

**Does NOTA Option Availability Affect Voting in a
Polarized Environment? Evidence from Ukrainian
Parliamentary Elections 2006 – 2012**

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Abstract

What is the message of voting? Apart from elections results and turnout, we can also explore meaningful patterns in various protest voting activities (abstention, ballot spoiling and NOTA support). The mechanism of the effect of none of the above voting is not well understood. In this study we analyzed the effect of NOTA option on different aspects of voting, using the data from Central Election Commission of Ukraine for three consecutive Parliamentary elections 2006-2012 in this country. Our study suggests that variation in NOTA option support across different regions can be explained by the level of homogeneity of political preferences of voters. We also find that abolition of NOTA option in 2012 increased the share of votes received by small parties on the next election, while there is no effect on turnout and the number of spoiled ballots. Those results are robust to different specifications and several robustness checks tests.

Keywords: none of the above, political behavior, political polarization, protest voting, Ukraine, voting and elections

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1. Introduction

One of the most interesting practical questions in the modern political science is how to increase voter turnout and encourage people to vote. There are many possible measures that proved to be efficient in increasing voter participation: moving election days to weekends, automatic registration of voters (Powell, 1986), simplification of rules for early voting (Gronke et. al., 2007). From libertarian paternalistic point of view, optimal policy will affect the behavior in a right way while respecting individual freedoms of citizens. According to this theory, compulsory voting scheme is not a libertarian paternalistic policy, while the improvement of a ballot design is.

One of the form of the improvement of the ballot design is the introduction of NOTA option. None of the Above (NOTA) option allows voters to express their disapproval of all of the candidates presented on the ballot. Proponents of NOTA argue that it may improve the quality of future campaigns, because candidates will fear to see “too many” against all votes, and will run more substantive campaigns (Damore et al., 2012). There are several countries, where this option is legal: Bangladesh, Columbia, India, Greece, Spain, and US state of Nevada. Previously it was also available in Russia (until 2006) and Ukraine (until 2012). Still there is a strong public demand to return this option into legislature in these two countries. For example, according to the Levada-Center poll almost 74% of Russians supported the return of NOTA to the actual ballots in 2014, while approximately 20% of Ukrainians said that they would like to vote for NOTA, if they had such an opportunity on the Parliamentary election in 2012 (Razumkov Center). Moreover, even in some Western countries like the UK, Ireland and France there are organizations arguing about the introduction of a legal opportunity to vote against all of the proposed candidates.

In this study we are analyzing NOTA voting in a broader context of protest voting. Comparing with all other forms of protest voting behavior (abstention, minor party support and ballot spoiling), NOTA support is a much clearer (articulated) evidence of voter dissatisfaction. There is a clear gap in the academic literature in the studies related to protest voting activities, their

determinants and potential effects. This study aims at contributing to the empirical literature of the effect of NOTA option on different aspects of voting. We take advantage of unique institutional setup in Ukraine, where this option was previously available, but was abolished later.

This paper shows that constituency level differences in support of NOTA option can be explained by political polarization in society. In constituencies where the majority of voters are homogeneous in terms of party choices, the stakes from particular elections are higher, which increases turnout and decreases support for protest voting activities. Another finding of this paper is that after the abolition of the NOTA option in Ukraine, its previous levels of electoral support are positively associated with voting for minor political parties in the current period, but not associated with the number of spoiled (invalid) ballots and voter turnout. It moves as closer to the explanation that NOTA voters in their micro-level behavioral characteristics are closer to minor-party votes, rather than to abstainers.

The paper organized as follows. In Chapter 2 we summarize theoretical foundations and empirical evidences of the effect of protest voting on turnout in general, and different aspects of voting in particular. Ukrainian political system is described in Chapter 3. We argue that after the Orange revolution (2004) a highly polarized political system was created in Ukraine. At the same chapter we also present some historical overview of NOTA option support in Ukraine. We introduce our data and methodology in Chapter 4. Moreover, here we also propose several testable hypotheses of the possible effect of NOTA option abolition on voting. After that we present our results (Chapter 5) and conclusions (Chapter 6). At the end of the paper we discuss potential policy implications of our findings.

2. Theoretical Approaches to the Analysis of Protest Voting

2.1. Rational Choice Explanation

Political scientists usually explain why people do vote with models based on rational choice theory. In this sub-chapter we are going to explain a particular rational choice model called “A calculus of voting” and explain its generalization to the study of protest voting behavior. This model was initially proposed by Downs in his seminal work “An Economic Theory of Democracy” (1957), and then was adopted by Riker and Ordeshook (1968). It can be formally represented in the following form:

$$R = pB - C + D$$

where R - is the probability that voter will turn out (when R is positive, it is reasonable to vote), B is a “utility from voting” (how much a victory of candidate A over candidate B is more important for a voter), p is the probability of decisiveness of a vote (negatively associated with the number of registered voters), C is cost of voting (transportation, time, forgone earnings, negative weather, etc.), D is a citizen duty (psychological benefit of voting). We can say that larger B , the difference voters perceive about contesting parties, increases the stakes in election outcome, and thus positively associated with voter participation.

All forms of protest behavior fall into D category (Southwell and Everest, 1998). Citizen duty is also one of the possible explanations to the “paradox of voting”, which basically means that rational individual should never vote, because p is too small and cannot outweigh C . Consider a case when voter i is indifferent between two candidates (her “utility from voting” B is equal 0), she still will go to turn out if $D > C$.

Let’s assume that in a single country average cost of voting C is almost similar. If this country is polarized, then we can expect a high variation in the average “utility from voting” parameter B . That is why in constituencies, where voters have strict political preferences of one candidate over

another candidate, the average rates of turnout are expected to be higher, comparing with constituencies, where on average voters have lower B values (the estimated difference between the two candidates is lower). Moreover, in these constituencies, where on average voters have lower B values, the proportion of those who turn out at the election day with psychological benefits of voting in mind is expected to be higher. Imagine that one of the options, which allows to legally express protest attitudes (e.g. NOTA) is no longer available. Then theoretically it will lead to lower voter participation rates, and (or) transition to different forms of expressive voting within the same D category.

Applying these theoretical concepts to the Ukrainian political system, we may observe the following:

- Turnout in constituencies, in which the victory of one candidate over another is more important for local voters, is expected to be higher. Thus, for example, in constituencies, where the majority of candidates is supporting pro-Russian political parties, the disutility from a victory of a pro-European coalition will be exceptionally high¹.
- Indifference between the two coalitions will stimulate voters to use protest voting mechanisms more often. For that reason, the share of protest votes in moderate regions (with lower margin of victory between the two coalitions) tend to be higher.
- After the abolition of NOTA option, individuals with high protest attitudes will probably move either to abstention or to some other forms of protest voting.

2.2. Forms of Protest Voting

Uggla (2008) suggested that all election results can be summarized into four categories: votes for parliamentary (big) parties, votes for small parties (outsiders), spoilt ballots and number of voters abstaining. We can argue that in electoral system, where voters are allowed to vote for NOTA,

¹ And vice versa.

there is an additional category – number of votes against all of the candidates. Looking closer at these groups, we may find that only the first one can affect the results of elections, while all the rest are counterproductive. Abstaining can be partially explained by the fact that some of the voters are just do not interested in politics, but we cannot say the same about the people who actually voted. Here we come to the interesting puzzle: ***why voters, who are actually interested in politics, sometimes are acting quite irrationally (supporting minor candidates, voting against all, or even damaging their ballots)?***

One of the most possible explanation is voting as an act of a protest. There are many reasons for protest voting: general dissatisfaction with the current political system and political elites, deterioration of economic conditions, political alienation, lack of attractive possibilities among the available (proposed) candidates, desire to send a message to the government, etc. We may see that both dissatisfaction from political system and forms of protest voting are multidimensional.

The easiest way to protest is basically not to turning out to vote (Southwell and Everest, 1998). In that case people at least do not incur costs related to the process of voting (transportation cost, time cost, forgone wage, etc.). It is also one of the most studied form of protest. Low levels of voter abstention (high levels of voter turnout) are usually associated with more competitive elections without clear favorite, higher political mobilization of voters, and compulsory voting schemes (for more detailed description of previous studies related to voter turnout see Blais, 2006).

The second form of protest voting is spoiling a ballot. Spoiled, or invalid, ballot may be completed in unapproved manner (e.g. selecting more than one candidate when it is not allowed), contain written statements, lack of a clearly identified choice, filled out wrongly, or even physically damaged. In some countries (France, Italy, Spain) voters are allowed to submit a blank vote (fr. vote blanc), which means that this voter is not supporting any of the candidates (parties) presented on the list. Thus the meaning of the blank vote is very close to the NOTA option, except of the fact that NOTA is explicitly included in the ballot together with all the candidates. In many countries blank and spoiled votes are reported together. The share of such votes cannot affect

election results, because it is not included in the number of valid votes from which party (candidate) shares are calculated. Very often spoiled ballots (including blank votes) are considered as a random, white noise process.

Voting for minor political parties (candidates), which have marginal chances of being elected, is a third possible form of protest behavior. Kselman and Niou (2011) defined third party vote as a vote *against* the major parties. Usually those parties have a small number of true supporters and most votes come from people without a serious commitment to that party. Casting a ballot for a minor party, large part of the voters basically expresses their dissatisfaction with policies proposed by the big political players.

NOTA option is another important indicator of voter dissatisfaction. Contrary to spoiled ballots, we can say that this choice is definitely intentional, and cannot be considered as a mistake of uninformed voter (Galatas, 2008). “Against all of the candidates” supporters are willing to send a message to the political elites, that they are rejecting the current status-quo (Kselman and Niou called it a “quality improvement” motivation). At the same time, casting a NOTA vote doesn’t imply a complete rejection of the whole political system and elections as a single democratic mechanism of transition of political power (Zulfikarpasic, 2001).

Uggla (2008) found that voters, who spoiled their ballots or voted for NOTA, are closer to party (candidate) voters in their micro characteristics and motivation than to abstainers. They are also satisfied with democratic process in general, but not with a current set of electoral choices (Slovak and Vassil, 2015). Thus we can conclude that minor party and NOTA voters are sophisticated² and might be different from those who prefer to abstain or spoil the ballot.

2.3. Summary of previous empirical studies

Voting against all of the candidates (parties), and protest voting in general, received little attention in the academic literature. With few exceptions, the waste part of these studies were focused on

² In this context sophistication means a general understanding of the voting procedure and its importance for society.

individual countries experiences. One of the main reasons for that is the fact that the presence of a NOTA option is a rare phenomenon in contemporary electoral systems. As was written earlier in the paper this option is available on the ballot, or was previously available, in several countries: Bangladesh, Colombia, India, Greece, Russia, Thailand, Ukraine, and Nevada (state of the US). In many countries, such as in France, Italy, Spain and Sweden there is no separate space on the ballot for NOTA option, but voters can submit a blank ballot, which has almost the same meaning. Sometimes blank votes are not recorded separately³, and thus are undistinguishable from the null votes. In this section I will present an overview of the main studies related to NOTA option, blank and spoiled ballots.

Using a panel dataset of election results in Latin America, Power and Garand (2007) found that the share of invalid ballots negatively associated with urbanization and income inequality, while it is also positively related to compulsory voting schemes, electoral disproportionality, and the combination of high district magnitude and a personalized voting system. They strongly emphasized on the importance of compulsory voting, because dissatisfied voters, who usually ignore elections, were more likely to spoil their ballots when they obliged to vote by the law. Kouba and Lysek (2016) analyzed determinants of invalid voting from presidential elections data from several post-communist and Latin American democracies. They argued that urbanization and compulsory voting are important, but even more important are institutional rules and competitiveness of elections. In other words, when the decisiveness of the vote increases, voters are less likely to spoil they ballots intentionally, even though the turnout rates in such circumstances are seems to be higher (e.g. Indridason, 2008; and Simonovits, 2012).

Uggla (2008) provides an evidence that the structure of political competition provides an important explanation for the number of spoiled ballots. He dismissed a claim that invalid ballots are just a

³ For example, in France blank votes started to record separately from null votes since European Parliament elections (2014).

random noise in the electoral process caused by uninformed voters. It is rather an additional form of protest voting, which reflects current political situation. According to Ugglá, the number of invalid (spoiled) ballots increases when there are no clear political alternatives, and thus voters are indifferent between two candidates (parties). That is why the share of NOTA or blank votes is a clear indicator of voter dissatisfaction.

Chatterjee, Szabó, and Ujhelyi (2015) find a positive impact of introduction of NOTA option on turnout in India. The authors exploited the variation in implementation of the reform created by differences in electoral calendar in a diff-in-diff framework. They argued that the introduction of NOTA option to the ballot increases a turnout by bringing new voters, who previously abstain from elections and come to vote specifically for NOTA, and find no evidence of switching preferences from individual candidates to NOTA. Chatterjee et al. explained this phenomenon by a consumption utility from voting, that comes from “calculus of voting” model (Downs, 1957; Riker and Ordeshook, 1968). This study shows that NOTA is positively associated with voter participation and utility, and thus having this option on the ballot might be a desirable policy for other countries.

Contrary to the abovementioned results, Damore, Waters and Bowler (2012) did not find a significant association between NOTA voting and voter turnout from Nevada races 1976-2010⁴. These results are similar to the California Secretary of State arguments that Nevada experiment had failed, because “*after a brief flurry of interest in NOTA, voters stop using the option...*”. Moreover, they report that the presence of the option does not affect the support for small party representatives. Damore et al. also suggested that in nonpartisan races voters are much more likely to vote against all of the candidates, because in these elections mobilization effect is usually lower, and voters cannot easily distinguish between individual candidates, when their party affiliations are unknown (phenomenon also known as “low information voting”).

⁴ The effect of NOTA on turnout is supposed to be even negative when the authors tried to estimate different regressions for primaries and general elections.

3. Ukrainian Political System After the Orange Revolution

3.1. Presidential Elections of 2004 and Political Polarization in Ukraine

The Orange Revolution was one of the most crucial dates in the history of Ukraine after the collapse of the Soviet Union. In 2004 presidential elections in Ukraine two main candidates were current Prime Minister Viktor Yanukovich, largely supported by outgoing President Kuchma, and Viktor Yushchenko, the main candidate from the opposition. In the first round of the elections both candidates gained almost equal shares of total votes (Yushchenko – 39.90%, and Yanukovich – 39.26%). Everything showed that the second round of elections would be accompanied by a life-and-death struggle between the two camps. Both leaders started active campaigns in order to mobilize voters to come for the second round, that lead to a drastic polarization of the overall political landscape in Ukraine. Yushchenko's team decided to put a bet on pro-European voters from Western and Central parts of the country, who speak Ukrainian language, while Yanukovich relied on support from pro-Russian voters from Eastern and Southern Ukraine, who speak Russian. Both camps even started to use colors as symbols of political identification. Yushchenko's team chose orange, while Yanukovich camp chose blue-and-white for themselves.

In the runoff elections Yanukovich “won” the majority of votes, using extensively the electoral fraud techniques. Dissatisfied with obvious voting irregularities, Yushchenko's supporters took to the streets and started an active campaign for the annulment of the results of the second round. After huge public demonstrations, the Supreme Court of Ukraine cancelled the results of the second round of Presidential elections, and ordered a revote. In this third round of elections Ukrainian voters elected Viktor Yushchenko as a President with almost 52% rate of support (more detailed discussion of the Orange revolution events and outcomes see in Aslund and McFaul, 2006).

Discussing the results of Parliamentary elections of 2006 and 2007, Clem and Craumer (2008) argued that a relatively stable electoral landscape emerged in Ukraine, and its origins are lying in the Orange revolution. On Table 1 we may observe that there is a very strong (almost equal to 1) correlation between votes for pro-Russian and pro-European parties for Parliamentary elections of 2006, 2007 and 2012⁵. Even more interesting is the fact that all administrative units (regions and cities with a special status), who supported Yanukovich in the third round of Presidential elections in 2004, also gave an absolute majority of votes for pro-Russian parties in Parliamentary elections of 2012, eight years after the Orange revolution (see Table 8 in the Appendices). Abovementioned facts can be used as an evidence for persistence of political preferences of Ukrainian voters, which have its roots in political polarization associated with the Orange revolution and its outcomes.

Table 1. Correlation between Pro-European and Pro-Russian party votes in Ukraine (2006-2012).

	Pro-European parties (2006)	Pro-European parties (2007)	Pro-European parties (2012)	Pro-Russian parties (2006)	Pro-Russian parties (2007)
Pro-European parties (2006)	1.000				
Pro-European parties (2007)	0.9937	1.000			
Pro-European parties (2012)	0.9776	0.9731	1.000		
Pro-Russian parties (2006)	-0.9701	-0.9781	-0.9623	1.000	
Pro-Russian parties (2007)	-0.9707	-0.9784	-0.9624	0.9931	1.000
Pro-Russian parties (2012)	-0.9752	-0.9734	-0.9955	0.9712	0.9684

That is why Ukrainian political system after the Orange revolution can be characterized as a centrifugal party system in which parties are not competing for the median voter, but trying to emphasize the difference with their main opponents (Sartori, 2005). It corresponds to Downs (1957) arguments that in a two-party system parties will tend to converge to the center, while in the multipolar party system parties will tend to divide on Left and Right dimension. According to

⁵ We consider parties as pro-European if they supported the Orange revolution and constitute a coalition in the Parliament. Pro-Russian parties are those who argue against European integration, and not supported the Orange revolution. More precisely, we consider Our Ukraine, Bloc Tymoshenko, Svoboda and UDAR parties as pro-European, and Party of Regions, Communist Party, Russian Bloc, and Progressive Socialist party (former Vitrenko party) as pro-Russian.

Dalton (2008) this division could be conceptualized along any policy issue, which is relevant for the voters. In Ukraine between 2005-2012 the ideological difference was mainly based on three intersected groups of issues: attitude towards the Orange revolution, which country (union) should be the main foreign policy priority of Ukraine, and whether Russian language should be recognized as the second official language in Ukraine. Some of the scholars (Meleshevich, 2007; Romanova, 2015) suggested that Ukrainian political system during that time can be classified as a bipolar (two-party) system, despite of the fact that there were still multiple parties competing in parliamentary elections.

How polarized political environment can affect voting? According to Fiorina (2008) elite polarization turns off voters and decreases turnout, because major candidates hang out on extremes, while voters are intuitively looking for a moderate (center) options. On the contrary, Abramowitz and Saunders (2008) claimed that polarization energizes the electorate and thus increases political participation. Abramowitz and Stone (2006) provide an interesting empirical example of an effect of polarization on voter turnout, which is called a “Bush effect”. Before the US presidential election of 2004, George W. Bush was a political figure who stimulated partisan polarization. People rather loved him or hated him. Using micro-level data, the study confirms that candidate polarization (as well as issue based polarization) stimulate voter participation. Voters who estimated higher difference between Republican and Democratic candidates were more likely to turn out. Additional incentive to vote can be explained by the fact that collective goods which will be provided by the new government are of a more different nature for people who actually see a big difference between the candidates (Crepaz, 1990).

3.2. Ukrainian Electoral System

Ukraine has a unicameral parliament called Verkhovna Rada. It is composed from 450 deputies elected on the basis of equal, direct and voluntary suffrage by Ukrainian citizens, who are 18 years old or older on the day of the election. Contrary to the US and some other countries, in Ukraine voter registration is automatic. As a part of the Orange Revolution, the Ukrainian Parliament voted

for changes in the Constitution, which shifted power from the president to the parliament. As a result of this reform, Ukraine became a semi-presidential republic. Still President retained the power to appoint the ministers of foreign affairs and defense, prosecutor general, the head of the national security service, and also a right to dissolve a Parliament⁶. The electoral law also changed, thus a so-called “mixed” system used in Parliamentary elections of 1998 and 2002, was replaced by a fully proportional system. Only parties that received more than 3% of votes can be represented in the parliament⁷. This reform strengthened big political parties in Ukraine, and contributed to the hardening of political polarization in the country (D’Aniery, 2007).

In elections of 2006 and 2007 voters could vote only for closed party lists, where nominations and rankings were pre-defined by parties themselves. There were no primaries or other ways how voters can influence the process of nomination. That is why voting was strictly in line with partisan choices. As was already mentioned, Ukraine has a multi-party political system. For example, the number of parties competing in Parliamentary elections between 2006 and 2012 was the following: 45 in 2006, 20 in 2007, and 21 in 2012.

In 2010 Viktor Yanukovich took a revenge over the “Orange” camp, represented by Yulia Tymoshenko, and became a President of Ukraine. After the inauguration, Yanukovich initiated a revision of the constitutional changes of 2004. The Constitutional Court of Ukraine decided to overturn the amendments of 2004 as unconstitutional. As a result, President Yanukovich received more presidential power comparing to his predecessor Viktor Yushchenko. Moreover, it leads to a change in electoral law, which returned country to the “mixed” system that contains elements of both proportional and majoritarian approaches. Therefore, on 2012 Parliamentary elections half of the deputies were elected according to party lists (similar to elections of 2006 and 2007), but

⁶ In 2007 President Yushchenko used his right to dissolve the Parliament and initiated early elections, in an attempt to stop the political struggle between the “Orange” parliamentary opposition and “White-and-Blue” Prime Minister Yanukovich.

⁷ The number of seats allocated to each political party is calculated with a Hamilton method.

another half were elected in 225 single-seat constituencies. In order to be elected, a single candidate should get a simple majority of votes. In all elections under analysis (2006, 2007 and 2012) citizens had equal expressive possibilities, because the party list was standardized, and voters from Eastern and Western regions of the country faced the same set of choices.

In the period between two revolutions, Ukraine had quite stable political landscape characterized by high degree of polarization between the “Orange” and the “White-and-Blue” camps. That is why we decided to exclude all elections prior to 2004 and after 2012 from the analysis, because those elections were organized in completely different political environments.

3.3. History of NOTA voting in Ukraine

The presence of NOTA option in electoral legislation of many Post-Soviet countries is a heritage of Soviet times, when voters have a choice whether to support a single party candidate or not. If one did not support a proposed candidate, she could cross the name of that candidate from the ballot. Otherwise she could leave it blank, such ballot meant a vote for the candidate. If absolute majority of eligible voters supported a candidate, this candidate was declared elected. Multiple candidate elections became possible only after the Gorbachev reforms of the late eighties. But the system of disapproval voting (crossing out candidates you’re not supporting) remained in place up until 1994. Since 1994 Ukrainian voters could select only the candidate they support (approval voting). The NOTA option was also added at the end of the ballot⁸. According to Oversloot et al. (2008), the main reason for keeping the NOTA option after the collapse of the USSR was the desire to stimulate voter turnout.

In Table 2 I report descriptive statistics of regional level NOTA voting in Parliamentary elections in Ukraine (1998-2007). From party list voting we can see that the share of NOTA is gradually decreased from 1994 to 2006. There is a small increase in 2007, which we can probably explain by

⁸ In Ukraine NOTA option verbally means “do not support any of the candidates”, which is close, but still not the same as “against all of the candidates”.

the fact that the voters were dissatisfied by the political crisis in the country and short time passed since previous elections⁹. We can also observe that at the majoritarian level, voters are more likely to cast a NOTA ballot, comparing with party list part of the competition. McAlister and White (2008) suggested that, probably, in a single-candidate constituencies individual characteristics and differences of candidates are of high concern of local voters. Moreover, voters might have more information about their candidates or even know them personally. On the other hand, the difference between individual politicians can be less striking and clear, comparing with inter-parties' ideological difference. Thus it is much easier for voters to affiliate themselves with a particular party, than a particular candidate.

Table 2. Votes for NOTA in Parliamentary Elections (1998-2007).

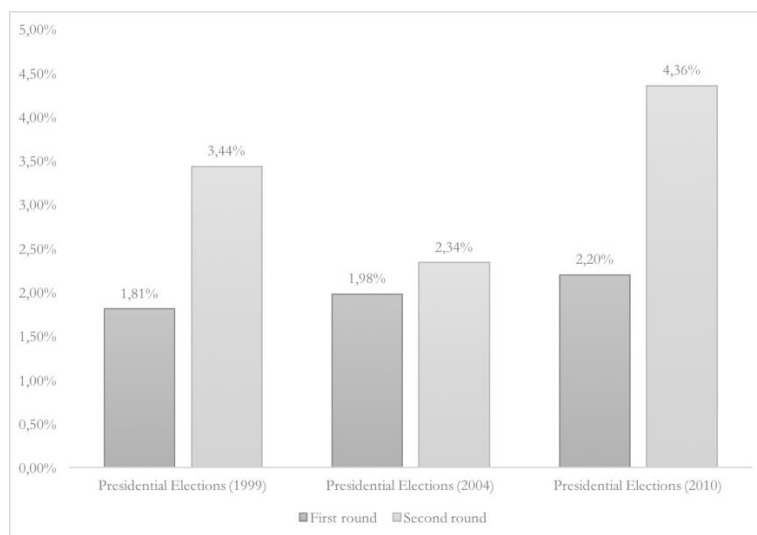
Party list				
	Mean	SD	MIN	MAX
Parliamentary elections (1994)	8.67	NA	NA	NA
Parliamentary elections (1998)	5.21	1.30	3.20	13.00
Parliamentary elections (2002)	2.40	1.04	0.60	6.50
Parliamentary elections (2006)	1.78	0.57	0.88	3.16
Parliamentary elections (2007)	2.75	0.99	1.09	4.43
Individual candidates				
	Mean	SD	MIN	MAX
Parliamentary elections (1998)	7.16	2.98	1.93	20.30
Parliamentary elections (2002)	7.43	4.16	1.60	22.26

Very often NOTA option outperformed the majority of parties and individual candidates. For example, in parliamentary elections of 1998 it finished 5th and left behind itself 26 other parties, in 2002 it finished 8th and left behind 23 other parties, in 2006 it was 9th and outperformed 37 other parties, and in 2007 it gained 7th place out of 20 parties. In 1998 elections NOTA managed to finish first in 3 single-seat constituencies (two in Kyiv and one in Uzhhorod). In such cases the winner of the election was a candidate who received the largest share of votes among the non-NOTA votes.

⁹ That is why in this paper we are going to use the data from 2007 and 2006 elections, because using only one year (e.g. 2007) might potentially bias our results.

On Figure 1 you may see the shares of NOTA option in Presidential elections in Ukraine (1999-2010). From the graph it is clear that support of NOTA is always higher in the second run, when only two candidates left¹⁰. Similar pattern was also observed in France (in terms of blank votes; Zulfikarpasic, 2001) and Russia (McAlister and White, 2008). Possible explanation is quite straightforward, some of the voters consider consider NOTA (or blank) vote as a good alternative for candidate vote, when the set of candidates is too narrow. At the same time some of the candidates, who lost in the first round, might ask their supporters to vote against all in the second round. In 2010 one of the minor candidates changed his surname to “Noneoftheabove” (Ukr. “Противсіх”), but he managed to earn only 0.16% of total vote cast. It was much lower than the official NOTA option share – 2.2%. This example may illustrate that NOTA voters are sophisticated, and they are using their voting right in order to express dissatisfaction and send a political message, but not to turn elections into a farce.

Figure 1. NOTA Share in Presidential Elections (1999-2010).



As was emphasized by many experts (Zulfikarpasic, 2001; Mahda, 2012; Oversloot et al., 2002), the main problem of the NOTA option is the absence of the legal status. It cannot win even in the

¹⁰ It should be noted that in 2004 elections, which were the most polarized and competitive in the recent history of Ukraine, the difference in support for NOTA between the two rounds was the lowest.

case when it gets the majority of all votes. Colombia is the only country where the victory of this type of vote may have legal and political consequences. If the blank vote wins the election, the last needs to be repeated, but the candidates who participated previously cannot take part in this new election (Superti, 2014). Before 2012 in Ukraine NOTA option might affect the results of Parliamentary elections only in one way: contrary to the spoiled ballots, NOTA was counted as a valid vote and thus was included in the calculation of shares of all participated parties. That's is why high shares of NOTA votes decreased chances for overcoming a 3% threshold for other parties¹¹.

In 2012 Verkhovna Rada decided to remove this option from the ballots of all levels of elections. It was a very rare policy issue supported by coalition and opposition forces at the same time. Several international institutions also recommended to eliminate it (e.g. Venetian Commission and OSCE). The main arguments for abolition were the following: 1) NOTA is a rudiment of the Soviet system, and it is not available in most of the established democracies (it was abolished in Russia since 2006); 2) absence of a legal status of NOTA voting; 3) too expensive form of a population survey; 4) NOTA produced disadvantages for smaller parties just near the threshold; 5) voters should learn to take responsibility for their political choices. In the present paper we are going to take advantage of this policy change, and estimate the possible effect of the abolition of NOTA option on outcomes of 2012 Parliamentary elections.

¹¹ The final share of party i was determined by the following formula: $Share_i = \frac{Nvotes_i}{Nvotes_{all_parties} + Nvotes_{NOTA}}$, where $Nvotes$ is the number of votes casted for a party. We can see that $Nvotes_{NOTA}$ is in the denominator, and thus it is negatively associated with $Share_i$.

4. Methodology and Estimation Strategy

4.1. Matching Procedure and Data Description

To assess the possible effect of NOTA option availability on voting, a unique dataset has been constructed for three consecutive parliamentary elections that took place between 2006 and 2012 in Ukraine. We decided to consider only the abovementioned period due to several reasons: 1) after the Orange revolution elections in Ukraine became relatively freer and more competitive than previously; 2) elimination of NOTA option occurred in the middle of the period, allowing us to estimate its effects; 3) the overall political system of Ukraine was quite stable during 2004-2013 (in terms of main political players). Our sample includes election results for all 225 constituencies for all three consecutive elections. This data was downloaded from the official website of Central Election Commission of Ukraine (http://www.cvk.gov.ua/vnd_2012_en/).

The main methodological problem was the incompatibility of the constituency-level borders in 2006-2007 and 2012. Using sword level data on geographical location and election results, we did a matching exercise re-estimating the results of 2006-2007 elections if constituency-level borders in 2006-2007 were the same as in 2012. The evidence on matching can be observed in the Appendices (Table 9). One can see that means and standard deviations for the number of eligible voters in 2012 and their matched counterparts from 2007 are close to each other. So we can say that sizes of constituencies in all years are comparable. We can also observe that on average constituencies in 2012 were smaller than in 2007 (2006). It can be explained by a negative general demographic trend in the country. The total number of eligible voters in 2012 decreased by 900 000 people, comparing with 2007 (it is equal to 2.43% decrease, or approx. 4 030 voters less per constituency on average).

Except for election results, in this research we also used two socioeconomic variables - level of urbanization and share of Russian language population, collected from the most recent national Census (2001). Table 3 presents descriptive statistics for all the variables under analysis. We estimated a voter turnout as a total number of votes divided by the overall voter-eligible population.

One can observe that there was a negative trend in average turnout rates (2006-2012). This situation is quite similar to many other East European countries experiences of transition from one-party Communist regime to multiparty political systems (Kostadinova, 2003). After the initial boom on the first free elections, turnout is gradually decreasing with each new election. The average share of NOTA votes was almost 1% point higher in 2007, comparing with 2006. On the contrary, the share of invalid ballots is quite stable over time. In 2006 the share of minor party votes was the highest, because of the fact that there were almost 45 parties competing in that elections, comparing with 20 in 2007 and 21 in 2012. In this research we consider political party as minor if it is not clearly affiliated with two main political groups (“Orange” and “White-and-Blue”), and had not been elected to the Parliament¹².

Table 3. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
Turnout, 2006	68.20%	5.42%	52.36%	81.48%
Turnout, 2007	62.70%	6.76%	41.73%	81.08%
Turnout, 2012	57.00%	6.55%	35.57%	77.97%
NOTA share, 2006	1.87%	0.67%	0.60%	4.67%
NOTA share, 2007	2.80%	1.13%	0.56%	4.96%
Invalid ballots share, 2006	1.96%	0.69%	0.93%	5.65%
Invalid ballots share, 2007	1.66%	0.53%	0.84%	4.06%
Invalid ballots share, 2012	2.00%	0.61%	1.04%	6.53%
Minor parties share, 2006	10.26%	3.01%	3.67%	20.01%
Minor parties share, 2007	1.81%	0.63%	0.61%	4.02%
Minor parties share, 2012	5.51%	2.34%	2.00%	30.05%
Urban population share, 2001	67.77%	28.18%	10.30%	100%
Russian language speakers share, 2001	29.76%	29.62%	0.37%	91.61%

4.2. Alternative Hypotheses of the Effect of NOTA on Voting

Abolition of the NOTA option may affect is likely to have a number of consequences: through voter turnout, through change in the number of spoiled ballots, or through change in the amount

¹² We run additional regressions in which minor party shares were measured differently. Nevertheless, the results are robust for all possible set ups.

of votes for minor parties. All those mechanisms are not mutually exclusive, and can co-exist simultaneously. Based on the previous theoretical and empirical studies (e.g. Zulfikarpasic, 2001; Damore et al., 2012; Chatterjee et al., 2015; Ugglä, 2008), we developed three hypotheses about the possible effect. All of them suggest that there could be a substitution effect between different forms of protest voting, thus when the NOTA option is no longer available, voter may transit to other activities.

Hypothesis 1: After the abolition of the NOTA option, voters would be more likely to decrease their participation in the next elections, because they have a consumption utility from voting and were willing to vote solely for this option.

The direct mechanism is simple and clear. After the abolition of NOTA option we should expect to observe a negative relationship between the level of support for NOTA option in the previous period and the current level of turnout, while controlling for the first period turnout too. Still there is a number of potential problems with this explanation. Firstly, voters who prefer to abstain and those who prefer to vote (even for NOTA) might be radically different in terms of the general interest in political life (Superti, 2014). Secondly, we cannot control for such things as social pressure on abstainers, and the civic duty to vote (Riker and Ordeshook, 1968). That is why even in a situation when NOTA is not available, people, who supported it in previous periods, still might be willing to come to the election in the present period. Thirdly, there is a possibility that voters, who voted for NOTA in each election, may develop a habit to vote, and thus they will still come to vote in the present period. Fourthly, voters might not have an information that NOTA is no longer available and still come to vote for it (thus contributing to higher levels of turnout). Despite of the fact that the abolition of NOTA was covered by almost all media, we cannot disregard a fact that some citizens simply didn't get it.

Hypothesis 2: After the abolition of the NOTA option, voters would be more likely to transit to the spoiled vote form of electoral protest.

McAlister and White (2008) used the same idea when they describe the potential effect of NOTA elimination in Russia (2006). They argued that spoilt vote is almost the same as voting for NOTA in terms of expressing general dissatisfaction with national political system. Another possible reason for damaging a ballot is an idea that in such a way voters can prevent huge electoral fraud from the authorities. There is a reasonable suspicion that in recent democracies like Ukraine and Russia, ruling politicians might use their power for falsifying the results of elections by casting the unmarked ballots in their own favor (Oversloot et al., 2002). By spoiling their ballots, voters could try to prevent massive violation of the electoral law. Before Parliamentary elections in Russia in 2011 many big public intellectuals from the opposition camp (like Dmitry Bykov, Artemy Troitsky, and Viktor Shenderovich) called up to vote spoiling in the form of writing “None-of-the-Above”, or any other phrase, on the ballot (Gessen, 2011). Still there are some reasons to doubt that transition to spoiling is possible in the case of Ukraine: 1) contrary to Russia, in Ukraine political spectrum always remained wide. Even after the abolition of NOTA, Ukrainian voters still could choose any of 21 political parties presented on the ballot in 2012; 2) Similarly to our concerns with Hypothesis 1, voters who spoil their ballots and NOTA supporters might be just different kinds of citizens, where the last group is more likely to follow the legally approved practices and procedures.

Hypothesis 3: After the abolition of the NOTA option, electoral support for minor parties, with marginal chances of being elected, will increase.

As was already mentioned, there are multiple evidences that dissatisfied voters are more likely to vote for minor parties or candidates. Southwell and Everest (1998) presented a great evidence of a similar mechanism using the data from the US Presidential elections of 1992 and performance of Ross Perot, who was an independent candidate. McAllister and White (2008) even argued that NOTA voting in Post-Soviet countries has many characteristics of the third party vote in established democracies, where NOTA option is simple not available. One of potential pitfalls of

this mechanism is the fact that third parties in Ukraine were usually created before particular election and disappear afterwards. We can mitigate this problem by assuming that minor parties in Ukraine have a limited number of “true supporters” and in a vast majority of cases electoral support of these parties means only a protest against the two main coalitions (“Orange” and “White-and-Blue”), which were stable during the observed period.

4.3. Model(s) specification

In this paper we aimed to answer two different questions: 1) Whether political polarization determines the variation in NOTA option shares across the country? 2) What is the potential effect of NOTA option abolition on voting? We will use different models in order to answer these questions. Our research is concentrated on the aggregated (constituency level) data, where, according to Matsusaka and Palda (1999), individual idiosyncrasies of voter behavior cancel each other out.

The first practical question is “how to measure polarization correctly?”. For this reason, we will use a **Herfindahl index** (aka party fractionalization index¹³), which is calculated by the following formula (Herfindahl, 1950):

$$\text{Herfindahl Index}_i = \sum_{j=1}^n \text{share}_{ij}^2 \quad (1)$$

where i refers to constituency, and j determines the coalition of political parties. For the simplicity we divided all political parties into three groups: “Orange” (includes “Our Ukraine”, “Svoboda”, “UDAR”, and “Bloc Tymoshenko” parties), “White-and-Blue” (includes “Party of Regions”, “Russian Bloc”, “Communist Party”, and “Progressive Socialist” parties), and minor parties (different in different elections). The index, basically, shows us a probability that two ballots picked at random will be in support of the same coalition. Higher values of Herfindahl Index are indicating

¹³ In Industrial Organization literature it is also known as Herfindahl-Hirschman index.

more homogeneous constituencies. You may find distributions of the index for 2006 and 2007 in the Appendices (Figures 2 and 3).

Using election data from 2006 and 2007 years, we created a panel dataset. The total number of observations is equal to 450. Our model of the relationship between political polarization and NOTA voting can be described by the following equation:

$$NOTA_{i,t} = \beta_1 HI_{i,t} + \beta_2 Turnout_{i,t} + \alpha_i + \mu_t + \epsilon_{i,t} \quad (2)$$

In this equation i denotes constituency, and t denotes the election year, μ_t is a time dummy (equal one if elections happened in 2007), and α_i are constituency fixed effects. Two explanatory variables are the Herfindahl Index and the level of turnout.

Due to the fact that only one period of elections after the abolition of NOTA option was available, we were unable to use a panel data setup in that case. In order to estimate the potential effect of abolition of NOTA option on voting we used a linear regression method with multiple regressors. Our model is similar to the approach used by Abramowitz and Stone (2006). In its' general form it can be summarized by the following equation:

$$Y_i^{2012} = \beta_0 + \beta_1 NOTA_i^{2007} + \beta_2 Y_i^{2007} + \beta_3 Turnout_i^{2012} + \beta_4 Urban_i + \beta_5 Russian_i + \epsilon_i \quad (3)$$

where Y_i^{2012} is a dependent variable (turnout, share of spoiled ballots, and share of votes for minor parties), Y_i^{2007} is a lagged value of a dependent variable¹⁴, $NOTA_i^{2007}$ is the share of votes in support of NOTA option in previous election campaign, $Turnout_i^{2012}$ is the level of turnout in the most recent election (it is omitted, when our dependent variable is also $Turnout_i^{2012}$), $Urban_i$ is a share of population living in urban settlements, and $Russian_i$ is a share of people who declared Russian as their native language. Inclusion of urbanization index and the share of Russian speakers in the empirical model allows us to control for inter-regional, but also for within-regional differences. As Clem and Craumer (2008) emphasized that ethnicity (Ukrainian or Russian),

¹⁴ In order to check the robustness of the obtained results, we additionally run same models with 2006 election data.

urbanization and education proved to be the most significant variables in predicting voting in Ukraine. We used clustered standard errors in all regressions, because it allows us to relax the traditional assumption of independence of observations. There are some concerns that constituency-level results might be correlated within geographical regions. The total number of clusters is 27 (25 regions plus Kyiv and Sevastopol). We also calculated variance inflation factor values to check our models for potential multicollinearity problem. In all of the cases it showed that multicollinearity hypothesis can be rejected.

5. Results

5.1. The effect of political polarization on NOTA voting

The results in Table 4 indicate that voter homogeneity (in terms of party choices) is negatively associated with the share of votes received by NOTA. It means that in constituencies, where voters have strict political preferences for one political coalition over another, the share of protest votes is lower. And vice versa, when voters do not have strict preferences for a certain political party (ideology) they are more likely to vote against all of the candidates. We can say that indifference with two alternatives stimulate NOTA voting. This explanation also corresponds to Downs (1957) model, if we assume that strict political preferences are determined by a relatively higher utility from election of one's favorite candidate (or disutility from the victory of the opposing candidate).

Table 4. The effect of political polarization on NOTA voting.

NOTA share	FE	RE
Herfindahl Index	-0.036 (0.012)**	-0.037 (0.003)**
Turnout	-0.050 (0.023)*	-0.038 (0.008)**
2007	0.009 (0.001)**	0.010 (0.001)**
R-squared	0.692	0.691
Observations	450	450

Clustered standard errors in parenthesis, * $p < 0.05$; ** $p < 0.01$

Both fixed effect and random effect models gives us very similar estimates of the effect of political polarization (on the constituency level) on turnout. We will stick to the FE model, because its results are relatively more robust due to the fact that it controls for more. Compare two constituencies in the same year, which had similar turnout rates, but different in their respective Herfindahl Index scores. A constituency in which the probability that two ballots picked at random will be for the same party coalition is higher by 10% points, the share of votes for NOTA is expected to be 0.36% points lower on average. Cross-sectional relationship between political polarization and NOTA vote can be observed in the Appendicies (Figure 4).

From Table 4 we can also see that NOTA share is negatively associated with the turnout rate. The same logic as can be applied here, in constituencies where the majority of voters supported a single party coalition the stakes are high (because they are not willing to see a victory of the opposing camp), and thus voter turnout is also higher. Similarly, in constituencies where the margin of victory of one party coalition over another is lower, voters are more indifferent between the two choices¹⁵. As was previously mentioned, voter abstention and NOTA voting both represent different forms of protest voting. Thus in constituencies where the share of potential protest voters is higher, we will see a positive association between the two. Our findings correspond to the results of Adams et al. (2006) about a negative relationship between ideological distance to candidate (on individual level) and voter turnout. Another interesting finding is the significant coefficient on year dummy, which tells us that NOTA share was on average almost 1% point higher in 2007 than in 2006 elections. Political crisis of 2006-2007, reduction of the number of minor parties and short time since previous elections can possibly explain the difference.

5.2. Hypotheses testing

It is not surprising that past values of voter turnout are the best predictors of the current period turnout (Abramowitz and Stone, 2006). From Table 5 we can see that the coefficient on NOTA option share is insignificant (for both years), and thus we cannot reject the null hypothesis that the true coefficient is significantly different from zero. Thus there was probably no effect of the abolition of NOTA option on turnout. Our socioeconomic control variables seem to be significant in predicting changes in turnout. For example, in both years urbanization index is positively associated with current period turnout, while share of Russian speaking population is associated negatively. For example, compare two constituencies with similar levels of turnout in 2007 and

¹⁵ This logic is valid only in a particular institutional setup (multiparty proportional election system), and could be even opposite in a single-seat majoritarian election system. In that case, lower margin of victory will be associated with competitiveness of the elections and higher turnout, and not with voter indifference.

equal shares of Russian native speakers, a constituency with 10%-point higher urbanization index is expected to have a second period turnout higher by 0.39% points on average. In particular, it can be explained by different voting related cost for urban and rural population. Negative coefficient on Russian variable can be explained by the results of previous elections (first of all Presidential elections of 2010). It is not surprising that native Russian speakers in Ukraine are more likely to vote for pro-Russian “White-and-Blue” coalition [correlation coefficients between the share of Russian speakers and votes for pro-Russian parties were the following: 0.857 (2006), 0.836 (2007), and 0.793 (2012)]. Thus after 2010 when Yanukovych was elected a President of Ukraine, Russian speaking voters might decrease their participation, comparing with Ukrainian speaking voters, because they could possibly be more dissatisfied with their previous period choice (e.g. lack of necessary economic reforms, increase in authoritarian tendencies, etc.).

Table 5. The effect of NOTA abolition on Turnout.

Turnout 2012	(1)	(2)
Turnout 2007	0.768*** (0.057)	
NOTA 2007	0.337 (0.442)	
Urban	0.039*** (0.01)	0.0894*** (0.009)
Russian	-0.072*** (0.015)	-0.098*** (0.024)
Turnout 2006		0.867*** (0.107)
NOTA 2006		-1.048 (0.746)
Constant	0.074 (0.044)	-0.034 (0.091)
Observations	225	225
R-squared	0.707	0.672

Clustered standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The effect of elimination of NOTA option on the share of invalid (spoiled) ballots is difficult to estimate precisely. First of all, we cannot differentiate ballots spoiled intentionally and ballots invalidated by mistake. Moreover, there are some concerns that the share of invalid (spoiled) ballots

is just a random variable. While it is definitely not true for countries which do not have a NOTA option on the ballot (or it is just not counted separately), it might be true for Ukraine, because it is difficult to provide some arguments why one is going to spoil a ballot, when he/she have a legal right to vote against all of the candidates. From Table 6 we can clearly see that the share of invalid ballots in the most recent elections is dependent on the share of invalid ballots in previous periods. There is also some small positive association between the share of invalid ballots and the share of native Russian speakers in constituency. The most possible explanation is that the ballots are written in Ukrainian, and some (still very small) share of native Russian speakers might make mistakes related to the difficulty with translation. Summing up, we can say that our first two hypotheses about the effect of abolition of NOTA on voting were not supported by the empirical data.

Table 6. The effect of NOTA abolition on spoiled (invalid) ballots.

Invalid ballots 2012	(1)	(2)
Invalid ballots 2007	0.877*** (0.200)	
NOTA 2007	-0.084 (0.063)	
Turnout 2012	-0.005 (0.015)	-0.008 (0.012)
Urban	0.000 (0.003)	-0.001 (0.003)
Russian	0.007** (0.002)	0.008** (0.003)
Invalid ballots 2006		0.641*** (0.080)
NOTA 2006		0.028 (0.120)
Constant	0.010 (0.012)	0.010 (0.009)
Observations	225	225
R-squared	0.583	0.598

Clustered standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

On Table 7 we can observe regression analysis results of the effect of the abolition of NOTA option on minor party vote in the most recent period. From (1) and (3) we can see that the association between the two is significant only at 10% level of significance and R-squared values are quite low (our models managed to capture only 18%–20% of the variation). After careful consideration we found a source of potential problem. On Figure 5 (in the Appendices) the distribution of minor party votes is represented. While the majority of observations fall in range between 0.02 and 0.1, few of them clearly exceed 0.12 and even 0.2 thresholds. We decided to consider all observations with minor party vote higher than 0.1 as outliers and omit them from the analysis, because they violate our assumption that minor party supporters are not “true” party supporters. We find out that all 5 outliers come from the same region (Chernihiv region) and the minor party votes were basically casted for a single party “Radical Party”, whose charismatic leader Oleh Lyashko was born and being elected as a majoritarian candidate also in Chernihiv.

After omitting those constituencies from the analysis, we got models with much better fit (models (2) and (4)). The coefficient on the share of NOTA option vote is positive and significant at 1% level of significance for 2007 as well as for 2006. The magnitude of the effect is more or less similar for 2007 and 2006 elections. Thus it is not necessary to cover both regressions. Here we will only interpret the coefficients from model (2). Compare two constituencies, with the same shares of minor party vote in 2007, which have the same levels of turnout in 2012, urbanization and native Russian speakers, a constituency where NOTA option managed to get 1% point more votes in 2007 is expected to have a minority party vote higher by 0.52% points in 2012. This evidence corresponds to our Hypothesis 3 that after the NOTA option was abolished, voters, who previously were more likely to vote for it, transit to voting for minor parties.

Similarly to our panel example, we found that minority party vote in the current period is positively associated with voter abstention (or negative associated with voter turnout) in the same period. It is another evidence that different forms of protest voting are tend to complement each other. For example, holding everything else fixed, in constituencies with lower turnout the share of votes for

minor parties is higher.

Table 7. The effect of NOTA abolition on minor party vote.

Minor party vote 2012	(1)	(2)	(3)	(4)
Minor party vote 2007	0.210 (0.476)	0.626*** (0.175)		
NOTA 2007	0.996* (0.532)	0.520*** (0.175)		
Turnout 2012	-0.013 (0.041)	-0.046** (0.020)	-0.008 (0.036)	-0.053*** (0.014)
Urban	-0.035* (0.017)	-0.019** (0.008)	-0.025 (0.015)	-0.010 (0.006)
Russian	0.018* (0.009)	0.013* (0.007)	0.021* (0.019)	0.030*** (0.009)
Minor party vote 2006			-0.042 (0.151)	0.104*** (0.020)
NOTA2006			1.780* (0.905)	0.776*** (0.184)
Constant	0.049** (0.021)	0.0619*** (0.0126)	0.043* (0.022)	0.045*** (0.012)
Observations	225	220	225	220
R-squared	0.195	0.517	0.180	0.567

Clustered standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

In this study we tried to answer two questions: 1) Can political polarization help us to explain the variation in the number of protest votes? 2) What was the effect of the abolition of NOTA option in Ukraine on voting? Using different empirical methods, we find out that polarization (measured by a Herfindahl index) is in fact affects protest voting. In constituencies, where voter population is more homogeneous, in terms of party choices, the share of NOTA votes is lower and turnout is higher, comparing with more heterogeneous constituencies. From rational choice theory point of view, we can explain this behavior by differences in expected utilities from voting. For citizens with larger average B , the stakes of election are higher, therefore they tend to turn out more and are less willing to protest, which for this group of people means a “wasted vote”.

According to the second question, we find an evidence suggesting that the abolition of NOTA option in Ukraine is associated with higher share of votes received by minor parties on 2012 Parliamentary Election. Keeping everything else constant, on average, an additional 1% point of votes for NOTA option in 2007 is associated with 0.52% point increase in the share of minor party votes in 2012. We checked two additional hypotheses about the possible effect of the abolition of NOTA on voting. After careful exploration we can say that there is no association between previous levels of protest voting and current levels of turnout, as well as current shares of invalid (spoiled) ballots. At this point our results that NOTA option is not affecting turnout are closer to those of Damore et al. (2012), than to Chatterjee et.al (2015). We may conclude that from all possible forms of protest voting, supporting NOTA option is closer to voting for minor parties, rather than to abstaining or ballot spoiling. It can be explained by the fact that NOTA supporters are “sophisticated voters” and through this option they are willing to send a message to the authorities (Uggla, 2008; Superti, 2014).

Our study aimed to present an empirical evidence of the effect of the availability of NOTA option on different aspects of voting, in order to fill a gap in the current research in this field. We constructed a unique dataset of the constituency-level Parliamentary elections results in Ukraine in

2006-2012, while many previous studies were concentrated on the cross-national panels (Uggla, 2008; Kouba and Lysek, 2016; Power and Garand, 2007). To the best of my knowledge, this paper is only one of the few empirical studies dealing with NOTA option support (Damore et al., 2012; Superti, 2014; Chatterjee et al., 2015; Soderlund), and the first one that concentrate particularly on Ukraine.

As any other study based on aggregated level data, our study is suffering from ecological inference problem (King, 2013). So further studies should aim to combine these aggregated data with additional micro level characteristics of voters. The present study is also limited in terms of geographical and time scope. The effect of NOTA option on turnout and other forms of protest voting is a complex phenomenon which deserves further exploration.

Finally, let's discuss potential *policy implications of the present study*. On the one hand, our results clearly suggest that voters, who initially supported NOTA option, after its abolition transit to minor party vote, but not to abstention or ballot spoiling. So we can suppose that there is a substitution effect between NOTA and minor party voting. From this perspective, an introduction of NOTA option to the ballots will not enhance voter turnout, but rather decrease shares of votes received by small political parties. Still it can increase turnout right after the introduction, because some new voters would be likely to come and explore the new option, but novelty effect will gradually decline, as well as a turnout (to its long term average value).

On the other hand, legalization of NOTA voting may have a positive long term effect on political stability of the country, because dissatisfied voters will be able to express their discontent (Miller and Listhaug, 1990). Moreover, NOTA is a best possible option for protest voters, because it is much more articulated than ballot spoiling or abstaining (Solvak and Vassil, 2015). With the help of this option political elites could also monitor the changes in electoral behavior and protest attitudes. On the other hand, the acting politicians will require to compete not only with each other, but also with NOTA option.

Of course there is no one-size-fits-all solution. Success of the introduction of NOTA option will largely depend on local circumstances (current political institutions, electoral rules, nature of political competition, degree of polarization, etc.). The claim that NOTA will facilitate turnout is probably not right, it will be more realistic to expect a decline in the share of votes for small parties, but it should not be used as a main argument for not introducing the NOTA option, because other potential benefits (better quality of campaigns, better articulated voter dissatisfaction) still exist. We hope that our results will give a good direction for further exploration of this complex issues of protest voting and optimal ballot design.

References

- Abramowitz, A. I., & Saunders, K. L.** (2008). Is polarization a myth. *Journal of Politics*, 70(2), 542-555.
- Abramowitz, A. I., & Stone, W. J.** (2006). The Bush effect: Polarization, turnout, and activism in the 2004 presidential election. *Presidential Studies Quarterly*, 36(2), 141-154.
- Adams, J., Dow, J., & Merrill III, S.** (2006). The political consequences of alienation-based and indifference-based voter abstention: applications to presidential elections. *Political Behavior*, 28(1), 65-86.
- Aldashev, G., & Mastrobuoni, G.** (2010). Invalid Ballots and Electoral Competition. *Carlo Alberto Notebooks*, 153, 1-39.
- Aldrich, J. H.** (1993). Rational choice and turnout. *American Journal of Political Science*, 246-278.
- Aslund, A., & McFaul, M.** (2006). Revolution in Orange. *The Origins of Ukraine's Democratic Breakthrough* (Washington, 2006).
- Blais, A.** (2000). *To vote or not to vote?: The merits and limits of rational choice theory*. University of Pittsburgh Press.
- Blais, A.** (2006). What affects voter turnout?. *Annu. Rev. Polit. Sci.*, 9, 111-125.
- Bowler, S., & Lanoue, D. J.** (1992). Strategic and protest voting for third parties: the case of the Canadian NDP. *The Western Political Quarterly*, 485-499.
- Chatterjee, S., Szabó, A., & Ujhelyi, G.** (2015). "None of The Above" Votes in India and the Consumption Utility of Voting.
- Clem, R. S., & Craumer, P. R.** (2005). Shades of Orange: The Electoral Geography of Ukraine's 2004 Presidential Elections. *Eurasian Geography and Economics*, 46(5), 364-385.
- Clem, R. S., & Craumer, P. R.** (2008). Orange, blue and white, and blonde: The electoral geography of Ukraine's 2006 and 2007 Rada elections. *Eurasian Geography and Economics*, 49(2), 127-151.

- Cox, G. W.** (1997). *Making votes count: Strategic coordination in the world's electoral systems* (Vol. 7). Cambridge: Cambridge University Press.
- Crepaz, M. M.** (1990). The impact of party polarization and postmaterialism on voter turnout. *European Journal of Political Research*, 18(2), 183-205.
- D'Anieri, P.** (2005). What has changed in Ukrainian politics?: assessing the implications of the orange revolution. *Problems of Post-Communism*, 52(5), 82-91.
- Dalton, R. J.** (2008). The quantity and the quality of party systems party system polarization, its measurement, and its consequences. *Comparative Political Studies*, 41(7), 899-920.
- Damore, D. F., Waters, M. M., & Bowler, S.** (2012). Unhappy, Uninformed, or Uninterested? Understanding “None of the Above” Voting. *Political Research Quarterly*, 65(4), 895-907.
- Dodson, K.** (2010). The return of the American voter? Party polarization and voting behavior, 1988 to 2004. *Sociological Perspectives*, 53(3), 443-449.
- Downs, A.** (1957). *An economic theory of democracy*. New York: Harper.
- Driscoll, A., & Nelson, M. J.** (2014). Ignorance or Opposition? Blank and Spoiled Votes in Low-Information, Highly Politicized Environments. *Political Research Quarterly*.
- Feddersen, T. J.** (2004). Rational choice theory and the paradox of not voting. *The Journal of Economic Perspectives*, 18(1), 99-112.
- Feddersen, T., & Sandroni, A.** (2006). A theory of participation in elections. *The American Economic Review*, 96(4), 1271-1282.
- Fiorina, M. P., & Abrams, S. J.** (2008). Political polarization in the American public. *Annu. Rev. Polit. Sci.*, 11, 563-588.
- Galatas, S.** (2008). “None of the Above?” Casting Blank Ballots in Ontario Provincial Elections. *Politics & Policy*, 36(3), 448-473.
- Geys, B.** (2006). Explaining voter turnout: A review of aggregate-level research. *Electoral studies*, 25(4), 637-663.

- Gronke, P., Galanes-Rosenbaum, E., & Miller, P. A.** (2007). Early voting and turnout. *PS: Political Science & Politics*, 40(04), 639-645.
- Herfindahl, O. C.** (1950). *Concentration in the steel industry* (Doctoral dissertation, Columbia University.).
- Herron, M. C., & Sekhon, J. S.** (2005). Black candidates and black voters: assessing the impact of candidate race on uncounted vote rates. *Journal of Politics*, 67(1), 154-177.
- Hetherington, M. J.** (2009). Review article: Putting polarization in perspective. *British Journal of Political Science*, 39(02), 413-448.
- Hooghe, M., Marien, S., & Pauwels, T.** (2011). Where do distrusting voters turn if there is no viable exit or voice option? The impact of political trust on electoral behaviour in the Belgian regional elections of June 2009 1. *Government and Opposition*, 46(2), 245-273.
- Indridason, I. H.** (2008). Competition & turnout: the majority run-off as a natural experiment. *Electoral Studies*, 27(4), 699-710.
- Kang, W. T.** (2004). Protest Voting and Abstention Under Plurality Rule Elections An Alternative Public Choice Approach. *Journal of theoretical Politics*, 16(1), 79-102.
- King, G.** (2013). A solution to the ecological inference problem: Reconstructing individual behavior from aggregate data. Princeton University Press.
- Kostadinova, T.** (2003). Voter turnout dynamics in post-Communist Europe. *European Journal of Political Research*, 42(6), 741-759.
- Kouba, K., & Lysek, J.** (2016). Institutional determinants of invalid voting in post-communist Europe and Latin America. *Electoral Studies*, 41, 92-104.
- Kselman, D., & Niou, E.** (2011). Protest voting in plurality elections: a theory of voter signaling. *Public Choice*, 148(3-4), 395-418.
- Levendusky, M. S., & Pope, J. C.** (2011). Red States vs. Blue States Going Beyond The Mean. *Public Opinion Quarterly*.

- Matsusaka, J. G., & Palda, F.** (1999). Voter turnout: How much can we explain?. *Public choice*, 98(3-4), 431-446.
- McAllister, I., & Makkai, T.** (1993). Institutions, society or protest? Explaining invalid votes in Australian elections. *Electoral Studies*, 12(1), 23-40.
- McAllister, I., & White, S.** (2008). Voting 'against all' in postcommunist Russia. *Europe-Asia Studies*, 60(1), 67-87.
- Miller, A. H., & Listhaug, O.** (1990). Political parties and confidence in government: A comparison of Norway, Sweden and the United States. *British Journal of Political Science*, 20(3), 357-386.
- Meleshevich, A.** (2007). Party systems in post-soviet countries. Palgrave.
- Myatt, D. P.** (2015). A theory of protest voting. *The Economic Journal*.
- O'brien, R. M.** (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5), 673-690.
- Oversloot, H., van Holsteyn, J., & van der Berg, G. P.** (2002). Against All: Exploring the Vote 'Against All' in the Russian Federation's Electoral System. *The Journal of Communist Studies and Transition Politics*, 18(4), 31-50.
- Powell, G. B.** (1986). American voter turnout in comparative perspective. *American Political Science Review*, 80(01), 17-43.
- Power, T. J., & Garand, J. C.** (2007). Determinants of invalid voting in Latin America. *Electoral Studies*, 26(2), 432-444.
- Riker, W. H., & Ordeshook, P. C.** (1968). A Theory of the Calculus of Voting. *American political science review*, 62(01), 25-42.
- Rogowski, J. C.** (2014). Electoral choice, ideological conflict, and political participation. *American Journal of Political Science*, 58(2), 479-494.
- Romanova, V.** (2015). The Regional Level of Ukraine's Party System in 2005–2012. *Kyiv-Mohyla Law and Politics Journal*, (1), 63-81.

- Sartori, G.** (2005). Parties and party systems: A framework for analysis. *ECPR press*.
- Simonovits, G.** (2012). Competition and turnout revisited: the importance of measuring expected closeness accurately. *Electoral studies*, 31(2), 364-371.
- Shue, K., & Luttmer, E. F.** (2009). Who Misvotes? The Effect of Differential Cognition Costs on Election Outcomes. *American Economic Journal: Economic Policy*, 229-257.
- Söderlund, P.** Protest Voting in Russia: A Cross-Regional and Temporal Analysis of Voter Turnout and Voting Against All Candidates.
- Solvak, M., & Vassil, K.** (2015). Indifference or Indignation? Explaining Purposive Vote Spoiling in Elections. *Journal of Elections, Public Opinion and Parties*, 25(4), 463-481.
- Southwell, P. L., & Everest, M. J.** (1998). The electoral consequences of alienation: Nonvoting and protest voting in the 1992 presidential race. *The Social Science Journal*, 35(1), 43-51.
- Superti, C.** (2014). Vanguard of the Discontents: Blank and Null Voting as Sophisticated Protest. *Midwest Political Science Association*.
- Uggla, F.** (2008). Incompetence, alienation, or calculation? Explaining levels of invalid ballots and extra-parliamentary votes. *Comparative Political Studies*, 41(8), 1141-1164.
- Van der Eijk, C., & Franklin, M.** (2009). *Elections and voters*. Palgrave Macmillan.
- Zulfikarpasic, A.** (2001). *Le vote blanc: abstention civique ou expression politique?* (Vol. 51, No. 1, pp. 247-268). Presses de Sciences Po (PFNSP).
- Гессен, М.** (2011). Как важно быть серьезным, нах-нах. Snob magazine. Retrieved April 24, 2016, from <https://snob.ru/selected/entry/39817?v=1464800990> [in Russian]
- Магда, Г. В.** (2012). Норма виборчого законодавства України “Не підтримую жодного”, як одна із форм політичної протестної поведінки. *Сучасне суспільство*, (2), 60-69. [in Ukrainian]

Appendices

Table 8. Third round of Presidential election voting (2004) vs. Parliamentary Election (2012)

Region	Yanukovich (2004)	Yushchenko (2004)	Pro-Russian (2012)	Pro-European (2012)
Autonomous Republic of Crimea	81.26%	15.41%	71.75%	21.62%
Vinnitsia region	12.94%	84.07%	26.24%	68.21%
Volyn region	7.01%	90.71%	19.89%	75.04%
Dnipropetrovsk region	61.13%	32.01%	55.17%	38.6%
Donetsk region	93.54%	4.21%	83.94%	11.39%
Zhytomyr region	28.9%	66.86%	34.43%	59.37%
Zakarpats'ka region	27.58%	67.45%	35.9%	57.77%
Zaporizhzhia region	70.14%	24.51%	62.11%	31.59%
Ivano-Frankivsk region	2.86%	95.72%	6.96%	90.23%
Kyiv region	13.77%	82.7%	27.11%	67.02%
Kirovohrad region	31.76%	63.4%	39.17%	53.92%
Luhansk region	91.24%	6.21%	82.2%	11.77%
Lviv region	4.72%	93.74%	6.69%	90.64%
Mykolaiv region	67.13%	27.72%	59.6%	34.33%
Odesa region	66.56%	27.46%	60.06%	33.05%
Poltava region	29.15%	66%	35.14%	57.79%
Rivne region	12.29%	84.52%	22.01%	72.74%
Sumy region	16.89%	79.45%	33.33%	60.88%
Ternopil region	2.7%	96.03%	8.32%	88.5%
Kharkiv region	68.12%	26.37%	61.82%	32.37%
Kherson region	51.32%	43.43%	52.68%	40.76%
Khmelnyskyi region	16.03%	80.47%	27.5%	67.14%
Cherkasy region	17.35%	79.1%	27.94%	65.66%
Chernivtsi region	16.37%	79.75%	26.23%	69.03%
Chernihiv region	24.16%	71.15%	33.29%	50.57%
Kyiv	17.51%	78.37%	19.83%	74.71%
Sevastopol	88.83%	7.96%	76.36%	12.57%

Table 9. Number and size of constituencies, by region (2006-2012)

Region	Number of constituencies (2007)	Number of constituencies (2012)	Number of constituencies (2006-2007), after matching	Average size of the constituency 2012	Average size of the constituency 2007, after matching
Autonomous Republic of Crimea	8	10	10	152150 (10345)	156450 (10138)
Vinnitsia region	11	8	8	160739 (11702)	168004 (10105)
Volyn region	7	5	5	155327 (6105.6)	159359 (5872.7)
Dnipropetrovsk region	12	17	17	157050 (10122)	164757 (12782)
Donetsk region	17	21	21	158990 (8600.5)	172237 (9857.3)
Zhytomyr region	10	6	6	167322 (5665.7)	174132.8 (5624.2)
Zakarpats'ka region	5	6	6	158297 (9831)	157275.5 (8710.2)
Zaporizhzhia region	8	9	9	161338 (11661.3)	168343 (15211.6)
Ivano-Frankivsk region	7	7	7	153135 (9579.2)	154254.6 (8773.2)
Kyiv region	9	9	9	154927 (24998)	163409 (11968)
Kirovohrad region	7	5	5	156418 (9746.3)	164030 (11031.8)
Luhansk region	10	11	11	163510 (8414.6)	173856.2 (8837.3)
Lviv region	14	12	12	164255 (10130)	166669.8 (9728.4)
Mykolaiv region	6	6	6	153710 (9319)	161688 (10899)
Odesa region	10	11	11	164482 (14112)	167945 (12932)
Poltava region	9	8	8	149112 (3987)	155782 (7394.9)
Rivne region	7	5	5	172680 (4419)	172845.6 (6784.1)
Sumy region	7	6	6	155218 (15560)	164191.5 (13500)
Ternopil region	8	5	5	170732 (9553.4)	173933 (9118.6)
Kharkiv region	11	14	14	155061 (6693.5)	163006 (8523)
Kherson region	5	5	5	171777 (6582)	178364 (7069)
Khmelnyskyi region	10	7	7	149949 (5631)	154620.9 (7977)
Cherkasy region	8	7	7	148272.9 (5905)	156272.9 (7395.7)
Chernivtsi region	4	4	4	174834 (1327.6)	176093.8 (3750.8)
Chernihiv region	7	6	6	146673 (3693.5)	156326.3 (4059)
Kyiv	7	13	13	164719.5 (8858.5)	165315.7 (10541.7)
Sevastopol	1	2	2	151533 (1022.5)	154341 (2158.1)

Figure 2. Distribution of Herfindahl Index score (2006)

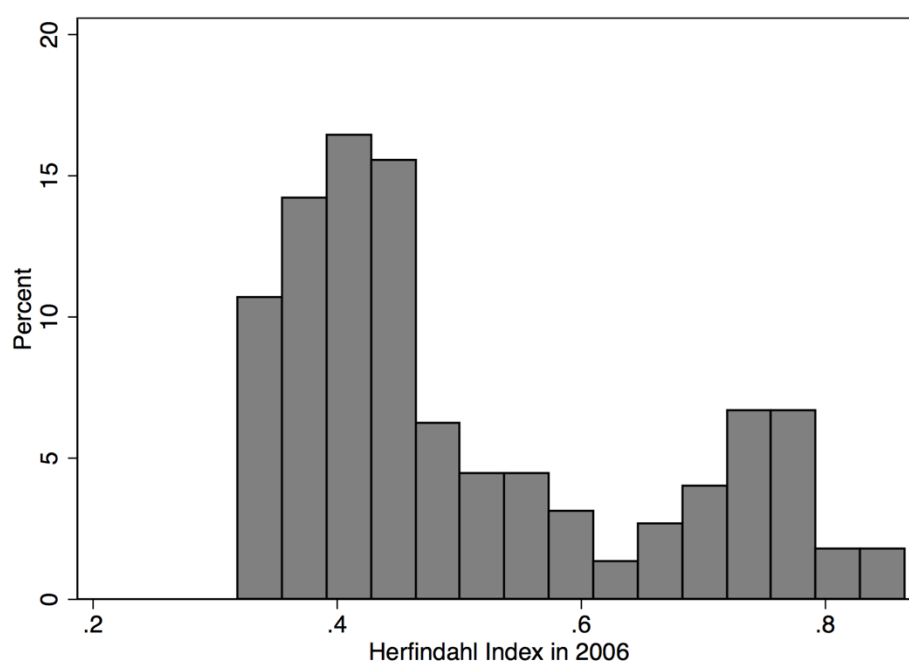


Figure 3. Distribution of Herfindahl Index score (2007)

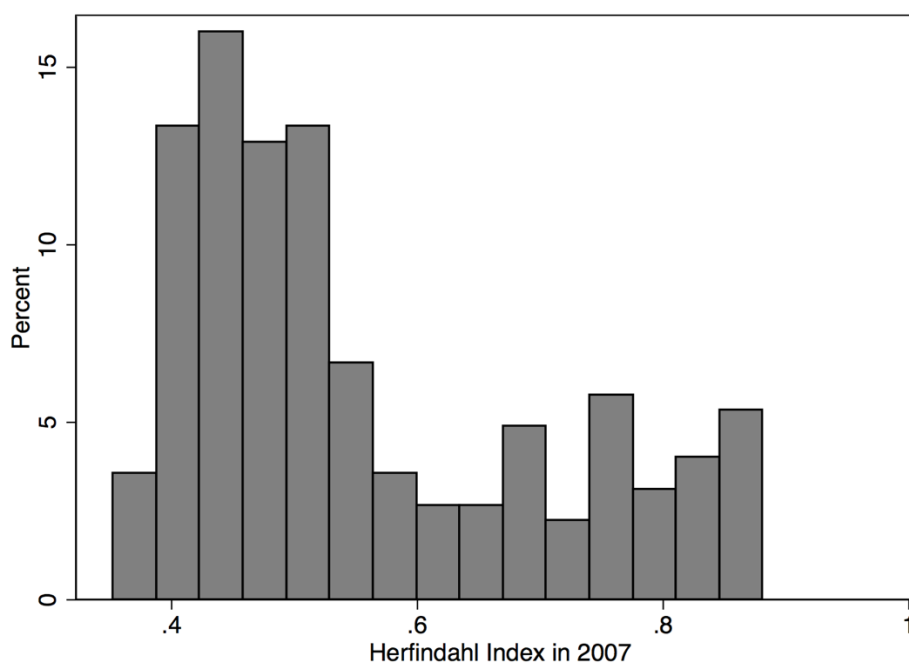


Figure 4. NOTA support and Herfindahl Index (2006 - 2007)

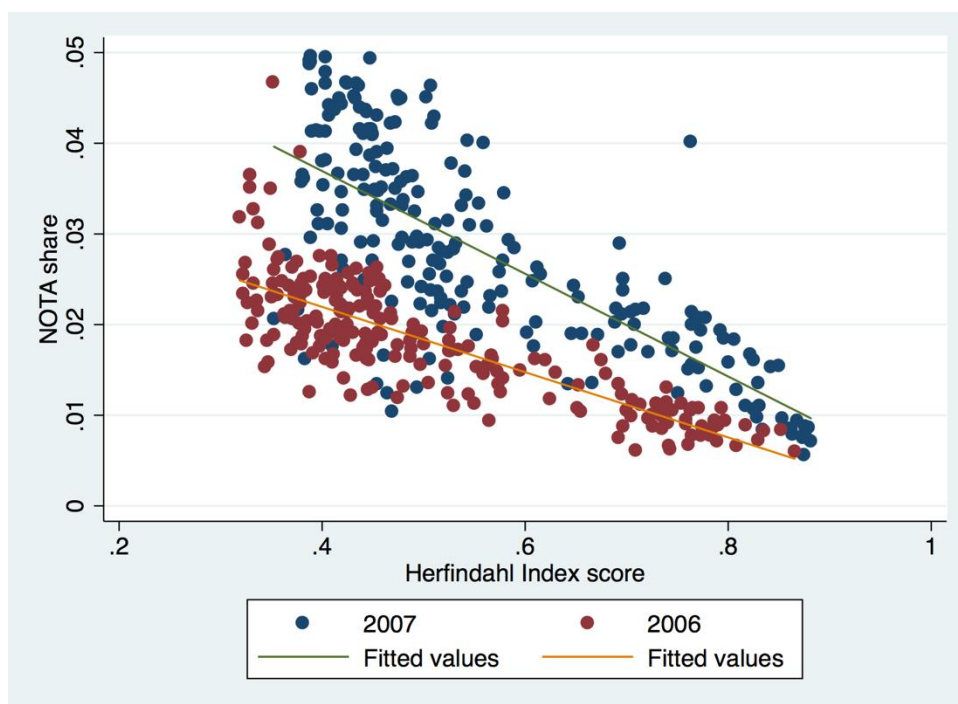


Figure 5. Distribution of votes for small parties (2012 Parliamentary election)

