Media and Political Persuasion: Evidence from Russia

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Abstract:

How do media affect voting behavior? What difference an independent media outlet can make in a country with state-controlled media? We address these questions using exogenous variation in the availability of the signal of NTV, the only independent from the government national TV channel in Russia during the 1999 parliamentary elections. We look at electoral outcomes both at aggregate and individual level. We find that the presence of an independent source of political news on TV decreased the vote for the main pro-government party by 2.5 percentage points and increased the combined vote for major opposition parties by 2.1 percentage points. Placebo regressions for 1995 and 2003 elections suggest that the effects are not driven by unobserved heterogeneity between subregions with and without NTV coverage. In individual level data, we find significant effect of watching NTV on voters' choice even controlling for respondents' voting intentions just a month before the elections. We also find that the effect of NTV is smaller for people who use newspapers as an alternatives sources of political information and people with high level of political knowledge.

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1. Introduction

In August 1999, Vladimir Putin, with popularity rating between 1 to 2%, was appointed as prime minister of Russia by the first president Boris Yeltsin. Eight months later, during March 2000 Presidential elections he won the presidential elections in the first round by getting 52.9% of the vote. Just before that, during December 1999 Parliamentary elections in Russia, the newly created pro-government party called "Unity," which did not even exist two months prior to the election, scored the second in a national race, with 23.8% of the total vote. Massive media campaigns headed by state-owned national TV channels played an important part in these fortunes. This example is an illustration of the crucial role that mass media plays in determining electoral outcomes in young democracies.

In this paper, we study the effect of the access to an independent media outlet on voting behavior of the electorate in Russian elections. In particular, we estimate the impact of the independent national TV channel, NTV, on the results of the Russian 1999 Parliamentary elections. We exploit the idiosyncratic geographical variation in the NTV coverage to identify the effect of the channel on voting behavior. Using both aggregate and individual level data we show that access to independent TV channel had a significant effect on voting behavior. Using individual level data we also demonstrate that this effect was smaller for people who used newspapers as an alternative sources of political information, as well as for people with higher level of political knowledge prior to elections.

There is a large body of evidence that mass media has important effects on political outcomes in established democracies with competitive media system.[1] We expect media effects to be especially large in Russia for several reasons. First, in 1990s, after the collapse of communism, voters had little prior information on political parties and candidates, so that any new information, including information provided by mass media, is likely to have effect on voting decision. For ordinary voters, prior knowledge about policy positions of newly created parties, politicians, and their ability to implement particular policy was very imprecise. In theoretical terms, voters did not have a strong prior, and, therefore, put more weight on the information provided by mass media. Second, parties ran on platforms with vague and unclear ideology. There was no clear difference between political platforms of many different parties. In these circumstances, non-policy issues, or candidate's valence, are likely to become an important element in voting decision.

[1]Previous work has also demonstrated that media has a significant effect on people's attitudes and behavior in spheres unrelated to politics (e.g., Olken (2006) shows that TV decreased participation in social organizations in Indonesian Villages; Jensen and Oster (2007) show that TV improved women's position in families in India.

In addition to political uncertainties, competition in the media market was imperfect, and many media outlets were controlled by the government. Note that in countries like U.S. with relatively free and competitive media, possible persuasion effects of media are mitigated by consumers' ability to self-select or to choose the most preferred media outlet. It is not an option for people in countries with controlled media market. Although in such situation the audience is likely to discount the information received from the biased media more, it is unlikely to undo the effect completely (Gentzkow and Shapiro, 2006). Thus if the state or governing party controls most of the media sources, access to an alternative source of information is important in helping people to make an informative choice. McMillan and Zoido (2004) show that the existence of even a single independent TV channel could be detrimental for the survival of a corrupt regime. Their findings suggest that the presence of independent media channel could, potentially, help to keep the government accountable and the elections competitive.

In our analysis, we investigate two types of effects. First, we analyze the aggregate effects of having NTV transmission at subregional level, using the official electoral results. Second, we use data from a large-scale representative panel survey to investigate the media effects on the individual level, using the access to NTV as an instrument for NTV exposure. We also looked in more details at the mechanisms of persuasion and look separately at voters with some voting intentions before elections and undecided voters. We find large and significant effect of NTV on the voting outcomes in all types of analysis. The aggregate effects in 1999 elections are large. Due to the NTV broadcast, pro-government party lost 2.5 percentage points of votes (9% of the aggregate vote for the party), while main opposition parties, in sum, got an additional 2.1 percentage points of the total vote (10% of the aggregate vote for these parties).

Using individual level data we find that the exposure to NTV had a significant effect on voter' political preferences in favor of the main opposition party, supported by NTV, even controlling for pre-election voting intentions. In addition, we show there is a negative effect on the vote for pro-government party for those voters who stayed undecided during the pre-election survey. We also provide evidence that the effect of NTV was weaker for people who used newspapers as an alternative sources of political information as well as for people who had high level of political knowledge before the elections. We also find that positive effect of NTV on support of the main opposition party was stronger for less educated, older and retired people.

The important step in our analysis is to show that the availability of NTV was idiosyncratic, i.e. that there were no unobserved characteristics of NTV subregions which drove the differences in voting behavior. First, we show that NTV presence in 1999 was not correlated with voting choice in previous parliamentary elections in 1995, once observable economic characteristics of regions are

controlled for. Second, and most importantly, we conducted placebo regressions for the effects of NTV on voting behavior in 1995 and 2003, two elections in which there were no significant differences between political coverage of different national channels. We find that though availability of NTV in 1999 did have large effect on voting behavior in 1999, it didn't have any effect on votes in 1995 and 2003. These results suggest that effects which we find are effects driven by the differences in media coverage and not by some unobservable characteristic of subregions which could be correlated with voting choice.

In the analysis of aggregate media effects, our approach is similar to that of DellaVigna and Kaplan (2007) who investigate the impact of Fox News on voting behavior of Americans, using idiosyncratic diffusion of Fox before 2000 elections. They find 0.5 percentage points effect of availability of Fox News on vote for Republicans, while we find 2.5 percentage point negative effect of availability of NTV on vote for Unity, pro-government party. This is consistent with hypothesis that media effects in Russia are greater than those found in established democracies like the U.S.

The rest of the paper is organized as follows. Section 2 contains literature review, section 3 provides background information on television market and political situation in Russia in the end of 1990s, section 4 presents our empirical hypothesis, section 5 contains data description, section 6 presents results for the analysis on subregional level, section 7 discusses validity of our instrument, section 8 discusses results based on survey data, and section 9 concludes.

2. Literature

A growing literature focuses on the effects of media on public policy. Strömberg (2004) finds that in the U.S. in the 1930s radio diffusion in a county was positively correlated with the level of public expenditures in the region. Einesee and Strömberg (2007) show that the amount of media coverage, instrumented by the timing of external news-worthy events, such as Olympics, affects U.S. aid on disaster relief. Besley and Burgess (2002) find that in India the newspaper circulation in the state is an important factor which influences government's responsiveness to the food shortages and the damages from floods. Reinikka and Svensson (2005) show that in Uganda the amount of public spending that actually reached local schools was higher when the intended funding arrangements were covered by local newspapers.[2]

This paper contributes to a growing literature on the effects of media on voting behavior. Early classic studies (e.g., Berelson et al. 1944 and Lazarsfeld et al. 1954) found no effect of media on voting once political predispositions of survey respondents are taken into account and argued that media does not persuade voters but only reinforce their existing preferences. These studies,

however, suffer from severe endogeneity problem: survey respondents prefer media sources that reflect their political views. Recent contributions to the literature employ experimental and quasi-experimental approaches to avoid inherent endogeneity of survey-based studies and show that media can in fact affect voting behavior (e.g., DellaVigna and Kaplan 2007 and Gerber et al. 2007).

Most of the existing evidence of the effect of media on political outcomes in established democracies point to the effect of media on turnout.[3] For example, Strömberg (2004) finds that an increase in the penetration of local radio stations in the US in the 1930s increased turnout. Gentzkow (2006) finds empirical support for the theory of Putnam (2000) who argues that the introduction of television in 1940s-1950s in the US significantly decreased turnout, as people read fewer newspapers and received less political information. George and Waldfogel (2006) use penetration of New York Times in 1990s to show that it decreased turnout in local elections because of a "distraction" of college-educated voters from local media and local affairs. Oberholzer-Gee and Waldfogel (2007) show that local news channels in Spanish in the U.S. increase turnout of Spanish-speaking electorate. DellaVigna and Kaplan (2007) use idiosyncratic diffusion of Fox News before 2000 elections to show that it affected vote for Republicans, mainly through increased turnout among Republican supporters.

The evidence on the effects of media on voting outside developed world is scarce. Several recent papers start to fill this gap in the literature. They suggest that media in addition to affecting turnout can have a substantial effect on political preferences in regimes other than advanced democracies. Using survey data, Lawson and McCann (2007) show that before the 2000 elections in Mexico, TV news had a significant effect on both attitudes and vote choices. Gentzkow and Shapiro (2004) argue that biased media in Arabic countries reinforce anti-Americanism. McMillan and Zoido (2004) provide a detailed account on how the media was used to undermine democratic accountability in Peru. Haimueller and Kern (2007) show that availability of free West-German TV increased support of authoritarian regime in Eastern Germany by providing otherwise-missing entertainment to East Germans. Colton and McFaul (2003) emphasize the importance of media effects for the outcomes of Russian elections in 1999 and 2000 using a survey-based approach. Our paper contributes to this strand of literature.

A number of studies aim at explaining the differences in the freedom of media across countries. The lack of media freedom is found to be associated with state media ownership (Djankov et al. 2003), resource curse and low incentives for bureaucracy (Egorov et al. 2006), low level of social spending (Petrova 2007), and high corruption (Brunetti and Weder, 2003).

[3] Gerber et al. (2007) is a notable exception. They conducted a randomized experiment by providing individuals with free subscription to Washington Times or Washington Post and found a substantial effect of the access to Washington Post on the voting behavior: those who received the paper were 8% more likely to vote for Democrats.

Our paper is most closely related to White et al. (2005). They also try to estimate the effect of Russian media on the results of 1999 parliamentary and 2000 presidential elections and find significant effect of media exposure on voting results. They, however, use the self-reported vote choice and the self-reported presence of state-owned or commercial television from 2001 survey conducted 1.5 years after elections, thus giving rise to different endogeneity problems.[4] Our approach to use exogenous geographic availability of NTV is superior from methodological perspective, which allows us to evaluate the size of the causal effect of NTV on voting decisions, whereas as the previous literature just established a correlation without establishing causality. Furthermore, in addition to the analysis of self-reported individual voting behavior, we document the effect of NTV on the actual electoral outcomes using official electoral statistics.[5]

3. Background information.

Politics

Throughout the 1990s, the political landscape of Russia was constantly changing (see, e.g., White et al 1995, 1997; Brader and Tucker 2001). A multitude of new parties formed and than disappeared in political struggle. The number of parties that participated in parliamentary elections increased from 13 in 1993 to 43 in 1995, and then dropped to 26 in 1999. Partisan attachments were extremely weak, with the exception of those who supported the Communist Party. According to Colton (2000), 71% of voters changed their preferred party between 1993 and 1995; for 60% of voters, this change came with a substantial change in ideology.[6] Less than one fourth of voters chose the same party in 1995 and 1999 parliamentary elections (Colton and McFaul 2003). Thus, Russia was an immature democracy with an unstable party system and a lack of developed partisan attachments.[7]

Prior to the 2004 political reform, the lower house of the Russia's parliament (Duma) was formed by a mixed electoral rule. One half of all seats (225 deputies) was chosen in single-member-district majoritarian elections and the other half of the seats was filled by party-lists voting in a

[4] Survey respondents, whose choice was affected by media, tend to remember their vote choice better; survey respondents not interested in watching a particular channel do not know whether it is available. In addition, as pointed in Colton and McFaul (2003), Russian citizens tend to forget their past vote choices: in their survey, around half of respondents in 1999 either did not remember their vote in 1995 at all or recalled a vote that was different from that reported immediately after the 1995 elections.

[5] We cannot compare the magnitudes of the estimated effects in our paper and theirs, as they do not report either the marginal effects for their logit estimation or the results of the corresponding OLS regressions.

[6] Colton classified all Russian parties into 6 different groups by their ideology: liberal, socialist, centrist, nationalist, government and miscellaneous. 60% of survey respondents chose different party families in 1993 and 1995.

[7] According to Epstein et al. (2006), "partial democracies" are regimes which possess some, but not all, properties of full democracies. They are sometimes called "young" or "immature" democracies" as they are typically newly created regimes which later either evolve to established, consolidated democracy, or return back to authoritarian type of government. These regimes usually have elections, but the competitiveness and fairness of these elections is questionable at best.

single national district according to proportional representation formula with 5% entry barrier. In our empirical analysis we focus on the party-list vote in the December 1999 Duma elections.

On September 27, 1999, a new electoral party "Unity" ("Edinstvo" in Russian) was created. The leaders of the party officially stated that it has no ideology other than to support the government and its head Vladimir Putin.[8] In October 1999, a large fraction of people were planning to vote for the opposition electoral party called OVR ("Fatherland – All Russia"). This party was created in August 1999 from a coalition of existing parties "Fartherland" and "All Russia." According to the polls two months before elections, OVR was expected to get 29% and KPRF (the Communists Party) – 21% of the total vote.[9] The results of the December 1999 election were sharply different from these forecasts: KPRF was the first with 24.3%, "Unity" – the second with 23.3%, and OVR – the third with 13.3%.[10] The other three parties that overcame the 5% electoral threshold were liberal SPS and Yabloko, and nationalistic LDPR (8.5%, 5.9%, and 6.0%, respectively).

Mass Media

What accounts for the change in voter preferences which happened in the fall of 1999? Colton and MacFaul (2003) conjecture that skilled PR campaign with the help of state-owned TV channels were the main cause for this "reversal of fortunes." Indeed, during the electoral campaign of 1999, television played a very important role in dissemination of political information to population: according to a representative survey of Russia's voters, 89% said that television was their "basic source of information about political events," compared with 8% for radio, and 3% for newspapers (Colton and McFaul 2003; see also White and Oates 2003).

There were three major national TV channels in 1999 that broadcasted political news. The two main channels, ORT and RTR ("the first channel" and "the second channel") were controlled by the state. The third major channel, NTV ("Independent TV"), was a commercial network owned by Vladimir Gusinsky, a tycoon who was not close to Yeltsin and Putin.[11]

The broadcast of political news on all major national channels was unbalanced: ORT and RTR were biased towards Unity, while NTV was biased towards OVR. The political biases of the media channels were inferred by the Institute of the European Media based on a content analysis

[8] The leader of "Unity," Sergei Shoigu, then the minister of emergency situations, said about the ideology of the newly created movement: "We do not bind ourselves to any narrow ideological direction. We are not 'centrists', 'rightists', or 'leftists.' We are a party of consolidation of all healthy forces in society, free of ideological bias." Here "healthy forces" meant support of Putin's government and Putin himself. Source: Nezavisimaya Gazeta, December 8, 1999, as cited in Colton and MacFaul (2003).

[9] Fond "Obschestvennoe mnenie," 20.10.1999 http://bd.fom.ru/report/cat/policy/party_rating/o907003

[10] It is worth noting that after one year and half, in April 2001, "Unity" and OVR, former fierce competitors, united to create "United Russia" party, which became the main "party of power" in Russia for the 2003 and 2007 elections.

[11] The other three TV channels with national status were either much smaller as "TV-Tsentr" and "TV-6" or did not cover politics as "Cultura."

(Oates, 2000). The political news coverage on both of the state-owned channels was uneven both in terms of the amount of time allocated to different parties and in the content of the broadcasted messages. The content of NTV programs was sharply different from that of the state TV channels. It criticized Putin's government, supported OVR, and was friendly to other liberal pro-reform parties, SPS and Yabloko. Despite the fact that the many analysts found its coverage to be more fair, as compared with other channels, it was heavily biased toward OVR.[12]

The broadcasting infrastructure in Russia was largely inherited from the Soviet times. ORT and RTR were accessible almost everywhere covering nearly 100% of the population. In Soviet times, the frequency which NTV channel used later belonged to the national educational channel. Though, according to summary statistics, the channel's coverage at 1999 was somewhat biased in favor of more populous and more educated urban areas, in general, the choice of location for the channel's transmitters seems to be affected more by the whims of the soviet central planning system than by any strategic considerations.

NTV channel was created in 1993 as a small privately owned news channel. At the end of 1996 it was granted the whole broadcasting infrastructure of the national educational channel which ceased to exist at that time. The area coverage of NTV expanded between 1996 and 1999, but it was still primarily based on the inherited infrastructure (correlation between availability of NTV in the beginning of 1997 and 1999 is 0.7). In 1999, NTV covered approximately 66% of country's population. Thus, 34% of voters located in parts of the country where NTV was not accessible were treated with one-sided media coverage (by ORT and RTR only), while 66% of voters in the other parts of the country that had access to NTV were treated with media coverage from both sides of the political struggle.[13] In the paper, we use this difference in the signal coverage as the source of exogenous variation in media coverage.

4. Empirical hypotheses

In Russia in 1999, media coverage of electoral campaign was significantly biased, and a substantial part of country's population did not have access to any news source other than official pro-government channel. In such a situation, availability of even a single source of information that has an opposite bias can prove to be extremely important. As a result, we expect to find substantial effects of availability of NTV on voting behavior.

[12]ORT positively covered Unity 28% of the time and its party leader Shoigu 19% of the time, with OVR and Luzhkov getting extremely negative coverage 9% and 4% of the time, respectively (Oates 2000, 2006). Another state channel, RTR, covered Unity 24% of the time, and OVR 13% of the time, in addition to the heavy coverage of Unity leader Shoigu and Prime Minister Putin (Oates 2000). NTV covered OVR 33% of a time and "Unity" only 5% of a time.

[13] NTV had a satellite transmission that was available in all the Russian territory, but the share of population using this service was minuscule (at the beginning of 2000 there were only 110,000 subscribers – less than 1% of the voters).

The main hypothesis is that there is significant positive effect of availability of NTV on voting for all parties that were supported by NTV (OVR, Yabloko, and SPS) and a significant negative effect of NTV on the vote for Unity, which was criticized by NTV and praised by other national channels. We expect to see these effects both at the aggregate and individual level. We do not expect significant effects for other major parties, which were covered similarly by NTV and other national channels.

In individual data we expect that people who use alternative sources of information regarding political news (radio, newspapers) and will be less influenced by the availability of NTV. Similarly, we expect that people who possess better political knowledge before the elections will be less influenced by NTV, since these people have stronger priors regarding political parties and are less likely to be affected by any new information, including the one provided by NTV.

5. Data description

Sources

We use four primary sources of data. First, data on NTV coverage for 1997 and 1999 are the courtesy of the *Video International*, a major Russian media advertising company. Based on this data, we created a subregion-level dummy variable *NTV* which is equal to 1 if NTV was available in that subregion and 0 otherwise. There are no areas with partial treatment. The availability is calculated by *Video International* based on data on the location of NTV transmitters. A subregion is assumed to have NTV if an NTV transmitter located in this region. This measure is certainly imperfect, since in some regions that do not have transmitters part of the population could receive NTV signal transmitted from the neighboring regions, while in some areas of regions that had transmitters part of the population could not receive the signal because of insufficient power of transmitters or geographical obstacles (e.g. mountains).. Despite these imperfections, the quality this measure was considered sufficiently high by the major Russian advertising agency to to price advertisements on the channel based on the size of potential audience computed using this measure. In the individual-level data that we use this measure also proves to be highly correlated with the proportion of people who report watching NTV (see below).

Second, data on electoral outcomes are from the Central Election Commission of the Russian Federation. Specifically, we use the data on voting results and turnout at the level of local electoral commissions for the party-list voting in the Duma elections of 1995,1999, and 2003. Votes from all electoral commissions were aggregated to get voting results and subregional level. In Russia, all regions are divided into subregions, which are administrative districts, similar to counties in the United States. A typical subregion is an urban or rural area with a population of

200,000-300,000 people. Generally, these electoral commissions coincided with subregions, but some large subregions (typically, bigger cities) are divided into several electoral commissions.

Third, as the source of control variables we use data on subregional socioeconomic conditions from Rosstat, the official Russian statistical agency, for the year 1998.[14] Specifically, our socioeconomic controls include logarithm of population, population change, migration rate, log of average wage, average pension, fraction of retired people, fraction of unemployed, number of people employed in farms, crime rate.

Finally, we use data from a representative multiregional survey of voters from Colton (2000) and Colton and McFaul (2003). The survey is a large-scale panel survey of the Russian electorate held before 1999 parliamentary elections, after 1999 parliamentary, and after 2000 presidential elections, conducted by the researchers from the Institute of Sociology of the Russian Academy of Sciences. The nationally representative panel consists of 1783 respondents from 41 regions. These surveys include questions on respondents' socio-demographic characteristics, political preferences, as well as the sources from which they get political information. We use data from these surveys to construct dummy variables that reflect the intention to vote and reported vote for each party.

In the survey, respondents reported what channels and programs they watched. We coded that an individual watched daily news or weekly magazine on NTV if he/she responded "almost every day" or "from time to time" to the corresponding survey questions. Our variable *Watches_NTV* combines answers to these two questions: we assume that an individual was exposed to NTV news if he/she watched either daily news or weekly news magazine at least sometimes.

Summary Statistics

Aggregate-level data.

In our dataset there are 425 subregions with the NTV signal and 1682 subregions without the NTV signal. Summary statistics for socio-economic characteristics of subregions with and without NTV signal are presented in Table 1 along with summary statistics for the election results in 1995 and 1999. NTV disproportionately covered big cities and regions with high urban population. The map of NTV coverage is given in Figure 1. As one can see, the allocation has large density around big cities like Moscow and low density in low-populated large areas in Siberia, but other than that, it is more or less evenly dispersed in the country. We exclude Moscow and St. Petersburg from the sample, because of the lack of variation in NTV availability for the aggregate

[14] Similar controls for 1999, were not unavailable at the sub-regional level.

level analysis, and because they are clear outliers in the individual-level analysis.[15] Without Moscow and St. Petersburg, according to our measure, in 1999 NTV was available for 20% of subregions and 52% of population,

Without controlling for observable socio-economic characteristics, NTV subregions look different from non-NTV subregions in their voting behavior both in 1995 and 1999 elections. For example, in 1995 voters in those subregions that had NTV signal in 1999 were more likely to vote for liberal Yabloko and NDR, the party of power of the time, and less likely to vote for the Communist party and the nationalist LDPR. In NTV subregions, voters were more likely to vote against all and less likely to turn out to vote. These differences in voting patterns for Yabloko, Communists, LDPR, "against all,"[16] and turnout persist to 1999. In addition, votes for new electoral blocks Unity, OVR, and SPS were also different between NTV and non-NTV subregions. People in NTV subregions were more likely to vote for OVR and SPS and less likely to vote for Unity. Note that this comparison is based on the unconditional means and does not take into account neither heterogeneity among subregions in terms of socio-economic characteristics nor regional fixed effects.

Individual-level data.

Table 2 summarizes the individual-level data by the availability of NTV signal, determined by our geographic measure of NTV presence in the area where respondent lives. As indicated in Table 2, the data on the availability of NTV, although not perfect, does provide important information - approximately 45% of people in subregions that were coded as not having NTV were still able to watch the channel, whereas in subregions that were coded as having NTV the share was significantly higher - 70%.

There are several reasons why our measure of NTV availability is imperfect. One is the imprecision of our measure of NTV, which is based only on the existence of a transmitter in a given subregion. Satellite transmission is another source of contamination, although it does not have a substantial effect due to low number of subscribers. Another important reason is the different quality of TV receivers available for the population. Some people had high-quality antennas or signal amplifiers that allow viewers to see NTV even if the signal was very weak. Finally, the measurement error is likely to be a problem.

[15] We exclude Moscow and St. Petersburg primarily because they are clear outliers in the sample (e.g. they are much larger than an average subregion). Also, formally they both have a status of regions rather than subregions. As a result, their inclusion does not affect aggregate-level results because there is no within-region variation in the availability of NTV in Moscow and St. Petersburg, and our main specifications include fixed effects for regions.

[16] Voters were allowed to cast their vote "against all", the choice which is equivalent to not voting, in terms of the effect on the aggregate result.

6. Results on the aggregate-level data

In order to test whether the presence of NTV had an effect on aggregate voting outcomes in 1999 elections, we estimate the following model:

$$vote_{i,1999} = \beta_0 + \beta_1 NTV_{i,1999} + X_{i,1995}'\boldsymbol{\beta_2} + S_{i,1998}'\boldsymbol{\beta_3} + \beta_4 d_r + \varepsilon_i, \quad (1)$$

where i indexes subregions. $vote_{i,1999}$ is the percent of votes for a particular party at the 1999 Duma elections in a subregion i. $NTV_{i,1999}$ is a dummy variable for the presence of NTV signal in the subregion i in 1999, $X_{i,1995}$ is a vector of electoral outcomes in 1995 elections, $S_{i,1998}$ is a set of socio-economic characteristics of the subregion i before the 1999 elections, and d_r are regional fixed effects.

Table 2 presents the regression results for the vote for six major parties (Unity, OVR, KPRF, SPS, Yabloko, and LDPR), vote against all parties, and the voter turnout. Vote for Unity was substantially smaller in NTV subregions than in non-NTV subregions. The magnitude of the effect is substantial: availability of an NTV signal in a subregion decreased vote for Unity by approximately 2.5 percentage points. It corresponds to the idea that NTV was a successful counterweight to the propaganda power of RTR and ORT. The effect of NTV on the vote for all three opposition parties, supported by the channel, is significantly positive. Somewhat surprisingly, the effect of NTV on the vote for OVR, the electoral bloc for which the difference in coverage between NTV and the main state-controlled channels was the most notable, is weaker than the effect on the vote for SPS and Yabloko. NTV increased vote for OVR by 0.5 percentage points, whereas the effect on vote for the two liberal parties, SPS and Yabloko have roughly the same magnitude of 0.8 percentage points. A possible explanation is that people perceived substantial NTV's bias in favor of OVR and discounted it, while a balanced moderately positive coverage of Yabloko and SPS was more convincing.

The aggregate size of the effect (-2.5 percentage points for Unity, and comparable +2.1 percentage points for three opposition parties, combined) is notably greater than the effect of the Fox News of 0.5 percentage points observed by DellaVigna and Kaplan in the U.S. Note that the Fox News in 2000 was available to 34% of U.S. population, while NTV was available for 66% of Russian population, which implies that the effect on the results of the elections at the national level is even stronger.[17]

The effect of NTV on vote for KPRF and LDPR is insignificant. It is consistent with an observation that NTV was not very different from the other TV channels in its coverage of these two parties, and, therefore, we did not expect to find any systematic difference between vote for

[17] The average share of NTV viewers in the national audience was equal to 17.1% in 1999, which is quite large for a private TV channel with restricted coverage.

these parties in the NTV subregions and non-NTV subregions. After controlling for the results of voting in 1995 there is no significant effect of NTV signal on the turnout, but people in the NTV subregions were more likely to vote "against all," which can be considered as another form of abstention from supporting any particular party.[18]

Our findings on the aggregate level data can be summarized as follows. The presence of NTV signal affected the vote for the parties which were covered differently by NTV and the two state channels. The effect of NTV on the vote for OVR was approximately 0.5 percentage points and its effect on the vote for two liberal parties was more than 0.8 percentage points for each party. This implies a combined effect on the voting for all parties supported by NTV of more than 2.1 percentage points. The effect on the vote for Unity, criticized on NTV and advertised by the two state TV channels, was minus 2.5 percentage points. This is consistent with the idea that NTV prevented its viewers from being persuaded to vote for Unity. Finally, we do not find a substantial effect of NTV on turnout, but we do find a substantial positive effect of NTV on the vote "against all". It implies that NTV affected politically conscious people who bothered to come and vote against all to show their dissatisfaction with other choices instead of not voting at all.[19]

The sum of the positive effects on vote for OVR, SPS, Yabloko is approximately equal to the negative effect on the vote for Unity, which suggests that the voters who were persuaded by the state controlled channels to vote for Unity were coming from the electorate of these three parties, rather than from the electorate of the smaller parties or politically inactive groups of population who otherwise would not have voted. Individual-level results presented in section 8 investigate this question further.

7. Checking validity of the instrument

The key identifying assumption in our analysis is that the availability of NTV, controlling for observable characteristics subregions, is uncorrelated with political preferences of the voters other than through the effect of NTV. There are two potential reasons why this assumption may not hold. First, the coverage of NTV may be endogenous, as subregions with certain political preferences were more likely to receive NTV signal. Second, there might be some omitted characteristics of subregions that were correlated both with NTV coverage and political preferences of the population.

[18] Note that regressions in Table 2 put equal weight on subregions with small and large population. We have also weighted regressions by subregional population (results not reported). The size and the significance level of coefficients are robust to such weighting.

[19] This finding is consistent with the effect of negative campaigns on voter turnout (vote "against all" in this case), pointed by Ansolaberehere and Iyengar (1995) and Ansolabehere et al. (1999). Recall that NTV criticized, sometimes harshly, the pro-government Unity. Thus exposure to NTV's negative coverage might induce some of its viewers to vote against all. Vote "against all" and not voting at all are procedurally similar. The main difference between them is that vote the "against all" increases the probability of making the elections legitimate since legitimacy depends on the number of people who actually turned out to the elections.

First, we examine whether the results of the previous parliamentary elections are correlated with NTV coverage in 1999 once we control for observables. If the coverage of NTV is not correlated with pre-existing political preferences, which presumably persist over time, then voting outcomes in 1995 should not be correlated with the availability of NTV in 1999. Table 3 presents results of regressions in which a dummy for having NTV signal in a subregion is regressed on voting results in 1995 and subregional characteristics. Without additional controls (columns 1 and 2), the availability of NTV signal is significantly correlated with past vote choices. Columns 3 and 4 show that, however, after controlling for such observable characteristics as population, education, and average wage, the presence of NTV is no longer significantly linked to voting outcomes in 1995. This is true both with and without controlling for the availability of NTV in the beginning of 1997. Once socio-economic controls are included, the joint significance of electoral variables sharply decreases (in columns 3 and 4, F-statistic for electoral controls are insignificant at 10% level, while F-statistics for socio-economic controls are significant at 1% level).

To farther address these concerns, we use placebo specifications. We exploit the fact that coverage of NTV was different from all other national channels only during the parliamentary elections of 1999, but not in 1995 and 2003. Table 4 reports the results of the estimation of the effect of NTV availability in 1999 on the results of parliamentary regression in 1995. The coefficients for NTV availability are small in size and statistically insignificant for all major parties, vote against all, and voter turnout.

Table 5 reports the results of the estimation of the effect of NTV availability in 1999 on the results of parliamentary regression in 2003. Although during the campaign of 2003 coverage of NTV was similar to other major TV channels, we might expect the difference in the voting patterns from the 1999 electoral campaign to persist in 2003. However, the results of placebo regressions indicate that in 2003 there is no significant difference in the turnout and the number of votes received by the major parties between subregions with and without NTV coverage in 1999. The two exceptions are Yabloko and voting “against all”. The number of people who voted for Yabloko and “against all” in 2003 was still slightly higher in subregions with NTV coverage in 1999, but the effects are extremely small (0.005 and 0.002 percentage points, respectively), much smaller than in 1999 (0.91 and 0.26 percentage points), and become insignificant once we control for voting in 1999.

8. Results on the individual-level data

Looking at individual-level results, in addition to aggregate-level results, is important in several respects. First, it allows us to estimate the persuasion effect of NTV at the individual level.. Second, using individual-level data, we could further look into the mechanisms of the NTV effect.

In particular, we estimate the effect of availability of NTV conditional on pre-existing voting intentions, if any. Also, we look at media effects on the voting decisions of undecided voters and separate them from the effects for those voters who had some voting intentions during the pre-election survey. Finally, we can examine how the effect of NTV depends on individual characteristics of voters.

The measure of media exposure is subject to significant reporting biases (Price and Zaler 1993, Prior 2007) and might be endogenous to vote choice. To cope with this problem, we use our measure of geographic availability of NTV in the instrumental variable estimation. In particular, we instrument a reported exposure to NTV programs by the availability of NTV signal in 1999. Table 7 presents the results of the first stage of the regression models (2). For all specifications, the availability of the NTV signal is a strong predictor for the respondents' exposure to NTV programs (F-statistics for the exclusion of the instrumental variable is never smaller than 16).

The basic model which we estimate for the reported vote and the intention to vote is:

$$vote_{i,1999} = \beta_0 + \beta_1 WatchesNTV_{i,1999} + X_{i,1999}'\boldsymbol{\beta_2} + \varepsilon_i, \qquad (2)$$

where i indexes individual respondents. $WatchesNTV_{i,1999}$ equals one if the respondent i watched news programs on NTV in 1999 and zero otherwise. $X_{i,1999}$ is a set of individual and subregional level characteristics.[20] Variable $WatchesNTV_{i,1999}$ is instrumented by the availability of the NTV signal in the home subregion of individual i.

Table 8 reports the results of the regressions for the intention to vote, as reported by respondents in the pre-election survey. Intention to vote for OVR and Yabloko follows the same pattern as the vote in the aggregate-level data − watching NTV increases the probability that a particular person is going to vote for one of these parties. The coefficients on our main variable of interest, $WatchesNTV_{i,1999}$, in the IV specifications are the estimates of the causal effect of watching NTV on the intention to vote for a particular party. The effect is substantial: watching NTV increases the probability that a respondent is planning to vote for OVR and Yabloko by 0.60 and 0.47 respectively. These results appear rather large, but in interpreting them, it is important to bear in mind that they represent the local average treatment effect (Imbens and Angrist, 1994), i.e. the effect of NTV on those people who watched NTV just because it was available. It is reasonable to expect that the effect for these people would be higher than the average for the whole population.

[20] Individual social and demographic characteristics include: sex, age, marital status, dummy for ethnic Russian, education (dummy for college education or higher), religiosity (answer to the question: Do you attend regularly religious services?), dummy for former membership in CPSU, and consumption index. We follow Colton and McFaul (2003) and construct a consumption index as the sum of the answers to the following consumption questions: Do you own a car? A dacha (summer home)? A computer? A phone? An automatic washing machine? Do you have Internet access? Have you ever been abroad?

Table 8 also shows that the effect of watching NTV on intention to vote for SPS was negative. The effect for Unity is not significant. Other results in IV specifications are much weaker (none of the coefficients is significant at 10% level). Comparison of the results of IV and OLS estimation indicates that there IV coefficients are larger than OLS in magnitudes. A possible explanation for this difference is the measurement error, which biases OLS results downwards.

Table 9 presents the results for reported vote in after-election survey as dependent variable. Note that these results are quite different from Table 8, based on intentions to vote. There are still large significant results for OVR, and the effect for Unity becomes significant. Numerically, survey respondents who watched NTV were 49 percentage points more likely to vote for OVR, 42 percentage points less likely to vote for Unity and 29 percentage points less likely to vote against all. As in the case of intention to vote, the magnitude of the effect seems quite big, but the estimates can not be treated as average effects for the whole population. The coefficients of interest for votes for other parties and turnout are not significant.

Note that individual-level results in Table 9 are somewhat different from the aggregate-level results reported in Table 3. In particular, in the aggregate-level results the effect of NTV on OVR is the smallest among the results for Unity, OVR, Yabloko, and SPS, while in the individual level analysis the marginal effect of NTV exposure is the largest for OVR. Results for Yabloko and SPS are not significant in individual-level analysis. and the coefficient for vote "against all" changes the sign, although the latter result, unlike the results for OVR and Unity, is not robust. There are two explanations for these discrepancies between aggregate and individual results. First, as noted earlier, we estimate local average treatment effect which is different from the aggregate effect as it works only for those individuals whose viewing habits were affected by the availability of NTV, so this could be another source of differences between aggregate and individual level results. Second, an important controls that are missing in the individual level regressions are regional fixed effects. Unfortunately, we could not use region fixed effects as survey typically was not administered in two different subregions in the same region, so there is no within-region variation of NTV availability in a survey sample. As long as these fixed effects are correlated with both voting choices and NTV availability, the individual-level results might be biased.

Table 10 further investigates the mechanisms of NTV influence. It separates the effect of NTV from the effect on those voters who had some voting intentions before 1999 elections and to the effect on undecided voters, i.e. for those voters who did not answer which party they were going to vote in pre-election survey, but who answered which party they voted for in post-election survey. The results indicate that even if we control for voters' intention to vote just a month before the elections, the exposure to NTV made people 54 percentage points more likely to vote for OVR. For

Unity, the result for all voters, controlling for pre-election voting intentions, are insignificant. The effect for this party on undecided voters only, however, is quite large and significant at 1% level. It shows that the exposure to NTV made viewers 42 percentage points less likely to vote for Unity, which is consistent with our empirical predictions as well as with our aggregate-level results. The effects for vote against all for two groups of voters have different and significant signs: NTV exposure made all voters 69 percentage points more likely to vote "against all", while NTV exposure made undecided voters 22 less likely to vote "against all." One potential explanation for these results is that NTV affected differently two groups of voters: it convinced Unity supporters to vote "against all" while it persuaded undecided voters to vote for OVR instead of voting "against all". Unfortunately, the small size of the sample of "switchers" from one party to another does not allows us to estimate these effects directly.

In sum, the results for the individual preferences over major political parties are consistent with those for the aggregate level data. IV regressions show that the effect of exposure to NTV on vote for OVR was positive, and the effect of exposure to NTV on vote for Unity was negative. NTV was able to affect the vote choice even during one month of political campaign before the elections. Voters were 0.54 more likely to vote for OVR if they were exposed to NTV even controlling for their voting intentions just a month before the elections. Also, undecided voters were 0.42 less likely to vote for Unity if they watch NTV.

Finally, we investigate how the effect of watching NTV on reported vote depends on individual characteristics of the respondents. We focusing only on the effect of NTV on reported vote for OVR and Unity. Table 11 presents the results of this analysis.[21] First, we look how the effect of NTV depends on whether respondents use other sources of information. Results indicate that the effect of NTV on vote for OVR and Unity is lower for people who read political articles in newspapers. However, the effect is the same for people who receive political information from radio. This difference can be explained by the fact that on most radios the coverage of political news is very short and superfluous, whereas articles in the newspapers can are usually much more informative. As a result, only information received from newspapers serves as a real alternative to the information received from TV and dampens its effect. Although these results can not be unambiguously interpreted as evidence of causal relationship, since the fact that a person uses alternative sources of political information is itself endogenous, they do provide suggestive evidence consistent with the general theory of political persuasion.

[21] We report the results of the reduced-form model in which we use dummy variable for the availability of NTV as a regressor instead of using it as an instrument since we could not achieve convergence in the instrumented regressions. The reason for this seems to be that because of the binary nature of both our measure of NTV availability and individual characteristics used in interaction term, the first-stage for the interaction term in instrumental regressions can not be robustly estimated.

The results show that the effect of NTV on the vote for OVR was smaller for people with high level of political knowledge that the respondents possess prior to elections.[22] The effect on vote for Unity is also smaller for the respondents with high level of political knowledge, but the effect is not statistically significant. These results are also consistent with our empirical hypothesis that people who have better political knowledge and, thus, stronger priors, are less influenced by mass media. As with the use of alternative sources of information these results can be interpreted only as suggestive, since we do not address endogeneity of political knowledge.

Next we examine how the effect of NTV depends on such individual characteristics as education, age, and whether a person is retired. There is some weak evidence that effect of NTV on the vote for OVR was smaller for people who have finished high school, although there is no significant effect for the vote for Unity. The results indicate that the effect of NTV on the vote for NTV was significantly stronger for both older and retired voters.

9. Conclusions

In this paper, we document the effects of media on voting outcomes in Russian parliamentary elections of 1999. We use the data on geographical coverage of NTV, the only major TV channel which at that time was in opposition, to isolate the effect of exposure to media on voting behavior and to avoid endogeneity biases inherent to pure survey studies. At the aggregate level of analysis, we find that the effect of NTV was positive and significant for three parties supported by NTV− OVR, SPS, and Yabloko. Together, these parties got 2.1 percentage points more votes in each subregion with NTV signal. This amounts to almost additional one tenth of the combined vote received by these parties as a result of the NTV broadcast. At the same time, pro-government Unity party got 2.5 percentage points fewer votes in each subregion with the NTV signal. This amounts to a total loss of about one tenth in the total vote received by the Unity party.

Using survey data we find that even controlling for the voting intentions just a month before the December 1999 elections, NTV had a substantial effect on the vote for OVR. Thus, NTV was able to persuade voters to vote for OVR despite their initial voting intentions just before the elections and prevent undecided voters from vote for Unity.

Our results suggest that the power of media in political persuasion in immature democracies, such as Russia, can be much larger than in established democracies. It would be too quick, however, to conclude that it should be the case in any young democracy or any other country in a similar stage of institutional development. Theoretically, media effects in Russia are large because of the combination of factors: unstable party system, weak partisan attachments, lack of prior

[22] Political knowledge was measured as the number of right answers to ten questions that asked about the office that a certain politician occupied and the identity of recent prime ministers.

information about the performance of politicians in office, unclear policy positions, importance of valence or candidates' individual treats, and the lack of competitiveness in media market. We expect media effects to be large in countries in which all these conditions are in place. If some of these conditions are violated, however, media effects could become smaller. Further empirical research is needed to estimate relative importance of these conditions and magnitudes of media effects in different countries.

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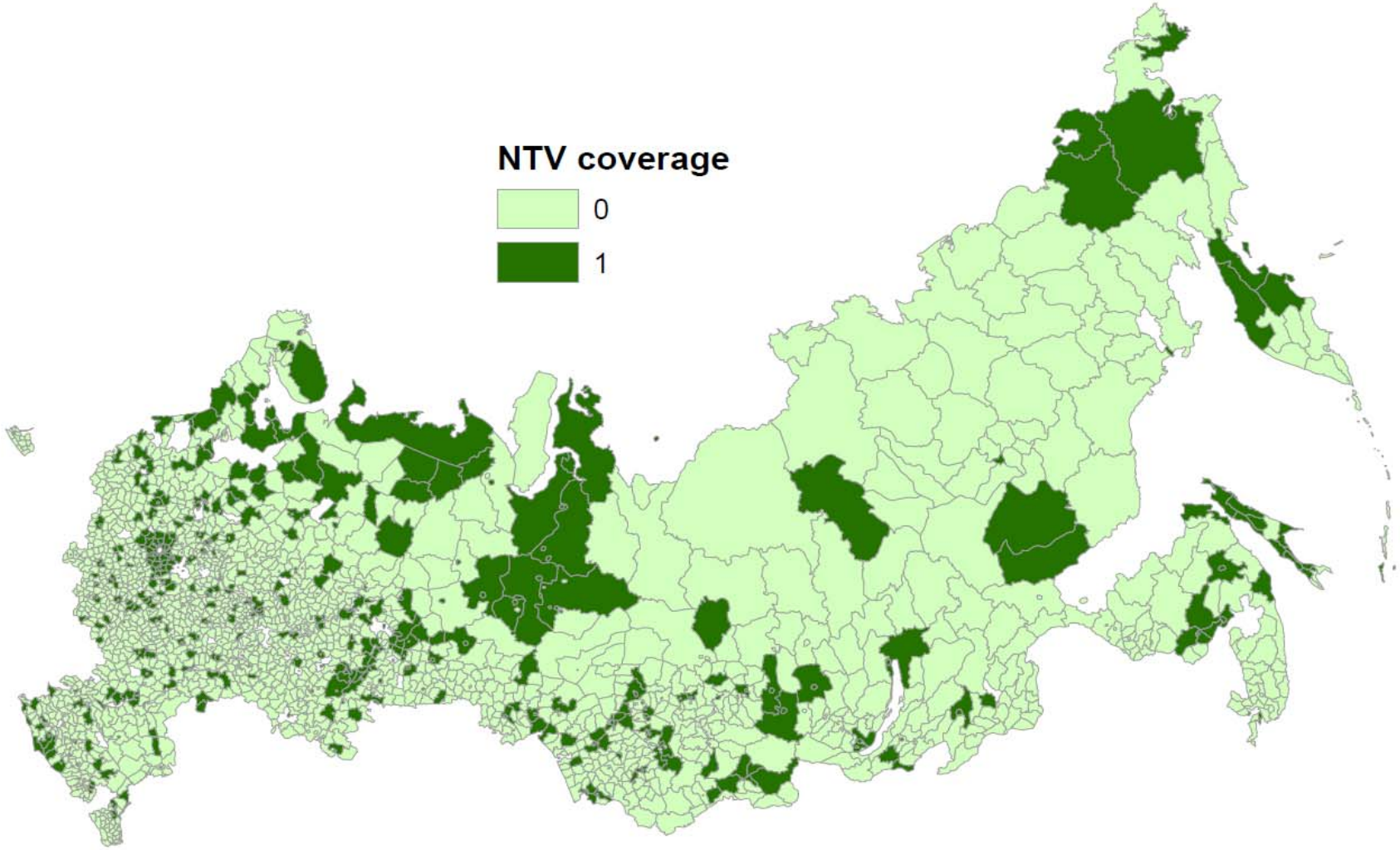

Figure 1. NTV coverage in 1999, by subregion.

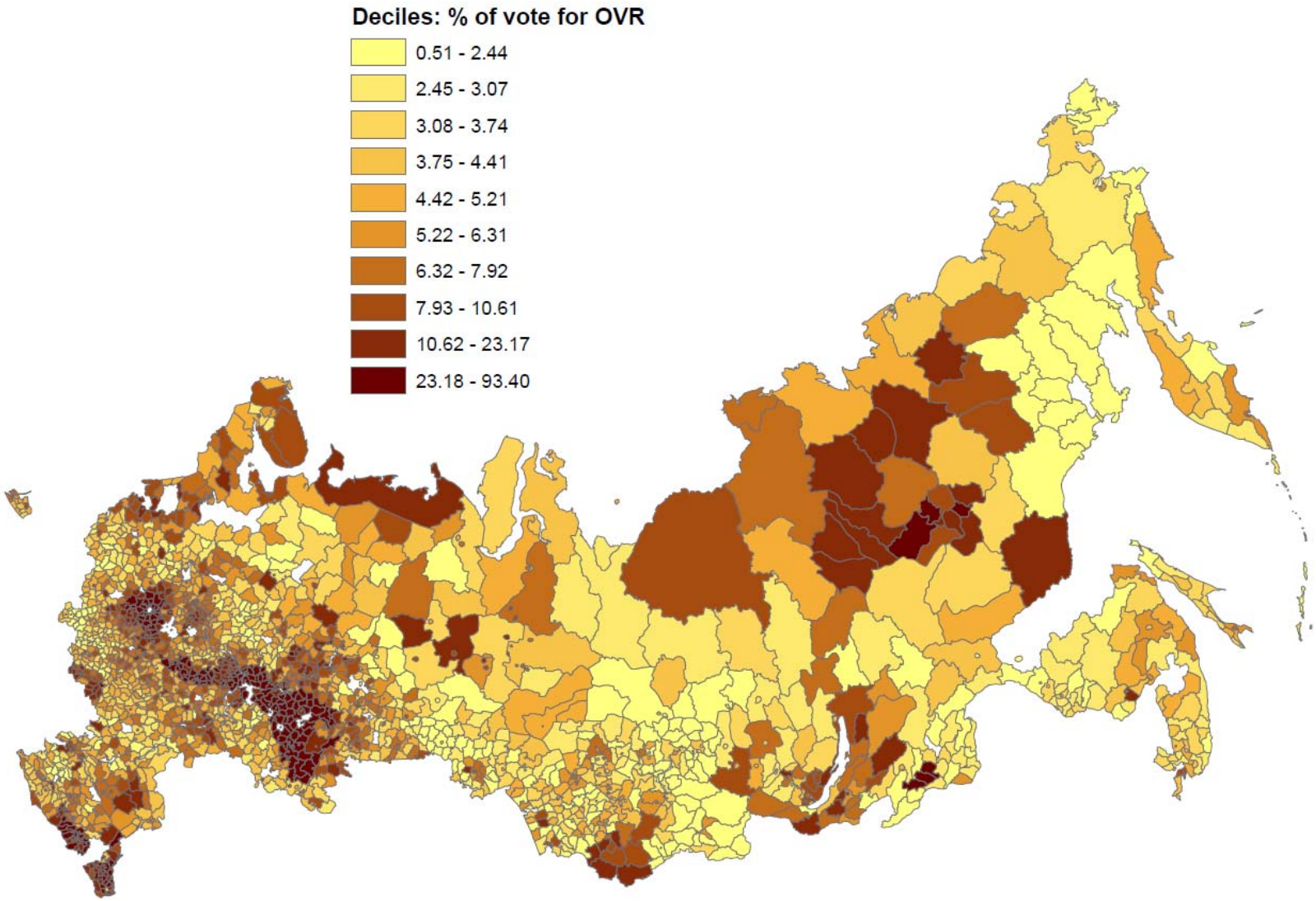

Figure 2. Vote for OVR on subregional level, Russian parliamentary elections, 1999.

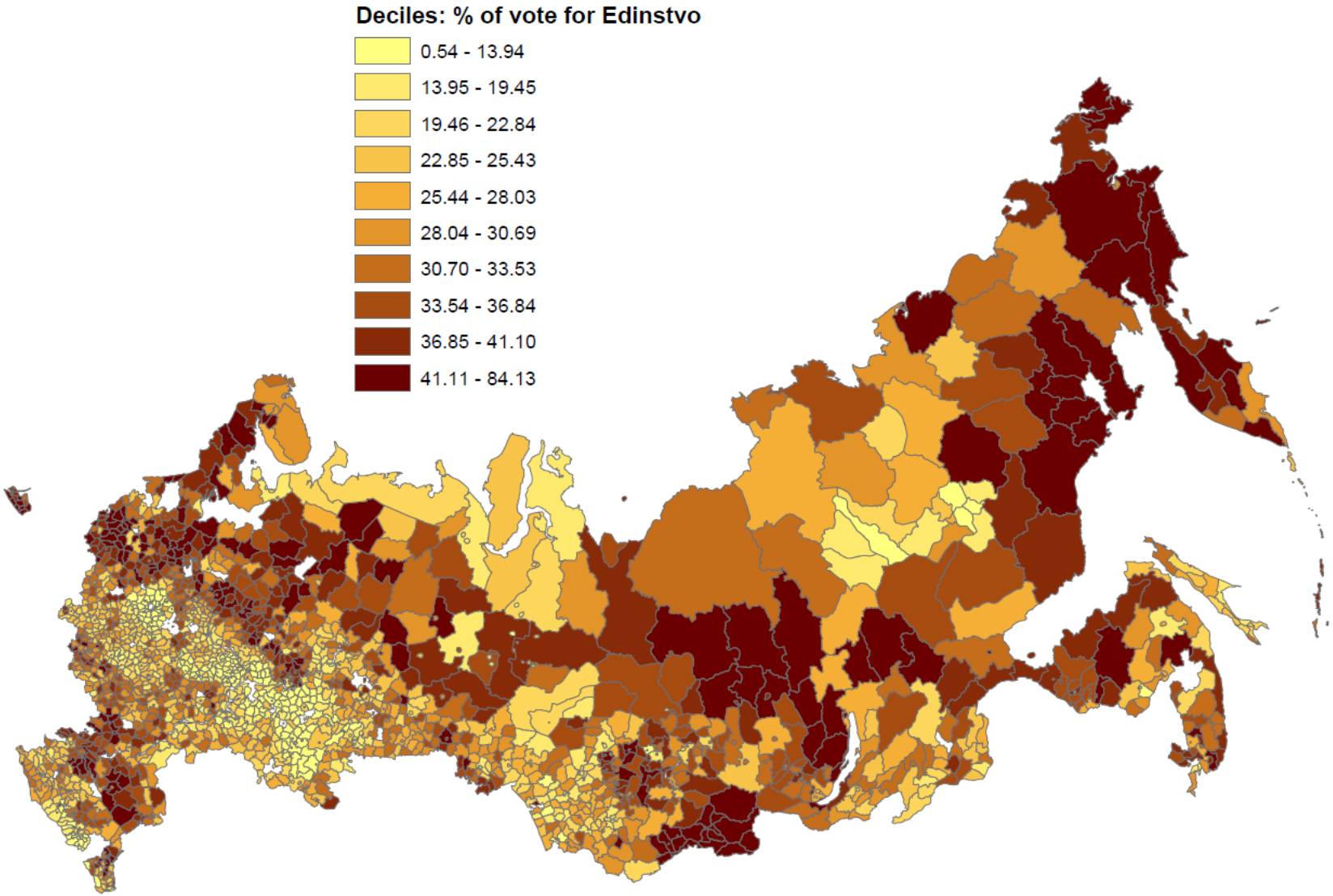

Figure 3. Vote for Unity(*Edinstvo* in Russian) on subregional level, Russian parliamentary elections, 1999.

Table 1. Summary statistics, socio-economic characteristics of subregions with and without NTV signal

	NTV=0			NTV=1			
	Mean	St. dev.	Obs.	Mean	St. dev.	Obs.	p-value of difference
			Socio-economic characteristics				
Population, thousands	32.20	33.07	1792	118.76	210.72	531	0.000***
Population change	-0.28	2.27	1617	-0.33	2.64	468	0.711
Migration rate, %	-0.06	1.26	1617	0.06	1.28	468	0.067*
Average wage, thousands of rubles	-0.43	0.49	1629	-0.06	0.54	466	0.000***
Average pension, thousands of rubles	0.39	0.06	1486	0.42	0.07	435	0.000***
Retired , %	25.76	10.61	1614	24.18	10.71	467	0.005***
Unemployed, %	1.80	1.81	1617	1.77	1.62	468	0.724
Population employed in farms, %	0.23	1.50	1617	0.31	1.87	468	0.412
Crime rate, per 10000	163.48	223.05	1617	165.34	191.27	468	0.858
			Vote in parliamentary elections in Duma, 1995				
Vote for KPRF (Communists), %	26.49	12.07	1503	23.10	10.99	445	0.000***
Vote for LDPR, %	13.84	6.33	1503	12.15	5.81	445	0.000***
Vote for NDR (Our Home is Russia), %	8.18	8.77	1503	9.36	5.62	445	0.001***
Vote for Yabloko, %	2.96	2.64	1503	5.60	3.86	445	0.000***
Vote for Women of Russia, %	4.92	2.51	1503	5.34	2.32	445	0.001***
Vote for Communists of USSR, %	6.16	2.93	1503	4.86	2.42	445	0.000***
Vote for KRO , %	2.63	2.26	1503	4.06	2.61	445	0.000***
Vote for PST, %	2.51	1.74	1503	4.07	2.59	445	0.000***
Democratic Russia's Choice, %	1.60	2.63	1503	2.89	2.96	445	0.000***
Vote for APR (Agrarian Party of Russia), %	8.66	8.53	1503	4.01	5.76	445	0.000***
Vote against all, %	2.49	1.23	1503	2.89	1.09	445	0.000***
Voter turnout, %	70.33	8.53	1503	64.40	7.89	445	0.000***
			Vote in parliamentary elections in Duma, 1999				
Vote for Unity (centrist, pro-government), %	29.17	10.95	1792	24.10	10.88	531	0.0000***
Vote for OVR(centrist), %	9.62	14.59	1792	11.34	11.99	531	0.0061***
Vote for SPS (Liberal), %	4.61	3.94	1792	7.59	3.83	531	0.0000***
Vote for Yabloko (Liberal), %	2.60	2.10	1792	5.84	3.35	531	0.0000***
Vote for KPRF (Communists), %	28.23	10.91	1792	24.48	9.50	531	0.0000***
Vote for LDPR (Nationalists), %	7.24	3.17	1792	6.75	2.67	531	0.0004***
Vote for Women of Russia, %	2.25	1.07	1792	2.33	0.91	531	0.0785*
Vote for Communists, workpeople of Russia, %	2.75	1.71	1792	2.39	1.07	531	0.0000***
Vote for NDR, %	1.34	2.48	1792	1.36	2.14	531	0.8288
Vote for KRO , %	0.31	0.37	1792	0.43	0.34	531	0.0000***
Vote against all, %	2.51	1.17	1792	3.39	1.24	531	0.0000***
Voter turnout, %	63.98	9.85	1792	58.82	7.63	531	0.0000***

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 2. Summary statistics. Intention to vote and reported vote, December 1999 Duma elections.

	Mean	Obs.	Mean	Obs.	p-value of difference
	NTV=0		NTV=1		
Watches NTV	0.49	678	0.69	751	0.004***
Intention to vote for OVR	0.08	433	0.16	536	0.000***
Intention to vote for Unity	0.12	433	0.10	536	0.440
Intention to vote for SPS	0.08	433	0.07	536	0.670
Intention to vote for Yabloko	0.05	433	0.14	536	0.000***
Intention to vote for KPRF	0.42	433	0.23	536	0.000***
Intention to vote for LDPR	0.04	433	0.05	536	0.443
Intention to vote against all	0.05	433	0.08	536	0.261
Intended to vote	0.88	685	0.89	776	0.616
Vote for OVR	0.07	572	0.11	586	0.059*
Vote for Unity	0.30	572	0.24	586	0.129
Vote for SPS	0.05	572	0.14	586	0.002***
Vote for Yabloko	0.04	572	0.08	586	0.022**
Vote for KPRF	0.39	572	0.25	586	0.001***
Vote for LDPR	0.04	572	0.04	586	0.730
Vote against all	0.02	572	0.03	586	0.705
Turnout	0.81	730	0.79	786	0.423
Male	0.38	753	0.40	822	0.565
Age	47.90	753	28.89	822	0.402
Finished high school	0.74	751	0.81	819	0.023**
Married	0.70	752	0.63	818	0.049**
Consumption index	1.38	743	1.64	812	0.041**
Political knowledge	6.64	753	6.49	822	0.179
Reads newspapers	0.31	753	0.27	822	0.084*
Listens to radio	0.31	753	0.39	822	0.004***

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3. Effect of NTV on voting behavior, aggregate data

	Opposed by NTV		Supported by NTV					
	Vote for Unity (pro-government)		Vote for OVR (centrist)		Vote for SPS (Liberal)		Vote for Yabloko (Liberal)	
NTV1999	-2.577	-2.5198	0.5457	0.5457	0.9059	0.8023	0.9095	0.7668
	[0.5103]***	[0.5260]***	[0.2382]**	[0.2382]**	[0.1771]***	[0.1583]***	[0.1233]***	[0.1153]***
Electoral controls from 1995	No	Yes	No	No	No	Yes	No	Yes
Socioeconomic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1869	1568	1869	1869	1869	1568	1869	1568
R-squared	0.67	0.68	0.79	0.79	0.76	0.81	0.75	0.84
Number of regions	80	78	80	80	80	78	80	78

	No bias by NTV							
	Vote for KPRF (Communists)		Vote for LDPR (Nationalists)		Vote against all		Voter turnout	
NTV1999	0.1081	0.2368	-0.1949	-0.1867	0.2635	0.2282	-0.6489	-0.4218
	[0.3761]	[0.2979]	[0.1280]	[0.1142]	[0.0551]***	[0.0563]***	[0.3064]**	[0.2620]
Electoral controls from 1995	No	Yes	No	Yes	No	Yes	No	Yes
Socioeconomic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1869	1568	1869	1568	1869	1568	1869	1568
R-squared	0.73	0.82	0.73	0.78	0.66	0.74	0.68	0.8
Number of regions	80	78	80	78	80	78	80	78

All variables are measured in percentages. Electoral controls include the results of Duma elections in December 1995, in particular vote for KPRF (Communists), vote for Yabloko, vote for NDR (Our Home is Russia), vote for LDPR (Liberal-Democratic Party of Russia), vote for Women of Russia, vote for Communists of USSR, vote for KRO (Congress of Russian Communities), vote for PST, vote for DVR (Democratic Russia's Choice), vote APR (Agrarian Party of Russia), vote "against all," voter turnout. The set of socioeconomic controls includes log of population, population change, migration rate, log of average wage, average pension, fraction of retired people, fraction of unemployed, number of people employed in farms, crime rate. Robust standard errors clustered by region in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4. Correlates of availability of NTV in 1999.

	Availability of NTV in 1999 (0 or 1)			
	(1)	(2)	(3)	(4)
Vote for KPRF (Communists) in 1995, %	0.001	0.0006	0.0009	-0.0005
	[0.0026]	[0.0021]	[0.0027]	[0.0022]
Vote for LDPR in 1995, %	-0.0009	0.0005	-0.0036	-0.0018
	[0.0032]	[0.0025]	[0.0034]	[0.0026]
Vote for NDR (Our Home is Russia) in 1995, %	0.0014	0.0011	-0.0005	-0.0017
	[0.0027]	[0.0023]	[0.0029]	[0.0025]
Vote for Yabloko in 1995, %	0.0213	0.001	-0.003	-0.008
	[0.0072]***	[0.0045]	[0.0075]	[0.0047]*
Vote for Women of Russia in 1995, %	-0.0053	0.0036	0.0057	0.0064
	[0.0074]	[0.0052]	[0.0092]	[0.0066]
Vote for Communists of USSR in 1995, %	0.0027	-0.0005	0.0054	0.0005
	[0.0051]	[0.0041]	[0.0054]	[0.0042]
Vote for KRO in 1995,	0.0199	0.0096	0.0101	0.007
%	[0.0079]**	[0.0054]*	[0.0083]	[0.0059]
Vote for PST in 1995, %	0.0281	0.0212	0.0103	0.013
	[0.0100]***	[0.0064]***	[0.0104]	[0.0066]**
Democratic Russia's Choice, %	0.0069	0.0016	-0.0022	-0.0041
	[0.0061]	[0.0057]	[0.0065]	[0.0064]
Vote for APR (Agrarian Party of Russia) in 1995, %	-0.0019	-0.0016	0.0005	-0.0022
	[0.0027]	[0.0021]	[0.0029]	[0.0023]
Vote against all in 1995, %	0.01	0.0068	0.0181	0.0058
	[0.0125]	[0.0091]	[0.0159]	[0.0114]
Voter turnout in 1995, %	-0.0057	-0.0021	0.0007	0.001
	[0.0016]***	[0.0012]*	[0.0019]	[0.0015]
Availability of NTV in 1997		0.745		0.7222
		[0.0229]***		[0.0278]***
Ln (Population), 1998			0.2063	0.0715
			[0.0162]***	[0.0139]***
Population change, 1998			-0.0058	-0.001
			[0.0053]	[0.0018]
Migration rate, 1998			0.0025	-0.0027
			[0.0090]	[0.0075]
Ln(Average wage), 1998			0.1383	-0.1369
			[0.4385]	[0.2765]
Average pension, in thousands of rubles, 1998			0.0151	0.0374
			[0.0455]	[0.0297]
Fraction of retired people, 1998			-0.0018	-0.0015
			[0.0022]	[0.0012]
Fraction of unemployed, 1998			0.0115	-0.0057
			[0.0078]	[0.0055]
Fraction of population employed in farms, 1998			0.0085	-0.0004
			[0.0112]	[0.0062]
Crime rate, 1998			0.0001	0.000
			[0.0001]	[0.0001]
Region fixed effects	Yes	Yes	Yes	Yes
Observations	1948	1948	1568	1568
R-squared	0.30	0.68	0.38	0.69
F-statistics, electoral variables	14.99	5.28	0.85	1.33
F-statistic, socioeconomic variables			20.15	4.56

Linear probability model. Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. Placebo regressions for the elections of 1995.

	Vote for NDR		Vote for KRO		Vote for Democratic Russia's choice		Vote for Yabloko	
NTV1999	-0.3654	-0.1368	0.065	0.1707	-0.2291	-0.0499	-0.0802	0.0354
	[0.3426]	[0.2292]	[0.1722]	[0.1292]	[0.3774]	[0.1657]	[0.1890]	[0.1841]
Socioeconomic controls from 1996	Yes	No	Yes	No	Yes	No	Yes	No
Socioeconomic controls from 1998	No	Yes	No	Yes	No	Yes	No	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	848	1568	848	1568	848	1568	848	1568
R-squared	0.58	0.59	0.69	0.69	0.56	0.59	0.75	0.77
Number of regions	46	78	46	78	46	78	46	78

	Vote for KPRF		Vote for LDPR		Vote against all		Voter turnout	
NTV1999	-0.2961	-0.017	-0.0456	-0.5115	0.054	0.0683	-0.7811	0.0188
	[0.7046]	[0.4892]	[0.4207]	[0.3425]	[0.0776]	[0.0482]	[0.8235]	[0.5551]
Socioeconomic controls from 1996	Yes	No	Yes	No	Yes	No	Yes	No
Socioeconomic controls from 1998	No	Yes	No	Yes	No	Yes	No	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	848	1568	848	1568	848	1568	848	1568
R-squared	0.78	0.73	0.62	0.64	0.69	0.68	0.58	0.63
Number of regions	46	78	46	78	46	78	46	78

All variables are measured in percentages. The set of socioeconomic controls includes log of population, population change, migration rate, log of average wage, average pension, fraction of retired people, fraction of unemployed, number of people employed in farms, crime rate. Data on socioeconomic characteristics prior to 1996 is not available, and the coverage for 1996 is very limited. Unfortunately, the data on socioeconomic characteristics of subregions prior to 1996 is not available, and the coverage for 1996 is very limited. For this reason we report the results controlling for the characteristics both in 1996 and in 1998. The tables shows that the coefficients for NTV remain insignificant regardless of the set of controls we use. Robust standard errors clustered by region in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. Placebo regressions for the elections of 2003.

	Vote for Unity		Vote for APR		Vote for SPS		Vote for Yabloko	
NTV1999	-0.0002	0.0074	-0.0008	0.0013	0.0004	-0.0024	0.0048	0.0008
	[0.0060]	[0.0061]	[0.0022]	[0.0021]	[0.0015]	[0.0012]*	[0.0010]***	[0.0008]
Electoral controls from 1999	No	Yes	No	Yes	No	Yes	No	Yes
Socioeconomic controls from 1998	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1833	1833	1833	1833	1833	1833	1833	1833
R-squared	0.72	0.78	0.66	0.68	0.6	0.67	0.73	0.84
Number of regions	80	80	80	80	80	80	80	80

	Vote for KPRF		Vote for LDPR		Vote against all		Voter turnout	
NTV1999	-0.0041	-0.0034	-0.0035	-0.0006	0.002	-0.0007	-0.0028	0.0023
	[0.0030]	[0.0029]	[0.0022]	[0.0017]	[0.0008]**	[0.0008]	[0.0042]	[0.0038]
Electoral controls from 1999	No	Yes	No	Yes	No	Yes	No	Yes
Socioeconomic controls from 1998	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1833	1833	1833	1833	1833	1833	1833	1833
R-squared	0.59	0.72	0.76	0.84	0.68	0.79	0.73	0.84
Number of regions	80	80	80	80	80	80	80	80

All variables are measured in percentages. Electoral controls include the results of Duma elections in December 1999, in particular vote for OVR, vote for Unity, vote for SPS, vote for Yabloko, vote for KPRF, vote for LDPR, vote "against all," voter turnout. The set of socioeconomic controls includes log of population, population change, migration rate, log of average wage, average pension, fraction of retired people, fraction of unemployed, number of people employed in farms, crime rate. Robust standard errors clustered by region in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. The first stage estimation.

	Watches NTV	
NTV1999	0.1996	0.1383
	[0.0426]***	[0.0513]***
Sex (1 if male)	0.074	0.0491
	[0.0311]**	[0.0396]
Age	-0.0019	-0.0023
	[0.0010]*	[0.0013]*
Finished high school	0.0882	0.1007
	[0.0436]**	[0.0531]*
Marital status (1 if married)	0.0205	0.0301
	[0.0323]	[0.0414]
Consumption index	0.0251	0.0293
	[0.0114]**	[0.0147]**
Ln (population), 1998	-0.0539	-0.0695
	[0.0132]***	[0.0176]***
Ln (Average wage)	0.1667	0.2209
	[0.0392]***	[0.0523]***
Intention to vote for OVR in 1999		-0.0017
		[0.0708]
Intention to vote for KPRF in 1999		0.0284
		[0.0586]
Intention to vote for Unity in 1999		0.0057
		[0.0703]
Intention to vote for Yabloko in 1999		-0.0061
		[0.0739]
Intention to vote for LDPR in 1999		-0.0868
		[0.1024]
Intention to vote for SPS in 1999		0.0624
		[0.0850]
Intention to vote against all in 1999		-0.0901
		[0.0956]
Observations	1185	786
R-squared	0.09	0.08
F-statistics for the exclusion of NTV1999	21.93	7.26

Robust standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 8. Intention to vote and NTV.

	Opposed by NTV		Supported by NTV					
	Unity (pro-government)		OVR (centrist)		SPS (Liberal)		Yabloko (Liberal)	
	IV	OLS	IV	OLS	IV	OLS	IV	OLS
Watches NTV	-1.1199	-0.0056	1.9513	0.0311	-1.7013	0.1176	1.6762	1.9513
	[0.8775]	[0.1465]	[0.1531]***	[0.1509]	[0.3386]***	[0.1764]	[0.4432]***	[0.1531]***
Marginal effect	-0.29	0.00	0.58	0.01	-0.51	0.01	0.40	0.58
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	786	786	786	786	786	786	786	786
Number of subregions	41	41	41	41	41	41	41	41
χ^2 statistics for the exclusion of NTV1999 in the first stage	7.17		7.17		7.17		7.17	7.17

	No bias by NTV							
	KPRF (Communists)		LDPR (Nationalists)		Vote against all		Voter turnout	
	IV	OLS	IV	OLS	IV	OLS	IV	
Watches NTV	-1.1376	0.0896	-0.2079	-0.1865	-0.0714	-0.2083	1.2923	-0.1605
	[0.7106]	[0.1033]	[2.4700]	[0.1755]	[1.9784]	[0.1824]	[0.4354]***	[0.1620]
Marginal effect	-0.41	0.03	-0.02	-0.02	-0.01	-0.02	0.34	-0.02
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	786	786	786	786	786	786	1105	1105
Number of subregions	41	41	41	41	41	41	41	41
χ^2 statistics for the exclusion of NTV1999 in the first stage	7.17		7.17		7.17		18.03	

Probit model. In the IV regressions Watched NTV variable from the pre-election survey is instrumented by the presence of NTV dummy. Observations are weighted by sample survey weights. Vector of controls includes dummy variables for sex, age, marital status, education, consumption index, logarithm of subregional population and logarithm of average wage in subregion. Robust standard errors clustered by subregion in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 9. Reported vote and NTV.

	Opposed by NTV		Supported by NTV					
	Unity (pro-government)		OVR (centrist)		SPS (Liberal)		Yabloko (Liberal)	
	IV	OLS	IV	OLS	IV	OLS	IV	OLS
Watches NTV	-1.1887	-0.1385	[0.3383]***	[0.1545]	-0.1503	0.272	1.006	0.0389
	[0.5290]**	[0.1284]	0.45	0.02	[1.1235]	[0.1493]*	[1.0605]	[0.1791]
Marginal effect	-0.42	-0.05	Yes	Yes	-0.02	0.04	0.12	0.00
Controls	Yes	Yes	901	901	Yes	Yes	Yes	Yes
Observations	901	901	41	41	901	901	901	901
Number of subregions	41	41	17.12		41	41	41	41
χ^2 statistics for the exclusion of NTV1999 in the first stage	17.12		[0.3383]***	[0.1545]	17.12		17.12	

	No bias by NTV							
	KPRF (Communists)		LDPR (Nationalists)		Vote against all		Voter turnout	
	IV	OLS	IV	OLS	IV	OLS	IV	
Watches NTV	-0.7144	0.0518	-1.0177	-0.1001	-1.6091	0.0085	0.9397	0.1025
	[0.5143]	[0.1095]	[1.1215]	[0.1391]	[0.9076]*	[0.1982]	[0.9350]	[0.1153]
Marginal effect	-0.25	0.02	-0.13	-0.01	-0.33	0.00	0.27	0.03
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	901	901	901	901	901	901	1148	1148
Number of subregions	41	41	41	41	41	41	41	41
χ^2 statistics for the exclusion of NTV1999 in the first stage	17.12		17.12		17.12		21.92	

Probit model. In the IV regressions Watched NTV variable from the pre-election survey is instrumented by the presence of NTV dummy. Observations are weighted by sample survey weights. Vector of controls includes dummy variables for sex, age, marital status, education, consumption index, logarithm of subregional population and logarithm of average wage in subregion. Robust standard errors clustered by subregion in brackets. *significant at 10%; ** significant at 5%; *** significant at 1%

Table 10. Reported vote controlling for intention to vote and for undecided voters.

	Opposed by NTV		Supported by NTV					
	Unity (pro-government)		OVR (centrist)		SPS (Liberal)		Yabloko (Liberal)	
	Full sample	Undecided Only	Full sample	Undecided Only	Full sample	Undecided Only	Full sample	Undecided Only
Watched NTV	-0.5781	-1.3069	1.9148	0.6178	0.4476	0.9087	0.47	-0.0188
	[1.1488]	[0.4701]***	[0.2125]***	[1.0290]	[2.2377]	[1.1503]	[2.0755]	[1.1633]
Marginal effect	-0.19	-0.47	0.51	0.07	0.06	0.10	0.02	0.00
Intention to vote	Yes	No	Yes	No	Yes	No	Yes	No
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	656	245	578	245	443	245	518	245
Number of subregions	41	39	41	39	40	39	41	39
χ^2 statistics for the exclusion of NTV1999 in the first stage	6.84	21.13	5.96	21.13	2.87	21.13	5.15	21.13

	No bias by NTV							
	KPRF (Communists)		LDPR (Nationalists)		Vote against all		Voter turnout	
	Full sample	Undecided Only	Full sample	Undecided Only	Full sample	Undecided Only	Full sample	Undecided Only
Watched NTV	-1.5878	0.3965	-1.8251	1.1256	-2.0841	1.2884	-0.8625	0.8381
	[0.7172]**	[0.7032]	[0.3755]***	[0.5103]**	[0.1037]***	[0.7905]	[1.1745]	[0.5324]
Marginal effect	-0.56	0.11	-0.49	0.10	-0.68	0.13	-0.17	0.30
Intention to vote	Yes	No	Yes	No	Yes	No	Yes	No
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	631	245	656	245	631	186	764	384
Number of subregions	41	39	41	39	41	36	41	39
χ^2 statistics for the exclusion of NTV1999 in the first stage	3.89	21.13	6.84	21.13	3.89	24.91	7.1	21.83

Probit model. Watched NTV variable form the post-election survey instrumented by the presence of NTV dummy. In columns marked "Undecided only" only respondents that did not report their intention to vote in the pre-election survey are included in the sample. Observations are weighted by sample survey weights. Vector of controls includes dummy variables for sex, age, marital status, education, consumption index, logarithm of subregional population and logarithm of average wage in subregion. Controls for intention to vote include dummy variables for intention to vote for 6 major parties and "Against all." Robust standard errors clustered by subregion in brackets.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 11. Effect of NTV on reported vote interacted with individual characteristics.

	Vote for OVR	Vote for Unity	Vote for OVR	Vote for Unity	Vote for OVR	Vote for Unity	Vote for OVR	Vote for Unity	Vote for OVR	Vote for Unity	Vote for OVR	Vote for Unity
Reads Newspapers× NTV	-0.4944	0.4711										
	[0.2597]*	[0.2368]**										
Reads Newspapers	0.3901	-0.4486										
	[0.1964]**	[0.1511]***										
Listens to Radio× NTV			0.2578	0.0278								
			[0.3012]	[0.1978]								
Listens to Radio			-0.1315	-0.0634								
			[0.2126]	[0.1522]								
Political Knowledge× NTV					-0.1165	0.054						
					[0.0650]*	[0.0433]						
Political Knowledge					0.1226	-0.0448						
					[0.0576]**	[0.0312]						
Finished high school× NTV							-0.7317	-0.1546				
							[0.4399]*	[0.2627]				
Finished high school							-0.2598	-0.1957				
							[0.1423]*	[0.1191]				
Retired× NTV									0.5598	0.2861		
									[0.2598]**	[0.2240]		
Retired									-0.233	-0.1767		
									[0.2232]	[0.2546]		
(Age-18)× NTV											0.0273	0.0105
											[0.0081]***	[0.0065]
Age-18											-0.0159	-0.0216
											[0.0073]**	[0.0052]***
NTV	0.869	-0.4143	0.5777	-0.2781	1.573	-0.6672	1.2657	-0.1463	0.5035	-0.346	-0.1148	-0.5682
	[0.2360]***	[0.1429]***	[0.2349]**	[0.1197]**	[0.5063]***	[0.3195]**	[0.3899]***	[0.2604]	[0.1974]**	[0.1445]**	[0.3024]	[0.2135]***
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	901	901	901	901	901	901	901	901	901	901	901	901
Number of subregions	41	41	41	41	41	41	41	41	41	41	41	41

Vector of controls includes dummy variables for sex, age, marital status, education, consumption index, logarithm of subregional population and logarithm of average wage in subregion. *significant at 10%; ** significant at 5%; *** significant at 1%