

Is there a local knowledge advantage in federations? Evidence from a natural experiment

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Abstract In economics, the local knowledge advantage is arguably one of the key arguments in favor of decentralizing the public sector. However, empirical investigations of this particular effect have been scarce. This paper tests the existence of the local knowledge advantage in a real-world setting. Specifically, it looks at the variation in local knowledge across regions based on the origins and careers of regional politicians, assuming that politicians who have spent more time in a particular region possess more and better knowledge of that region than outsiders. To avoid the reverse causality problem, the paper investigates how local origins affected the performances of politicians in a ‘natural experimental’ environment, studying the responses of regional governors in Russia to disastrous forest fires in 2010. We confirm that local knowledge improves gubernatorial performance. In a highly centralized federation such as Russia, though, the effect is dependent on access to federal resources obtainable through close ties to the federal center. We also discuss alternative interpretations of the local origins of politicians and test whether the effects found are indeed more plausibly explained by local knowledge.

Keywords Decentralization · Local knowledge · Federal connections · Exogenous shocks · Russian regions

JEL Classification D73 · H77 · P26

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1 Introduction

Since von Hayek (1945), local knowledge has been viewed as one of the main advantages of a federal state (see also Qian and Weingast 1997; Oates 1999; Rodrik 2000; Treisman 2007). Despite the importance of this insight, little research exists testing the claim. Investigating it empirically is indeed very hard. First, simply exploring the costs and benefits of federalism does not enable one to disentangle its knowledge benefits from other effects possibly associated with decentralized governance. Second, it is not easy to measure the knowledge advantages of regional governments as such: it is exactly the inability of an outsider (e.g., a central government or a researcher) to assess local knowledge that makes it so precious. Finally, knowledge is accumulated by individuals and not by governments.

This paper sets out to test the benefits of local knowledge empirically. For this purpose, instead of looking at variations in institutions per se, i.e., gauging the extent of decentralization and assuming that it is associated with the knowledge advantages of the relevant decision-makers, we study the variation in local knowledge across individual decision-makers themselves. It is plausible that a politician or bureaucrat originating from a particular region has more and better information about that region than an outsider from a different jurisdiction. Thus, if local knowledge is important, jurisdictions governed by politicians of ‘local origin’, or by those who have spent a long time there, should perform better than those governed by outsiders.

Our paper investigates the performances of regional governors in the Russian Federation. Russia is an apt empirical laboratory for this analysis. On the one hand, its size and heterogeneity arguably raise the value of local knowledge to regional policy makers. On the other hand, during the period of investigation, regional governors were appointed by the central government rather than elected to office. Federal appointments of regional politicians are helpful for our study because they minimize the distortionary effects of electoral effort by politicians. Politicians who face elections invest substantial time and resources in discerning and catering to the preferences of their electorates and regional political elites, thereby accumulating the local knowledge that increases their chances of election or reelection. Moreover, in most federations, wherein candidates for local political offices are elected, outsiders are at a considerable disadvantage relative to insiders. In Russia, it is not unusual for regions to be governed by individuals without past records of experience in that region. Thus, by observing the geographical origins of Moscow’s gubernatorial appointees, we intend to measure the differences in local knowledge and disentangle the impact of local knowledge from other aspects of decentralization.

Because the appointments of regional governors can be endogenous to regional characteristics, this paper exploits a natural experiment drawn from evidence on the 2010 Russian forest fires to identify local knowledge effects. In July and August of that year, Russia was hit by an unprecedented heat wave, producing historically high temperatures and titanic forest fires. The fires not only were unusually fierce, but were also unprecedented in terms of national Russian experience and uncorrelated with the typical spatial distribution of fires in Russia observed in the past.¹ Thus, the forest fires of 2010 can be treated as an exogenous shock that the federal administration could not have taken into account when assigning governors to their respective jurisdictional territories. At the same time regional authorities played important roles in combating the forest fires not only through their own efforts but also by influencing the coordination and allocation of the

¹ For more information, see Section 1 of the online supplementary material to this article.

federal disaster-relief interventions. Because the forest fires were neither anticipated by the government nor influenced appointments, we are able to avoid the problem of reverse causality. To rule out an omitted variable bias, we use an array of control variables potentially influencing the outcomes of our study.

The paper finds that the performance of regional governors was influenced by two characteristics: their local origin and the connections to the federal administration that they had. The importance of the last variable is driven by the centralized nature of the Russian federalism. In regions run by local governors, who at the same time had extensive connections to the center, the average spread of a forest fire was smaller than in other regions, controlling for various determinants of forest fires and region- and governor-specific variables. Federally connected governors without local knowledge were unable to improve the performance of their region in combating forest fires; the same holds for governors with local knowledge but without federal connections.

Our contribution relates to several branches of the literature. First, we add to the extremely small empirical literature attempting to investigate the presence of the local knowledge advantage (Alderman 2002). Second, our work is also related to the recent studies investigating the impact of federalism design on the quality of local politicians (Brollo et al. 2013; Bordignon et al. 2013) and the impact of personal characteristics of politicians on their performance (Besley et al. 2005, 2011; Dreher et al. 2009; Persson and Zhuravskaya 2012; Freier and Thomasius 2012; Zhang and Congleton 2013; Frye et al. 2014). Third, we contribute to the literature on the impact of close relationships between the central and regional governments on economic policy (Levitt and Snyder 1995; Sole-Olle and Sorribas-Navarro 2008; Wang 2004; Do et al. 2011; Arulampalam et al. 2009). Fourth, the paper belongs to a growing literature investigating the political economy of natural disasters (Besley and Burgess 2002; Escaleras et al. 2007; Boettke et al. 2007; Healy and Malhotra 2009; Plümper and Neumayer 2009; Reeves 2011; Keefer et al. 2011; Gasper and Reeves 2011; Cole et al. 2012; Skarbek 2014).²

2 Governors and forest fires

Since Vladimir Putin came to power in 2000, he has implemented numerous centralist reforms, reducing the authority and the resources of the regions. In the forest sector, however, the outcomes of his policy were more complex. Until 2007, the vast Russian forest territory was managed centrally by the Federal Forestry Agency. Its responsibility included forest administration, utilization of forest resources and forest protection. In densely populated areas, the agency operated local branches, while in inaccessible areas it relied on forest plane brigades. After the enactments of a new Forest Code in 2007, the forest management was decentralized to the regional level. As a result, the federal fire plane brigade was liquidated, while personnel and technical equipment was partly transferred to regional authorities, which assumed responsibility for combating wildfires.

For the new function, the regional administrations were compensated with monetary transfers from the federal budget. A specific part of the federal transfers for forest management was to be used for forest fire prevention. In 2010, however, the regions were desperately overstrained by the magnitude of the disaster. As a result, governors had to request federal assistance, which was amply provided to some regions but not to others.

² The Russian forest fires in 2010 have also been used by Szakonyi (2011) and Lazarev et al. (2014) for studies on the impact of forest fires on political preferences and voting patterns of the regional population.

This combination of devolution with dependence on federal support, which was at least partly allocated on a discretionary basis, compels us to look at two characteristics of the governors: local origin and federal connections.

2.1 Local origin

In 2004, the election of Russian governors by the regional population was replaced by federal appointments.³ Since then, in some regions, the federal government used its appointment prerogative to appoint governors coming from distant territories who had never lived in their region of office before. In other regions, it continued to select governors from the local elites. By 2010, Russian governors were highly heterogeneous in terms of their origins. To capture this variation, we screen the publicly available information on biographies of governors and set up a local origin index, which measures the relative period a governor has spent in his region of office before inauguration, by looking at three key biographical cornerstones: region(s) of birth (and subsequent adolescence), education and career. Based on this chronological information, we calculate the governor's duration of residency in his region of office before appointment and determine the age at taking office. We then compute the ratio of the length of stay and inauguration age. The biographies of the governors from the point of view of this ratio follow a number of reoccurring patterns; therefore, we set up a discrete index for local origin between four and one, of which four is the highest possible level of local origin.⁴

Governors with a score of four spent between 70 and 100 % (on average, 89 %) of their pre-inauguration life in their region of office. A governor evaluated with a score of three spent a long time in another region but still lived in the region of office for 20 to 70 % of his life (on average 44 %). Governors with a local origin score of two and one were born, educated and worked in a different region and moved only recently before their inauguration to their region of office. The share of their life they spent in the region of office falls between zero and 20 % (on average 3 % for local origin one and two). In this case, we introduce a further distinction. The governors who have worked for the majority of their life in a geographically close-by region are assigned with local origin two, while governors who were appointed to far-away region receive a score of one. We consider as geographically close regions that fall within the same federal district as the region of office (since 2000, Russia was subdivided in seven federal districts, each consisting of several regions).

2.2 Federal connections

Despite the fact that all governors in Russia are appointed by the federal center, the extent of their ties and support in the federal government greatly varies. Measuring this variation is a difficult task: because the relationships in Russian politics often remain opaque, we have only limited information about alliances in the federal bureaucracy. In this paper, we follow Libman et al. (2012) and create a federal connection dummy that equals one for all governors who have previously worked in the federal administration. We only consider

³ For the consequences of the gubernatorial appointments for the Russian political system, see Kryshatnovskaya and White (2009), Sharafutdinova (2010), Libman et al. (2012), Szakonyi et al. (2012).

⁴ For more information on the local origin index including details on computation method, underlying assumptions and examples of governors for each level of the local origin, see Section 2 of the supplementary material.

federal positions since Putin's rise to power in 2000 because employment in the 1990s does not ensure federal connections in the late 2000s due to discontinuity of central elites after Boris Yeltsin's resignation. Having worked for the federal bureaucracy, governors can use their close ties to the federal administration to ensure more resources for their regions.⁵

The correlation between the local origin and the absence of federal connections is not very strong (the correlation coefficient between the two variables is minus 0.185). There are cases of governors with substantial federal connections and of local origin and cases of governors who neither have federal connections, nor are of local origin. Thus, federal connections and local origin constitute two possible dimensions of the governor's career, which deserve investigation.

3 Model and data

To estimate the effect of local origin and federal connection on the performance of the forest fire management, we run the following model:

$$FF_i = \beta_0 + \beta_1 CO_i + \beta_2 UP_i + \beta_3 LO_i + \beta_4 (UP * LO) + \beta_5 FC_i + \beta_6 (UP_i * FC_i) + \beta_7 (FC_i * LO_i) + \beta_8 (UP_i * LO_i * FC_i) + \varepsilon_i \quad (1)$$

Our sample includes almost all regions of Russia, with few exceptions.⁶ As the dependent variable (FF_i), we use the ratio of forest area covered by fire to the number of reported forest fires, or the average spread of an identified forest fire in 2010 in the region i .⁷ A low value of this dependent variable means that forest fires, once occurred, were effectively extinguished at an early stage. For a high value, the situation is the opposite. Very few forest fires were allowed to spread across the region and to develop their destructive force. Any covariate which improves effectiveness of forest fire management should have a negative coefficient in our regressions. Because the distribution of the dependent variable is highly skewed to the left, we use its logarithm.⁸ We regress the dependent variable on local origin (LO_i) and federal connections (FC_i) of the governor in power in summer 2010. We also interact local origin and federal connections, to see whether governors possessing both characteristics at the same time behave significantly differently than the rest of the sample.

There is a further interaction effect that we have to take into account. The intensity of information transmission within a federation depends on the size of the regional population (in the main specification, we focus on the size of the urban population). More populous regions receive not only more attention by the federal government but also send more alternative signals from their populations to the center (e.g., entries by bloggers, publications of newspapers, etc.). Larger regions should be a focus of the federal government regardless of the lobbying effort by the regional governors; the center also monitors the work of lower-level bureaucrats in these regions more closely. However, in less populous regions, which receive less attention by the federal government, governor-specific characteristics such as federal connections and local origin should have a greater impact on

⁵ For details of computation and examples, see Section 3 of the supplementary material.

⁶ For details on excluded observations, see Section 4 of the supplementary material.

⁷ 'Identified' fire in this context means that a fire was noticed by the respective authorities and measures to extinguish it were implemented. On the sources of data on forest fires in Russia, see Section 1 of the supplementary material.

⁸ For more information on the dependent variable, see Section 4 of the supplementary material.

regional performance. Hence, our main specification includes a triple interaction term of local origin with federal connections and size of the urban population (UR_i), as well as all interaction terms between pairs of these variables. We expect the effects of local origin and federal connections to be significant only for regions with small urban populations.⁹

There are a number of region-specific covariates (CO_i) that may have an effect on wildfire expansion and therefore should be controlled for in our regressions. First, regions with large territory certainly have more problems in terms of containing forest fires. Since Russia's regions are characterized by several outliers, we again use the log of the territory. Moreover, we look at the share of regional territory covered by forest, as well as the long-term average temperature and rainfall in July. Regions with high temperatures should encounter higher probability of forest fires, whereas regions with frequent rainfalls should exhibit the opposite effect. In addition, we control for forestry expenditures from the regional budget. Urban population, to some extent, also has a direct effect on the spread of forest fires because, on the one hand, densely populated urban areas typically increase the probability of wildfires due to the 'human factor', but on the other hand, forest fires that occur close to urban areas are more likely to be detected and extinguished at an early stage of expansion.¹⁰

4 Results

4.1 Main results

Table 1 reports the results of the study. If we merely control for local origin or federal connections, the variables are insignificant (specifications two and four). If we interact the federal connections dummy with urban population, its effect is significant and negative and thus improves regional forest fire management (specification five). Figure 1 reports the marginal effects of federal connections for different levels of urban population. There is a significant and negative coefficient obtained for the federal connections dummy for regions with low and medium urban population size, while for regions with high urban population we find no significant effect. The region of significance extends to approximately log urban population 13.8 (i.e., approximately one million urban inhabitants) encompassing 54 % of the sample (38 out of 71 regions). Thus, the effect is actually significant for a substantial part of the sample.

To evaluate the magnitude of the effect of federal connections on wildfire management, consider the following example: For regions with log urban population between 13.0 and 13.2,¹¹ the presence of a governor with federal connections would have resulted in a reduction of 48 hectares of the average forest fire expansion per recorded wildfire. If multiplied by the average number of wildfires in the respective regions (227 wildfires), one would have saved 10,896 hectares on average per region. Considering that the average forest area covered by wildfires in the respective regions amounted to 17,825 hectares, the reduction represents 62 % of the destructive force of the wildfires for the respective

⁹ An alternative interpretation of urban population effect could claim that the federal government generally disregards small regions and only provides assistance to large regions. For a discussion of this interpretation, see Section 4 of the supplementary material.

¹⁰ Details on variables used in the study are reported in Section 13 of the supplementary material.

¹¹ Within this range fall 7 regions with an average urban population of 487,000 people (Kostroma, Karelia, Novgorod, Pskov, Mari El, Mordovia, and Sakhalin).

Table 1 Impact of local origin and federal connections on forest fire monitoring effectiveness in 2010, OLS

Variables	Dep. var.: ratio of forest area covered by fires and number of reported fires (log)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log area	0.661*** (0.22)	0.668*** (0.22)	0.670*** (0.22)	0.651*** (0.23)	0.668*** (0.22)	0.697*** (0.22)	0.699*** (0.23)
Share of forest	-0.008 (0.01)	-0.008 (0.01)	-0.008 (0.01)	-0.009 (0.01)	-0.008 (0.01)	-0.008 (0.01)	-0.011 (0.01)
Temperature	-0.032 (0.08)	-0.025 (0.08)	-0.03 (0.08)	-0.022 (0.08)	0.006 (0.07)	0.03 (0.07)	0.014 (0.08)
Rain	0.006 (0.01)	0.006 (0.01)	0.005 (0.01)	0.008 (0.01)	0.011 (0.01)	0.011 (0.01)	0.011 (0.01)
Forestry expenditures	-0.007 (0.01)	-0.008 (0.01)	-0.008 (0.01)	-0.005 (0.01)	-0.005 (0.01)	-0.006 (0.01)	-0.001 (0.01)
Log urban population	-0.421* (0.23)	-0.433* (0.23)	0.012 (0.50)	-0.467** (0.23)	-0.719*** (0.24)	-0.285 (0.49)	0.024 (0.63)
Local origin		-0.044 (0.15)	1.949 (2.55)			2.174 (2.16)	3.639 (2.93)
Log urban population × local origin			-0.144 (0.19)			-0.169 (0.16)	-0.275 (0.21)
Federal connections				-0.619 (0.44)	-12.484** (4.80)	-14.473*** (5.38)	19.819 (19.96)
Log urban population × federal connections					0.873** (0.36)	1.017** (0.41)	-1.576 (1.48)
Federal connections × local origin							-9.827* (5.65)
Log urban population × local origin × federal connection							0.748* (0.42)

Table 1 continued

Variables	Dep. var.: ratio of forest area covered by fires and number of reported fires (log)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	6.239* (3.31)	6.384* (3.37)	0.328 (7.31)	6.667* (3.36)	9.302*** (3.32)	3.19 (7.13)	-0.737 (9.30)
Observations	71	71	71	71	71	71	71
R ²	0.268	0.269	0.275	0.288	0.331	0.349	0.369

Robust standard errors in parentheses. *** 1 % significance, ** 5 % significance, * 10 % significance

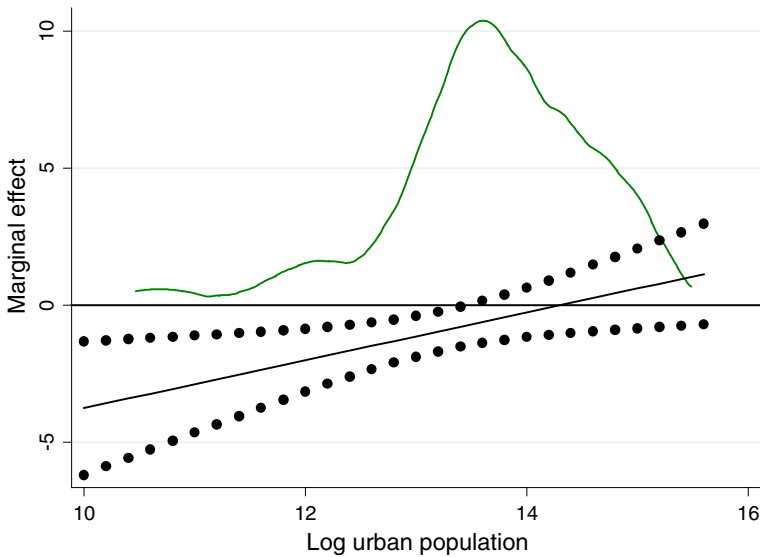


Fig. 1 Marginal effect of federal connections on forest fire management effectiveness conditional on the size of urban. *Note:* 95 % confidence intervals are used. The picture also contains the kernel density estimator of log urban population

regions. In regression six, we check the persistence of our result by adding local origin and federal connection and their respective interaction terms at the same time. The previous results prevail.

The most important results could be obtained from the specification including triple interaction terms (specification seven). To interpret this equation, we follow Brambor et al. (2006), considering the variation in significance levels for different parts of the sample. Figure 2 presents the marginal effect of federal connections conditional on urban population for various levels of local origin. The four lines in Fig. 2 represent the marginal effects of federal connection on the effectiveness of forest fire monitoring conditional on urban population for the local origin (LO) levels one to four. The red stars above the lines indicate whether the marginal effect is significant at 5 %. One can see that if local origin is very low, the presence of federal connections has no significant effect on monitoring effectiveness. However, for local origin equal to three, representing governors who spent a substantial part of their life in their region of office, the federal connection dummy has a significant effect, improving the effectiveness of forest fire management. For the local origin of four, the effect is also significant and almost twice as high as for local origin of three.¹²

Therefore, the only circumstance in which federal connection has a positive effect on the monitoring effectiveness is if local origin index is high enough (equal to three or four). One can interpret this result as an indication that local knowledge still has a positive effect even in a highly centralized system, such as that of Russia, but only in combination with

¹² In terms of magnitude, the effect for local origin equal to three is somewhat lower than the average effect from Fig. 1 and the effect for local origin equal to four is somewhat higher. In some specifications, we obtain results for high level of local origin and large urban population, but they have almost no observational support in our data.

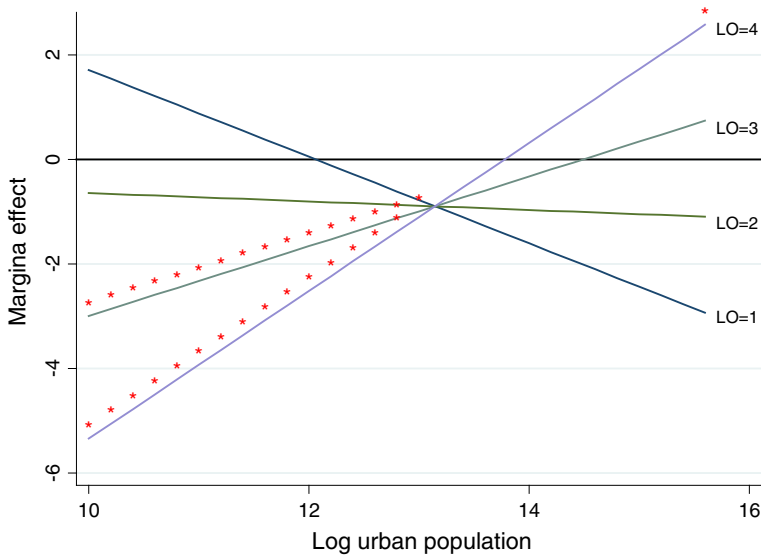


Fig. 2 Marginal effect of federal connections on forest fire management effectiveness conditional on the size of urban population for different levels of local origin, triple interaction term. *Note:* stars indicate 5 % significance

federal connections. Federal connections influence the access to resources, and local knowledge the efficient use of resources. This is consistent with the actual practices used by governors in Russia in 2010, which we will discuss in what follows.

4.2 Robustness checks

We corroborate our results using three types of tests.¹³ First, we use a battery of robustness checks including alternative datasets, time frames, dependent variables, measures for local origin and federal connections and proxies for federal attention (instead of urban population). We also control for outliers, include numerous additional covariates (e.g., weather conditions, types of trees and a huge number of region-specific and governor-specific variables that may influence our results) and apply spatial econometrics estimation techniques.¹⁴ Given a very large set of control variables, we also use a formal specification selection approach based on the extreme bounds analysis.¹⁵ The results are mostly confirmed.

Second, we check whether there is any correlation between the local origin index (and federal connections dummy) and numerous proxies capturing the quality of bureaucracy and the patriotism of regional elites and find no evidence of any significant correlation. Hence, we can confirm that our key explanatory variables are orthogonal to the state capacity of the regions and the motivation of regional elites, which therefore cannot explain the effects we find. In very few cases, we find a negative correlation between the

¹³ Results of all additional estimations used in this paper are available at https://sites.google.com/site/libmanalexander/Robustness_checks.pdf?attredirects=0.

¹⁴ For an overview, see Section 12 of the supplementary material.

¹⁵ See Section 6 of the supplementary material.

local origin and the quality of bureaucracy. Thus, our results actually suggest that local origin advantage is capable of overcoming the deficits in the state capacity. If we control for the proxies of state capacity and patriotism of elites, separately or jointly, in our regressions, the results also remain robust.¹⁶ We also look at the local origin of vice-governors, the second-highest position in the regional hierarchy, and confirm that it is the variation in the local knowledge of the governors, and not of the vice-governors, that drives our results.¹⁷

Third, we look at whether governors with and without local origin (and with and without federal connections) differ from each other in terms of their personal characteristics, which would improve their disaster management ability. For this purpose, we look at proxies for educational quality (and thus, formal technical knowledge and intelligence as opposed to the local observational knowledge), mobility (which captures risk-aversion and motivation of the governor) and experience in managing large bureaucracies and disaster management. There is almost no evidence that governors with local origin outperform other governors in terms of any of these characteristics. Controlling for these variables also does not change our results.¹⁸

5 Discussion

5.1 Why does local knowledge matter?

While interpreting our results, we first need to resolve a fundamental question: why should the variation in local knowledge affect the ability of governors to fight forest fires? The term ‘local knowledge’ may mean different things in various contexts. First, it may be associated with better knowledge of the preferences of the local population. However, there is little preference heterogeneity related to combating fires, which makes this aspect of local knowledge less relevant for governors during a natural disaster. Second, it may be associated with knowledge of the local circumstances and context, such as local climate conditions and geography, which ensures that the local government does not waste limited resources due to ignorance of local conditions and finds better strategies for combating disasters (Ostrom 1999; Fischer 2000; Adger et al. 2005; Allen 2006; Diagne 2007). However, efficient disaster management does not necessarily require the governors to have detailed knowledge on environmental conditions. It is not the governor who extinguishes wildfires; rather, local public officials need professional expertise and local knowledge. Moreover, a well-trained bureaucrat can successfully devise a strategy utilizing local knowledge of stakeholders. Finally, Russian regions are very large in terms of their territories, which makes detailed knowledge of local conditions by any official questionable.

For this paper, another aspect of the local knowledge is relevant—the knowledge of high-level regional bureaucrats and elites, which is indispensable for governors assuming responsibility for coordinating various bureaucracies and governmental agencies during forest fires. There are several reasons why inter-agency coordination during natural disasters is a challenging task. First, agencies have little experience in collaboration and

¹⁶ For details, see Section 5 of the supplementary material. This Section also discusses two alternative interpretations of the local origin variable: as extent to which center is connected to regional elites and as impact of regional elites on appointments of governors.

¹⁷ For an empirical analysis of this issue, see Section 7 of the supplementary material.

¹⁸ See Section 10 of the supplementary material.

lack appropriate communication channels (Daves et al. 2004; Kapucu 2006; Bharosa et al. 2010), particularly because of the high uncertainty of crises periods (Congleton 2005; Sobel and Leeson 2007). Second, usual bureaucratic routines continue to result in rent-seeking and blame-shifting games (Congleton 2006). This problem is even more pronounced in developing countries where bureaucracies have a strict hierarchy and lack transparency, discouraging public officials from independent decision-making. Moreover because the decision making is highly personalistic, the effectiveness of agencies depends much more on leaders than on procedures (for the Russian case see Ryavec 2005).

In this context, the personal intervention of governors becomes a crucial element in the inter-agency coordination. The ‘one-man control’ is a typical response used by Russian bureaucracy dealing with any challenge, and it was the prevailing approach during the forest fires in 2010 (Bertrand 2012; Busygina 2012). Being in charge of coordinating different agencies, governors decide about assigning public officials to different functions and responsibilities. In doing so, they must take the proficiency and reliability of particular bureaucrats into account and determine the amount of incentives and monitoring they require. They have to know which hostilities exists between bureaucrats, which may prevent the collaboration of agencies. Thus, governors require detailed knowledge of the higher echelons of regional bureaucracies, which is by its nature a type of local, observational knowledge and can only be accumulated by interacting with officials for a long time. While a trained disaster manager may collect the necessary information and implements the appropriate bureaucratic routine, he lacks knowledge about the reliability of the public officials who perform his orders.¹⁹

This argument has a further implication for our study. The knowledge of the characteristics of local bureaucrats and elites is likely to be primarily accumulated before the gubernatorial appointment. A governor with local origin typically moved up the regional political career ladder acquiring the necessary knowledge of the regional elites. For an already appointed governor, his ability to informally socialize with his subordinates and to acquire information is limited. This problem is further exacerbated by the lack of information about the behavior of public officials. High-ranked bureaucrats often manipulate official information about themselves (Prendergast 1993). By attempting to collect information, a governor would face the trade-off between searching for competent aids and relying on loyal but incompetent officials (Egorov and Sonin 2011), which would make the challenge more severe. Lack of free media in Russia exacerbates the problem. Thus, if the explanation we present were correct, we would expect that local origin improves the performance of the governors during forest fires, but that there is no effect of tenure on forest fires management. This is precisely what we find in the empirical data: if we replace the local origin variable by a proxy of tenure duration (or control for local origin and tenure duration simultaneously), we find no significant effects of the tenure.²⁰

5.2 What do governors do?

The results we obtain are consistent with the observations on the actual functions performed by governors during the 2010 forest fires. Governors focused on two functions:

¹⁹ The importance of this knowledge is neither specific to non-democracies (see e.g. Helsloot 2005), nor for disasters, as has been emphasized in the literature on knowledge and interest groups (Hecló 1978; Carpenter et al. 2004).

²⁰ See Section 9 of the supplementary material.

mobilizing support and coordinating activities and enforcing decisions. We will review these two types of activities in what follows.²¹

5.2.1 Mobilizing support (federal connection mechanism)

The main source of federal support during the crisis was the Ministry of Emergency Situations, directly responsible for protection against natural hazards. Legally, the Ministry's responsibility is confined to cities and therefore cannot intervene in forest fires fighting without the presence of a credible threat to the population. The disastrous forest fires of 2010 in many regions provided the ground for potential intervention, and indeed, personnel, technical equipment, and aircrafts of the Ministry were involved in combating wildfires. Governors with close ties to the federal center seemed to be more likely to mobilize support of the Ministry at an earlier stage of wildfire expansion at which a direct threat to the population was still absent. At a later stage, these governors could effectively lobby for receiving larger support *ceteris paribus* weather conditions and fire threat. The logic also applies to other ministries and large state-owned enterprises, e.g., the Russian Railways and the Ministry of Defense.

The following example shows the importance of federal connections. Between July 1 and the August 15 there were four visits of prime minister Putin and two of president Dmitriy Medvedev to individual regions of Russia, which, according to their press services, were devoted to the forest fire situation. In Russia, the likelihood of obtaining federal support after a high-ranked visit (which also attracts a great deal of public attention) increases dramatically. Three of these six regions were headed by governors with federal connections, drawing substantial media attention to the fires' safety situation in the respective regions. At the same time, only approximately 20 % of all governors in our sample had federal connections. Thus, the probability of a governor with federal connections to become a host of president's visit devoted to this topic was more than two times higher than for governors without federal connections.

5.2.2 Coordinating support and enforcing policies (local knowledge mechanism)

During the forest fires period, all affected regions established operational committees, headed by the respective governors (or vice governors), which coordinated the activities of federal and regional units, municipal administrations, and volunteers in the region. Coordination was not only important from the perspective of effective employment of limited resources but also, as mentioned, in terms of overcoming rigid bureaucratic practices. According to the Forest Code, the owner of the forest territory is responsible for forest fire prevention on his territory. This directive was often taken literally, leading to the situation in which, for example, forest fire brigades of the Ministry of Defense extinguished fires within the borders of their territory, allowing fire to spread 'on the other side of the fence'. Governors more aware of the forest ownership situation in the region and the characteristics of high-level regional bureaucrats knew which parties (in terms of land owners) to integrate in the rescue operation and how much cooperation was exactly required.

²¹ For a case study on crisis management of a governor without federal connections and local origin in a region of Russia showing the specifics of the challenges governors faced, see Section 8 of the supplementary material.

The link between the operational committee and the municipalities was of particular importance. Most regional administration during the crisis by decree prohibited public access to forests, including bans on hunting, agricultural burnings, and recreation, and also prompted land owners with forests to ensure fire safety on their territories. However, the enforcement of regional decrees, which should have been performed by municipal administrations, often remained insufficient. The tasks of informing people about the emergency, organizing patrols, closing recreation resorts close to forests, mobilizing volunteers and sanctioning decree violations were inadequately implemented by the municipalities. Hence, for the success of regional policy measures, it was important to know about the willingness and effectiveness of their implementation at the municipal level. A local governor was likely to have better knowledge of municipality heads, mayors and city managers (which in Russia are typically of local origin) and thus be capable of ensuring their performance or, if needed, taking precautionary measures by establishing a tougher reporting routine (e.g., daily reporting on the progress of the implementation of regional measures, prohibiting heads of municipalities from taking vacations) or appointing his vice-governors for the surveillance of certain municipalities. Outsiders failed to find the ‘weak spots’ in the regional bureaucracy.

5.3 Do we actually measure local knowledge?

Finally, we also have to discuss a further problem of our analysis. The interpretation of the local origin variable as a proxy of local knowledge is not the only possibility. We therefore have to look at alternative interpretations and discuss whether their implications are more likely to explain the empirical regularities we observe than the arguments we have advanced so far.

5.3.1 *Motivation*

Governors with local origins may not have better local knowledge, but may differ in terms of motivation. The improved performance of local governors can either be motivated intrinsically by a stronger form of local patriotism or extrinsically by the willingness to provide a more attractive environment for aligned interest groups. To capture the effects of local patriotism, we disentangle ‘native’ from ‘local’ governors (see also Persson and Zhuravskaya 2012). ‘Native’ governors are those born in the region of office; they are likely to have a particularly strong intrinsic motivation to improve their performance. Thus, we control for a dummy for governors born in the region of office. Moreover, we use the ethnic diversity of Russian regions and control for governors who are non-ethnic Russians and governors who have the same ethnicity as the titular ethnicity of their regions—they again are more likely to exhibit stronger patriotism. To capture the influence of regional interest groups, which could be relevant in the context of our study, we control for the influence of stakeholders, who could consider forest fires particularly important for them: agriculture and forestry. To account for the potential influence of agricultural producers, we control for a dummy equal to one for governors who have previously worked in the agriculture or forestry sector. We capture the influence by forest users by including an index developed by the World Wild Fund for Nature (WWF) measuring the involvement of local interests in regional forest governance (from Libman and Obydenkova 2014). Controlling for any of these variables does not change our results.

We also look at evidence of performance of local governors, which has been reported in the literature for ordinary times rather than for times of crisis. Arguments based on

motivation would suggest that the local governors would perform better during this period as well; this is not what the literature finds (Libman et al. 2012; Vasilyeva and Nye 2012). The arguments about the local knowledge, however, explain the difference in performance. While the governors with local knowledge are capable of implementing superior economic policies both during ordinary times and times of crisis, they have little incentive to do so during ordinary times, given how politicians in Russia are appointed and promoted. In Russia, economic performance has no effect on career of local politicians; they are rewarded only for ensuring high electoral support of the center, typically through manipulations of elections (Reuter and Robertson 2012; Reisinger and Moraski 2012; Rochlitz 2013). During the times of crisis, when the forest fire disaster became the key issue that Putin and Medvedev focused on, governors had an incentive to use their local knowledge, and therefore we observe an improvement in performance.

5.3.2 Power

Local governors may find it easier to mobilize support of the regional population and may have more career opportunities in the region after their dismissals. Such political power resources could make governors with local origins more powerful vis-à-vis the federal government (Tavits 2010). During a natural disaster, governors with local origins may use this power to lobby for greater support from the federal administration. In Russia, while the support of the local population has no direct effect on the career trajectories of governors (because they are appointed by the federal president), the better capacity of local governors to mobilize the regional electorate to support the center during federal elections may raise the chances of reappointment. To check this conjecture, we look at the parliamentary elections of 2011 and find no correlation between the support received by the pro-Putin party United Russia and the local origin index (controlling for the share of ethnic Russians in the region).²² Furthermore, there is no evidence that governors with local origins continue their careers in their regions after resignation, as with very few exceptions, retired governors quit any political activity, and most governors actually leave their region (Vinogradov 2012). Therefore, there is no evidence that local origins make governors more powerful vis-à-vis the federal center.

6 Conclusion

The aim of this paper was to investigate the influence of the local knowledge advantage on the performance of sub-national governments, studying the variation in the ability of Russian regional governors with and without local origins to combat forest fires, when they became a natural disaster in 2010. Our findings confirm the existence of a local knowledge advantage in this case, but with several reservations. The governors with a high level of local origin and federal connections outperformed their counterparts. However, local knowledge as such was insufficient to improve the quality of the forest fire management. We conclude that local knowledge does matter for the performance of regional governors; however, in a centralized federation, this can only be realized if regional politicians have

²² We need to look at the partial correlation because ethnic regions have a disproportionately high share of governors with local origins (because the governors are mostly selected from the members of local ethnicities) and are characterized by political regimes and voting patterns different from the rest of Russia due to specifics of the local political cultures (Hale 2003).

access to federal decision-making. While federal connections ensure the availability of federal resources, the knowledge of local bureaucracies and elites ensures that the resources are used in the region in a reasonable and efficient way. We also have to note that the local origin variable can be interpreted differently from our argument. We have tried to carefully discuss alternative interpretations and to refute them, but we have to acknowledge this reservation in the interpretation of the findings of the paper.

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