Economic Voting in Russian Regions:

Regional Legislative Elections 2003-2015

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ABSTRACT

Does state of the economy in Russian regions matter for voters on legislative election day? This thesis provides a positive answer to the question and contributes to our knowledge about economic voting in Russian regions over 2003-2015 period. To be more specific, the rewardpunishment hypothesis stating that voters reward incumbents for good economic performance and punish them for economic decline is of main interest of this study. Drawing from theories on economic voting and after controlling for political and populational factors, this study argues that voters in Russian regions follow the logic of sociotropic voting. Using data on economic, political and socio-demographic indicators from the Russian Federal State Statistical Service for 60 regions, OLS regression analysis demonstrated that unemployment rate, average monthly income, and income change from the year before election, are statistically significant determinants of United Russia vote share in regional legislative election, while GRP growth does not have any significant impact on electoral outcomes. The findings of the study are consistent with the results obtained for 2011 Russian federal legislative elections. Although economic indicators appear to be less powerful predictors of UR vote share than political ones, it is still an important finding. These results indicate that there is electoral accountability in regions where authoritarian practices are not widely spread.

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TABLE OF CONTENTS

ABSTRACT	ii
ACKNOWLEDGEMENTS	iii
Introduction	7
Chapter 1. Economic voting and its determinants: literature review	13
1.1. Theoretical origins of economic voting	13
1.2. Empirical research: individual-level analysis versus aggregate-level	14
1.2.1. Economic vote in the US	14
1.2.2. Comparative studies of economic voting	17
1.3. Economic voting in Russia	19
1.3.2. Economic voting during the post-soviet transition	
1.3.3. Economic voting under authoritarian regime	
1.4. Regional specificity of Russian elections	
1.5. Conclusions from the analysis of literature devoted to the Russian case	
Chapter 2. Research design and methodology of the study	
2.1. Conceptualization of variables	
2.2. Sample selection	
2.3. Data collection and description of variables	
2.3.1. Dependent variable	
2.3.2. Explanatory variables (economic indicators)	
Chapter 3. Data Analysis	51
3.1. Specification of a model	51
3.2. Results of regression analysis	53
3.2. Discussion of results	63
Conclusion	66
References	71
Appendix A	76
Appendix B	77
Appendix C	79

LIST OF TABLES

Table 1. The matrix of economic voting (Brewer 2002)	. 15
Table 2. General OLS regression models with income as an independent variable	. 55
Table 3. OLS regression of residuals on lagged residuals	. 57
Table 4. OLS regression model with unemployment rate and GRP growth	. 61
Table 5. Regression models with income change as a predictor	. 62
Table 6. Regions and election-years used in the analysis	. 76
Table 7. Fixed-effects model versus pooled OLS (income as a predictor)	. 79
Table 8. Test for multicollinearity. Model 1.4. (Income as a predictor)	. 80
Table 9. Test for multicollinearity. Model 2.4. (GRP growth as a predictor)	. 82
Table 10. Test for multicollinearity. Model 3.4. (income change as a predictor)	83

LIST OF FIGURES

Figure 1. The overall distribution of the United Russia vote share in 2003-2015 across the	
regions included in the analysis	.43
Figure 2.Residuals plotted against time	56
Figure 3. Residuals plotted against fitted values	. 57
Figure 4. Heterogeneity across regions	58
Figure 5. Preliminary analysis of data	.77
Figure 6. Correlation matrix of UR vote share and economic variables	.78
Figure 7. Correlation matrix of UR vote share and control variables	.78
Figure 8. The distribution of UR vote share across time	.79
Figure 9. The distribution of residuals of the model with income (1.4)	. 80
Figure 10. Distribution of residuals versus fitted values. Model 2.4 (GRP growth as a	
predictor)	81
Figure 11. The distribution of residuals of the model with GRP growth (2.4)	81
Figure 12. Distribution of residuals versus fitted values. Model 3.4 (Income change as a	
predictor)	. 82
Figure 13. The distribution of residuals of the model with income change (3.4)	. 83

Introduction

Conventional wisdom has it that economic conditions are influential for the vote choice in established democracies. It is broadly recognized that the voter's choice which party or a candidate to support, may be determined by various factors, and the economy is not necessarily very important among them (Gunther et al. 2016; Bartels and Bermeo 2015; Hellwig 2015). Nevertheless, economic conditions both at individual and aggregate levels are broadly considered as ones of the most significant in forming voting behavior of individuals (Lewis-Beck and Stegmaier 2010). As Golosov (2013, 461) states: "In fact, as demonstrated by main stream research on electoral behavior, most voters do expect to improve their material conditions by casting their votes for the parties or candidates of their choice". However, does the economic situation influence the incumbents' vote share in less democratic states? This calls forth an interesting discussion: is there any difference in holding incumbents accountable for economic performance at national and sub-national levels?

The Russian Federation provides an excellent example for investigation of the economic vote for several reasons. Firstly, it deferred from the democratization path in the beginning of 2000s and now is classified as a non-democratic regime. Moreover, along with political transformation, the country experienced economic changes in the 1990s and the beginning of 2010s. Therefore, there was much variation in economic performance in most Russian regions in 2003-2015. The regions where local governments were not able to recover the economy are still adapting to new economic conditions. As a nationwide survey conducted by Russia Public Opinion Research Center VTSIOM shows most citizens in Russia determine economic issues as salient. Therefore, it is reasonable to assume that inhabitants of a region may care about economic conditions in a region and may link them with performance of the ruling party. Secondly, Russian geographic diversity represented in 85 regions with various social, economic, and cultural characteristics along with different paths of political evolution provides

a new source for more detailed understanding of determinants of electoral outcomes. Moreover, sub-national level of analysis may give new insights of voting behavior of Russian citizens. According to Korgunuyk's (2015, 471) description of differences in electoral campaigning of parties at federal and regional levels: "During the regional elections, they [parties] live their ordinary life and respond mostly to the current political routine". Therefore, it is expected that voters may link economic performance of a region with political performance of a regional legislative body.

The problem of relationship between economic conditions and electoral outcomes has been widely addressed in academic literature. Although numerous studies investigate different countries using different methodological approaches (for overview see Nannestad and Paldam 1994; Duch 2007; Lewis-Beck and Stegmaier 2013), in general, these studies test two groups of arguments. The first one is related to pocketbook versus sociotropic voting and checks whether it is driven by concerns about individual's own economic situation or by concerns about the country's economy. The second group of arguments is devoted to the clarity of responsibility problem (Powell and Whitten 1993). According to it, the higher levels of economic voting seem to appear when there is one political actor to be blamed or rewarded for economic performance.

Although there are many studies dedicated to Russian regional political regimes and their specificities in terms of authoritarian practices usage, they are conducted in accordance with two main methodological approaches. Scholars tend to use either the overall sample of Russian regions and therefore generalize the results obtained to the whole country, or they conduct single case-studies of particular regions which do not provide the whole picture at country level but give an explanation of some regional peculiarities. However, there is still little research into determinants of vote choice in regions that do not deviate from average countrylevel in the Russian Federation. At present, most scholars are concerned about explanation of factors that undermine fairness and transparency of elections mostly at federal level (Bader and van Ham 2015). For instance, it is argued that the high-level correlation between the percentage of votes for an incumbent party and turnout rate indicates the presence of electoral fraud. However, it is important to note that this correlation takes various values in different regions, and not all regions can be classified as vulnerable to electoral manipulation. As it will be shown in Chapter 2, there is a group of regions that experience strong influence of authoritarian practices but they do not consist the majority. In the current research the analysis of the rest, more democratic regions, is provided. The selection of regions with average characteristics in terms of economic development, levels of urbanization, ethnic population could allow to look at voting in regional elections controlling for such influential factors as electoral fraud, high levels of voters' mobilization, receiving federal transfers. Moreover, while much of research done on economic vote in Russia uses individual survey data (Hesli and Bashkirova 2001; Miller, Reisinger, and Hesli 1996, Konitzer-Smirnov 2003a, 2003b), there have been less aggregate time-series analyses conducted, especially at regional level.

Furthermore, the analysis of recent literature revealed that while there is little direct evidence of economic voting in Russian regions, some studies found partial evidence of its presence. For instance, there was electoral significance of unemployment rates in a region in 2011 federal election. The lack of unanimous results across time and the prevalence of nationallevel research among studies devoted to economic voting in Russia, make regional-level elections worth investigation.

The guiding question of this study, therefore, asks how the regional economy is linked to regional legislative body support measured by vote share of the ruling party. In other words, the main purpose of this thesis is to reveal to what extent such relationship known as the economic vote is present at sub-national level of Russian politics. To be more specific, the research question of the study is as follows: to what extent Russian voters hold regional legislators accountable for economic performance in a region? The research is aimed to discuss and assess economic voting in Russian regions over the last two and a half decades. While research on the economic vote is more concentrated on revealing relationship between changes in economic indicators and electoral support of an incumbent, taking political context as fixed, it would be also reasonable to look whether there have been some changes in economic voting over time. To be more concrete, it would be interesting to know whether voters still reward or punish incumbents according to the levels of economic performance they maintain.

This thesis is aimed at filling the gap of knowledge about economic vote in Russia at regional level. Given the federal structure of Russian political system with 85 diverse regions, the results obtained in the whole-country studies may be undermined by presence of regions with outlying characteristics. Stemming from this, the sample constrained to regions with average economic and political characteristics is a subject of the current research.

Drawing from theories on economic voting, the hypotheses of the thesis are the following:

- Hypothesis 1 (H1) states that UR vote share is positively related to the regional economic development. In other words, it is expected that there is sociotropic retrospective economic voting at the regional legislative level in the Russian Federation when voters assign credit to the incumbent party for high-level performance of regional economy;
- Hypothesis 2 (H2) states that increase in unemployment rate will lead to decrease in UR vote share in a regional parliamentary election. This hypothesis follows the results of Lewis-Beck and Stegmaier (2010) revision of the economic vote literature where unemployment is one of the main significant macroeconomic indicators;

10

- Hypothesis 3 (H3) states that positive values of GRP growth per capita are positively related to UR support in a regional legislative election. It is assumed that GRP growth could serve as a proxy of economic situation in a region and thus provides grounds for testing sociotropic voting;
- Hypothesis 4 (H4) states that increase in average monthly income positively related to UR support in a regional legislative election. This hypothesis uses average income in a region as another proxy for life quality and also follows Tucker's (2006) research design.

The study is conducted in the framework of rational choice institutionalism. The main thesis of theories on economic voting states that evaluation of economy's state and development might influence voter's choice. Theories of economic voting are considered as the logical continuation of rational choice theories. Downs's (1975) theory of economic choice assumes that each citizen casts his or her vote in favor of those party which will give him or her more benefit than others. In Downs's logic, a voter connects his or her own welfare with policy implemented by a ruling party. If a voter concludes that the quality of life increased, he or she will vote for this party. Regional legislative election is considered as an institution used by both incumbents and voters in order to maximize their utility functions. Incumbents have incentives to stay in the office as long as possible, while voters have incentives to reward or punish incumbents for regional economic performance that directly influence the life standards of citizens. The methodology of rational choice institutionalism is suitable for this research because of several reasons. Taking institutions as exogenous allows to consider elections as a constraint of individual behavior. Elections represent the rule of game and serve as a mechanism to held legislators responsible for regional performance.

In this thesis, I analyze regional legislative elections in the Russian Federation in 2003-2015. The empirical part of the research is based mostly on two main data sources: regionallevel electoral results are provided by Central Election Commission and regional statistics on economic and socio-demographic characteristics is taken from the Russian Federal State Service. The additional information about state of democracy in a region is obtained from the Democracy Index project of Petrov and Titkov (2013).

The thesis is structured in a following way. Chapter 1 is divided into three subsections. The first subsection reviews the origins of economic voting research and particularly discusses the U.S. context studies and their main findings. The second part of the first chapter covers cross-national research and methodological approaches used by scholars. The final subsection is devoted to the state of economic voting literature in Russian context and consequently discusses results obtained by authors in different stages of political regime transformation. It concludes with suggestion of hypotheses to be tested in the study. Chapter 2 describes research design of the study and relevance of quantitative methodological approach implemented. It includes sample selection, data collection and detailed description of economic, political and socio-demographic variables relevant for the analysis. Regression model specification and results of data analysis are provided in Chapter 3. The chapter is dedicated to empirical testing of hypotheses on the data on regional legislative elections in Russia over the period 2003-2015. Discussion of results obtained in the study is also a part of the last chapter. The last section of the thesis is devoted to concluding remarks, limitations of the study, and topics for further research.

"The economic voting is the importance that the voter gives to economic performance in their decision to vote for a political party" (Duch and Stevenson 2007)

Chapter 1. Economic voting and its determinants: literature review

1.1. Theoretical origins of economic voting

The literature on economic voting can be split into two large sections: a theoretical approach and an empirical approach to the analysis. The early studies devoted to the question to what extent the economy influences electoral results were written in rational choice methodology (Downs 1957). Theoretical implications derived from the economic voting research formed the overall framework of a theoretical approach. Formal models of voter's choice consider a voter as a rational utility-maximizer who makes a decision about voting depending on perceptions of economic conditions (Kramer 1971; Barro 1973; Ferejohn 1986; Fiorina 1978). The main contribution of theoretical research is the explanation how varying contextual economic factors influence patterns of economic voting. The basic idea of the rational model is that a voter tends to sanction the incumbent under poor economic conditions and to reward him or her if the economy flourishes.

Fair (1978) developed a new formal theory by combining economic performance evaluations with an individual utility function. He argued that a model of retrospective voting is more suitable than a model of prospective voting. The electorate makes a decision whom support to based on recent economic performance. The idea of retrospective voting was further developed by Fiorina (1981). Fiorina's (1981) formal model of vote decision favors the retrospective perspective. It demonstrates that despite prospective evaluations being important, they are simply an extrapolation of recent economic situation.

The results of Ferejohn's (1986) formal model support Fiorina's (1981) findings. Voters under this model specification act rationally and do not assess political candidates in a comparative perspective. There is a commonly shared threshold of economic performance. A sanctioning model works under the following logic: a voter will punish the incumbent if the economy does not overcome a threshold value and other way around, a voter will reward the incumbent if economic performance is higher than a threshold value. Ferejohn's (1986) specification of a model also has implications for incumbent performance in terms of accountability. There is less stimuli for the incumbent to avoid holding responsibilities if he or she knows that voters act rationally. Thus, the sanctioning feature of a voting model is in its retrospective character. In this model voters consider performance during the incumbent's office term only.

1.2. Empirical research: individual-level analysis versus aggregate-level

1.2.1. Economic vote in the US

Theoretical implications derived from formal models discussed in a previous sections provided testable hypotheses and hence, gave rise to numerous empirical studies. Early empirical research on economic voting starts with analysis of American electorate.

First evidence of strong relationship between the economy and popularity of a political candidate was found by Mueller (1970). Mueller used aggregate-level information about president's popularity rates and such measurements of economic performance as actual rates of unemployment, inflation, and real GDP change to test the hypothesis about link between them. Applying multiple regression analysis, Mueller (1970) demonstrated that the economy was a significant determinant of presidential popularity in the US over 24 year period from the Truman's to Johnson's administration.

As a next step of economic vote research, popularity function as a factor to be explained was replaced by electoral outcomes. A reward-punishment statement became a widespread hypothesis that was tested in aggregate studies. The hypothesis states that voters take into account macro-economic record as a part of incumbent's performance while making a decision whom to cast vote for. Voters reward an incumbent if unemployment rate and inflation are relatively low and punish him or her otherwise. As a part of the reward-punishment hypothesis, concepts of retrospective and prospective voting were introduced (Fiorina 1983). Fiorina (1983) defined retrospective voting as one when for voters, policy outcomes prevail over policy instruments. To be more specific, it is assumed that means to achieve policy goals are usually complex for understanding, while policy outcomes are more easily grasped by voters. According to Key (1966), retrospective voters ignore opposition performance and concentrate on an incumbent's record. In contrast to prospective voting, retrospective voters do not pay attention to incumbent's promises making vote choice. However, Downs (1957) points out that voters take into account not only incumbent's party performance but others' as well. Moreover, there are differences in which economic indicators are more influential for voters. Different impact of economic evaluations on vote choice is often explained through thesis about sociotropic versus pocketbook voting (Kramer 1983). Sociotropic model of voting assumes that a voter evaluates economic conditions at country level in terms what is better for the whole country, not personally for a voter. Pocketbook voting follows the opposite logic. It is personal self-interest, not collective welfare, that drives vote choice. Table 1 illustrates two elements of economic voting according to Brewer (2002).

	Pocketbook voting	Sociotropic voting
Retrospective voting	Did I get a raise?	Did the economy grow?
	Did I lose my job?	Did unemployment increase?
Prospective voting	Will I get a raise?	Will the economy grow?
	Will I lose my job?	Will unemployment
		increase?

Table 1. The matrix of economic voting (Brewer 2002)

Going back to early research, Kramer (1971), on the voting behavior of Americans at congressional elections from 1896 to 1964, was the first who found statistically significant

relationship between economic indicators (per capita personal income, real income and unemployment) and congressional electoral outcomes at an aggregate level. Despite the fact that his findings were supported by some scholars (Tufte 1975; Lewis-Beck and Rice 1984), others did not succeed in finding any proof of statistically significant relationship between congressional electoral results and economic performance (Alesina, Londregan, and Rosenthal 1993).

In 1980s focus of research had shifted from aggregate-level analysis to individual-level one. Survey data allowed to test significance of relationship between vote choice and individual perception of economic situation (Fiorina 1981; Kiewiet 1983). With gradual increase in individual-level data availability a question of economic vote magnitude has become salient. Numerous time-series studies came to conclusion about volatility of economic vote in the US (Fiorina, Abrams, and Pope 2003). Magnitude of economic vote across elections was described as one with low stability. Duch (2007) associates it partly to the lack of a single methodological approach towards survey data quantitative analysis.

Nevertheless, several conclusions could be made about the American electorate economic voting. There is strong numerous support in favor of economic vote presence in presidential elections at aggregate- and individual-level analyses. However, while aggregatelevel studies give precise estimates of economic performance impact on vote choice, individuallevel research highlights variability of economic vote magnitude across time and different types of elections. This phenomenon raised the question about importance of economic and political context during election. Contextual features that may condition economic vote were included as additional variables in cross-national studies.

1.2.2. Comparative studies of economic voting

Comparative studies of economic voting can be divided in accordance with the logic of the US research. There are studies based on both aggregate and individual-level data which investigate relationship between the economy and popularity of an incumbent, the economy and electoral outcomes, and economic perceptions and vote choice.

Aggregate-level studies on non-American cases differ significantly in terms of economic vote presence and its magnitude. Statistically significant relationship between popularity and the economy was found in French and British elections (Lewis-Beck 1980; Hibbs and Vasilatos 1981). Nevertheless, the evidence presented was not universally confirmed. There was a debate about choice of variables and different ways of controlling for political specificity of election that could influence results of studies (Clarke, Stewart, and Whiteley 1997; Price and Sanders 1993). However, research on popularity and the economy in other countries came to much more diverse conclusions within a single country. Separate analysis of Denmark, Germany, Sweden, Norway demonstrated mixed results with no clear evidence of economic vote in countries mentioned (Kirchgassner 1991; Frey 1979; Madsen 1980; Nannestad and Paldam 2000).

Cross-national studies also do not provide unanimous results of economic vote. National aggregate analysis of seventeen countries conducted by Paldam (1991) demonstrated that there is no statistically significant relationship between economic conditions and how vote percentage of incumbent party changes compared to previous election. Contrarily, Lewis-Beck's and Mitchell's (1990) analysis of twenty-seven elections in five European countries revealed significance of unemployment rate and inflation for incumbent's support. However, Chappell and Viega (2000) using broader sample and longer time spectrum did not find any relationship between economic indicators and incumbent's vote share.

An attempt to explain instability of economic vote at an aggregate level of analysis was made by Powell and Whitten (1993). Their main argument is built on the concept of "clarity of responsibility", the transparency of understanding which political institution is responsible for economic performance in a country. Powell and Whitten (1993) concluded that economic vote is more likely to be present under a condition of perceived unified control of policymaking by the government. Royed, Leyden, and Borrelli (2000) challenged the clarity of responsibility argument of Powell and Whitten (1993) and demonstrated that there is difference in economic voting strength for coalition and single party government.

Thus, the puzzling fact about economic voting research is in variability of results obtained at different levels of analysis and at different periods of time even within the same country (Duch 2007). These findings gave a new twist of the economic vote research to more contextually specific studies (Singer and Carlin 2013; Nezi and Katsanidou 2014; Johnson and Ryu 2010; Marsh and Mikhaylov 2012).

Lewis-Beck and Stegmaier (2013) present an assessment of conclusions offered by Nannestad and Paldam (1994) on the base of recent developments in economic voting literature. They come to conclusion that out of 16 propositions of Nannestad and Paldam, only 4 do not find any support in the literature to date. Moreover, two most important propositions that the economic vote almost always achieves statistical significance and that it almost always registers a strong effect receive strong support. At a micro-level reassessment of propositions showed that a prevalent form of economic voting is sociotropic. What is more interesting about microstudies, is the fact that Nannestad's and Paldam's proposition about voters not having much knowledge about the economy turned out to be wrong. Lewis-Beck and Stegmaier demonstrate that voters do have competency to evaluate economic conditions and changes. The most important argument upheld at a macro-level is that the link between macroeconomic indicators and national electoral outcomes is supported by individual-level processes influencing voters' decision. The next relevant argument is about cost of ruling in democracies. The incumbents will lose votes if they run for re-election. Regarding the question raised in this study, the crucial finding is that the economic vote is mostly sociotropic and dependent on an institutional context. Lewis-Beck and Stegmaier note that a context can alter the clarity of responsibility and therefore, the economic vote. As for the case of Russia, there is no need to operationalize the clarity of responsibility as a control variable since there has been no coalition governments during the period investigated in this study.

More recent research shifts focus to the global economy and its influence on vote choice. Duch and Stevenson (2010) provide an explanation of contextual instability of economic voting using a competency theory. The important aspect of the theory that it allows voters to distinguish economic shocks from ordinary economic conditions and not to hold incumbents responsible for issues out of their competency. Moreover, Duch and Stevenson (2010) introduce the degree of internationalization of the economy as a new contextual variable. They argue that openness of the economy and economic voting are linked negatively. However, while it is an important finding, it is not relevant for the Russian context. First, the degree of internationalization of the Russian economy did not vary significantly in the period of the study. Secondly, it is fixed at a regional level which is a matter of interest of this study.

1.3. Economic voting in Russia

Economically driven voting behavior has received quite substantial treatment in the literature devoted to Russian elections. Scholars investigating Russian elections identify various factors associated with patterns of voting behavior at different stages of political development (Kolosov and Turovskii 1997; Meleshkina 2000). Socio-economic factors are mentioned as influential during various elections in different periods of Russian history. The following section covers main findings on voting patterns of Russian electorate and their relationship with economic conditions in different periods of Russian political development.

1.3.2. Economic voting during the post-soviet transition

Extensive literature is devoted to analysis of economic voting in Russia in the 1990s and in the beginning of 2000s. It is widely thought that non-successful economic liberalization reforms of the early 1990s had a strong impact on electoral outcomes in this period (Treisman 2009). Since the political context of those times was relatively democratic, it was easier for scholars to assume that political actors were held accountable for their performance by citizens. Indeed, studies conducted both at aggregate and individual levels reveal presence of economic voting in presidential and federal legislative elections. However, the results are not consistent in terms of two kinds of the economic vote. While presidential elections are associated with pocketbook voting, outcomes of federal legislative elections were found to have been determined by socio-tropic patterns of voting behavior.

Significant relationship between electoral results in 1990s and such socio-demographic characteristics as income level, education level, and occupation was found in several studies (Whitefield, Evans 1994; Rose, Tikhomirov, Mishler 1997; Miller, Reisinger 1998). Mishler and Willerton (2003) examined Yeltsin's and Putin's popularity from 1991 to 2000 and came to conclusion that at aggregate level of analysis, both retrospective and pocketbook-oriented voting was present at the national level. Arguing that most research on Russian economic vote is based on individual survey data, their research uses aggregate time-series data. Mishler and Willerton include four variables to test effects of economic performance on voting and two variables to control for political performance. They conclude their analysis with the statement that "While economic considerations appear primary, Russians also reward and punish the president based on their perceptions of the political direction of the country" (Mishler and Willerton 2003, 131). However, individual-level analysis conducted by Hesli and Bashkirova (2001) had opposite results. Using data on nine surveys, they came to conclusion that Yeltsin's popularity was determined by prospective economic evaluations, rather than retrospective ones.

Moreover, the authors highlight that political evaluations, being important, do not outweigh economic ones in the consideration set of Russian voters. Political evaluations measures are represented by a three-item support for the democratic reform additive scale, an evaluation of whether the government makes good decisions, and an evaluation of whether law and order has improved (Hesli and Bashkirova 2001, 391).

The survey analysis of presidential electoral contest of 1996 also found that individual economic experience, normative commitment to a market, satisfaction with the market economy in practice, perception of the national economic future, and the satisfaction with the political system are statistically significant predictors of vote intention for Yeltsin (Kim & Sidorenko- Stephenson 1999). Richter (2006) obtained similar results regarding economic voting. In a sample restricted to workers and individuals who live together with workers he found that the incumbent was punished by workers experiencing problems with wage arrears.

However, as Scherbak, Sennikov, and Lisovskii (2013) mention, the review of 1990-2000s electoral campaigns reveals that economic conditions at the state level were hardly decisive for electoral outcomes. Elections in 1990s show that voters did not punish the president Yeltsin for harsh economic conditions. According to the authors, the smartly built electoral campaign could divert voters' attention from economic problems. The issues of national security and the war in Chechnya became the most salient problems.

At federal level, the most influential study of economic voting in the 1995 legislative election was conducted by Colton (1996). Examining survey results, Colton tested hypotheses about both sociotropic and pocketbook voting, and about, ideocentric voting, termed as policyrather than outcome-oriented voting. More specifically, an ideocentric component was defined as observed impact of attitudes to state ownership, welfare, and authoritarianism on vote choice. Investigating electoral results of more than forty parties, Colton showed that sociotropic economic evaluations were stronger than pocketbook ones, and ideocentric component being also influential to voting.

Tucker (2001) examined ten parliamentary elections in Russia, Poland, Hungary, Slovakia, and the Czech Republic in 1990-1996. He found that voters put more weight on economic evaluation of primary party in a ruling coalition. Increase in industrial growth, income and unemployment rate are associated with voting for a primary incumbent.

Kalinin (2006) analyzed societal cleavages and electoral behavior in Russia 1993-2003. The empirical base of his research is individual-level data from 14 national surveys. Using models of multiple logistic regression, the author found following cleavages to be crucial for voting behavior. The cleavage "post-communists versus democrats" is based on winners and losers of market reforms. The next line of division includes differences on the base of socio-professional characteristics. The more important cleavage is the "city versus village" one. Kalinin stated that urban population votes in favor of prodemocratic parties while voters from rural areas support pro-communist parties. Moreover, this division covers "center-periphery" and "democrats-communists" cleavages. The next group is composed by such factors as age, education, and socio-economic values. It was supposed by the author that older population as well as voters with lower levels of education favor left parties. The most important argument presented by Kalinin is about socio-economic characteristics of voters. He argued that income growth is correlated with lower participation in voting and lower levels of left parties' support.

Studies discussed above were conducted at the national level which presumes that the whole population of a country can be treated as a homogenous group. This assumption was questioned by several scholars who argue that regional variation can be lost under this approach to the study of economic voting. In order to relax this constrain, they investigate regional-level elections, both gubernatorial and legislative ones. The advantage of a regional-level approach

is that it provides various data for comparative analysis while allowing to keep constant country-level characteristics.

Regional economic voting in gubernatorial elections was comprehensively researched by Konitzer-Smirnov (2003a). In his analysis of gubernatorial elections in 2000-2001, the author revealed pocketbook voting patterns in Russian regions. Controlling for political factors, Konitzer-Smirnov (2003a) discovered that real wages and pensions affect significantly the level of incumbent's support. He concluded that voters hold executives accountable for economic performance in regions. Konitzer-Smirnov (2003b) also looked at jurisdictional voting. He studied the gubernatorial election in Ul'yanovsk during 2000-2001 electoral cycle. The author made three important inferences. First, economic considerations appear to be more important than non-economic ones in holding a regional executive accountable. Secondly, sociotropic evaluations turn out to be more influential than pocketbook ones. Voters punish the incumbent for the decline in regional economy in general, rather than for their personal economic fortunes. Finally, there is justification for jurisdictional voting since voters indeed evaluate the incumbent only for policies what he is - constitutionally speaking - responsible for. The limitation of the Konitzer-Smirnov's study is in its scope. The case of Ul'yanovsk oblast is not representative in terms of a whole country since it is hardly to classify it as a typical Russian region. However, the results obtained by the author are important for the regional studies development.

Tucker (2006) also analyzes economic voting at the regional level in 1990-1999 using the same sample of five countries as in his study at the national level (Russia, Poland, Hungary, Slovakia, and the Czech Republic). He introduces a "transition identity" model according to which voters do not reward or punish an incumbent but rather vote for a party associated with either the old regime or the new one. He concludes that voters support the pro-transition parties in the regions with high levels of economic development while the old regime parties gain votes in regions that experienced economic decline. Several observations about economic voting in Russia during its early stages of transition towards democracy can be drawn from the review above. First, there was economic voting at both national and regional level elections. Moreover, voters evaluated economic performance and connected it to the incumbent's performance at all main types of elections, i.e. - presidential and gubernatorial elections, federal and regional legislative elections. However, Russian voters put greater weight to personal economic indicators such as wages, and personal income while voting at the presidential election. As for legislative elections and regional executive's elections, individuals show more sociotropic voting taking into consideration economic situation either in a country or a region in overall.

While research on the economic vote is more concentrated on revealing relationship between changes in economic indicators and electoral support of an incumbent, taking political context as fixed, it would be also reasonable to look whether there have been some changes in economic voting over time. To be more concrete, it would be interesting to know whether voters still reward or punish incumbents according to the levels of economic performance they maintain.

1.3.3. Economic voting under authoritarian regime

As Russia moved from a nascent democratic regime to hybrid and then to an authoritarian one, the task to trace voting behavior patterns of citizens became more complicated. Conventional wisdom has it that non-economic factors like Putin's personal appeal and lack of democracy could have great potential impact on electoral results in this period and should be controlled more carefully in passing judgments about economic influences. Despite these difficulties, there are a range of studies dedicated to finding link between economic conditions and outcomes at various levels of elections.

Starting from 2000s, voters were divided along the line "supporters versus opponents of ruling party" (Ahremenko 2007). Ahremenko mentions that this division was finally established during 2003-2004 electoral cycle. The electoral cycle 2003-2004 was at the time of economic growth and political stability. These two facts according to Scherbak, Sennikov, and Lisovskii (2013) determined electoral success of United Russia and Vladimir Putin. Moreover, 2007-2008 campaigns suited the definition of economic voting most. The authors mention two key factors. The first one is associated with the development of constraints towards the opposition, including media censorship, reformation of party and electoral legislation, the ban of electoral blocks. The second one is growth of real income mostly caused by successful oil export policy. However, regional economic conditions were still significant for voters even under presence of administrative pressure from the local elites.

It is necessary to mention that throughout this period there has been a dominant or hegemonic ruling party. United Russia had a majority of seats in the parliament since 2003 federal elections. As Duch and Stevenson (2008) discovered in the case of the Dutch and Italian Christian Democrats, the fact that the biggest party cannot realistically be voted out of government can suppress economic voting in a country. Apart from lack of democracy, the predominant position of United Russia may also have clarified which party is most responsible for electoral outcomes while simultaneously reducing the credibility of elections as a tool of rewarding or punishing office holders for political outcomes. That being said, the analysis of electoral outcomes both at the national and sub-national levels mostly covers the performance of this party.

For instance, McAllister and White (2008) examine United Russia's success at 2007 parliamentary election and test sequentially three possible explanations of it. Economic performance, namely sociotropic evaluations, appear to be a significant predictor of United Russia vote share. While Putin's performance has strong impact on distinguishing United Russia voters from others, it should be noted that the positive assessment of the national economy conditions the effect. The authors draw a line of accountability from the economic performance to Putin and then to United Russia. They assume that economic improvement should have been reflected in Putin's and United Russia's approval ratings since the party was supported by the president.

In relation to presidential approval ratings, Triesman (2011) argues that they are also determined to some extent by economic conditions. Even after transformation of a political regime to more authoritarian one, economic situation was a significant predictor of Putin's approval. Treisman (2011) finds that the dramatic increase in Putin's approval from 2000 and its constant high levels during next eight years were strongly associated with economic prosperity.

The available body of empirical research shows that economic aspect was significant even after the transformation of the regime towards more manipulative and authoritarian one.

Scherbak, Sennikov, and Lisovskii (2013) study economic voting in 2011-2012 legislative and presidential elections in Russia. The study is aimed at testing Inglehart's statement about materialistic and post-materialistic values' influence on voting. The main thesis of the article is that increase in the level of welfare during the last decade has influenced paradoxically on decrease of "the ruling party's" and its leader's support.

Korgunyk (2015) conducts factor analysis in attempt to reveal possible lines of division of political space at the regional level. The results of regional legislative elections 2012-2013 illustrate that the electorate was divided along three dimensions. The authoritarian–democratic division was the most important (United Russia versus all other participants), while the socioeconomic division became second and the systemic ended third (Korgunyuk 2015). Considering discussion devoted to peculiarities of regional political regimes, it is not surprising that socio-economic division was not superior one.

While most studies concentrated on the national-level analysis, sub-national patterns of economic voting behavior in Russia are not covered very extensively. However, Russian geographic diversity represented in 85 regions with various social and cultural characteristics as well as political evolution provides a new source of more detailed understanding of electoral results. Moreover, the comparison at the sub-national level allows to control for an electoral system that is considered often as an influential variable.

1.4. Regional specificity of Russian elections

As it was mentioned above, the federal system of Russian Federation consists of 85 regions with each region having its own constitution. The legislatures are formally prescribed to be responsible for regional laws adoption, economic performance, and tax regulation at the sub-national level. Nevertheless, a political system of most regions may be described as "presidential" one. Golosov (2014, 230) defines the political situation in Russian regions as following: "Their chief executives (governors) are key players in regional governance, while legislatures have little influence on administrative appointments and policy implementation". Great dependence of regional executives on the center has led to the formation of "authoritarian regional political regimes" (Golosov 2014, 230). As it will be argued in the next sections, high level of centralization as well as constrained capacity of regional legislatures to conduct their own regional policy has a significant impact on the electoral patterns both at the federal and sub-national levels. Elections at the regional level are highly dependent on the goals set by the federal government and strongly connected to the performance of the governor. Therefore, the way voters hold regional executives accountable is not obvious. Thus, regional voting in Russia is an interesting phenomenon to be investigated.

The last decade of Russian political development was associated with the increasing intensity of spread of authoritarian practices. Elections were transformed from a tool to reveal citizens will to a highly-controlled instrument of popular mobilization in favor of the current political regime. UR experienced a landslide majority at the legislative election at the first time in 2003. Since this year each electoral cycle could be characterized with gradual and constant decreasing levels of genuine electoral competitiveness and the lack of transparency of electoral procedures as well as with manipulation of electoral laws. Nevertheless, during this time period, UR electoral performance both at national and sub-national levels has not changed significantly. The high level of voters' mobilization is provided by several channels, with governor-controlled political machines (Golosov 2013) considered the most effective.

Reuter (2013) goes in line with Golosov's argument and focuses on Russian regional elites' performance and its relationship to electoral performance of the ruling party. It is interesting that United Russia reached a peak in terms of votes casted for it in 2007 State Duma election. But four years later, in 2011, the ruling party lost the two-thirds constitutional majority because it was not able to overcome fifty per cent threshold (UR won with 49.32% of the vote). This sudden loss of votes served as motivation for an explanation of both overall electoral successes and the 2011 relative failure of United Russia. Reuter's argument rests on the assumption that there is a necessity in regional patrons, influential figures who can increase voters' mobilization through implementation of political machines and clientelist networks. Local political machines thus serve as a means of raising support for a hegemonic party. Reuter (2013: 102) notes that "ruling parties become hegemonic and remain hegemonic when the regional elites who support the party have the resources, machines, and/or authority to dependably generate popular support for the regime". The results obtained are based on data on the electoral statistics with regard to UR at regional legislative elections from 2003 to 2011. Reuter's (2013, 102) statement is as follows: "UR performs better in elections when the regional

governors who support it are influential and authoritative. Such governors translated their electoral machines into votes for UR". The capacity of a governor to build a political machine in a region is key to the electoral performance of the ruling party. Clientelist networks and connection within the region serve as a supportive measure for a political machine.

Following Reuter (2013), Golosov (2014) looks at mechanisms through which the ruling party maintains its high level of electoral performance. In his study of 2013 regional elections, Golosov links performance of the party with the gubernatorial capacity to maintain its popular support within a region. While the aim of governors was still to provide vote mobilization in favor of UR, 2013 regional electoral results revealed that not all regions were capable to save the superiority of UR by such conventional means as political machines. Golosov (2014) argues that appointed governors were mostly "newcomers" and lacked sufficient experience and resources for maintaining a leading position of United Russia.

Thus, it can be noted that after the establishment of relatively authoritarian regional regimes, the typical explanation of incumbent's vote share has changed in the scholarly literature. However, there are still several attempts to test economic conditions' impact on electoral outcomes. Interestingly, these recent studies demonstrate that there is no clear relationship between economic indicators in a region and the vote choice of individuals.

Reuter (2013) tests hypotheses about other potential mechanisms of undermining the UR electoral success in a region beyond administrative capacity of regional elites to mobilize voters. The author uses data on 2011 federal election results in 83 regions. He does not find support for the hypotheses in favor of political budget cycles or large public economies. Large public economies are associated with the opportunity to have large public sector and to buy support of voters through providing them public services. Putin's approval also does not condition the UR electoral performance. However, Reuter (2013) finds partial confirmation for

a hypothesis stating that high levels of unemployment undermine electoral support of UR. As a measurement, he uses data on unemployment in the year prior to the election. Reuter also tests GRP growth in the year prior to the election as a predictor of electoral performance but does not find any support for it.

Panov and Ross (2013, 740) in their study of the degree of electoral domination of UR at the regional level focus on the electoral results of SMD voting since they assume that "SMD election results are much better indicators of local politics than party-list voting". Stemming from the assumption that social and economic factors may determine a level of UR dominance, the authors conduct correlation analysis. Economic situation is measured by regional GDP per capita, when social impact is measured by the share of urban population and the share of ethnically Russians in a region. Results obtained in the study show that the level of regional economic development does not have statistically significant impact on UR dominance in the regional legislature, while the share of urban population and ethnic Russians are significant predictors of UR vote share.

It could be stated that during transition from democratic to less democratic regimes in regions and in the country as whole, the patterns of economic voting found in 1990s and early 2000s are not fully present in recent days. Nevertheless, there is a range of explanations with which factors it can be associated, for instance, such as political machines controlled by regional executives. Moreover, what is interesting is that extremely high levels of UR support are noticed only in regions with a set of common characteristics. One of the most influential is the share of ethnic Russians in a region. Golosov (2011), Reisinger and Moravski (2009), Badera and van Ham (2015) also make an argument about significant impact of share of ethnic Russians on electoral outcomes. The basic idea is that voters from rural areas and from regions where non-Russian ethnic groups dominate, are more inclined to be a subject of administrative pressure because of their high dependence on patronage (Panov and Ross 2013).

Golosov (2011) argues that UR vote share determined by administrative capacity of governors to mobilize voters is higher in regions where ethnically non-Russian population prevails. Reisinger and Moravski (2009) in the analysis of voting behavior at a federal level also found that a regional change in the level of deference to the Kremlin depends significantly not on regional conditions but on the initial differences among them. The most important is ethnic Russians' share in population of a region. Having categorized all regions as ethnic and non-ethnic according to the percentage of ethnic Russian population, they come to conclusion that this predictor is more powerful than the constitutional status of a region. It is interesting because a level of political autonomy among Russian regions differs in accordance with the type of a federal subject assigned to a region. Constitutionally, republics have more political autonomy than other types of federal subjects (The Constitution of Russian Federation, ch.3, art. 66). However, it is completely opposite in reality. Most republics, especially from the southern part of Russia, are economically and, therefore, politically dependent on the federal center. Although local governments formally have more opportunities of choosing ways for regional political development, they are usually restricted to ones suggested by the federal center. Moreover, even though most republics are based on an ethnic principle, there are other subjects with dominant ethnic non-Russian population. The authors found negative correlations between the percentage of ethnic Russians and the level to which a region expresses the deference to the Kremlin. Under the deference to the Kremlin they mean support of an incumbent or an incumbent-supported candidate at federal and presidential elections. The within-region level of analysis provides some further details. The authors show that for nonethnic regions high values for such factors as urbanization process and socio-economic development of a region are associated with lower levels of Kremlin's support. Nevertheless, the same factors have no impact within ethnic regions. Reisinger and Moravski (2009, 3) summarize that "Russia's ethnic and non-ethnic regions are on separate trajectories of relations with the federal center to an extent not yet sufficiently analyzed".

Another important characteristic influential for vote share at the regional level is turnout rate. There is obvious strong positive correlation between the level of popular support for the ruling party and turnout rates. Conducting an analysis of electoral data for both presidential and legislative elections from 1991 to 2008, Reisinger and Moravski (2009) mention an important observation that the level of turnout is highly correlated with the deference to the Kremlin: extremely high level of turnout is usually noticed in regions which unanimously support the ruling party or a Kremlin's candidate.

In 2013 regional elections UR received only modest levels of support in regions with low turnout rates (Golosov 2014). However, it is not a unique regional phenomenon. In 2016 federal legislative election, UR won more than 70% of votes in regions with turnout higher than 75% in recent election. Nevertheless, overall average result of the ruling party was much lower: United Russia won 54.19% across the country with less than 40% of votes in a quarter of regions. The lowest support was recorded in Karelia - only 33.2% with turnout 31.76%.

The most important fact is that regions with high share of ethnic non-Russian population are those with extremely high turnout rates, large share of rural population, and with high levels of electoral fraud. Bader and van Ham (2015) in their study on regional variation in fraud use data on 2011 legislative elections in 83 regions of the Russian Federation. The authors demonstrate that "the tenure of governors in office, United Russia's dominance in regional legislatures, and the ethnic composition of regions are most important for explaining regional variation in electoral fraud" (Bader and van Ham 2015, 514). The findings are in line with previous studies' results. Goodnow, Moser, and Smith (2014) also associate the ethnic factor with electoral fraud. As for rural areas, Ordeshook and Myagkov (2008) show that for some elections electoral fraud is more prevalent in rural areas than in urban ones.

However, the results obtained by Bader and van Ham (2015) are not straightforward. They assumed that wealthy regions have more administrative capacity which results in higher level of electoral manipulations. Nevertheless, their hypothesis that regions with higher rates of GRP per capita will experience higher volume of electoral fraud was not confirmed. The relationship between GRP per capita and electoral fraud was not the one expected by the authors. It is not rich regions which are associated with massive electoral fraud but poor ones. However, relationship between wealth of a region and electoral fraud is statistically nonsignificant. There is no evidence that economically developed regions tend to have higher levels of electoral fraud. Stemming from this result, there is no reason to exclude economically developed regions from the analysis on the base that their electoral outcomes are biased.

Moreover, Bader and van Ham (2015) argue that dominance of United Russia in a regional legislature may be an indicator of administrative capacity to organize electoral fraud. They found that "The higher the seat shares of United Russia in the regional legislature, the higher electoral fraud is" (Bader and van Ham 2015, 523). While the authors' argument may be true, there still a risk of endogeneity problem. On the one hand, it may be less costly for regional elites to maintain dominance of the ruling party in a region where United Russia has achieved high levels of voters' support. On the other hand, increase in vote share of the ruling party may be a result of electoral fraud as well. One potential explanation of this intuition is that electoral fraud organized by regional executives is aimed at maintaining high levels of support of United Russia. The extent of loyalty to the Kremlin is expressed through vote share of United Russia at elections.

The important note discussed by several authors is that populational characteristics of a region influence the extent to which citizens are vulnerable to electoral manipulation. As it was discussed above, high rates of poverty in a region may indicate that poor voters are more inclined to accept patronage and pork from regional elites, and therefore "sell" their votes in favor of the ruling party. The share of ethnic non-Russians is an influential indicator not only of electoral fraud but of the power of administrative capacity, higher turnout rates and voter mobilization.

The most recent study on subnational political regimes by Libman (2017) indicates several facts why it is reasonable to study voting behavior at a regional level. The author mentions that despite the fact that all Russian regional regimes may be classified as autocracies by 2010s, there are regional differences in politics (Libman 2017). Libman goes in line with Panov and Ross (2013), Reuter and Buckley (2015), and Saikkonen (2016) and divides regions into two groups with competitive and hegemonic political authoritarian regimes. The first group is characterized by presence of political pluralism and influential regional groups which have enough resources to compete at elections. This results in formation of more fragmented regional parliaments. The important feature of these regions is a certain level of independent media. As for the second group of regions, they represent more united elite under the control of the authoritarian governor. Hegemonic regional political regimes lack political competition. The widespread presence of political machines in such regions enables elites to obtain necessary electoral outcomes. The media is not independent. Thus, the difference among regional political regimes themselves create a ground for research on electoral outcomes.

Since most studies (Tucker 2006; Golosov 2011; Bader and van Ham 2015; Panov and Ross 2013) concentrate attention on the full sample of regions without grouping them according to their democratic level, it is worth analyzing a more constrained sample of regions without outliers in terms of authoritarian practices.

1.5. Conclusions from the analysis of literature devoted to the Russian case

The review of existing studies on economic voting in Russia over the last decades has shown that there has been a change in both in economic voting patterns and the ways how they are examined by scholars. First, there is evidence of both sociotropic and pocketbook voting at national level in 1990s and early 2000s with the prevalence of sociotropic evaluations of economy. Secondly, at sub-national level, jurisdictional voting was present, as it was demonstrated by the analysis of gubernatorial elections in 2000s.

The analysis of more recent literature revealed that while there is little direct evidence of economic voting in Russian regions, some studies found partial evidence of its presence. For instance, there was electoral significance of unemployment rates in a region in 2011. Moreover, most studies include all regions of Russian Federation and try to find some common patterns among them, while accentuating that they are different in socio-economic, demographic, ethnical, cultural terms. As it was shown, many studies illustrate dependence of electoral outcomes of legislative elections on such factors as administrative capacity of regional executives to mobilize voters, the extent of urbanization of a region, its ethnic composition, and vulnerability to electoral fraud. However, these are the same regions with the main common characteristic – a large share of ethnically non-Russian population. The potential lack of economic voting in these regions due to the fact that voters are highly vulnerable to administrative pressure and electoral fraud can skew overall results.

Stemming from this fact, it would be reasonable to look at the constrained sample of regions. Ethnic republics are highly vulnerable to administrative control from the center and are highly dependent on federal transfers. Both factors may bias electoral outcomes at the regional levels significantly. Therefore, it would be interesting to look at the relationship between economic indicators and vote choice in regions, population of which is not so vulnerable towards authoritarian practices.

The selection of regions with average characteristics in terms of economic development, levels of urbanization, ethnic population could allow to look at voting in regional elections controlling for such influential factors as electoral fraud, high levels of voters' mobilization, receiving federal transfers. The most controversial and difficult to control for is electoral fraud since the increase in electoral fraud spread among the regions was gradual and reached its peak in 2011 (Bader and Ham 2015). Nevertheless, the degree of electoral manipulation was uneven and some regions experienced significantly lower levels of fraud. Bader and van Ham (2015) found that at the federal level more economically independent regions had lower proportions of polling stations with extremely high turnout rates. Taking this into account, selection of regions that are relatively economically and politically independent seems advisable when looking for signs of economic voting.

The next chapters discuss the methods for testing hypotheses proposed and the results of the analysis conducted.
Chapter 2. Research design and methodology of the study

This chapter is devoted to description and justification of methodology applied to the study and to discussion of data collection process and conceptualization and operationalization of variables used in the analysis.

This study aims to estimate the relationship between values of regional economic indicators and electoral outcomes of the winning party at regional legislative elections. To test the hypothesis about presence of economic voting at regional legislative elections from 2003 to 2015, statistical analysis was chosen as a method of analysis. Regression analysis is appropriate here for several reasons. First, it allows to conduct comparative analysis of the effect of economic indicators on electoral outcomes across large number of observations. Secondly, the quantitative approach to analysis makes a procedure and results obtained possible for replication. Using the same data and statistical methods, it is possible to come to the same conclusion as the author, or at least to trace how results were obtained. Thirdly, statistical analysis makes hypotheses testing feasible and accurate. It allows to estimate the statistical significance and the character of relationship among a broad range of variables across crosssectional and time-series dimensions. Regression models also let the scholar to reveal which independent variable has more explanatory power. In other words, it is possible to find an economic variable that explains more variation of UR vote share at regional legislative elections. Inclusion of non-economic control variables into a model allows to trace an exact impact of economic conditions on electoral outcomes. Moreover, quantitative approach is common among studies devoted to economic voting both at national and sub-national levels (for instance, Golosov 2014; Konitzer- Smirnov 2003a, 2003b; Richter 2006; Reuter 2013).

2.1. Conceptualization of variables

This section is devoted to the discussion of main concepts used in the analysis. The first concept is a region as a basic unit of the analysis. Since the Russian Federation is a federal state, it is composed of several dozens of subjects. As it was mentioned earlier, there are 85 federal subjects. They are represented by oblasts (regions), krais, republics, autonomous districts, an autonomous oblast, and cities of federal significance. However, there is strict hierarchy among them in terms of political autonomy and accountability for the federal center. Despite the transformation happened because of a merger of several autonomous districts with oblasts and the accession of Crimea to Russian Federation, the overall composition of regions in terms of size and location is stable. This is possible since same formal divisions were used as it was in the Soviet time (Koehn, Popson, Ruble 2001). That allows to analyze federal subjects across time. If we go in more detail about specific differences of subjects, following facts are important. The republics are based mostly on ethnic base and geographic locations. The level of autonomy is formally one of the highest among other subjects. Republics can have their own constitution, second official language, and local legislation. However, in real life republics are highly dependent on federal subsidies and therefore need to comply with demands of the federal center. Oblasts or regions as well as krais are formed on a territorial principle, and have less political autonomy. Autonomous districts and oblasts are usually a part of regions and therefore have less administrative and political capacities. These features in terms of power could make significance of regional parliamentary elections different for different types of federal subjects.

The next concept is election. By election in this study is meant an election of deputies in a regional legislature. Despite that some regional legislatures have different names, they are often collectively referred to as "regional parliaments". Federal composition of the Russian Federation includes 85 regional parliaments. Elections in regional parliaments are held in according with a mixed system: no less than a half of deputies is elected by party lists and the rest are by single or multiple mandate districts. The electoral threshold cannot overcome 7%. From 2005 creation of electoral blocks was prohibited. At those time elections could be held at any time, but in 2006 the single voting day was introduced and election has been held either on the first Sunday of March, or on the first Sunday of October. Elections are usually held every four or five years. The local government determines the frequency of elections. The current study does not include early elections and reelections of particular deputies since a problem of comparability of electoral results arises. Spending and significance of additional elections are usually much lower and voters' choice may be determined by completely different factors.

2.2. Sample selection

The sample used in the study is drawn following results of Korgunuyk's (2015) analysis. Korgunuyk (2015) builds an electoral cleavage map of Russia. Using data on 2011 federal legislative elections, he identifies five clusters of regions with different levels of electoral competitiveness. The first group consists of the North Caucasian republics described by the highest levels of electoral manipulations. The second cluster is characterized less by high levels of fraud but a massive use of significant administrative resources for electioneering. The next group is made up by 19 regions experiencing less use of administrative pressure and is labeled as weakly competitive. The most numerous cluster includes 31 regions with average electoral indicators. The election results in these regions are mostly determined by choice of the electorate.Twenty most competitive regions form the last group with the lowest rate of administrative resource implementation. Even though the author uses data from the 2011 federal election, the division of regions into groups still could be used for more time periods. One of the reasons is the decreasing competitiveness of Russian elections and increasing administrative pressure in regions during last decades.

According to most scholars (Golosov 2013; Goodnow, Moser, and Smith 2014; Bader and van Ham 2015), there is gradual spread of electoral manipulations across regions since 1990s. As it was mentioned, the idea of this study is to check whether there is an economic voting in regions with average characteristics. Hence it is reasonable to use a sample restricted to regions with average characteristics, not outliers. Following Korgunyuk's clustering, regions from the first two clusters that are characterized with the most fraudulent elections and high administrative pressure will be excluded from the analysis. Since the study's timeframe is from 2003 to 2015 there is still risk to exclude from the analysis regions which were competitive in early 2000s. However, after close consideration it can be noticed that regions that compose these two groups are quite stable in terms of the competitiveness levels. The North Caucasian republics have been experiencing both extremely high levels of turnout and support of the ruling party since the 1990s. As for regions such Mordovia, Mari El, Tatarstan and Tyumen region, the first three are ethnic republics and have outlying electoral results since 2003, the last region is rich in natural resources and will be also excluded from the sample. The detailed explanation of exclusion of ethnic republics and regions rich in natural resources is provided in the next section. Therefore, according to the criterion of competitiveness of elections, 70 regions can be selected. However, there are other important criteria of selection as well.

Goodnow, Moser, and Smith (2014) indicate that non-Russian republics, the Caucasus, Muslim regions, resource-rich areas are ones which experience the highest level of electoral manipulation and administrative pressure on voters. In addition to Korgunyuk's findings, the authors argue that regions rich in natural resources seem to be prone to administrative pressure as well. Following their findings, the study will exclude regions on the basis mentioned above. In overall, ethnic republics, resource-rich regions, three cities of federal significance (Moscow, St. Petersburg, and Sevastopol) and the republic of Crimea are subjects for exclusion from the analysis. The threshold for exclusion on ethnicity base is 50% of ethnic non-Russian population share in a region. The same logic is applied to religious composition of a region. The North Caucasian republics are Dagestan, Ingushetia, Chechnya, Kabardino-Balkaria, KarachayCherkessia and North Ossetia. Other ethnic republics with high share of non-Russian population and low rate of electoral competitiveness include Tatarstan, Mordovia, Mari-El, Tuva, Bashkortostan. Resource-rich regions are Tyumen and Kemerovo regions. Another group is composed by Autonomous Districts (okrugs) and Autonomous Regions. According to Alexeev and Chernyavskiy (2014), "autonomous okrug have less administrative and political independence than other Russia's regions". It is important to take it into account since the local government has less accountability and more dependent on the federal center. Thus, Chukotka okrug, Yamal-Nenets okrug, Nenets okrug Khanty-Mansi okrug – Yugra, Jewish Autonomous Region are also excluded. Moscow, Moscow oblast, St.Petersburg, and Sahalin krai are excluded from the sample since the level of socio-economic development is extremely different there from the average one per country. Republic of Crimea and Sevastopol became a part of Russian Federation in 2014 and are not subject of longitudinal analysis as well.

In overall, the study is designed as a large-N statistical analysis of Russian regions against various measures of economic voting during the period between 2003-2015. There were regional legislative elections in 2016 as well. However, data on economic and political indicators are not publicly available. Hence, data will be collected for 60 regions of Russia for the period of 2003-2015 when regional legislative elections were held. The data is not balanced in a sense that elections were held in different years for different regions. On average, there were from two to three elections in a region. Table 6 (see Appendix) contains the full list of regions and election-years selected for the analysis.

2.3. Data collection and description of variables

In the following sector data collected for the study and the list of variables used for the hypotheses testing are described.

The data on regional legislative election results was taken from datasets provided by the Central Election Commission of Russia. The Central Election Commission of Russia is an official source of electoral information. However, the question about data reliability and validity may be raised since data are collected by the state body, not by independent organizations. The non-governmental organization GOLOS that reports independent electoral results and cases of electoral violations does not provide data on regional legislative elections. Therefore, this study recognizes possible limitations of using officially reported data. The data on turnout rates across each region is taken from non-governmental organization Independent Institution of Election.

The data on economic variables is aggregated from the information about regional economic development provided by the project "Russian Regions. Socio-economic indicators" initiated by the Russian State Statistics Service. The data on regional population is taken from the same source.

The data on the level of democracy in a region is taken from the dataset that includes information on the democratic indicators in Russian regions developed by the Moscow Carnegie Center (Petrov and Titkov 2013).

2.3.1. Dependent variable

The dependent variable is operationalized as United Russia vote share in per cent at regional legislative elections. Figure 1 shows the overall distribution of vote share across regions selected. It can be noticed that there is no much deviation from a normal distribution. Moreover, there is no observations with extremely low and high electoral outcomes. As it can be seen from the graph, there is no fat tail on the right side of the distribution. This is reassuring regarding the relatively low significance of outright fraud in these regions. Therefore, the lack of potential outliers allows not to lose the information about the region in a particular year.



Figure 1. The overall distribution of the United Russia vote share in 2003-2015 across the regions included in the analysis

2.3.2. Explanatory variables (economic indicators)

Despite the fact that different scholars (Kramer 1971; Mishler and Willerton 2003; Konitzer-Smirnov 2003a; Richter 2006) use different economic indicators to test their hypotheses, there is a list of economic indicators commonly used in studies. Aggregate-level studies use growth in gross domestic product (GDP), inflation or unemployment rates as explanatory variables. Among economic factors at individual level are such as per capita personal income, real income, average wages, pensions. It is worth noticing that it is the level of analysis that drives the inclusion or exclusion of each economic indicator to the study. Macroeconomic indicators are used to test sociotropic voting, while microeconomic indicators are used as explanatory variables of pocketbook voting. The choice of explanatory variables partly follows the logic of Tucker (2006). As main independent variables four economic indicators were chosen: the level of unemployment in a region, GRP growth per capita in current prices, and an average monthly income per region, and income change. Inflation is excluded from the analysis since firstly, it is highly dependent on central bank policy, and secondly, there is no available regional-level data. To avoid multicollinearity, several different models with different predictors will be run.

The detailed description of main independent variables is provided in a following section:

- Unemployment rate the values are taken from the Russian Federal State Statistics Center, the project "Regions of Russia. Socio-economic indicators". Statistics about economic, political, demographic, ecological indicators are collected and published annually for each region. Hence, the data on the percentage of unemployment in a region is available from 2002 to 2015. Unemployment as an economic indicator is used in studies by Kramer (1971), Tucker (2001, 2006), Reuter (2013). It is expected that the higher unemployment rates are associated with perceived decrease in economy and correspondently with lower support of UR.
- GRP growth per capita the variable is constructed manually by the author. Rosstat contains only the data on a numeric value of GRP per capita in current prices for each year in a region. However, it is hypothesized that the growth could be a better indicator of regional economic development. It is assumed that the economy performs better if there is a positive growth in GRP per capita. To get this value, data on the year before the election and the year of election was collected from the project "Regions of Russia". The following formula was used for the calculation:

$$\frac{_{GRP \ per \ capita_t}}{_{GRP \ per \ capita_{t-1}}} - 1$$

Where t - is the year of election; t-1 - the year before election.

In accordance with the reward-punishment hypothesis, it is expected that positive GRP growth is associated with higher level of UR support.

- Average monthly income income is measured as the average per capita income of the population (per month, in rubles) in the year before election. It is assumed that the level of income can be a proxy of the quality of life in a region. Therefore, it is expected that higher income will be associated with higher vote share of United Russia.
- Income change the change in income is measured as the percentage difference between the average per capita income of the population (per month, in rubles) in the year before election and the year of election. The original data was collected from Rosstat, "Regions of Russia".

The important note is that both measures of income change and GRP growth per capita are counted as a difference between the year before the election and the year of election, not since the previous election. While it may be argued that citizens tend to evaluate local governance performance considering the whole electoral cycle, many studies show that it is not necessarily a case (Healy and Lenz 2014). Citizens tend to evaluate the government performance paying attention to the last year of an electoral cycle (Lewis-Beck and Stegmaier 2013). Moreover, as Tucker (2006: 86) states, this way of measuring economic conditions shows more the state of economy directly before election. It is assumed that if the economy is performing better, voters have incentives to reward the incumbent.

2.3.3. Control variables

As it was mentioned the goal of this study is to test the hypothesis about presence of economic voting at regional legislative elections in Russia. The study does not follow the idea of testing the relative importance of different indicators in determining a vote choice. Therefore, the explanatory variables include only economic indicators.

However, the vote choice may be determined by many different factors and it is not reasonable to assume that only economic variables will explain most of vote share's variation. Moreover, economic voting may be suppressed by features of country's political context or international economy (Belluci 1985; Miller and Listhaug 1985). To avoid a wrong model specification, especially, an omitted variables bias, the range of political control variables is included.

The first control variable is turnout rate at each regional legislative election. Even though the regions with high levels of electoral and administrative manipulation are excluded from the scope of the study, the influence of electoral fraud may be still present. Following Myagkov et al. (2009), the high level of voter turnout is used as a proxy for electoral manipulation in a region. The data on turnout rate is provided by the Central Election Commission and covers 2003-2016.

The share of urban population is also controlled since rural population is seemed as more vulnerable for manipulation. The data is collected from Rosstat, the project "Regions of Russia" and covers the whole-time period of the study.

The next control variable is GRP per capita – the value is measured in current prices and used as a proxy of an economic situation in a region in overall. That control is important to get a more accurate picture of the relationship between the theoretically relevant variables of the model. It is assumed that poorer regions have on the one hand stronger patronage systems and thus higher UR vote but also have a weaker economic performance which undermines UR support, and thus there is a need to control for GRP per capita alongside turnout, level of democracy, urban population as a proxy for relative absence of patronage ties to get a better estimate of the impact of GRP change on UR support.

Freedom of press is also considered as a potentially influential factor that should be controlled for. It is expected that regions with lower levels of press freedom tend to support UR more than regions where the media is more independent. As the most recent report on Electoral Integrity (Norris and Gromping 2017) shows, regions with strong political machines and available administrative resources tend to use them to provide high levels of UR support. The absence of fair media coverage of opposition parties' electoral campaigns is one of the challenge created by the local elites against the opposition. There is an obvious tendency of media becoming more pro-UR over time. The unbalanced media coverage of electoral campaigning makes much more difficult for oppositional parties to deliver their message to voters. One way to take it into account in the model specification is to control for freedom of press in the region. The project "Karta glasnosti" (The map of publicity) collects data on the level of freedom of media in Russian regions since 2000. However, the problem is that data collection process is not systematic in terms of time and methodological consistency. It is important for data to be collected under the same methodological procedure to make comparison across years possible. Nevertheless, the data for comparison over time are available only for three years: 2006, 2008, and 2010. Since there has been a continuous decrease in media freedom levels last five years, it is impossible to use the data the last available year as a proxy for next ones.

However, the Democracy Index in Russian regions developed by the Moscow Carnegie Center (Petrov and Titkov 2013) can be used instead of the indicator of freedom of press. It is a composite index of ten indicators. The methodology includes evaluation of experts on fivepoint scale for each position.

The overall value of the index is calculated as a sum of indicators. There is a base value for each region that covers 1991-2001. Stemming from this base value experts correct regional scores annually. Ten categories include:

- Regional political system (real balance of powers, whether politicians are elected or appointed, independence of the court and law enforcement agencies, human rights constraints and violations);
- Openness/closeness of political life (transparency and involvement in national political life);
- Democratic character of elections: national, regional, local (presence of fair and free election at all levels, competitiveness, the role of "administrative" factor, violations in active and passive electoral right, violations at election);
- Political pluralism (presence of stable parties and fractions in legislative bodies, preand electoral coalitions, political competition and polycentrism);
- Media independence (presence of media, uncontrolled by the administration, their audience, the role in political life, pressure from political powers);
- Corruption (coalescence of political and business elites, corruption scandals, effectiveness of fight against corruption);
- Economic liberalization including privatization (regional legislation and law enforcement practice, scandals caused by property issues);
- Civil society (NGOs, referendums, different kinds of non-sanctioned political activity such as demonstrations, protests, strikes);
- Elites: quality, reproduction / rotation (change of leaders, divergence of elites and effectiveness of mechanisms of interests' alignment);
- The local government (elected local governments, their activity and influence).

The previous chapter also discussed the presence of a political machine in a region as a disturbing factor of voter's decision-making process. There is a plethora of research on the concept of political machines (Stokes 2000; Guterbock 1980; Finegold 1995; Scott 1969; Hale 2003)

One of the most common is the definition provided by Stokes (2000). Stokes (2000, 315) defines political machines as ones that "mobilize electoral support by trading particularistic benefits to voters in exchange for their votes".

First and foremost, it is important to distinguish between voter's materialistic considerations based on ideology and materialistic considerations based on clientelistic grounds. The latter means the situation when a voter casts the vote in support of a particular party keeping in mind an idea that he or she will receive a personal reward in return to a vote. Thus, political machines can be considered as a part of clientelistic politics. What differs a political machine from a simple clientelistic exchange is the necessity of iteration (Golosov 2013, 464).

Golosov (2013) discussing the concept of political machines with regard to Soviet and post-Soviet political regime stresses that regional political machines entered political and electoral space in 1999 as a part of the national legislative campaign. Hale's (2003) results of statistical analysis demonstrate that among original hubs of clientelistic electoral exchange are rural hub and ethnic hub (ethnic republics and autonomous districts).

One possible measure related to political machine's strength in a region could be an index of gubernatorial power developed by Golosov and Konstantinova (2016). They analyze the regional constitutions and develop two components of legislative and non-legislative power of the governor. The first component includes the presence of the veto power in the regional legislative process, exclusive right to introduce legislation in certain areas, decree authority and power in the budgetary decision-making. The second component captures the issues of formation of the regional government and of dismissal of regional legislature. However, the index is calculated just for 2014 that makes impossible to use it for the analysis.

As it can be seen, unfortunately, there is no commonly referred measurement of political machines and any available data if the machine is present in a region and to what extent is

spread its influence on voters. However, discussed above index of democracy in Russian regions introduced by Petrov and Titkov (2013) has components "regional political regime" and 'elites" that could be used as a proxy of political machine's presence. Therefore, the value of Democracy Index serves as a control variable of media independence and political machine's presence. It could be also considered as a proxy of electoral fraud presence but as it commonly recognized, turnout rate serves as a better one.

The Internet penetration is also considered as a control variable. Traditional sources of information such as TV and newspapers can hardly be classified as independent media in Russian regions, especially in remote arears. However, the Internet in Russia is less censored and more available as a source of independent information. Regions with higher rates of Internet penetration are expected to have access to more independent and less biased information about political situation. Thus, it is expected that higher rates of Internet penetration will be associated with lower support of the ruling party. The data about Internet penetration is taken from the Public Opinion Foundation (FOM). The weekly survey measures the percentage of internet users in Russian Federal Districts starting from 2003. The obvious limitation of these data is that it does not provide information per region. However, assuming that a Federal District's level to a regional one. Moreover, since the between-group variation of internet penetration among Federal Districts is not high, same could be assumed for the within-group variation. Thus, the internet penetration variable has same values for regions from the same Federal District.

Chapter 3. Data Analysis

The goal of this chapter is to test the hypotheses mentioned above with the empirical data from the 145 regional legislative elections held in 60 Russian regions in 2003-2015. The chapter is divided into two parts. The first half of the chapter discusses the statistical model specification and its relevance to answering the research question of the study. The second part of the chapter is devoted to the very data processing and discussion of the results obtained.

3.1. Specification of a model

Data on regional parliamentary election is distributed among regions with frequency from two to five years and, thus, it is clustered by regions. Therefore, these data can be treated as unbalanced panel. One of the possible ways of analyzing panel data is ordinary multiple regression.

To test the hypotheses proposed in the study, General Linear Model was chosen as a method. To be more specific, Ordinary Least Squares (OLS) model was implemented. The check of appropriateness of a method used for the data analysis will be discussed in the following sectors.

Since there are data on each cross-section unit (a region) over T time periods, Linear Panel Data Model's equation looks correspondently as follows:

$$\mathbf{y}_{it} = \mathbf{X}'_{it}\boldsymbol{\beta} + \mathbf{z}'_{i}\boldsymbol{\alpha} + \boldsymbol{\varepsilon}_{it},$$

where there are K predictors in \mathbf{X}_{it} without a constant term; $\beta_1 \dots \beta_k$ are coefficients; *i* is a number of a region; *t* is a year. The heterogeneity, or unit effect is $\mathbf{z}'_i \boldsymbol{\alpha}$, where \mathbf{z}_i includes a constant term and a set of group-specific variables, which may be either observed or unobserved. If \mathbf{z}_i is observed than the model can be specified as an ordinary linear model fitted by least squares.

Therefore, theoretical specification of a model is as follows:

$$UR_vote_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + u_{it} + \varepsilon_{it},$$

Where i = 1, 2, 3, ..., N, $x_1 ..., x_k$ are predictors; β_0 is a common constant; $\beta_1 ..., \beta_k$ are coefficients of predictors; *i* is a number of a region; *t* is a year; u_{it} is unobserved and observed fixed effects; ε_{it} is a stochastic term, and *k* is a number of predictors.

However, since data is collected for 60 regions over time, observations can be treated as clustered inside each region. A common concern of clustered data is associated with the violation of independently and identically distributed (iid) residuals assumption within a cluster. If iid assumption is not upheld, dependency of observations within a cluster may lead to smaller standard errors and, correspondently, to false rejection of the null hypothesis about coefficient's insignificance (Moulton, 1986). Therefore, the assumption about iid was tested for the model suggested. The results of a test for autocorrelation and heterogeneity are upheld as it will be demonstrated later.

General regression model

The empirical model used in this study is presented in equation (1):

$$UR_vote_{it} = const + \beta_1 unemployment_{it} + \beta_2 income \ change_{it}/GRP \ growth_{it} + \beta_3 democracy_{it} + \beta_4 turnout_{it} + \beta_5 internet_{it} + \beta_6 population_{it} + \beta_7 urban_{it} + \beta_8 transfers_{it} + \beta_8 GRP \ per \ capita_{it}^1$$
(1)

There are three types of predictors in the model:

1. Indicators of regional economic situation:

The level of unemployment (in per cent) in a region the year before the regional parliamentary election (*unemployment*); average monthly income per region (in

¹ GRP per capita is used as a control variable only in a model with GRP growth as a predictor.

thousands of rubles) (*income*); share of unconditional transfers in GRP (*transfers*); GRP per capita (*GRP*).

2. Indicators of the state of democracy in a region:

The level of democratic development expressed as Democracy Index (*democracy*); turnout rate at elections (*turnout*); internet penetration in a region (per cent) (*internet*);

3. Indicators of demographic structure in a region:

Population of a region in thousands of people (*population*); share of urban population in a region (in per cent) (*urban*).

Indicators from a second and a third groups, and a share of unconditional transfers in GRP as well GRP per capita are control variables.

3.2. Results of regression analysis

As it was already mentioned above, there are five economic indicators. However, since GRP per capita and average monthly income are highly correlated, separate models were built for GRP growth and income change.

Table 2 demonstrates the results of the general regression model with main explanatory variables such as unemployment rate and average monthly income. There are four step-by-step models. The first model includes only economic variables as predictors of UR vote share variance. As it can be seen, unemployment rate is statistically significant at the 0.1 level of significance and it has a negative effect on the vote share of United Russia. Average monthly income is significant at the 0.01 level of significance and affects the UR vote share positively. However, in overall the baseline model explains only 17.2% of variation of the UR vote share. This indicates a low predictive power of the model. The second model includes control variables to take into account differences in democratic development among regions. Both Democracy Index as a proxy of the state of democracy in a region, and turnout rate are statistically significant. Internet penetration is not a significant control variable. This model

explains 30.6% of UR vote share variance. Since it was assumed that the share of unconditional transfers to the regional budget can influence the performance of the ruling party and the level of its support, the third model includes a share of transfers as an additional control variable. The inclusion of this indicator increases the predictive power of the model by six per cent. However, according to the theoretical assumptions, the size of region expressed as population, and share of urban population in it may have an impact of the regional electoral outcomes.

Therefore, the fourth model includes all three groups of indicators. As it can be noticed, the full model has the highest explanatory power and explains 38.3% of variance of UR vote share. Economic indicators are significant at the 0.05 level of significance and have signs in accordance with theory. The higher unemployment rate in a region in a year before the election, the lower support for the ruling party. To be more specific, with one per cent increase in unemployment rate, the vote share of United Russia decreases by 1.023 per cent on average, holding other indicators as constants. Income has an opposite effect. *Ceteris paribus* with increase of income by one thousand of rubles, the UR support grows by 0.65 per cent on average. Although political indicators as well as demographic ones are not in the main focus of the study, it is important to note that almost indicators are significant.

As the post-estimation analysis shows, the results obtained are stable. No dramatic changes in the coefficients and their significance were detected after model modification by including different control variables.

The model quality assessment is provided below. To get unbiased and consistent estimates from the linear model three main assumptions are to be held:

VARIABLESUR voteUR voteUR voteUR voteUnemployment -0.755^* -1.104^{***} -1.160^{***} -1.023 rate(0.407)(0.384)(0.369)(0.424Monthly income 0.000654^{***} 0.000830^{***} 0.000716^{***} 0.0006554^{***} (0.000149)(0.000268)(0.000259)(0.0002Democracy Index -0.475^{**} -0.409^{**} -0.549^{**} (0.192)(0.185)(0.208	
Unemployment rate -0.755^* (0.407) -1.104^{***} (0.384) -1.160^{***} (0.369) -1.023 (0.424)Monthly income 0.000654^{***} (0.000149) 0.000830^{***} (0.000268) 0.000716^{***} (0.000259) 0.000259 (0.0002 (0.0002 (0.0002 (0.192))Democracy Index -0.475^{**} (0.192) -0.409^{**} (0.185) -0.208 (0.208)	te
Unemployment -0.755^* -1.104^{***} -1.160^{***} -1.023 rate(0.407)(0.384)(0.369)(0.424)Monthly income 0.000654^{***} 0.000830^{***} 0.000716^{***} 0.000655 (0.000149)(0.000268)(0.000259)(0.0002Democracy Index -0.475^{**} -0.409^{**} -0.549^{**} (0.192)(0.185)(0.208)	
rate (0.407) (0.384) (0.369) (0.424) Monthly income 0.000654^{***} 0.000830^{***} 0.000716^{***} 0.0006554^{***} $0.000259)$ (0.000259) Democracy Index -0.475^{**} -0.409^{**} -0.549^{**} (0.192) (0.185) (0.208)	**
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Monthly income 0.000654*** 0.000830*** 0.000716*** 0.00065 (0.000149) (0.000268) (0.000259) (0.0002 Democracy Index -0.475** -0.409** -0.549* (0.192) (0.185) (0.208)	I)
(0.000149)(0.000268)(0.000259)(0.0002Democracy Index-0.475**-0.409**-0.549*(0.192)(0.185)(0.208)	9**
Democracy Index-0.475**-0.409**-0.549*(0.192)(0.185)(0.208)	76)
(0.192) (0.185) (0.208)	**
	3)
Turnout rate0.312***0.260***0.258*	**
(0.0922) (0.0895) (0.094)	1)
Internet -0.0335 -0.00344 0.031	2
(0.0940) (0.0905) (0.098	4)
Share of transfers 70.60*** 47.00*	<*
(19.46) (23.09	<i>)</i>)
Population 0.0020	8*
(0.0011)	1)
Urban population -0.041	3
(0.111))
Constant43.62***46.08***41.82***46.07*	**
(4.074) (9.674) (9.351) (13.12	2)
Observations 145 145 145 145	
R-squared 0.172 0.306 0.366 0.383	3

Table 2. General OLS regression models with income as an independent variable

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

- Covariates are exogenous;
- Uncorrelated errors;
- Homoscedastic errors;

In a case when covariates are not exogenous, the problem of misspecification of a model arises and, hence least squared estimates are biased. To test this assumption, first the correlation between errors and predictors was checked. There is no correlation between residuals and any of predictors. Moreover, Ramsey RESET test was used to check for the presence of omitted variables. At the significance level of 0.001, there is no reason to reject the null hypothesis that a model has no omitted variables. The overall result is that there are no endogenous variables in the model.

As a next step, the panel data was checked for potential panel-level heteroskedasticity and autocorrelation. The assumption of residuals being uncorrelated is upheld. To test the assumption, two methods were implemented. First, residuals were plotted against a time variable. In a case of non-correlated residuals, there should be no systematic relationship between them. Figure 2 demonstrates the distribution of residuals over time. As it can be noticed the distribution can be described as non-systematic. As an additional test for serial correlation, the relationship between residuals of the model in t and t-I was tested. It is assumed that there is no statistically significant linear relationship between them. To test the assumption, predicted residuals were regressed on lagged residuals with a lag of one year. As it can be seen from Table 3, at the significance level of 0.01 there is no reason to reject the null hypothesis about independence if residuals. Thus, the assumption of uncorrelated residuals is upheld.



Figure 2.Residuals plotted against time



Figure 3. Residuals plotted against fitted values

VARIABLES	Predicted residuals			
Lagged residuals	-0.0216			
	(0.0833)			
Constant	0.101			
	(0.812)			
Observations	144			
R-squared	0.000			
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Table 3. OLS regression of residuals on lagged residuals

The assumption of homoscedastic errors is also upheld. Figure 3 illustrates the distribution of residuals versus fitted values for the model. As it can be seen from the graph, variance of residuals is constant. Moreover, the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity was used as an additional check. At the significance level of 0.01, there is no reason to reject the null hypothesis that there is homoscedasticity of residuals.

The analysis above has shown that a linear model is appropriate to test the hypotheses of the study. Since no autocorrelation and heterogeneity appear, there is no need to use robust standard errors. The influence of different predictors on the vote share of United Russia is assumed to be the same across regions. This also assumes that the average level of vote share of United Russia in different regions can be considered as the same. Figure 4 illustrates the difference in the mean UR vote share across regions.

As it stems from the graph, despite the presence of several regions with a mean higher than average (Krasnodar Territory, Penza Region, Rostov region, Saratov Region), in overall there is no high heterogeneity among regions. Substantially, it means that there should not be unobserved time-invariant factors that affect the outcome. Moreover, as an additional check, the fixed-effects model was run. The null hypothesis of the F-test following a fixed-effects model is that in the model the observed and unobserved fixed effects u_i are equal to zero. At the significance level of 0.01 there is no reason to reject the null hypothesis (see Table 7 in Appendix). Therefore, there is no need to use fixed-effects model for the data used in this study.



Figure 4. Heterogeneity across regions

From a theoretical perspective of this study, there is no reason to assume that the dependent variable and explanatory variables appear to be correlated because of the influence of the passage of time. Therefore, there is no need to control for exogenous increases in the independent and dependent variables. Stemming from this assumption, time effects were not included in the model. As for the overall quality of the model, no problems were detected. The details of the quality check can be found in Appendix.

The next model includes GRP growth and unemployment as main explanatory variables. Table 4 demonstrates the results of step-by-step regression analysis with GRP growth as an economic indicator instead of average monthly income. As it can be seen, unemployment rate is statistically significant in all the models. However, GRP growth loses its significance after controlling for other political and socio-economic factors' potential influence. This might serve as the evidence that GRP growth itself cannot influence the vote choice of citizens in election to regional legislative bodies. The possible reasons of its non-significance will be discussed in the next section.

Nevertheless, the strength of unemployment impact is almost the same as in the first full model. *Ceteris paribus* with increase of unemployment rate by one per cent, the UR support decreases by 0.93 per cent on average. As for control variables, the sign of all coefficients of significant variables except internet penetration coincides with the logic of the study. It is interesting that the sign of internet penetration variable is the opposite to the expected. As it can be seen from the table, with increase of internet penetration by one per cent, the vote share of UR increases by 1.5 per cent on average holding other factors constant. One possible explanation of this is that the very fact of more availability to the Internet does not change the channels through which voters receive information but indicates higher level of regional development. According to Levada Center survey results, TV was the most in-demand source of news in 2014 among Russian population. Up to 55 per cent of the respondents used TV as

the single source of getting information. Moreover, only five per cent of the respondents do not use TV as an information source but the Internet. Taken into account that most TV channels are state-owned and do not provide objective news coverage, it is possible that the internet penetration itself do not lead to the decrease in UR vote share. As Volkov and Goncharov (2014) mention, the widely-spread hypothesis that TV audience in Russia supports the government while the Internet users support the opposition is not true. Even citizens who use actively the Internet as news source do not change their political attitudes. There is no much difference in terms of social-political attitudes between people who trust the Internet as an information source and do not trust TV and people who other way around, trust TV and do not trust the Internet as an information source. Thus, the Internet penetration may serve more as an indicator of the life quality in a region, since the Internet is usually accessed by wealthier citizens.

The post-estimate analysis did not reveal any problems with the quality of the model. The details of the quality assessment can be found in Appendix.

The final version of model specification includes unemployment rate and income change as predictors of the UR vote share. Table 5 reports the estimation results for models.

As it can be seen from Table 5, unemployment rate in a region has a statistically significant coefficient at the 0.05 significance level only in the three first models. While adding control variables of population size and urban population share in a region, unemployment rate loses its statistical significance.

However, in a full model, growth in average income has a significant positive effect on UR vote share. On average, growth in average monthly income by 10% leads to the increase in UR vote share by 3.5 percentage points, controlling for possible influence of other factors. This finding goes in line with what was found by Konitzer-Smirnov in the analysis of gubernatorial elections in 2000-2001. The author argued that there was a significant impact of real wage as a proxy for individual income on electoral outcomes. While the average monthly income is not an individual-level variable and therefore does not allow to test pocketbook voting hypothesis, it still indicates the presence of sociotropic voting in a region.

	(1)	(2)	(3)	(4)
VARIABLES	UR_vote	UR_vote	UR_vote	UR_vote
Unemployment	-1.189***	-1.187***	-1.181***	-0.927**
rate				
	(0.413)	(0.396)	(0.378)	(0.426)
GRP_growth	-22.54*	-16.62	-6.460	-12.39
	(12.02)	(12.46)	(12.14)	(12.32)
Democracy		-0.261	-0.325*	-0.521**
Index				
		(0.188)	(0.189)	(0.212)
Turnout rate		0.392***	0.288***	0.314***
		(0.0958)	(0.0952)	(0.0983)
Internet		0.184***	0.118	0.154**
		(0.0553)	(0.0718)	(0.0742)
Share of			78.65***	47.90*
transfers				
			(20.17)	(24.57)
GRP per capita			2.19e-05	1.59e-05
			(1.40e-05)	(1.44e-05)
Population				0.00255**
				(0.00115)
Urban population				0.00936
				(0.109)
Constant	58.67***	41.01***	39.15***	40.54***
	(3.798)	(9.787)	(9.546)	(12.94)
Observations	145	145	145	145
R-squared	0.081	0.267	0.345	0.369

Table 4. General OLS regression model with unemployment rate and GRP growth as IV

Standard errors in parentheses *** p<0.01, ** p<0.05,

	(1)	(2)	(3)	(4)
VARIABLES	UR_vote	UR_vote	UR_vote	UR_vote
Unemployment rate	-1.181***	-1.032**	-1.074***	-0.520
	(0.413)	(0.402)	(0.382)	(0.445)
Income change	-21.22*	21.46	24.09*	34.92**
	(10.90)	(15.06)	(14.33)	(14.88)
Democracy Index		-0.260	-0.213	-0.527**
		(0.188)	(0.179)	(0.208)
Turnout rate		0.380***	0.316***	0.358***
		(0.0940)	(0.0907)	(0.0934)
Internet		0.298***	0.304***	0.378***
		(0.0766)	(0.0727)	(0.0768)
Share of transfers			78.64***	50.90**
			(19.67)	(23.06)
Population				0.00280**
				(0.00110)
Urban population				0.119
				(0.110)
Constant	58.66***	29.15**	24.35**	12.71
	(3.759)	(11.73)	(11.21)	(15.12)
Observations	145	145	145	145
R-squared	0.083	0.269	0.344	0.382

Table 5. Regression models with income change as a predictor

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Interestingly, that under such specification of a model, unemployment rate does not have significant impact on electoral results of the incumbent party. To be more specific, control for population size in a region and urban share of population undermines significance of unemployment rate. Population size being a statistically significant variable with a positive sign may indicate that regions with larger population size experience lower unemployment rates than regions with less number of inhabitants. Under such conditions, the value of average income growth may become more salient in comparison with unemployment.

For control variables, all factors except of share of urban population are significant. Moreover, it can be noted that the impact of turnout rate, democracy index, internet penetration, and share of unconditional transfers in GRP is more remarkable than the impact of income change. For example, ten per cent increase in share of unconditional transfers in GRP leads to five per cent increase in UR vote share, what is bigger than the influence of income change. All indicators explain 38.2 % of variance in percentage of votes for United Russia. In comparison with two previous models, this model specification has almost the same predictive power as the model with an average monthly income as a main explanatory variable. As in the previous cases, the quality of the model was checked and the results can be found in Appendix.

3.2. Discussion of results

There are three possible explanations, why GRP growth does not influence the vote share of UR in the regional legislative elections. The first explanation is related to the length of the period considered by voters as long enough to notice economic changes, especially at the regional level. In the model used in the research, short-term influence was considered. It was assumed that voters pay attention mostly to the last year of the electoral cycle and therefore, there is no point to include long-term growth as a predictor. However, it might be a case that this assumption is not upheld. The annual growth in GRP might be too small to be noticed by citizens.

The second explanation refers to the way how voters perceive the economic information. Voters may be not so sophisticated in terms of economic knowledge. There is no guarantee that voters associate GRP per capita with the performance of the incumbent party. Despite the fact that a regional legislative body is responsible for economic development within the region, other economic indicators might outperform it in terms of salience for vote choice.

The final explanation of GRP per capita and GRP growth insignificance might be related to incentives for reward and punishment of the incumbent. It may be a case that even though there is economic growth in a region, voters will not give credit to the ruling party in terms of higher support. However, as the economic situation gets worse, they will punish the incumbent. The most popular indicator of economic decline is the level of unemployment in a region. The positive implications of GRP growth may not overweight the negative implication of job loss. The most important finding is that unemployment turns out to have higher influence for voters. Although there was a significant impact of unemployment rate on the UR vote share in almost all models, the relative power of its influence is not high. Therefore, the conclusion about the presence of economic voting should be stated carefully. It should be noticed that political indicators such as the state of democracy in a region (the value of Democracy Index) and turnout rate in most cases have stronger influence. However, the fact that such economic variables as unemployment rate and average income have significant impact on UR support, illustrates the importance of findings. Even after controlling for possible influential factors, there is significant relationship between economic conditions and electoral outcomes.

As for average monthly income as an explanatory variable, it can be mentioned that it serves as a better proxy of the overall life quality despite the high level of correlation with GRP per capita. One of possible explanations is the following. It is easier for voters to evaluate economic situation in a region in terms of real income, the money that are easier noticeable. Moreover, it can be stated that according to the results of the analysis, the current state of economy is important for voters. In regions where the level of life is higher (unemployment is relatively low and average monthly income is relatively high), support of the ruling party is stronger.

However, it is important to keep in mind that predictive power of regression models with different sets of predictors does not exceed 38%. It means that the variables included in models explain less than a half of variance in vote share of United Russia. As it was already mentioned in the previous sections, this study faces a list of limitations. Aggregate-level analysis does not allow take into account voters' preferences over policies or parties, and their ideological preferences. It may be a case that some share of UR votes is explained by ideological preferences, not rational economic evaluations. Strong supporters of United Russia may cast their vote in its favor independently on the level of economic performance in a region. One more possible explanation of the UR support across most regions could be assigned to the lack of a credible alternative from the opposition. Even though the level of democracy in a region was controlled for, for last years of Russian political regime it could be a case (Sanders 1999).

In overall, the analysis demonstrates mixed but encouraging results. On the sample of regions with average economic, democratic, and demographic indicators, there is no clear evidence of economic voting in the regional legislative elections. Although unemployment rate and change in average monthly income have significant impact on the vote share of UR holding other factors controlled, GRP growth has no significant impact.

Conclusion

In this thesis the problem of economic voting in regional legislative elections in 2003-2015 was addressed. Excluding ethnic republics, resource rich regions, and regions that have less political autonomy and therefore, are highly dependent on the federal center, this study analyzed the economic vote in 60 Russian regions.

The regression analysis demonstrated that three out four hypotheses of the study were not rejected. The first hypothesis (H1) about the presence of sociotropic voting at the regional level of election can be considered as partly confirmed. The macroeconomic indicator such as unemployment rate is a significant predictor of the percentage of votes for United Russia that confirms a second hypothesis proposed (H2). However, GRP growth does have any significant impact on the United Russia support in elections to regional legislative bodies and therefore, the third hypothesis did not find any support. As for the last hypothesis (H4) about the positive influence of income change on UR vote share, the results of regression model demonstrated statistical significance of income change on vote choice.

In overall, there is noticeable consistency among the models with regard to the influence of unemployment rate on the vote share of UR. In all models except the one with income change as a second economic predictor, unemployment rate has negative significant impact on UR support. Moreover, the strength of its influence is stable, ranging from -0.75 to -1.13. On average, it can be stated that every percentage point increase in unemployment rate leads to one percentage decrease in UR vote share. This is an important finding for several reasons.

First, the results of the analysis suggest that regional living standards measured as unemployment rate and average monthly income had a statistically significant impact on determining the regional vote share of United Russia in 2003-2015. What is important, is the fact that these results are obtained after controlling for possible influence of non-economic factors on electoral outcomes. Even though political variables such as the state of democracy in a region (Democracy Index) and turnout rate are more influential in terms of explaining variance of UR vote share across regions over time, the very fact of statistical significance of some economic indicators is a notable result. Taken into account numerous studies devoted to the spread and influence of regional political machines (Golosov 2013), it is a surprising result that is worth discussion.

Secondly, the results obtained may be attributed to the constrained sample of regions included into the analysis. Since the regions-outliers in terms of authoritarian practices were excluded from the scope of a study, it was easier to control for electoral manipulations that could undermine the very sense of voting. It can be said that among sixty regions investigated in the study there is economic voting.

Thirdly, significant relationship between electoral outcomes of UR and regional level of unemployment on the one hand, and between UR vote share and average monthly income and income change on the other hand, demonstrate the encouraging implication from the accountability perspective. Despite the lack of very strong impact of economic indicators on electoral outcomes, the study shows that legislative elections may induce regional deputies to maintain better economic performance in a region at least in short run.

Finally, it is interesting that the results obtained in the study do not contradict results of recent studies on economic voting in Russia. For instance, discussed in previous sections study of Reuter (2013) came to same conclusions using 2011 federal election's data. Reuter demonstrated that high levels of unemployment the year before election undermine UR electoral performance, while GRP growth does not have any significant impact. The same results were obtained in this study but using longer time period and regional-level elections. Moreover, Panov and Ross (2013) also did not find any evidence that GRP per capita has impact on electoral outcomes.

Another reason, why unemployment rate is consistently significant among different models is voter's knowledge. Nannestad and Paldam (1994) find that people are more familiar with unemployment rate than inflation. One possible explanation can be attributed to the fact that unemployment has more crucial effect on quality of life of voters than inflation has. Loss of job means the loss of income source and therefore, more important.

The results obtained in this thesis are also consistent with the international research on Western democracies. Unemployment has been determined one of key macroeconomic variables (Lewis-Beck and Stegmaier 2010). Early studies on presidential and congressional elections in the U.S found unemployment as having effect on electoral outcomes (Kramer 1971; Fair 1978). Cross-national research on industrialized democracies and Central and Eastern Europe also found unemployment being a significant variable (Powell and Whitten 1993; Fidrmuc 2000).

More recent research also demonstrates importance of unemployment in determining of vote choice. Roberts (2008) examining 34 electoral results of ten Central and Eastern European countries, found that incumbents are held accountable for unemployment. Using series of OLS regressions and vote share as a dependent variable, he defines this phenomenon as hyperaccountability. According to Roberts, accountability in these countries is represented not simply by losses and gains of votes, but by even small losses. What is more important, the predictive power of unemployment rate is similar to one obtained in the current study. With increase in unemployment rate by one percentage point, government is expected to lose approximately one percentage of votes.

However, significant effects of unemployment and income change on regional legislative electoral outcomes go against the argument of Duch and Stevenson (2008). They state that economic voting is usually undermined when the main government party cannot

realistically be voted out of office. While it may be a case of Russia (United Russia has the majority of seats in most regional parliaments), there is still variation in the strength of its support. Since the dependent variable is the absolute vote percentage won by the government party in the current election it was possible to trace to what extent economic indicators are important determinants of the UR percentage of votes.

The research is also a subject to some limitations. Firstly, the lack of available data for individual-level analysis constraints the scope of the research. While the individual-level analysis could provide for more accurate information, there is no survey data for each region included into the current study. Nevertheless, it is assumed that inhabitants of the same region perceive the economic situation in a shared way. Moreover, it is recognized that there is a range of non-economic factors that could affect the electoral outcomes. However, the scope of this study is limited to economic aspects of voting behavior. The final obstacle is one that the economic vote is a "measurement artifact" (Duch 2007). Duch (2007: 806) mentions that there is a risk of economic voting being caused by endogeneity of economic evaluations.

As for further research, there are two possible directions to develop this study. The first one is related to the scope of research. This study made inferences on the sample of 60 Russian regions with average-level economic, political and socio-demographic indicators. As it was mentioned above, the significant impact of unemployment and income change can be caused by the constrained sample. It may be supposed that regions included in the analysis are qualitatively different in terms of electoral competitiveness and democratic development from regions out of sample. It might a case that the regions dropped from the analysis created the impression of no economic voting in Putin's Russia. To check this statement, it would be relevant to use the same data and models and replicate the analysis with all the regions included. If there are negative findings about economic voting in recent Russian elections then it could be concluded that they are regions-outliers which undermine the economic vote. The second direction to develop the study is related to methodology. As a next step, it would be interesting to select several regions and conduct a case-study in order to reveal the causal mechanism of regional voting patterns, especially UR support.

References

- Ahremenko, A. S. "Social'nye razmezhevanija i struktury jelektoral'nogo prostranstva Rossii." *Obshhestvennye nauki i sovremennost* 4 (2007): 80-92.
- Alesina, Alberto, John Londregan, and Howard Rosenthal. "A model of the political economy of the United States." *American Political Science Review* (1993): 12-33.
- Alexeev, Michael, and Andrey Chernyavskiy. *Natural Resources And Economic Growth In Russia's Regions*. No. WP BRP 55/EC/2014. National Research University Higher School of Economics, 2014.
- Alvarez, R. Michael, and Jonathan Nagler. "Economics, entitlements, and social issues: Voter choice in the 1996 presidential election." *American Journal of Political Science* (1998): 1349-1363.
- Bader, Max, and Carolien van Ham. "What explains regional variation in election fraud? Evidence from Russia: a research note." *Post-Soviet Affairs* 31, no. 6 (2015): 514-528.
- Barro, Robert J. "The control of politicians: an economic model." *Public choice* 14, no. 1 (1973): 19-42.
- Bellucci, Paolo. "Economic concerns in Italian electoral behavior: Toward a rational electorate?." *Political Behavior* 6, no. 4 (1984): 321-332.
- Berlemann, Michael, and Sören Enkelmann. "The economic determinants of US presidential approval: A survey." *European Journal of Political Economy* 36 (2014): 41-54.
- Bermeo, Nancy, and Larry Bartels, eds. *Mass politics in tough times: Opinions, votes and protest in the great recession*. Oxford University Press, 2013.
- Brewer, Paul R. "Public Opinion, Economic Issues, and the Vote: Are Presidential Elections' All about the Benjamins?'." *Understanding public opinion* (2002).
- Central Election Commission. Official web-site / Election, referendums, and other forms of direct expression of will. http://www.izbirkom.ru/region/izbirkom (Accessed: 16/05/2017)
- Chappell Jr, Henry W., and Linda Gonçalves Veiga. "Economics and elections in Western Europe: 1960–1997." *Electoral Studies* 19, no. 2 (2000): 183-197.
- Clarke, Harold D., and Marianne C. Stewart. "Economic evaluations, prime ministerial approval and governing party support: Rival models reconsidered." *British Journal of Political Science* 25, no. 02 (1995): 145-170.
- Clarke, Harold D., Marianne C. Stewart, and Paul Whiteley. "Tory trends: party identification and the dynamics of Conservative support since 1992." *British Journal of Political Science* 27, no. 02 (1997): 299-331.
- Colton, Timothy J. "Economics and voting in Russia." Post-Soviet Affairs 12, no. 4 (1996): 289-317.
- Dassonneville, Ruth, and Michael S. Lewis-Beck. "Macroeconomics, economic crisis and electoral outcomes: A national European pool." *Acta Politica* 49, no. 4 (2014): 372-394.
- Downs, Anthony. "An economic theory of political action in a democracy." *Journal of Political Economy* 65, no. 2 (1957): 135-150.
- Duch, Raymond M. "Comparative studies of the economy and the vote." In *The Oxford handbook of comparative politics*. 2007.
- Duch, Raymond M., and Harvey D. Palmer. "Economic Conditions in Cross-National Perspective." *Economic voting* 27 (2002): 139.

- Duch, Raymond M., and Randolph T. Stevenson. *The economic vote: How political and economic institutions condition election results*. Cambridge University Press, 2008.
- Duch, Raymond M., Harvey D. Palmer, and Christopher J. Anderson. "Heterogeneity in perceptions of national economic conditions." *American Journal of Political Science* (2000): 635-652.
- Fair, Ray C. "The effect of economic events on votes for president." *The Review of Economics and Statistics* (1978): 159-173.
- Federal State Statistics Service (Rosstat). Official web-site. http://www.gks.ru/ (Accessed: 16/05/2017)
- Ferejohn, John. "Incumbent performance and electoral control." Public choice 50, no. 1 (1986): 5-25.
- Fidrmuc, Jan. "Economics of voting in post-communist countries." *Electoral Studies* 19, no. 2 (2000): 199-217.
- Finegold, Kenneth. Experts and politicians: Reform challenges to machine politics in New York, Cleveland, and Chicago. Princeton University Press, 1995.
- Fiorina, Morris P. "Economic retrospective voting in American national elections: A microanalysis." *American Journal of Political Science* (1978): 426-443.
- Fiorina, Morris P. *Retrospective voting in American national elections*. New Haven: Yale University Press, 1981.
- Fiorina, Morris, Samuel Abrams, and Jeremy Pope. "The 2000 US presidential election: Can retrospective voting be saved?." *British Journal of Political Science* 33, no. 02 (2003): 163-187.
- Frey, Bruno S. "Politometrics of Government Behavior in a Democracy." Scandinavian Journal of Economics 81, no. 2 (1979): 308-22.
- Golosov, Grigorii V. "Machine politics: the concept and its implications for post-Soviet studies." *Demokratizatsiya* 21, no. 4 (2013a): 459.
- Golosov, Grigorii V. "Proportional representation and authoritarianism: evidence from Russia's regional election law reform." *Representation* 49, no. 1 (2013b): 83-95.
- Golosov, Grigorii V. "Russia's Regional Legislative Elections, 2003–2007: Authoritarianism Incorporated." *Europe-Asia Studies* 63, no. 3 (2011): 397-414.
- Golosov, Grigorii V. "The September 2013 regional elections in Russia: The worst of both worlds." *Regional & Federal Studies* 24, no. 2 (2014): 229-241.
- Goodnow, Regina, Robert G. Moser, and Tony Smith. "Ethnicity and electoral manipulation in Russia." *Electoral Studies* 36 (2014): 15-27.
- Gunther, Richard, Marina Costa Lobo, Paolo Belluci, and Marco Lisi. "The changing determinants of the vote." *Voting in old and new democracies* (2016): 150-192. In Voting in Old and New Democracies, edited by Richard Gunther, Paul A. Beck, Pedro Magalhães and Alejandro Moreno. New York: Routledge.
- Guterbock, Thomas M. Machine politics in transition: party and community in Chicago. University of Chicago Press, 1980.
- Hale, Henry E. "Explaining machine politics in Russia's regions: Economy, ethnicity, and legacy." *Post-Soviet Affairs* 19, no. 3 (2003): 228-263.
- Healy, Andrew, and Gabriel S. Lenz. "Substituting the End for the Whole: Why Voters Respond Primarily to the Election- Year Economy." *American Journal of Political Science* 58, no. 1 (2014): 31-47.
- Hellwig, Timothy. *Globalization and mass politics: Retaining the room to maneuver*. Cambridge University Press, 2014.
- Hesli, Vicki L., and Elena Bashkirova. "The impact of time and economic circumstances on popular evaluations of Russia's president." *International Political Science Review* 22, no. 4 (2001): 379-398.
- Hibbs, Douglas A., and Nicholas Vasilatos. "Economics and politics in France: Economic performance and mass political support for Presidents Pompidou and Giscard d'Estaing." *European Journal* of Political Research 9, no. 2 (1981): 133-145.
- Johnson, Gregg B., and Sooh- Rhee Ryu. "Repudiating or rewarding neoliberalism? How broken campaign promises condition economic voting in Latin America." *Latin American Politics and* Society 52, no. 4 (2010): 1-24.
- Kalinin K. Societal'nye razmezhevania i elektoralnaya politika (1993-2003). Obschestvennie nayki i sovremennost'. http://ecsocman.hse.ru/data/2010/12/13/1214861992/Kalinin .pdf (Accessed: 16/05/2017)
- Karta Glasnosti. http://www.gdf.ru/map/ (Accessed: 16/05/2017)
- Key Jr., V.O., *The Responsible Electorate: Rationality in Presidential Voting*, 1936–1960. Cambridge University Press, Cambridge, 1966.
- Kiewiet, D. Roderick. *Macroeconomics & Micropolitics: The Electoral Effects of Economic Issues*. Chicago: University of Chicago Press, 1983.
- Kim, Byung-Yeon, and Svetlana Sidorenko-Stephenson. "Economic experience and market commitment in the 1996 Russian presidential election." *Europe-Asia Studies* 51, no. 3 (1999): 467-482.
- Kolosov, V. A., and R. F. Turovskii. "The Electoral Map of Contemporary Russia: Genesis, Structure, and Evolution." *Russian Politics & Law* 35, no. 5 (1997): 6-27.
- Konitzer-Smirnov, Andrew. "Incumbent electoral fortunes and regional economic performance during Russia's 2000-2001 regional executive election cycle." *Post-Soviet Affairs* 19, no. 1 (2003a): 46-79.
- Konitzer-Smirnov, Andrew. "Jurisdictional Voting in Russia's Regions: Initial Results from Individuallevel Analyses." *Europe-Asia Studies* 55, no. 1 (2003): 133-153.
- Korgunyuk, Yury. "Electoral Cleavage Map of Russia: Based on an Analysis of the 2011 State Duma Election and the Regional Elections of 2012–14." *European Politics and Society* 16, no. 4 (2015): 467-487.
- Kramer, Gerald H. "Short-term fluctuations in US voting behavior, 1896–1964." *American political science review* 65, no. 01 (1971): 131-143.
- Lewis-Beck, Michael S. "Economic conditions and executive popularity: The French experience." *American Journal of Political Science* (1980): 306-323.
- Lewis-Beck, Michael S. "Economics and Elections: The Major Western Democracies." Ann Arbor, MI: University of Michigan Press, 1988.
- Lewis-Beck, Michael S., and Mary Stegmaier. "Economic determinants of electoral outcomes." *Annual Review of Political Science* 3, no. 1 (2000): 183-219.
- Lewis- Beck, Michael S., and Mary Stegmaier. "The economic vote in transitional democracies." *Journal of Elections, Public Opinion and Parties* 18, no. 3 (2008): 303-323.

- Lewis-Beck, Michael S., and Mary Stegmaier. "The VP-function revisited: a survey of the literature on vote and popularity functions after over 40 years." *Public Choice* 157, no. 3-4 (2013): 367-385.
- Lewis-Beck, Michael S., and Tom W. Rice. "Forecasting US house elections." *Legislative Studies Quarterly* (1984): 475-486.
- Lewis-Beck, Michael, and Glenn Mitchell. "Transnational models of economic voting: tests from a Western European pool." *Revista del Instituto de Estudios Economicos* 4 (1990): 65-81.
- Libman, Alexander. "Subnational political regimes and formal economic regulation: Evidence from Russian regions." *Regional & Federal Studies* 27, no. 2 (2017): 127-151.
- Madsen, H. J. "Electoral Outcomes and Macro-Economic Policies: The Scandinavian Cases. I Whiteley, P (red): Models of Political Economy." (1980).
- Marsh, Michael, and Slava Mikhaylov. "Economic voting in a crisis: The Irish election of 2011." *Electoral Studies* 31, no. 3 (2012): 478-484.
- Meleshkina E. Russian voter: attitudes and choice. Ves' Mir, 177-211. 2000. http://feelosophy.narod.ru/Vb_93_96/ch_7.htm (Accessed: 16/05/2017)
- Merrill, Samuel, and Bernard Grofman. A unified theory of voting: Directional and proximity spatial models. Cambridge University Press, 1999.
- Moulton, Brent R. "Random group effects and the precision of regression estimates." *Journal of econometrics* 32, no. 3 (1986): 385-397.
- Mueller, John E. "Presidential popularity from Truman to Johnson." American Political Science Review 64, no. 01 (1970): 18-34.
- Myagkov, Mikhail G., and Peter C. Ordeshook. *Russian Elections: An Oxymoron of Democracy*. Seattle, WA: National Council for Eurasian and East European Research, 2008.
- Myagkov, Mikhail, Peter C. Ordeshook, and Dimitri Shakin. *The forensics of election fraud: Russia and Ukraine*. Cambridge University Press, 2009.
- Nannestad, Peter, and Martin Paldam. "It's the government's fault! A cross- section study of economic voting in Denmark, 1990/93." *European Journal of Political Research* 28, no. 1 (1995): 33-62.
- Nezi, Roula, and Alexia Katsanidou. "From valence to position: Economic voting in extraordinary conditions." *Acta Politica* 49, no. 4 (2014): 413-430.
- Norris, Pippa; Grömping, Max, (2017), "Perceptions of Electoral Integrity, (PEI-5.0)", doi:10.7910/DVN/KI5WB4, Harvard Dataverse, V1, UNF:6:RIRLjEG5jWANoJgXAG71MQ==
- Paldam, Martin. "How robust is the vote function? A study of seventeen nations over four decades." *Economics and politics: the calculus of support* (1991): 9-31.
- Panov, Petr, and Cameron Ross. "Sub-National Elections in Russia: Variations in United Russia's Domination of Regional Assemblies." *Europe-Asia Studies* 65, no. 4 (2013): 737-752.
- Powell Jr, G. Bingham, and Guy D. Whitten. "A cross-national analysis of economic voting: taking account of the political context." *American Journal of Political Science* (1993): 391-414.
- Price, Simon, and David Sanders. "Modeling government popularity in postwar Britain: a methodological example." *American Journal of Political Science* (1993): 317-334.

Public Opinion Foundation. The Internet in Russia: dynamics of penetration. 2016-2017 winter. http://fom.ru/SMI-i-internet/13300# (Accessed: 16/05/2017)

- Reuter, Ora John. "Regional patrons and hegemonic party electoral performance in Russia." *Post-Soviet Affairs* 29, no. 2 (2013): 101-135.
- Richter, Kaspar. "Wage arrears and economic voting in Russia." American Political Science Review 100, no. 01 (2006): 133-145.
- Roberts, Andrew. "Hyperaccountability: economic voting in Central and Eastern Europe." *Electoral studies* 27, no. 3 (2008): 533-546.
- Royed, Terry J., Kevin M. Leyden, and Stephen A. Borrelli. "Is 'clarity of responsibility'important for economic voting? Revisiting Powell and Whitten's hypothesis." *British Journal of Political Science* 30, no. 04 (2000): 669-698.
- Ruble, Blair A., Jodi Koehn, and Nancy E. Popson, eds. *Fragmented space in the Russian Federation*. Johns Hopkins University Press, 2001.
- Saikkonen, Inga A-L. "Variation in subnational electoral authoritarianism: evidence from the Russian Federation." *Democratization* 23, no. 3 (2016): 437-458.
- Sanders, David. "Conservative incompetence, Labour responsibility and the feelgood factor: why the economy failed to save the Conservatives in 1997." *Electoral Studies* 18, no. 2 (1999): 251-270.
- Scott, James C. "Corruption, machine politics, and political change." *American political science review* 63, no. 04 (1969): 1142-1158.
- Singer, Matthew M., and Ryan E. Carlin. "Context counts: The election cycle, development, and the nature of economic voting." *The Journal of Politics* 75, no. 3 (2013): 730-742.
- Stokes, Susan C. "Perverse accountability: A formal model of machine politics with evidence from Argentina." *American Political Science Review* 99, no. 03 (2005): 315-325.
- Treisman, D. Elections in Russia, 1991-2008. Working Paper WP7/2009/06. Moscow: State University Higher School of Economics. (2009). https://arxiv.org/ftp/arxiv/papers/1605/1605.05545.pdf
- Treisman, Daniel. "Presidential popularity in a hybrid regime: Russia under Yeltsin and Putin." *American Journal of Political Science* 55, no. 3 (2011): 590-609.
- Tucker, Joshua A. "Economic conditions and the vote for incumbent parties in Russia, Poland, Hungary, Slovakia, and the Czech Republic from 1990 to 1996." *Post-Soviet Affairs* 17, no. 4 (2001): 309-331.
- Tucker, Joshua A. Regional Economic Voting: Russia, Poland, Hungary, Slovakia, and the Czech Republic, 1990-1999. Cambridge University Press, 2006.
- Volkov, Denis, and Stepan Goncharov. "Russian media landscape: Television, Press, Internet. June 2014" National rating. http://russia-rating.ru/info/2505.html (accessed June 5, 2017)
- Willerton, William Mishler John P. "The Dynamics of Presidential Popularity in Post- Communist Russia: Cultural Imperative versus Neo- Institutional Choice?." *Journal of Politics* 65, no. 1 (2003): 111-141.

Appendix A

Altai Territory	2004, 2008, 2011	Penza Region	2007, 2012
Amur Region	2005, 2011	Perm Region	2006, 2011
Arkhangelsk Region	2004, 2009, 2013	Primorye Territory	2006, 2011
Astrakhan Region	2006, 2011	Pskov Region	2007, 2011
Belgorod Region	2005, 2010, 2015	Republic of Adygeya	2006, 2011
Bryansk Region	2004, 2009, 2014	Republic of Altai	2006, 2010, 2014
Chelyabinsk Region	2005, 2010, 2015	Republic of Buryatia	2007, 2013
Chuvash Republic	2006, 2011	Republic of Kalmykia	2003, 2008, 2013
Irkutsk Region	2004, 2008, 2013	Republic of Karelia	2006, 2011
Ivanovo Region	2005, 2008, 2013	Republic of Khakassia	2004, 2009, 2013
Kaliningrad Region	2006, 2011	Republic of Sakha	2008, 2013
Kaluga Region	2004, 2010, 2015	Rostov Region	2008, 2013
Kamchatka	2007, 2011,	Ryazan Region	2005, 2010, 2015
Region/Territory			
Khabarovsk Territory	2005, 2010, 2014	Samara Region	2007, 2011
Kirov Region	2006, 2011	Saratov Region	2007, 2012
Komi Republic	2007, 2011, 2015	Smolensk Region	2007, 2013
Kostroma Region	2005, 2010, 2015	Stavropol Territory	2007, 2011
Krasnodar Territory	2007, 2012	Sverdlovsk Region	2004, 2008, 2010
Krasnoyarsk Territory	2007, 2011	Tambov Region	2005, 2011
Kurgan Region	2004, 2010, 2015	Tomsk Region	2007
Kursk Region	2006, 2011	Trans-Baikal Territory	2008, 2013
Leningrad Region	2007, 2011	Tula Region	2004, 2009, 2014
Lipetsk Region	2006, 2011	Tver Region	2005, 2011
Murmansk Region	2007, 2011	Udmurtian Republic	2007, 2012
Nizhny Novgorod Region	2006, 2011	Ulyanovsk Region	2003, 2008, 2013
Novgorod Region	2006, 2011	Vladimir Region	2005, 2009, 2014
Novosibirsk Region	2005, 2010, 2015	Volgograd Region	2003, 2009, 2014
Omsk Region	2007, 2011	Vologda Region	2003, 2007, 2011
Orel Region	2007, 2011	Voronezh Region	2005, 2010, 2015
Orenburg Region	2006, 2011	Yaroslavl Region	2004, 2008, 2013

Table 6. Regions and election-years used in the analysis

Appendix B



Figure 5. Preliminary analysis of data



Figure 6. Correlation matrix of UR vote share and economic variables



Figure 7. Correlation matrix of UR vote share and control variables

Appendix C

Table 7. Fixed-effects model versus pooled OLS (income as a predictor)

Fixed-effects (within) regression Group variable: num_r			Number of obs = 145 Number of groups = 60			
R-sq: within = between = overall =	= 0.4503 = 0.1042 = 0.0285			Obs per g	roup: min = avg = max =	2 2.4 3
corr(u_i, Xb) =	= -0.9923			F(6,79) Prob > F	= =	10.79 0.0000
UR_vote	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
unemployment_1 income_1 DI turnout transf_share popul cons	-1.910503 .0004343 1.095716 .3126066 63.97722 0800293 124.7279	.7177716 .0001729 .5938554 .1199655 44.20359 .034014 56.98249	-2.66 2.51 1.85 2.61 1.45 -2.35 2.19	0.009 0.014 0.069 0.011 0.152 0.021 0.032	-3.339192 .0000901 0863236 .0738212 -24.00783 1477325 11.30713	4818147 .0007784 2.277756 .551392 151.9623 0123262 238.1488
sigma_u sigma_e rho	84.125276 9.3369104 .98783152	(fraction	of varia	ance due t	o u_i)	
F test that all	u_i=0: F	(59, 79) =	1.33		Prob > F	= 0.1198



Figure 8. The distribution of UR vote share across time



Figure 9. The distribution of residuals of the model with income (1.4)

Table 8.	Test for	multicollinear	rity. Mod	lel 1.4. ((Income as	a predictor)
			2			1 /

Variable	VIF	1/VIF
internet income_0 urban_1 popul DI transf_share unemployme~0 turnout	4.98 4.78 2.06 1.89 1.66 1.53 1.50 1.38	0.200975 0.209223 0.486479 0.530089 0.603091 0.654902 0.665551 0.722983
Mean VIF	2.47	



Figure 10. Distribution of residuals versus fitted values. Model 2.4 (GRP growth as a predictor)



Figure 11. The distribution of residuals of the model with GRP growth (2.4)

Variable	VIF	1/VIF
internet GRP_0 popul urban_1 transf_share DI unemployme~0 turnout GRP_growth	2.75 2.64 1.97 1.93 1.68 1.67 1.48 1.47 1.46	0.363367 0.379497 0.507055 0.518332 0.595472 0.598344 0.676335 0.682117 0.684292
Mean VIF	1.89	

Table 9. Test for multicollinearity. Model 2.4. (GRP growth as a predictor)



Figure 12. Distribution of residuals versus fitted values. Model 3.4 (Income change as a predictor)



Figure 13. The distribution of residuals of the model with income change (3.4)

Variable	VIF	1/VIF
internet income_cha~e	3.03	0.329858
urban_1 popul	2.03	0.491871 0.533858
Unemployme~0 DI	1.60 1.64 1.52	0.602719
turnout	1.32	0.735084
Mean VIF	1.97	

Table 10. Test for multicollinearity. Model 3.4. (income change as a predictor)