it would be unwise to confirm or reject the hypothesis solely based on the results generated by them. What can be said, though, is that there is a shred of evidence which suggests that Hypothesis 3 if only applied for the 2004 case, might be true: the single fitting logistic regression model showed that better off people who view the economy negatively are more likely to vote for the opposition. But this finding, by itself, is not enough to warrant the confirmation of the Hypothesis.

Thus, it becomes apparent that the analysis carried out in this paper does not permit hypothesis 3 and 4 to be neither confirmed nor rejected.

VII. The formation of the perceptions of the national economy

Given the fact that it has been shown that the sociotropic retrospective evaluation is the one that can best explain the economic involvement in vote choice and given the assumed importance of the perception over objective economic performance in explaining voting behavior it is necessary to examine how perceptions are formed.

Anderson and Wlezien state that "perceptions of economic performance vary across individuals, depending on socioeconomic status, economic experiences, cognitive abilities, and political preferences (...) this can vary over time independently of actual economic conditions" (Anderson and Wlezien, 1997, 2). Thus, this paper assumes¹¹ a hierarchical model of the formation of perceptions regarding the economy. Thus perceptions are indeed based on the objective state of the economic but this influence is mediated through at least two sets of filters.

The first filter is represented by the media and political campaigns¹² (Duch and Stevenson, 2007). This is in direct connection with the issue of information. It is generally accepted in the literature that people are not informed and acquire already 'digested' information (which does or does not accurately reflect the objective state of the economy) through the media (Mutz, 1994; Conover, 1986) or electoral campaigns (Mathews, 2005). This is because a pertinent analysis of the state of national economy is only possible when the capacity of analysis and evaluating economic issue exists and is coupled with the correct attribution of responsibility (Peffley quoted by Conover et. al., 1986).

¹¹ In needs to be clear that the role of this paper is not that of analyzing the formation of perceptions. The model proposed is assumed based on the literature available, but further work needs to undertaken.

¹² The difference between political and electoral campaigns should be noted. The prior refers to any type of campaigns (visible or not) financed, organized by political parties and not necessarily linked to an electoral context

Furthermore, given the perspective people have formed about the economy, based on their personal experiences, and to avoid cognitive dissonance they will or will not accept the information obtained from the upper named sources. This leads me to the second set of filters: personal experiences such as those outlined by Anderson and Wlezien. But as Lewis Beck (1983) and Feldman (1982, 1984) argue, for personal experiences to matter in votechoice individuals must attribute the responsibility for their personal financial state to the government. Moreover as Feldman (1984) clearly shows in the US this does not happen due to the dominant political culture which imposes individualism and auto-responsabilization. Also, in a qualitative study of economic voting in the Romanian context (2007) I have shown that there are clues towards the fact that this might be the case in Romania as well. But even though this model contends that personal economic evaluations do not directly influence vote choice they actually are included in the formation of the perception regarding the national economy (Wetherford, 1983).

At the same time it has been shown that the local context can play an important role (Jones et. al., 2002) on how people form perceptions about national economy and consequently how they vote (Brooks and Prysby, 1999; Niemi et. al. 1999; Johnston et. al., 2000). Also literature on the issues of the endogenity of economic voting (Wlezien at al. 1997; Duch and Stevenson, 2008) shows that political preferences do influence how people perceive of the state of the economy (Duch and Stevenson, 2005, Duch and Palmer 2002; Burg at al. 2007).

Having presented the major theoretical issues in regards to the formation of perceptions, the details of the statistical analysis can now be outlined.

In order to observe what variables influence the formation of the perception of the sociotropic retrospective evaluations multivariate stepwise OLS regression will be used. The dependent variable is the sociotropic retrospective evaluation.

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Table 26				
OLS Regress	ion results	for the		
sociotropic ret	rospective	evaluation,		
2004				
Variables ^a	В	BETA		
Local	.400***	.415***		
economy				
retrospective				
Egocentric	.323***	.336***		
retrospective				
Vote choice	.247***	.133***		
Age	.006***	121***		
Education	034***	105***		
Constant	1.269***			
Adjusted R^2 .462				
Ν	1800			
a. Definition of variables: Dependent = state				
of the national economy compared to 4				
years ago. 5 values ranging from 'very				
good' to 'very bad'.				

The independent variables (consistent with the theory outlined above) which were initially included in the equation are: the perception of the retrospective personal financial well being, the perceived state of the local economy in retrospect, age, education, place of residence and vote choice. Tables 26 and 27 present the coefficients for the regressions for 2004 and 2000, respectively. The tables only include the variables which were not excluded by the stepwise procedure. Looking at the Adjusted R^2 levels, one can conclude that both models have more then an acceptable level of fit.

The coefficients show that indeed both the personal financial situation and state of the local economy correlate with how the national economy is

perceived. This result is valid both for 2000 and 2004. Thus Hypothesis 5 is confirmed. But at a closer inspection of the results for the 2004 case the following conclusions can be drawn.

Regarding education, it can be observed that it has a negative effect on the formation of the perception of the economy. This means that more educated people are more inclined to view the economy positively. Moreover, it seems that vote choice does have a significant positive effect on the way economy is perceived: moving from people who declare they vote for the incumbent to people who declare they vote for the opposition leads the level of negativity of the perception regarding the economy to augment. The theoretical significance of such a finding is that, if this really is the case, then the propensity of economic voting is over estimated.

***p>0.001

Table 27			
OLS Regres	sion result	s for the	
sociotropic re	trospective	evaluation,	
2000			
Variables ^a	В	BETA	
Local	.120***	.277***	
economy			
retrospective			
Egocentric	.507***	.547***	
retrospective			
Constant	1.246***		
Adjusted R^2 .532			
N 1775			
a. Definition of variables: Dependent = state			
of the national economy compared to 4			
years ago. 5 values ranging from 'very			
good' to 'very bad'.			
***p>0.001			

If there is a bi-directional relationship between two variables and simultaneous estimation is not used, this technically leads to a Type I error. In this particular case the error would be that of overestimating the effect of economy on vote and also of vote on perception of the economy. As mentioned by Wlezien et al. (1997) this occurs due to the fact that the economic variables will be correlated to the residual of vote because the variance of the residual creates an equivalent variation in vote. But if the perception of the economy is influenced by vote then this will lead to

variation in the perception of the economy. The reverse applies for the case of the influence of economic perceptions on vote. Thus, a simultaneous estimation procedure (like structural equation modeling, for instance) needs to be used in order to get unbiased coefficients. But, this goes beyond the scope of this analysis, which was only that of showing that both the personal financial wellbeing and the state of the local economy influence the way the state of the national economy is perceived.

Furthermore, the analysis shows that the issue of bi-directionality arises only for the case of the 2004. For the case of the year 2000 the stepwise procedure excluded the 'vote choice' variable from the equation. Running a second regression and setting all independent variables to enter to enter the model leads to a similar outcome: the 'vote choice' variable does not attain statistical significance.

This indicates that the Romanian electoral behavior is very much contextual in nature and could be closely linked with the activity of and feelings people have towards the Social Democratic Party in the following way: more educated people do not like or support the PSD (and as a consequence vote for the opposition) but because of this they also see the economy in a negative light; as the PSD was the incumbent party in 2004. Thus, it might be like or dislike for the PSD that influences both vote-choice and the way the economy is perceived, rather then economy influencing vote choice, and its role being augmented by the level of education. Of course, this finding severely decreases the explanative power of the theory of economic voting applied to the case of Romania.

Finally, the fact that in 2000 (when PSD was in the opposition) vote choice seems not to have influenced the perception of the economy and that more educated people were more prone to vote for the incumbents can only lead to the idea that the PSD is the center-piece of Romanian politics and that electoral behavior is conditioned by the peoples feelings towards this party.

VIII. Conclusions

This research set out to inspect whether the electoral behavior of the Romanian electorate can partially be explained by the tenets of the theory of economic voting. Moreover, this paper aimed at showing how the level of education and that of the perceived income mediate and influence the propensity of economic voting. Also the formation of the perception regarding the national economy was looked at.

The analysis was carried out by the used of logistic regression doubled with log linear analysis. The results obtained through both procedures are consistent with one another, pointing to the robustness of the findings.

The results presented at length in the previous chapters point to the fact that indeed perceptions of the economy (specifically in the sociotropic retrospective form) might be, in some way, present in vote choice in Romania. Particularly, it seems that Romanians when casting their vote take into account the state of the national economy the way it is being perceived by them. This results should not be interpreted as a total explanation of Romanians voting behavior, besides the issue of economy numerous other factors (rational and emotional) might be involved in the decision making process. At most what this paper shows is that, to a limited extent, economic perceptions can be used to partly explain vote choice both in the 2000 and 2004 elections. Furthermore, the results of the third stage of the analysis show that even if the first stage analysis shows that economic perceptions do exercise some sort of influence on vote choice, this relations might be spurious, or at least over-estimated, as it could be the case that vote choice itself partly determines how the economy is perceived.

Moreover, looking at the role of education and again at the way the perceptions of the national economy are formed helps to clarify the role of the economy in voting and leads to the conclusion that economic evaluations are not, by any measure, preeminent elements of the decision making process. Quite to the contrary, evidence form the analysis points towards

the Social Democratic Party (the 'heir' of the Romanian Communist Party) as being the principal structuring agent of the Romanians voting behavior. The position (in the opposition or in power) of this party, it seems, that to a large extent determines the perception of the economy (positive versus negative) and mediated by the level of education, also determines vote choice.

In the following lines I would like to address what I see to be a limitation of this analysis. As shown in the in previous section the four variables used to operationalize the different types of economic evaluations are highly correlated. Further more Crombach's Alpha shows that these variables measure can be expected to measure the same phenomenon. According to the theory these variables should be measuring different phenomenons. Thus they might not be valid measures of what they should be measuring. A direction of further research will address the question of validity. This could be tackled through the testing for concordant and discordant validity by the use of alternative items form the questionnaire which address the same concept. Moreover a comparison could be made with similar items in questionnaires applied in different states.

Nonetheless, I identified several potential explanations which further research should clarify. Firstly, the data, due to collection procedures, questionnaire length, etc. is bias, the respondents did not accurately consider the question when answering. Second, Romanians (at least the ones in the sample) might not dissociate between their well-being and the performance of the national economy, moreover they might not dissociate between past and future, that is they equate future performances with past ones. Thirdly, Romanian electors might in fact place emphases only on the past performance of the national economy thinking that it will be the same in the future. Moreover they do not base their evaluation on their personal well being by employing the following thought process: if the economy does well, I

will do well, as shown for other states by Weatherford (1983). Thus the respondents, in fact, might be conceptually referring to the same notion when answering the different questions.

As presented above, this paper has proposed a novel theory regarding the role if the PSD. It is the case that this theory needs to be thoroughly examined. This issue, along with a more comprehensive examination of the process of the formation of economic perceptions (ideally through the use of structural equation modeling) should be the avenues for further research on this field for the case of Romania.

Appendix 1- Items from the questionnaire through which the variables were operationalized

Dependent variable:

"If parliamentary elections would take place next Sunday, which party or electoral alliance would you vote for?" – Values: D.A. Alliance; PSD + PUR National Union; PRM; PNG; PNTCD; PUNR; UDMR; URR; UCM; Popular Action; Romanian Ecologist Party; Democratic Force; Legionnaires Party; PMR; I will not vote; I have not made up my mind yet.

Independent variables:

<u>Egocentric retrospective</u> – "Do you think that compared to 2000 your economic situation is much better...better...the same...worse...much worse?"

<u>Egocentric prospective</u> – "Do you think that in the next 4 years Romania's your economic situation economy will be much better..better...the same...worse...much worse?"

<u>Sociotropic retrospective</u> - "Do you think that compared to 2000 Romania's economy is much better...better...the same...worse...much worse?"

<u>Sociotropic prospective</u> – "Do you think that in the next 4 years Romania's economy will be much better..better...the same...worse...much worse?"

Control variables:

Age: "What was your age on your last Birthday?"

Gender: no question - these were face to face interviews.

<u>Education</u>: "What is the highest form of education you graduated" – Values: no schooling; primary school (4 grades); middle school (8 grades); apprentice school (equivalent to 10 grades); high school – first step (rank) (10 grades); professional school (equivalent to 11 grades); high school (12 grades); foreman school (equivalent to 13 grades); post-high school school (equivalent to 14 grades); short-term university study / college (equivalent to 15 grades); long-term university study (equivalent to 16 grades); post-university studies (equivalent to at least 17 grades).

<u>Residence</u>: "Type of locality" - Values: large city (over 200 000 inhabitants); city (between 100 000 and 200 000 inhabitants); town (between 30 000 and 100 000 inhabitants); small town (under 30 000 inhabitants); large village (administrative center); village.

Appendix 2 – Logit log linear formulas

Model V, 2004 (Vote*SR, ER*SR, SR*EP, Vote*ER, ER*EP) – general formula

 $\mathbf{P}_{(\text{vote1, SR, ER, EP})} / \mathbf{P}_{(\text{vote0, SR, ER, EP})} = \mathbf{P} \left(\beta_{\text{constant}} + \beta_{\text{vote1}} + \beta_{\text{SR}} + \beta_{\text{EP}} + \beta_{\text{EP}} + \beta_{\text{SR vote1}} + \beta_{\text{ER SR}} + \beta_{\text{SR EP}} + \beta_{\text{SR vote1}} + \beta_{\text{ER SR}} + \beta_{\text{ER SR}} + \beta_{\text{SR EP}} + \beta_{\text{SR vote0}} + \beta_{\text{ER SR}} + \beta_{\text{SR EP}} + \beta_{\text{Vote0}} + \beta_{\text{ER EP}} + \beta_{\text{ER EP}} + \beta_{\text{SR EP}} + \beta_{\text{SR EP}} + \beta_{\text{ER EP}} + \beta_{\text$

Log P (vote1, SR, ER, EP) - log P (vote0, SR, ER, EP) = log P ($\gamma_{constant} + \gamma_{vote1} + \gamma_{SR} + \gamma_{ER} + \gamma_{EP} + \gamma_{SR vote1} + \gamma_{ER SR} + \gamma_{SR EP} + \gamma_{vote1} ER + \gamma_{ER EP}$) / P ($\gamma_{constant} + \gamma_{vote0} + \gamma_{SR} + \gamma_{ER} + \gamma_{EP} + \gamma_{SR vote0} + \gamma_{ER SR} + \gamma_{SR EP} + \gamma_{vote0} ER + \gamma_{ER EP}$) =>

=> Log P (vote1, SR, SP, EP) - log P (vote0, SR, SP, EP) = log P ($\gamma_{vote1} + \gamma_{SR vote1} + \gamma_{vote1 ER}$) - log P($\gamma_{vote0} + \gamma_{SR vote0} + \gamma_{vote0 ER}$)

Model VII, 2004 (EP*SR*SP + vote*SR) - general formula

 $\mathbf{P}_{(\text{vote1, SR, SP, EP})} / \mathbf{P}_{(\text{vote0, SR, SP, EP})} = \mathbf{P}_{(\beta_{\text{constant}} + \beta_{\text{vote1}} + \beta_{\text{SR}} + \beta_{\text{SP}} + \beta_{\text{EP}} + \beta_{\text{SR vote1}} + \beta_{\text{SR SP}} + \beta_{\text{SR SP}} + \beta_{\text{SR vote1}} + \beta_{\text{SR SP}} + \beta_{\text{SR$

Log P (vote1, SR, SP, EP) - log P (vote0, SR, SP, EP) = log P ($\gamma_{constant} + \gamma_{vote1} + \gamma_{SR} + \gamma_{SP} + \gamma_{EP} + \gamma_{SR vote1} + \gamma_{SR SP} + \gamma_{SP EP} + \gamma_{SR SP EP} + \gamma_{SR SP EP}) / P (<math>\gamma_{constant} + \gamma_{vote0} + \gamma_{SR} + \gamma_{SP} + \gamma_{EP} + \gamma_{SR vote0} + \gamma_{SR SP} + \gamma_{SP EP} + \gamma_{SR SP EP}) =>$

=> Log P (vote1, SR, SP, EP) - log P (vote0, SR, SP, EP) = log P ($\gamma_{vote1} + \gamma_{SR vote1}$) - log P($\gamma_{vote0} + \gamma_{SR vote0}$)

Model VIII, 2004 (vote*SR*educ + EP*SR*SP) – general formula

 $\mathbf{P}_{(\text{vote1, SR, SP, EP, ed)} / \mathbf{P}_{(\text{vote0, SR, SP, EP, ed)}} = \mathbf{P} \left(\beta_{\text{constant}} + \beta_{\text{vote1}} + \beta_{\text{SR}} + \beta_{\text{SP}} + \beta_{\text{EP}} + \beta_{\text{education}} + \mathbf{B}_{\text{educ}} + \beta_{\text{SR}} + \beta_{\text{SP}} + \beta_{\text{SR}} + \beta_{\text{SP}} + \beta_{\text{SR}} +$

Log P (vote1, SR, SP, EP, ed) - log P (vote0, SR, SP, EP, ed) = log P ($\gamma_{constant} + \gamma_{vote1} + \gamma_{SR} + \gamma_{SP} + \gamma_{EP} + \gamma_{educ} + \gamma_{educ} + \gamma_{SR} \text{ educ} + \gamma_{SR} \text{ vote1} + \gamma_{SR} \text{ sp} + \gamma_{SP} \text{ ep} + \gamma_{SR} \text{ sp} + \gamma_$

=> Log P (vote1, SR, SP, EP, ed) - log P (vote0, SR, SP, EP, ed) = log P ($\gamma_{vote1} + \gamma_{educ vote1} + \gamma_{SR vote1} + \gamma_{SR$
Model VII, 2000 (vote*SR, EP*SP, SR*SP) - general formula

 $P_{\text{(vote1, SR, SP, EP)}} / P_{\text{(vote0, SR, SP, EP)}} = P_{\text{(}\beta_{\text{constant}} + \beta_{\text{vote1}} + \beta_{\text{SR}} + \beta_{\text{SP}} + \beta_{\text{EP}} + \beta_{\text{SR vote1}} + \beta_{\text{SR SP}} + \beta_{\text{SP EP}} + \beta_{\text{SR vote1}} + \beta_{\text{SR SP}} + \beta_{\text{SP EP}} + \beta_{\text{SR vote1}} + \beta_{\text{SR SP}} + \beta_{\text{SP EP}} + \beta_{\text{SR SP EP}} + \beta_{\text{SP EP}} + \beta_{\text{SP$

Log P (vote1, SR, SP, EP) - log P (vote0, SR, SP, EP) = log P ($\gamma_{constant} + \gamma_{vote1} + \gamma_{SR} + \gamma_{SP} + \gamma_{EP} + \gamma_{SR vote1} + \gamma_{SR SP} + \gamma_{SP} +$

=> Log P (vote1, SR, SP, EP) - log P (vote0, SR, SP, EP) = log P ($\gamma_{vote1} + \gamma_{SR vote1}$) - log P($\gamma_{vote0} + \gamma_{SR vote0}$)

<u>Model VIII, 2000 (Vote*Educ, Vote*SR, EP*educ, SP*Educ, EP*SP, SR*SP) – general</u> formula

 $P_{\text{(vote1, SR, SP, EP, ed)}} / P_{\text{(vote0, SR, SP, EP, ed)}} = P_{(\beta_{\text{constant}} + \beta_{\text{vote1}} + \beta_{\text{SR}} + \beta_{\text{SP}} + \beta_{\text{EP}} + \beta_{\text{education}} + B_{\text{educ}} + \beta_{\text{educ}} + \beta_{\text{SP} \text{ educ}} + \beta_{\text{SP} \text{ educ}} + \beta_{\text{SR} \text{ SP}}) / P_{(\beta_{\text{constant}} + \beta_{\text{vote0}} + \beta_{\text{SR}} + \beta_{\text{SP}} + \beta_{\text{EP}} + \beta_{\text{educ}} + \beta_{\text{educ}} + \beta_{\text{educ}} + \beta_{\text{SP} \text{ educ}} + \beta_{\text{SP} \text{ educ}} + \beta_{\text{SP} \text{ educ}} + \beta_{\text{SP} \text{ SP}} + \beta_{\text{SR} \text{ SP}}) =$

Log P (vote1, SR, SP, EP, ed) - **log P** (vote0, SR, SP, EP, ed) = log P ($\gamma_{constant} + \gamma_{vote1} + \gamma_{SR} + \gamma_{SP} + \gamma_{EP} + \gamma_{educ} + \gamma_{educ vote1} + \gamma_{SR vote1} + \gamma_{EP Educ} + \gamma_{SP Educ} + \gamma_{EP SP} + \gamma_{SR SP} - log P (<math>\gamma_{constant} + \gamma_{vote0} + \gamma_{SR} + \gamma_{SP} + \gamma_{EP} + \gamma_{educ} + \gamma_{educ vote0} + \gamma_{SR vote0} + \gamma_{EP Educ} + \gamma_{SP Educ} + \gamma_{EP SP} + \gamma_{SR SP} = >$

=> Log P (vote1, SR, SP, EP, ed) - log P (vote0, SR, SP, EP, ed) = log P ($\gamma_{vote1} + \gamma_{educ vote1} + \gamma_{SR vote1}$) - log P($\gamma_{vote0} + \gamma_{educ vote0} + \gamma_{SR vote0}$)

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