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DISASTER'S IMPACT ON ATTITUDES
TOWARD THE GOVERNMENT IN
RURAL RUSSIA**

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TRIAL BY FIRE: A NATURAL DISASTER'S IMPACT ON SUPPORT FOR AUTHORITIES IN RURAL RUSSIA^{**}

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This study aims to explore the psychological foundations of political support under a non-democratic regime by investigating the impact of a natural disaster on attitudes toward the government. The research exploits the enormous wildfires that occurred in rural Russia during the summer of 2010 as a natural experiment. Since wildfire spreads due to the direction of the wind, the local distribution of fire is as if random: one village may burn while the neighboring village is left unscathed. We test the effects of this exogenous variation with a survey of almost 800 respondents in randomly selected villages, 34 of which were burned and 36 of which were unburned, in the four regions of Russia that were most severely affected. Contrary to the conventional scholarly wisdom that suggests that natural disasters cause people to blame politicians, our study finds that in the burned villages there is higher support for the government at all levels, namely for the United Russia Party, the village head, the governor, Prime Minister Putin, and President Medvedev. Most counterintuitively, the rise of support for authorities cannot be fully explained by the generous governmental aid provided to the villages that were damaged by the fires. We interpret the results within the framework of system justification theory, developing it by adding to individual characteristics the factors of the political regime and the demonstration effect.

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Keywords: political support, attitudes, natural disasters, authoritarianism, natural experiments, Russia

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1 Introduction

When and why do people support the government? When and why do they lend support to a non-democratic regime? How do exogenous shocks affect these attitudes?

The issues of political support and legitimacy are the cornerstones of political science. Since the pioneering works of Max Weber and the development of the problem by David Easton, Seymour Martin Lipset, and other leading scholars, legitimacy is considered to be a complex phenomenon that is ultimately expressed in attitudes toward the political system in general and particular governmental bodies (Lipset, 1960; Rogowski 1974; Easton, 1975; Dalton 2004).

Theoretically, it is especially interesting to understand the problem of popular support for a non-democratic government (Geddes and Zaller, 1989; Colton and McFaul, 2003; Magaloni, 2006). In the case of Russia that is examined in the current work, it was found that public support for Vladimir Putin and his political system depends on the perceptions of economic performance, which, in turn, reflected objective economic indicators (Treisman, 2011; Ross and Munro, 2011). Other important factors include control over the media and political sphere (Wilson, 2005) and the imposition of high formal barriers to enter the political market, which eliminates serious challengers. However, all of these factors cannot fully explain the logic of political support in non-democracies, which is often unpredictable by the measures of economic performance and political repression (Magaloni, 2006). It is clear that no political regime can survive only through the use of force or money: some kind of legitimacy, that is, the belief in the rightness of authority, is required (Tyler, 2006). We argue that for more a comprehensive understanding of the nature of political support, scholars should examine attitudinal changes under out-of-equilibrium conditions that could elucidate more obscure and deeper foundations of the legitimacy of the regime, which are rooted in individual and collective psychology. For example one may refer to the “rally ‘round the flag effect” (Mueller, 1970) that explains short-term increase in political support for the President of the US during periods of wars and international crises. Another insightful example of the study of attitudinal change in the out-of-equilibrium conditions can be found in Erikson and Stoker (2011), who exploited military draft lottery from the time of the Vietnam War as a source of exogenous shock. In our view, a unique opportunity to test the determinants of political support is provided by natural disasters.

Natural disasters have been treated as a political variable since the pioneering work of Abney and Hill (1966), who showed the effects of hurricanes on the results of urban elections. However, the theme did not attract serious scholarly attention until the path-breaking work of Achen and Bartels (2004), who presented evidence that citizens blame the incumbent government for different natural disasters. The most striking case is the wave of public

opposition to Woodrow Wilson in the shore counties of New Jersey that suffered from unprecedented shark attacks a couple of months before the 1916 elections. Achen and Bartels also provide numerous examples, including ancient Egypt, where pharaohs were occasionally overthrown in seasons when the Nile did not flood; Medieval Europe, where Jewish people were murdered during the plague years; and modern America, where voters supported the opposition party as a result of exposure to drought. These results challenge conventional scholarly wisdom on the democratic responsiveness and rational choice models of retrospective voting (Fiorina, 1981) that dominated the discipline for a long time. Achen and Bartels stress that voters are actually irrational or “blind” in their attribution of blame to politicians.

In contrast, Arceneax and Stein (2006) and Gasper and Reeves (2011) found that voters are not “blind” and their behavior is not absurd: they punish politicians for severe weather damage only if responsible officials performed badly. In line with this finding, Healy and Malhotra (2009) reported that voters disregard politicians’ preventative actions, but reward them for delivering relief funds.

The interest in natural disasters’ effects skyrocketed with the 2005’s Hurricane Katrina. For example, Malhotra and Kuo (2008) studied public responses to it and found that the attribution of blame to different levels of government had a partisan bias and Chen (2011a, 2011b) showed how relief spending affected political participation among different groups of voters.

Recently, the use of natural disasters to explore political phenomena went beyond the limits of the US material. Bechtel and Heinmuller (2011) exploiting the Elbe flooding of 2002, found that massive aid increased incumbent party vote share in German general elections and the effect of “voter’s gratitude” is persistent over time. Similar results came from India: Cole et al. (2012) showed that voters there punish the incumbent party for bad weather, but provision of relief slightly mitigates this effect.

However, despite the presence of interesting and controversial findings, the debate on the impact of natural disasters on politics is limited to the evidence from democratic countries and relied mostly on aggregated observational data.

Our study aims to explore the impact of natural disasters on political attitudes toward the government under an authoritarian regime using a natural experiment methodology and relying on individual-level data. In particular, we study the impact of the enormous wild fires that occurred in rural Russia in the summer of 2010 on public support for different levels of government.

The Russian wildfires in 2010 were the most disastrous in the national recorded history. The fires burned more than 500,000 hectares of land. More than 50 people died and more than

1200 houses were destroyed. President Dmitry Medvedev declared a state of emergency in seven regions and Prime Minister Putin personally participated in the fire-fighting operations.

The main cause of the fires was the abnormally high temperatures throughout Russia. However, many observers and citizens also blamed the authorities for their poor performance in preventing and combating fires. Therefore, the fires challenged the “power vertical”, the authoritarian system of government built by Vladimir Putin. This system, which was presented as an effective administrative mechanism, has shown its rigidity, inefficiency, and incompetence. This challenge should be recognized as a crucial one, if one considers that rural areas are the strongholds of Putin and his party “United Russia”. Therefore, an analysis of the impact of the natural disaster on the affected villagers’ political attitudes has solid explanatory power for broader problems such as the causes of the sustainability of Putin’s regime and popular support for autocracies in general.

The wildfires of 2010 have already attracted scholarly attention. Schultz and Libman (2011) used them as an exogenous shock to test the idea of local knowledge advantage for governmental performance. And Szakonyi (2011), in line with the logic of our study, explored the effect of fires on voting results for the ruling United Russia Party in the regional elections that were held in October 2010, just two months after the disaster. He found that in areas that experienced greater fire damage, the electoral results of the party were lower than the average. Based on this result, he claimed that voters punished United Russia for the disaster. Moreover, the author also found evidence for the government’s responsiveness – anticipating public anger, United Russia altered their electoral strategy and put forth non-incumbent candidates with less legislative experience, which was interpreted by the author as a sign of accountability. Thus, Szakonyi’s study shows that there are no major differences in the blaming patterns of citizens under authoritarian and democratic regimes and that Russian voters behave like their American counterparts. Although this study has a coherent logical structure and empirical support for its claims, it suffers from several methodological and substantial problems. First, the regions that were included in the study were not among the most severely affected areas: the fires had only a marginal effect in the majority of the regions Szakonyi examined. Second, the author used the satellite imagery of heat as an indirect measure of fire damage, instead of looking at the number of destroyed houses or the level of economic losses. Finally, the author was not able to control for the possible omitted variables that drive the relationship. Our study hopes to overcome the highlighted problems and test the validity of Szakonyi’s results.

A principal innovation of our study is the use of a natural experiment research design. Since wildfire spreads due to the direction of the wind, the local distribution of fire is as if random: one village may be burned while the neighboring village is left unscathed. We test the

effects of this exogenous variation with individual-level data through a survey of almost 800 respondents in the four most severely affected regions of Russia, namely Nizhny Novgorod, Ryazan, Lipetsk, and Voronezh oblast, in 34 burned and 36 unburned villages that were randomly selected.

This approach helps us to reach some intriguing results. Contrary to the conventional scholarly wisdom, our study finds that in the severely affected villages, there is higher support for the government at all levels, namely for the United Russia Party, the village head, the governor, Prime Minister Putin, and President Medvedev. And, most counterintuitively, the rise of support for authorities cannot be fully explained by the generous governmental aid provided to the villages that were damaged by the fires. We interpret these findings within the framework of system justification theory, developing it by adding to individual characteristics the factor of political regime and the demonstration effect.

2 Hypotheses

The most influential theories of legitimacy within political science are built around the idea of perceived ability of authorities to deliver desirable and fair outcomes as the key determinant of political support (Rogowski, 1974). The literature on retrospective voting and the vast majority of the research on political economy of disasters, reviewed in the previous section, are based on this logic. It is assumed that support for authorities is derived from the calculation of the relation between the losses from the disaster and aid delivered by the government.

In line with the previous research our main hypothesis is *that exposure to the natural disaster leads people to blame the government and thus to develop negative attitudes toward it.*^{††}

We test this general hypothesis on attitudes toward particular governmental bodies at the all levels of power, namely the head of the village, governor, Prime Minister Putin, President Medvedev and United Russia Party.^{‡‡} This allows us to differentiate the blaming effect and check its sustainability.

^{††} Our theoretical framework encompasses political support with the attitudes toward the different governmental bodies. We follow the standard definition of attitude elaborated in psychology, which is “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly and Chaiken, 1998, p. 1; see also Allport, 1935).

^{‡‡} Although we study attitudes toward particular governmental bodies, which is labeled in the literature as specific political support (Easton, 1975), our theoretical assumptions can also address the problem of legitimacy or, in other words, diffuse political support. This is because attitudes toward politicians in an unstable institutional environment provide a comprehensive aggregate assessment of people’s support for the regime in general.

The literature on blame attribution distinguishes between two types of blame: blame for causing a problem and blame for failing to treat or rectify a problem (Iyengar 1989, 1991; Javeline, 2003). In our study we test the impact of both types, asking about the blame of the government for the occurrence of the fires and asking for an evaluation of the relief and reconstruction programs.

To analyze the assumed causal mechanisms behind the negative effect of fires on support for authorities we test the hypotheses that *people, who blame government for the fires, tend to support the authorities less. And, people, who are dissatisfied with the relief measures, tend to support the authorities less.*

The main alternative hypothesis that stress that *exposure to the natural disaster leads to increase in support for authorities* could be most easily attributed to the idea that the loyalty of the suffered populations was bought by the governmental aid.^{§§}

Thus, both the main and alternative hypotheses, which are derived from the existing literature, are based on the assumption of the determining role of self-interest in the attitudinal formation (see Sears and Funk, 1991 for a review). Saying in the utilitarian terms, it is supposed that if the pain from the disaster overcame the pleasure from the governmental aid, people tend to blame the government and express non-confidence in authorities. Otherwise, when pleasure from the relief is bigger than pain from the disaster people express gratitude to the government and tend to support authorities more.

However, hypotheses based on outcome favorability idea do not cover all salient factors that determine political support. For example, the research in political psychology demonstrated the principal role of the perceptions of procedural justice in enhancing legitimacy (Tyler, 2006). According to this perspective, hypothesis on the impact of satisfaction with the relief measures could be interpreted in terms of perceived fairness, not only material gains.

Furthermore, the recent advances in social psychology allow to hypothesize that *increase in support for authorities in the burned villages could be caused not only by the aid provision, but by the emotional, behavioral and cognitive responses* to the disaster and government performance during and after it. This idea is grounded on system justification theory (Jost and Banaji, 1994; Jost et al. 2004; van der Toorn et. al. 2011), which argues that people are motivated to see their authorities as relatively fair and just to defend existing social arrangements even when doing so is not necessary in their own interest. According to the theory, this effect is more pronounced when a) the system is threatened; b) the system is perceived to be inevitable;

^{§§} In research on attitudes, null results can be attributed not only to the absence of a statistically significant relationship, but also to the presence of ambivalence, that is, simultaneous possession of positive and negative attitudes toward the object.

or c) one feels dependent on (or controlled by) the system. It is also supposed that, if people justify the social system in part because they are dependent on it, they should also justify the position of groups and individuals who control that system. The more people feel dependent on an authority figure, the more they may be motivated to perceive him or her as legitimate. In general, legitimacy contributes to power, but power can also lead to legitimacy through the process of system justification. We argue that in the conditions of the natural disaster power is actualized and by the mechanisms of general fear that accompanies all natural disasters, and increase in dependency from the government that leads to the rise of loyalty and political support for authorities. In addition, natural disasters provide a lot of space for the expression of symbolic power – for instance, relief measures can be presented as opportunity for the “strong leader” to take care of the population.

Alternatively, the rival hypotheses of our study could be conceptualized with the notion of expectations. Within this framework, a decrease in political support for governmental bodies in the affected villages would be attributed to the failure to meet expectations about government performance in preventing and fighting the fires and providing relief. On the other hand, an increase in support for authorities among residents of the burned villages could be caused by exceeding expectations regarding the amount of aid and the effectiveness of relief measures. This conceptual approach reframes the complicated set of emotions, behavioral experience and cognitive calculations in the more stylized one-dimensional model of expectations.

3 Social Context

Our theoretical predictions are tested on very specific and interesting empirical material. Contemporary rural Russia is almost absent from social sciences inquiry. However, being a mixture of traditionalism, ruins of communism, and the sprouts of modern capitalist relations, it presents an excellent setting for doing social research (O'Brien and Wegren, 2002).

For most of its history, Russia was an agrarian country with a predominantly rural population, but the Great Reforms of the 1860s and especially the collectivization and active industrialization mandated by the Soviet authorities led to rapid urbanization and a decline in the significance of the village. Several developmental lags inherited from the past caused the huge gap in economic prosperity and social norms between the urban and rural areas of Russia (Fitzpatrick, 1994; Gaechter and Herrmann, 2011).

After the collapse of the Soviet Union, the agricultural sector lost its heavy state subsidies. As a result, things fell apart and the population became “the rural proletariat in the Potemkin village” (Allina-Pisano, 2008). Massive migration to the cities was the dominant trend. In many

cases, only the old population and inveterate alcoholics remained in the villages. A quote from one of our respondents, “I have been drinking since 1994 when the last kolkhoz was closed in this area”, perfectly illuminates the depressive picture of the post-soviet Russian village. The economic recovery of the 2000s has slightly changed the situation. In some villages businessmen organized large agro-farms, and in other places people themselves started small-scale farming. In addition, urban dwellers with seasonal houses in the rural areas invested their resources to the local communities. But the demographic and economic crisis is still in place.

In political terms, the Russian village is considered to be conservative. In the 1990s the rural population supported the Communists, but in the 2000s they switched their loyalty to Vladimir Putin and his party “United Russia”. Moreover, along with national republics, the rural areas became the stronghold of Putin’s regime.

The unprecedented wildfires of summer 2010 in central Russia were probably the largest natural disaster in recent history. Starting due to the abnormally hot weather, the fire rapidly spread to large areas, destroying everything in its way. Many observers criticized the government for its inefficient response to the disaster. In addition, people blamed the government for the elimination of the special agency that was responsible for the prevention of forest fires. However, the critique of the government was discussed primarily via the Internet, which remains a rare communication facility in rural Russia. In contrast, on state-controlled television, the leaders of the state were presented as the principal figures in fighting fires and all blame for inefficient performance was attributed to the local and regional levels of government. As a result, 77% of our respondents stated that the primary cause of the fires was the hot weather and about a half (51%) agreed that another key cause was the failure of the government.

After the fires were extinguished, the government organized the large-scale provision of aid to the affected population and began reconstruction works in the burned villages. To all villagers who lost their houses, in a short period of time the government built new ones. In addition, the burned villages received such public goods as new roads and gas. The reconstruction process was under the direct control of the Prime Minister Putin and was organized rather efficiently. However, many people complained about the egalitarian method of the reconstruction process: all families, irrespective of the value of the lost property, received the same typical new houses. All in all, about 70% of our respondents said that they were more or less satisfied with the reconstruction process.

4 Research Design

4.1 Methodology

According to a widely shared definition, an experiment in social sciences is a random assignment of observations to treatment and control conditions such that every unit has the same ex ante probability of receiving the treatment (Gerber and Green, forthcoming). The comparison of means and statistical tests described later in the text show that there are no significant differences between the pre-fire characteristics of the burned and unburned villages, which is consistent with our assumption that our study fits in the experimental framework.

However, our study is not a perfectly controlled experiment, but rather the use of naturally occurring experimental conditions that could potentially contain serious methodological problems (Sekhon, Titiunik, 2012). Our study in particular faces several methodological challenges.

The most important problem is that we have two sources of exogenous variation: exposure to the wildfires and the governmental aid to the burned villages. Although it violates the requirement of excludability of the treatment effect, this setting allows us to test both factors – “pain” from disaster and “pleasure” from the relief measures. In our empirical analysis we try to isolate these effects by looking at mediating outcomes.

Another fundamental requirement to experimental research, which is called SUTVA (stable unit treatment value assumption) and generally means the balance between treatment and control groups, in our case may be vulnerable to a spillover effect problem. In other words it means that exposure to the treatment group of one unit may affect a neighboring one. In the context of natural disaster, spillover may occur either from externalities of the damage or aid provision or from the neighboring villagers’ feelings of envy toward the affected villagers who have received compensation and new houses.

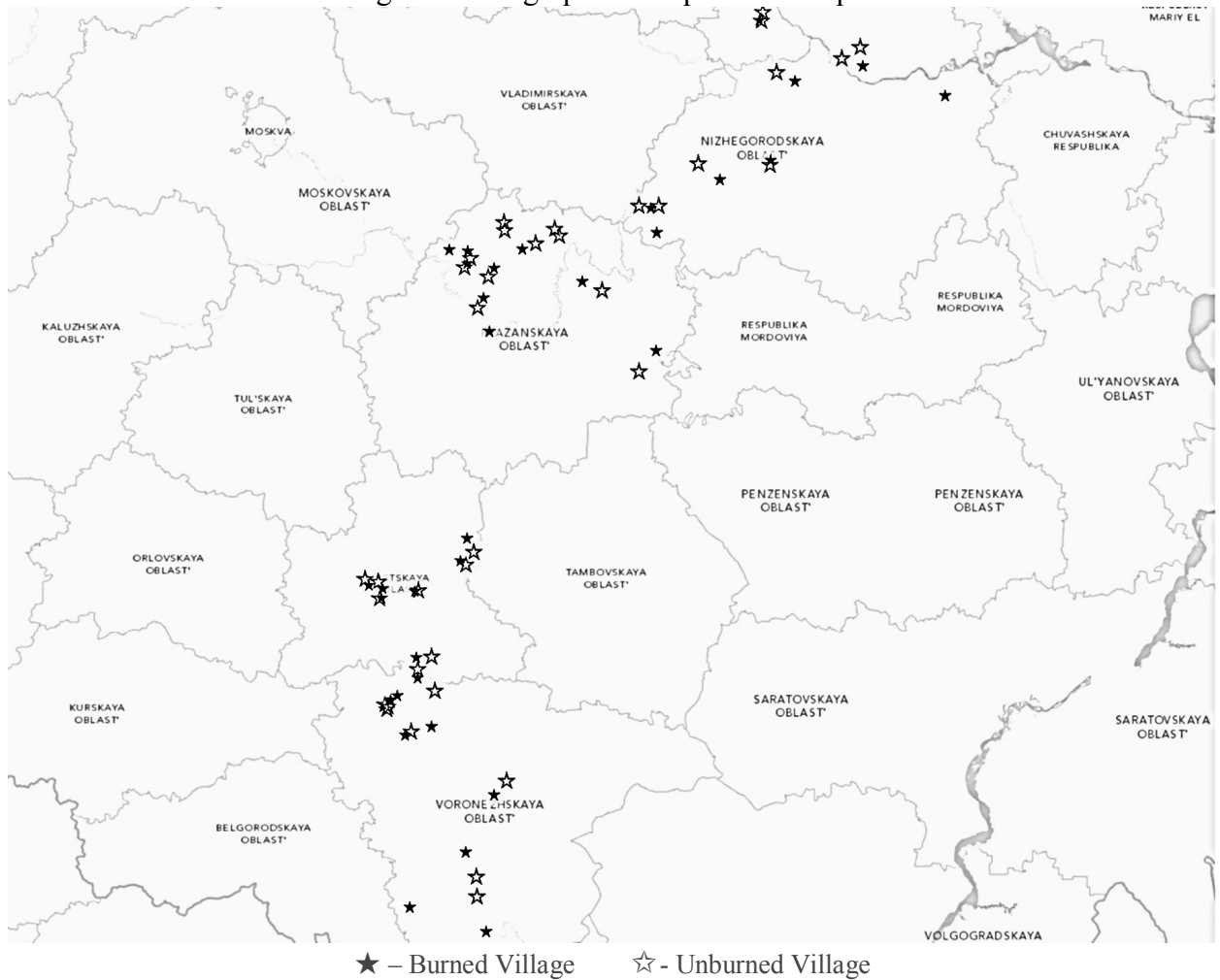
Third, the internal validity of our study may be weakened by the attrition problem, that is, the non-random loss of observations. The problem arises because some people from burned villages left them after the fires, so comparison between the treatment group and the control group may be invalid. We partially solve this problem by surveying one of the resettled villages. However, people who left the rural area and received aid in form of apartments in cities are not represented in our study.

Speaking about external validity, we may note that since natural disasters, unfortunately, occurs fairly often, the logic of this study might be replicated in different settings and therefore it opens a wide perspective for comparative analysis.

4.2 Sampling

We build our sample by the procedure of blocked sampling. The treatment group is comprised of 34 villages from the total sample of 43 villages from the four most severely affected regions of Russia, namely Nizhny Novgorod, Ryazan, Lipetsk, and Voronezh *oblast*. Villages that are not represented in the study are either too small or belong to other administrative units. The control group is comprised of 36 villages from the pool of 160. The geographical map of the sample is drawn in Figure 1.

Figure 1. Geographical map of the sample



The randomization was blocked by region, population size, and distance from the regional capital and municipal center. In addition, half of the control group was chosen from the terrain that is prone to wildfires (coniferous forest areas) and half from the territories with a small risk of wildfire (deciduous forest areas). We did so to create variation in the risk of wildfire and distance from the burned villages, which is used to control for the spillover effect.

In every village we surveyed between 10 and 16 people. In the burned villages we surveyed both those households that suffered from the fires and those who did not in almost equal

proportion (50.7% of our respondents lost all their property in fires and 41.1% of them were not affected at all). The response rate was over 90%.

4.3 Survey

The survey was conducted by the authors and a group of research assistants in July and August of 2011, i.e. exactly one year after the fires. Our survey included various questions on trust, participation in local governance, events related to the fires and fire damage, political awareness (knowledge of the names of politicians), satisfaction with different levels of government, and individual information. The survey had a total of 35 questions.

5 Variables and Data

The dependent variables of the study are drawn from the answers to the questions of the survey which evaluate a respondent's satisfaction with the work of the governmental bodies, namely the head of the village, the governor, the Prime Minister (Putin) and the President (Medvedev). The answers on these questions are based on the Likert scale and include such positions as 1 - fully dissatisfied, 2 - more dissatisfied than satisfied, 3 - more satisfied than dissatisfied, and 4- fully satisfied. The questions also include a response for those who found it difficult to answer. Another outcome of interest, political preferences, are measured by the responses to the question "what party are you going to vote for in December^{***}?" We coded this variable as a binomial that receives a value of 1 if a respondent supports the United Russia party and 0 for all other answers. This choice is justified by the nature of Russian politics and the 2011 Duma campaign in particular, where all political forces were more or less clearly divided into two camps: for United Russia and against.

The main independent variable that shows the exposure to treatment is coded as a binomial variable that receives a value of 1 if the village was burned and a value of 0 if the village is unaffected. A village is considered to be burned if there is at least one burned house. The data that we used for this variable come from the Russian Ministry of Regional Development.

To specify the treatment effect, we use several additional variables. First, we indicate the measure of household victimization from the fires, coding it as binomial variable that receives a value of 1 if a family lost the property in the fire and 0 if not. Second, we include in the analysis the number of reconstructed houses per capita as a good proxy for the level of governmental aid since all money to the affected villages was provided proportionally to this number, which can be found in the official data of the Russian Ministry of Regional Development. In addition, we

^{***}December 4, 2011 – elections to the Russian State Duma.

calculate a variable based on the distance to the closest burned village for all units that constitute the control group. All units in the treatment group received zero values. This measure is used to analyze the spillover effects of the fires. We also constructed two binomial variables on blaming the authorities for the fires and satisfaction with the relief measures from the answers for the questions of the survey. Finally, to catch the demonstration effect or in other words, symbolic power manifestation, we coded the visits of Vladimir Putin to two burned villages.

The analysis includes a set of covariates that are used as controls. They are drawn from both the village and individual levels. The variables at the village level include population size, distance from the regional capital, distance from the municipal center, municipal revenues and expenditures from the 2009 – the year prior to the fires. These data for these variables come from the municipal statistics of the Russian Federation Federal State Statistics Service (ROSSTAT).

The variables at the individual level are measured primarily from the responses to the survey and include residence status (permanent/temporary season residence), gender, age, level of education, and occupational status. We also measure the indicators of communication facilities by asking the respondents about the availability and use of radio, TV, telephone and the Internet in their households.

In addition, we test the variables on the political awareness of the respondents, i.e. their knowledge of who occupied political office at the time of the study, which may have crucial impact of the political attitudes toward the institutions that are represented by these people. These variables are based on simple binary opposition: 1 – the right answer to a question about the identity of an elected official and 0 – the wrong answer, which then are integrated in the index of political awareness.

Finally, to examine the regional fixed effects, we create dummy variables for all four regions that are presented in the study.

6 Empirical Analysis

The first part of the empirical analysis checks the integrity of randomization. For this purpose we used differences in means and the F-test, which basically shows the equality of variances and thus the probability of rejecting the null hypothesis. The results of these tests for village-level variables are presented in Table 1 and for individual-level variables in Table 2.

Table 2. Means and F-test for basic village-level variables

Fire	Population	Territory	Distance from the regional capital	Distance from the municipal center	Revenues	Expenditures
No(N=36)	673.2	146616.4	56.7	18.6	6144486.7	5915200.5
Yes(N=34)	586.8	16513.6	62.3	17.9	6211278.9	5883892
F-test (Sig)	0.183	0.104	0.104	0.276	0.861	0.922

Table 3. Means and F-test for basic individual-level variables

Fire	Residence	Sex	Age	Education	Occupation	Radio	TV	Cell Phone	Internet
No(N=394)	2.2	0.39	53.1	5.1	1.42	0.6	1.1	1.5	1.1
Yes(N=375)	2.8	0.4	55	4.3	1.4	2.2	2.2	2.4	2.1
F-test (Sig)	0.295	0.852	0.100	0.349	0.982	0.05	0.09	0.121	0.21

The results confirm that the assignment to treatment and control groups bears no systematic relationship to the observations. There are no differences on average between the burned and unburned villages in population size, territory, distances from the regional capitals and municipal centers, revenues, and expenditures, and no differences between their inhabitants in age, gender, residence status, education, occupation, and access to communications. The only variable that has a significant F-test score is access to radio, and this fact can be neglected because it can be attributed to the post-fire provision of public goods - all reconstructed houses received radios.

After the confirmation of the reliability of our basic methodological assumption, we turn to testing the hypotheses. The logic behind this process is very simple – we regress our dependent variables on the independent variable and by this means obtain an average treatment effect. Since our unit of analysis is individual and randomization was provided on the village level, we use robust clustered standard errors to exclude possible bias.

Table 4 presents the results of the regressions analysis of the models of support for authorities that include only the dependent variable and predictor, that is, the exposure to treatment effect. For support for the United Russia party that is coded as binomial variable we ran logistic regression and for the ordinal outcomes on support for the governmental bodies, we used ordered logistic regression.

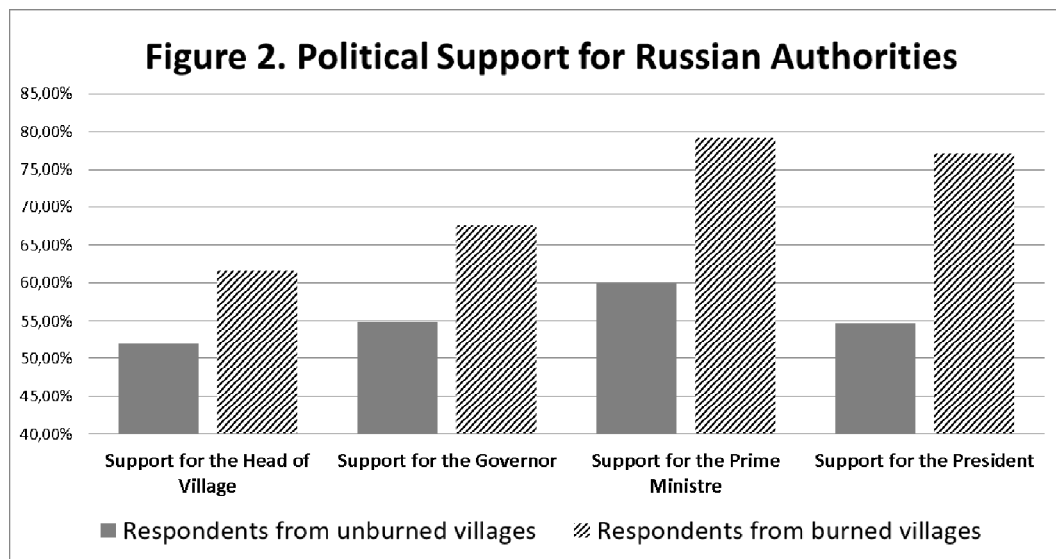
Table 4. The Effect of the Exposure to Fire on Support for Authorities

Independent Variables	United Russia		Village Head		Governor		Prime Minister		President	
	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z
Fire	0.47** (0.2)	2.33	0.35* (0.2)	1.75	0.52** (0.19)	2.65	0.69*** (0.18)	3.71	0.64*** (0.17)	3.7
<i>N</i>	767		635		574		699		692	

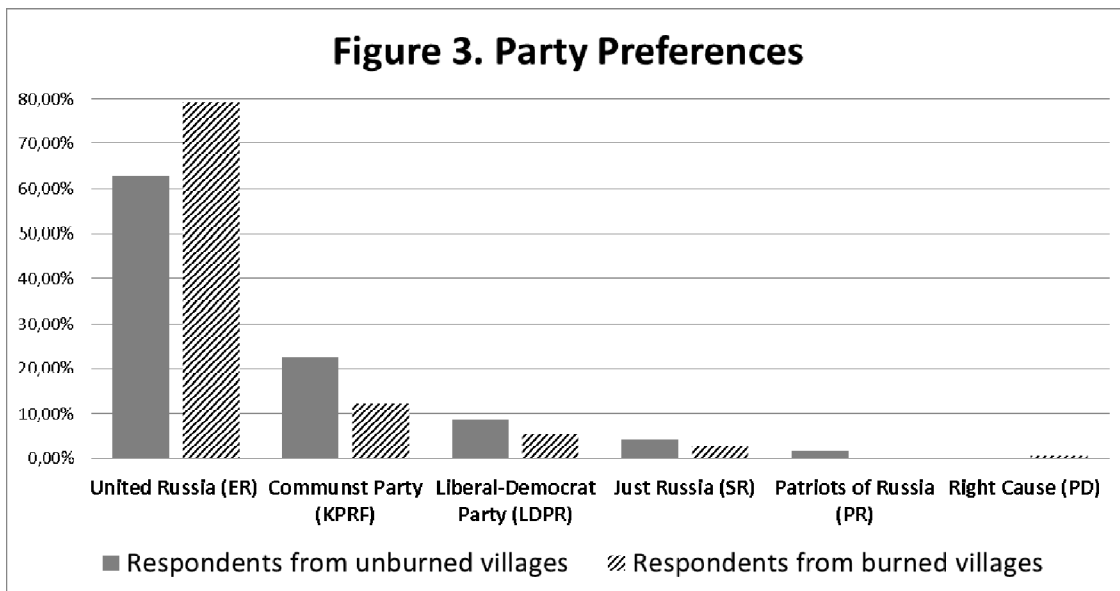
Note: *p<.10, ** p<.05, ***p<.01; standard errors adjusted for clusters by village

The results of the analysis show that the exposure to fire substantively increases support for all levels of government and United Russia Party. These results fully contradict our main hypothesis and confirm the alternative one. They challenge the idea that individuals tend to blame and punish politicians for the natural disasters. In our case it is particularly interesting, because half of our respondents pointed out that the government was actually responsible for the disaster.

To illustrate the gaps in support for authorities we draw a Figure 2.



In addition, to give a more detailed picture of the voting preferences of the respondents, we draw Figure 3 that expresses the levels of support for all parties that participated in the State Duma Elections of 2010.



Further to test the sustainability of the effect we run the models incorporates all controls both on the individual and village level, as well as regional fixed effects. The results are presented in Table 5.

The results of the analysis of the models with all controls are consistent with the ones from the tests of pure treatment effect – exposure to fire increases support for authorities. Even more intriguing, the treatment effect is comparable to the effects of such strong predictors of support for the government as the level of education, gender, and access to the Internet. As our data shows, women, less educated people, and those who do not have Internet access tend to support United Russia and the governmental bodies more. And if we compare the z scores, standardized measures of the effects of the variables, we see that the exposure to fire is one of the strongest predictors of political attitudes in almost all of the models.

After the establishment of the treatment effect, we turn to the exploration of the causal path that leads from the treatment to the outcomes. In general, randomized experimentation is often presented as a “black box” approach to causal inference (Gelman and Hill, 2007), because the researchers have no ability to see how exactly a treatment works.

Indeed, how does the exposure to wildfires lead to higher support for Vladimir Putin and increase the willingness to vote for the United Russia party? The most obvious explanation is that these political attitudes are caused by the generous governmental aid. But how can we test this explanation?

Many techniques try to ascertain the causal path between treatment and outcomes. Most of these techniques are based on regression analysis that includes different post-treatment or mediating variables. However, this approach is heavily criticized because it is based on shaky and restrictive assumptions (Gelman and Hill, 2007; Gerber and Green, forthcoming). The main problem is that the mediator is not randomly assigned and therefore could be systematically

related to unmeasured causes of the outcome. Therefore, we cannot estimate the role of aid by including in the models a measure of subsidies or other relevant variables for public goods provision post-fires, since they may be driven by some unobserved village characteristics.

Table 5. Treatment Effects vs. Controls

Independent Variables	United Russia		Village Head		Governor		Prime Minister		President	
	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z
Fire	0.54** (0.22)	2.42	0.34* (0.2)	1.69	0.53** (0.21)	2.57	0.72*** (0.18)	3.81	0.59*** (0.17)	3.30
Population Size	0.0003 (0.01)	0.24	-0.002 (0.002)	0.51	-0.0004 (0.001)	-0.35	0.002 (0.01)	1.15	0.01 (0.01)	0.94
Distance to regional capital	0.03 (0.02)	1.35	0.003 (0.02)	1.48	0.04 (0.03)	1.29	0.02 (0.02)	0.77	0.02 (0.02)	1.1
Distance to municipal center	0.002 (0.01)	0.14	-0.01 (0.1)	-0.08	0.02** (0.01)	1.96	0.06 (0.11)	0.55	0.01 (0.01)	0.15
Revenues	-0.95 (0.71)	-1.3	-0.24 (0.7)	-0.31	0.26 (0.57)	0.46	-0.5 (0.4)	-0.43	-0.17 (0.4)	-0.38
Expenditures	0.14 (0.08)	1.74	0.46 (0.87)	0.55	0.4 (0.6)	-0.65	0.39 (0.56)	-0.42	0.013 (0.5)	-0.27
Political Awareness	-0.24 (0.22)	0.95	0.74** (0.29)	1.6	0.09 (0.13)	0.54	0.14 (0.22)	0.56	0.21 (0.14)	1.22
Residence Status	-0.13 (0.09)	-1.4	-0.03 (0.07)	-0.44	-0.03 (0.07)	-0.47	-0.26*** (0.08)	-3.23	-0.21** (0.07)	-2.75
Gender (Male)	-0.56** (0.22)	-2.52	-0.25 (0.15)	-1.67	-0.27 (0.2)	-1.39	-0.42** (0.14)	-3.00	-0.38** (0.16)	-2.39
Age	-0.01 (0.08)	-1.64	-0.03 (0.05)	0.67	0.03 (0.06)	0.47	0.01 (0.04)	-0.22	-0.01 (0.00)	-0.04
Education	-0.26** (0.13)	-1.95	-0.06 (0.09)	-0.57	-0.11 (0.1)	-1.07	-0.34*** (0.08)	-4.1	-0.33*** (0.08)	-3.73
Occupation	0.49* (0.27)	1.81	-0.1 (0.18)	-0.57	-0.3 (0.19)	-1.54	-0.05 (0.19)	-0.28	-0.04 (0.18)	-0.24
Radio	-0.27 (0.22)	-1.2	0.07 (0.14)	0.54	-0.15 (0.15)	0.96	-0.16 (0.16)	-1.03	-0.4** (0.14)	-2.9
TV	-0.47 (0.5)	-0.94	-0.12 (0.44)	-0.29	-0.31 (0.33)	-0.95	0.38 (0.33)	1.13	0.52 (0.36)	1.44
Internet	0.01 (0.03)	0.48	-0.01** (0.004)	-2.69	-0.02*** (0.005)	-5.32	.02** (0.01)	2.07	0.02* (0.01)	1.84
Voronezh	-0.81** (0.42)	-1.9	0.11 (0.36)	0.31	1.4*** (0.37)	3.77	omitted	omitted	omitted	omitted
Ryazan	omitted	omitted	omitted	omitted	omitted	omitted	0.12 (0.3)	0.35	-0.15 (3.6)	-0.43
N. Novgorod	-0.48 (0.45)	-1.06	-0.77* (0.41)	0.11 (0.4)	-0.03 (0.4)	-0.15 (0.4)	-0.38	-0.03	-0.15 (0.4)	-0.38
Lipetsk	-0.39 (0.39)	-0.99	0.72** (0.29)	-0.03 (0.2)	-0.11 (0.2)	-0.25 (0.34)	-0.74	-0.11	-0.25 (0.34)	-0.74
N	711		583		529		651		637	

Note: *p<.10, ** p<.05, ***p<.01; standard errors adjusted for clusters by village

Instead, to avoid the biases of the simple mediation analysis, we try to find the causal paths by testing the variable on the number of reconstructed houses per capita, which serves as a proxy for the magnitude of the disaster that ultimately determines the magnitude of aid. This variable is not a post-treatment covariate, but another treatment outcome, and therefore it keeps the experimental framework. This approach helps to isolate the direct effect of the exposure to wildfires and the effect of the losses and the provision of aid. In addition, to test the hypothesis on symbolic power we include in the analysis the variable on Putin's visit to the village. And to check for the spillover problem, we estimate the effect of the distance to the closest burned village. To test these effects we ran another set of models, results of which are presented in Table 6.

The results of the tests of the magnitude of the aid provision show that it is a powerful predictor of support for the Prime Minister and President, but it cannot explain the levels of support for village heads, governors and United Russia. Moreover, even in the models of support for Putin and Medvedev the variable on aid does not drive out the effect of the exposure to fire and works as a supplement for the main treatment effect.

In turn, the demonstration effect from the Putin's visits was found to be very strong explanatory variable in the models of support for Putin himself, village heads and governors, but not for United Russia and President Medvedev. What is more, the strength of the effect of the symbolic action is almost identical with the effect of the aid in the model of support for Prime Minister and exceedingly higher in the models of support for village heads and especially governors.

Spillover effects were detected in the models of support for the United Russia party, Putin, and Medvedev. The effects are positive: the level of support for the authorities in the villages that are far away from the burned areas is significantly lower.

Putting together these results pose new puzzles and give new insights to our study, but before we turn to the interpretation of them, we conduct the final stage of our empirical analysis that aims to explore how political support for authorities differs within the burned villages. To do this, we run the models, which include the variables on household victimization, blaming the authorities for disaster and satisfaction with the relief measures. The results are presented in table 7.

Table 6. The Effects of the treatment outcomes and spillovers on support for authorities

Independent Variables	United Russia		Village Head		Governor		Prime Minister		President	
	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z
Fire	0.57** (0.24)	1.92	0.30 (0.22)	1.51	0.52** (0.24)	2.19	0.69*** (0.22)	3.05	0.52*** (0.21)	2.72
<i>Number of reconstructed houses per cap.</i>	-0.67 (0.41)	-1.63	0.75 (0.69)	1.59	0.24 (0.84)	0.29	0.91** (0.42)	2.15	1.4** (0.56)	2.63
<i>Putin's visit</i>	0.03 (0.5)	0.07	1.1** (0.44)	2.62	1.9*** (0.27)	6.98	0.96** (0.46)	2.07	0.71 (0.63)	1.12
<i>Distance to fire</i>	-0.02** (0.009)	-2.11	-0.11 (0.09)	-1.19	-0.09 (0.08)	-1.2	-0.01** (0.008)	-2.08	-0.01** (0.007)	-1.92
Population Size	0.003 (0.01)	0.19	-0.07 (0.1)	-0.41	-0.001 (0.001)	-0.31	0.002 (0.001)	1.24	0.01 (0.01)	0.98
Distance to regional capital	0.02 (0.02)	0.8	0.003 (0.02)	1.29	0.03 (0.03)	1.17	0.01 (0.03)	0.47	0.01 (0.02)	0.58
Distance to municipal center	-0.02 (0.01)	-0.14	0.003 (0.05)	0.3	0.03* (0.01)	1.85	0.1 (0.1)	0.8	0.03 (0.1)	0.24
Revenues	-0.83 (0.7)	-1.16	-0.54 (0.9)	-0.59	0.22 (0.59)	0.14	-0.58 (0.54)	-1.05	-0.14 (0.05)	-0.28
Expenditures	0.62 (0.9)	0.68	0.08 (0.1)	0.81	-0.25 (0.62)	-0.38	0.57 (0.64)	0.9	0.09 (0.06)	0.16
Political Awareness	-0.20 (0.22)	-0.88	0.77** (0.32)	1.51	0.12 (0.14)	0.59	0.15 (0.19)	0.72	0.25 (0.16)	1.34
Residence Status	-0.12 (0.1)	-1.25	0.001 (0.7)	0.00	0.01 (0.07)	0.26	-0.21** (0.08)	-2.62	-0.17** (0.08)	-2.15
Gender (Male)	-0.55 (0.22)	-2.43	-0.27* (0.15)	-1.8	-0.3 (0.2)	-1.49	-0.42** (0.14)	-2.89	-0.35** (0.16)	-2.22
Age	-0.02** (0.009)	-2.39	0.02 (0.05)	0.48	0.01 (0.06)	0.27	-0.02 (0.04)	-0.5	-0.003 (0.01)	-0.07
Education	-0.3** (0.14)	-2.2	-0.2 (0.08)	-0.33	-0.17 (0.1)	-1.64	-0.39*** (0.08)	-4.6	-0.37** (0.08)	-4.16
Occupation	0.45 (0.28)	1.6	-0.12 (0.18)	-0.64	-0.32 (0.2)	-1.62	-0.08 (0.18)	-0.43	-0.06 (0.01)	-0.39
Radio	-0.36 (0.23)	-1.56	0.11 (0.14)	0.76	-0.13 (0.15)	-0.9	-0.21 (0.16)	-1.28	-0.46** (0.14)	-3.26
TV	0.12 (0.33)	0.37	0.2 (0.42)	0.06	-0.17 (0.37)	-0.54	0.42 (0.35)	1.2	0.46 (0.37)	1.3
Internet	-0.42 (0.2)	-2.05	-0.012** (0.004)	-2.63	-0.02*** (0.005)	-5.3	0.02** (0.009)	2.29	0.02** (0.01)	2.06
Voronezh	0.57* (0.33)	1.73	0.25 (0.39)	0.64	1.78*** (0.41)	4.26	0.16 (0.46)	0.46	1.2** (0.4)	2.8
Ryazan	omitted		omitted		omitted		omitted		omitted	
N. Novgorod	0.5 (0.37)	1.34	-0.75 (0.48)	-1.54	0.65* (0.39)	1.66	0.09 (0.03)	0.42	0.96** (0.45)	2.14
Lipetsk	0.67** (0.31)	2.12	0.82** (0.38)	2.17	0.88** (0.34)	2.59	0.26 (0.29)	0.97	0.79** (0.32)	2.45
<i>N</i>	700		573		520		641		628	

Note: *p<.10, ** p<.05, ***p<.01; standard errors adjusted for clusters by village

Table 7. Factors of support for authorities within treatment group

Independent Variables	United Russia		Village Head		Governor		Prime Minister		President	
	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z	Coef (St. Errors)	z
<i>Victimization</i>	0.29* (0.16)	1.77	-0.07 (0.2)	-0.41	0.17 (0.13)	1.25	0.70** (0.16)	4.33	0.58** (0.17)	3.31
<i>Blaming the authorities</i>	-0.57 (0.53)	-1.08	-1.08** (0.39)	-2.78	-0.18 (0.28)	-0.66	-0.29 (0.36)	-0.81	-0.53* (0.27)	-1.84
<i>Satisfaction with relief measures</i>	0.20 (0.19)	1.06	0.29*** (0.12)	2.48	0.41*** (0.15)	2.69	0.65*** (0.14)	4.62	0.51*** (0.13)	3.91
Population Size	0.001 (0.02)	0.06	0.03** (0.01)	-2.06	0.001 (0.001)	0.01	-0.001 (0.002)	-0.49	-0.001 (0.01)	-0.26
Distance to regional capital	0.04 (0.05)	0.9	0.03 (0.04)	0.83	0.06** (0.02)	2.19	0.01 (0.03)	0.55	0.02 (0.02)	1.05
Distance to municipal center	0.05* (0.03)	1.6	0.02 (0.2)	0.01	0.03** (0.01)	2.27	0.02 (0.01)	1.59	0.02* (0.01)	1.68
Revenues	-0.98 (0.77)	-1.38	-0.17** (0.07)	-2.67	-0.29** (0.08)	-2.45	0.39** (0.07)	-2.49	0.43** (0.17)	-2.98
Expenditures	0.57 (0.48)	1.06	0.58** (0.25)	2.63	0.2 (0.12)	1.5	0.16** (0.07)	2.14	0.23** (0.08)	2.59
Political Awareness	0.35 (0.24)	1.57	0.54** (0.17)	2.32	0.16 (0.11)	0.62	0.22 (0.34)	0.68	0.23* (0.12)	1.49
Residence Status	0.06 (0.19)	0.36	0.08 (0.12)	0.66	-0.09 (0.12)	-0.78	-0.16 (0.11)	1.45	-0.16 (0.11)	-1.39
Gender (Male)	-0.63 (0.4)	-1.57	0.05 (0.23)	0.26	-0.19 (0.27)	-0.69	-0.4 (0.26)	-1.17	-0.23 (0.16)	-1.17
Age	-0.01 (0.08)	-0.56	0.01 (0.07)	0.12	-0.05 (0.09)	-0.54	-0.008 (0.01)	-0.83	-0.08 (0.09)	-0.97
Education	-0.25 (0.2)	-1.2	0.12 (0.13)	0.95	-0.21 (0.16)	-1.3	-0.49** (0.14)	-3.52	-0.27 (0.14)	-1.86
Occupation	-0.04 (0.4)	-0.1	-0.3 (0.22)	-1.03	-0.47 (0.31)	-1.49	-0.72** (0.32)	-2.16	-0.61* (0.33)	-1.87
Radio	-0.55 (0.44)	-1.34	0.06 (0.19)	0.35	-0.24 (0.25)	-0.96	-0.11 (0.26)	-0.42	-0.57** (0.24)	-2.3
TV	0.82 (0.66)	1.24	-0.67 (0.72)	0.35	0.64 (0.65)	0.99	-0.45 (0.62)	0.73	0.48 (0.84)	0.67
Internet	0.07 (0.9)	0.09	-0.02** (0.007)	-3.02	-0.06*** (0.008)	-5.86	0.06** (0.01)	2.32	0.04 (0.08)	0.62
Voronezh	0.29 (0.83)	0.35	0.34 (0.49)	0.68	2.3*** (0.4)	5.13	1.3** (0.5)	2.18	1.2** (0.4)	2.8
Ryazan	omitted		omitted		omitted		omitted		omitted	
N. Novgorod	0.22 (0.9)	0.24	-0.82 (0.62)	1.26	0.18 (0.73)	0.25	1.01 (0.46)	1.19	0.96** (0.45)	2.14
Lipetsk	0.35 (0.81)	0.43	0.99** (0.33)	2.97	0.98** (0.4)	2.42	0.75 (0.46)	1.6	0.79** (0.32)	2.45
<i>N</i>	275		238		224		263		254	

Note: *p<.10, ** p<.05, ***p<.01; standard errors adjusted for clusters by village

The analysis of the factors of political support within the burned villages also provides some interesting results. The most striking finding is that variable on blaming the authorities for the disaster is significant only for the prediction of support for village head and to some extent for the President, but insignificant in the models of support for regional authorities, United Russia and Putin. In contrast, satisfaction with the relief measure is a very strong predictor for support for all governmental bodies, except for the readiness to vote for United Russia party.

Finally, the results of the test on the effect of household victimization show that people who suffered from the disaster tend to be highly supportive for Prime Minister and President, but the difference in support for local and regional authorities and dominant party between people who directly suffered from the fires and their co-villagers is statistically negligible.

7 Interpretation of the Results

Our empirical analysis reached two principal findings. First is that the exposure to natural disaster led to the increase in the levels of support for authorities and the party of power, and second is that governmental aid cannot fully explain this paradoxical finding. Variables on the number of the reconstructed houses per capita and household victimization, which were used as the proxies for village and individual material gains from the disaster relief, are either insignificant or serve as complementary mechanisms that determine higher support for authorities in the burned villages. Therefore it is possible to conclude that loyalty of their residents was not directly “bought” by the government and their support for the authorities has more complicated nature. In addition we also found absolutely counterintuitive fact that blaming authorities did not ultimately lead to dissatisfaction with them among suffered population.

These results contradict both with the previous literature on the political effects of natural disasters and relief spending, which are based on the evidence from advanced industrial democracies (Achen and Bartels, 2004; Healy and Malhorta, 2009; Bechtel and Heinmuller, 2011) and the results of Szakonyi (2011) research, which was conducted almost in the same context as our study. Therefore these findings require careful theoretical reflections.

Since our empirical analysis gives support for the hypothesis based on the system justification theory, we interpret the highlighted results with its guidance. We argue that the disaster and losses caused by it determine the high level of uncertainty and an increase in dependency on the government. Thus we have two conditions of the rise of the positive attitudes toward authorities: threat and the feeling of dependency. The third condition, the perceived inevitability of the system is fulfilled by the characteristics of the political regime. We believe that the nature of the regime is able to explain the difference in findings on blame attribution and political attitudes toward the government between our research and previous studies that were conducted in democratic societies. Authoritarian regimes simply do not provide an option for political change. Speaking out against the governor, Putin, Medvedev, or United Russia will not harm a person seriously, but may lead to the harm of those who complain. As we know from comparative politics, in an authoritarian regime blaming the government is costly, because loyalty is often the prerequisite for receiving material benefits (Magaloni, 2006). In addition,

under authoritarianism, opposition in case of the natural disaster has neither resources to help the suffered population, nor the visible opportunity to come to power and use it to reward their supporters.

Furthermore, it is well known in the literature that democracy facilitates specific blame attribution through competitive elections that create a “purposely informative political environment” (Javeline, 2003b, 109). First, campaigns and media coverage directly address the issue of culpability for problems and thereby provides the population with shortcuts to information gathering. Second, elections structure information and public opinion toward blame in a finite amount of time. Third, voting gives limited options for the expression of blame that include only politicians running for office. Thus in the absence of democratic mechanisms of political competition, the question of who is to be blamed does not receive the level that is required to direct negative attitudes toward the incumbent government.

Factor of political regime can also explain the difference between our findings and the results of Szakonyi’s study. He explores the effect of blaming in the context of the electoral campaign that occurred just two months after the fires. So it is plausible that in his case, the elections provided the necessary information space that led to blaming the government and voting for the opposition. In addition, he studies the population from large and diverse areas where many people have access to the Internet, which was the main source of critique of the government, and we study the population from the more homogeneous rural areas that rely on state-controlled TV as their primary source of information.

Another possible explanation of our results is that the positive attitudes toward the government are the product of the emotional, behavioral, and cognitive experiences of the people who for the first time faced the authorities as a result of the disaster. Before the fires occurred, residents of the villages only saw the government officials on TV, but after the fires they received enormous amounts of governmental attention. The results of the test on the effect of Putin’s visit to two villages supports this idea. According to the numbers, these purely symbolic acts increased support not only for Vladimir Putin himself, but also substantially increased popularity of the village heads and the governors who followed Prime Minister in the visits. It is plausible to speculate, that the villagers were impressed seeing their local leaders in a company of the most powerful politician in the country and this impressions increased village heads and governors symbolic power.

Moreover, the demonstration effect may arise due to the fact that the relief policy was organized fairly efficiently: all of the people who lost their houses were given new ones rapidly, the affected areas were provided with additional public goods, and all public officials paid special attention to the needs of the locals. The results of the test on the spillover effect, which

was initially driven by the technical needs, give credentials to this substantial part of the story. People from the villages that were close to the fires, but not directly suffered from them, did not receive any material benefits from the government, but tend to support the authorities more than the population of the villages that were far away from the disaster. This shows the power and sustainability of the demonstration effect.

From another perspective, the demonstration effect can be interpreted by the notion of expectations. We can speculate that people from the burned villages, despite their paternalism, have low expectations of the government's performance and when the natural disaster occurred, they were ready for the worst scenario – being left alone with their problems. But the government, forced by the critique and close attention from civil society from the big cities, provided relief and public goods to the affected rural population that overcame the residents' expectations and ensure them and those people who could observe the government performance in its effectiveness. Arguably, the mechanism that caused attitudinal change in results of disaster and relief in the rural Russia is comparable to one that links Vietnam military draft lottery status and political attitudes in the US in Erikson and Stoker (2011) study – it is expectations, which are formed by emotions, behavior and cognition, that drive the attitudinal change, not just military service in their case, or just aid in ours.

All in all, in conditions of uncertainty and anxiety resulting from the disaster, loyalty for the government increases rather than decreases. And this outcome probably incorporates all the components of the attitudinal structure: emotions including fear of the disaster and enthusiasm for the presence of governmental aid, behavioral experience, and cognitive rational calculations of the costs and benefits of support for the government. Taken together, these components yielded the village residents' positive attitudes toward the authorities.

8 Conclusion

Who is to be blamed?" and "what is to be done?" are two everlasting Russian questions. The population of the villages burned by the wildfires in the summer of 2010 had to answer both of them. The disaster thereby created a unique opportunity to study blame attribution and formation of political attitudes in out-of-equilibrium circumstances.

The main finding of our study is that natural disasters can increase support for the government, even controlling for financial aid for relief. To explain this result on the conceptual level it is worth to refer to Lipset's distinction between legitimacy and effectiveness. Legitimacy, according to his classical definition, is "the capacity of the system to engender and maintain the belief that the existing political institutions are the most appropriate ones for the society". In

contrast, effectiveness is “actual performance, the extent to which the system satisfies the basic functions of the government” (Lipset, 1960: p.64). It is possible to stress, that in case of exogenous shocks, such as natural disaster, effectiveness of the relief measures play an important, but perhaps only marginal role that supplements the fundamental social and psychological determinants of political attitudes of the population.

We argue that in conditions of uncertainty, dependency on the government, and the absence of political pluralism, loyalty to the authorities increases. This idea enriches system justification theory by adding to the individual characteristics the factors of the political regime and the demonstration effect. We think that this addition may be helpful to an understanding of the sustainability of Putin’s rule in Russia and the legitimacy of the authoritarian governments in general.^{†††}

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^{†††} Unfortunately, we cannot estimate how the results of our analysis correspond to the outcomes of the Parliamentary and Presidential elections that were held in December 2011 and March 2012 respectively, since the electoral districts do not match the boundaries of villages and it is possible to have both burned and unburned villages in the same electoral district. Moreover, the electoral results of both campaigns were biased by fraud and therefore they are far noisier than the data from the survey. But despite all falsifications, one principal caveat can be stressed. The poor performance of the United Russia party in parliamentary elections (although officially it won the elections with 49% of the vote share, it lost almost 20% of voters from the previous campaign) and the landslide victory of Vladimir Putin in the presidential elections (officially he won with 63% of votes) show that political support plays a crucial role in the performance of authoritarian regime.

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