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Decentralization of Firms in a Country with Weak Institutions: Evidence from Russia

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Abstract

Can decentralization of firms be successful in an environment with weak institutions? Decentralization can do a great job for improving firms' efficiency and competitiveness by creating opportunities for quicker and more competent decision-making and enhancing motivation of employees. However, decentralization is associated with a substantial increase in agency risk, which is particularly important for firms that operate under weak institutions. Hence, the popular belief is that in countries with weak institutions, firms are unable to successfully decentralize.

In this paper, we study evidence from Russian firms to challenge this belief. Following anecdotal evidence and trends observed in the data, we introduce the notions of *real decentralization* for firms that decentralize decision-making to competitively hired professionals and *cautious decentralization* for firms that decentralize to people hired through connections. We demonstrate that *really decentralized* firms are, on average, significantly more likely to invest even in Russian weak institutional conditions. We also show that the gap in investment between *really decentralized* and other firms declines as corruption grows. Empirical research presented in the paper implies that there still can be significant room for decentralization even in an environment with weak institutions, such as that of Russia. However, as the role of non-market factors (such as corruption) in firms' prosperity increases, the potential value of decentralization for the firms declines.

JEL-Classification: D02, D22, D23, L2, M2, M51

Keywords: decentralization, decision-making, investment, institutions, corruption, Russia

1. Introduction

The practice of decentralization of decision-making – delegation of some decision-making authority from the very top of firm's managerial hierarchy down to the middle-level and local managers and employees – is becoming increasingly widespread in firms in developed countries during the past decades and is being widely studied in the literature. Decentralization has a huge potential for improving firms' efficiency and competitiveness. It creates conditions for quicker and more competent decision-making on a wider range of questions, can enhance motivation of employees and improve efficiency of use of local information. Although decentralization is associated with an increase in agency risk, there is growing evidence that in an environment with good institutions, benefits that decentralization can bring to a firm can by far outweigh costs overall. Moreover, decentralization allows more productive firms to grow larger and, thus, has the potential to improve efficiency and competitiveness not only at the level of firms but also at the level of countries.

Yet, evidence on decentralization of firms in countries with weak institutions is still very limited. The existing literature mainly focuses on very high agency costs of firms' decentralization in an environment with weak institutions. A number of papers provide evidence on the extremely high degree of centralization of firms in developing countries, implying that almost all major decisions in firms in developing countries are taken personally by owners, and relate low productivity of firms in developing countries to their inability to successfully decentralize (Bloom et al., 2010(c); Bloom et al., 2010(a), Bloom et al. 2013). Evidence on decentralization of firms in post-Communist countries is even more limited. Overall, there is a popular belief, in both, academic and business society, that the successful decentralization of firms in an environment with weak institutions – poor social norms, low trust, weak judicial system, and high corruption – is impossible.

In this paper, we study evidence from Russian firms to challenge this belief. Can decentralization of firms be successful in an environment with weak institutions? While the previous literature that studies decentralization of firms under weak institutions concentrates on the high agency costs of decentralization, in this paper we pay attention to the benefits for efficiency decentralization can bring to a firm – benefits from quicker and more efficient decision-making and better motivation of employees – presuming that these benefits can be so

high that they can outweigh the costs of decentralization even in an environment with weak institutions. Next, we pose a question under which institutional conditions can potential benefits from decentralization be valuable for the firm.

Anecdotal evidence suggests that many firms that operate in an environment with weak institutions do not even consider decentralization to be a viable option because of the high agency risk. Some firms try to mitigate agency risk by exploiting the 'cautious' strategy of decentralization: to feel safer, decentralizing some of the decision-making authority, owners or CEOs of such firms hire for top positions relatives, friends or acquaintances, people they trust to on the basis of recommendations from friends, and so on. Following this observation, in this paper we distinguish between the two decentralization strategies: decentralization to the competitively hired professionals vs. decentralization to people who can be trusted on the basis of relationships, connections, and so on (not necessarily professionals). We introduce the notions of *real decentralization* for firms that decentralize decision-making to competitively hired professionals, and *cautious decentralization* for firms that decentralize decision-making to people hired through connections. *Cautious decentralization*, while is believed to be much less risky under weak institutions, is unlikely to create conditions for delegating decision-making responsibilities to really professional and talented people. *Real decentralization* does create such conditions.

In this paper, we suggest that the benefits from *real decentralization* for the firm's efficiency can be so important that they do have the potential to outweigh the agency costs of decentralization even under weak institutions. Next, we note that the benefits that *real decentralization* can bring to a firm – benefits for the firm's efficiency – while being highly valuable for firms that operate in a competitive economic environment, can be devalued as the environment deviates from a competitive one. We argue, that in an environment with weak institutions, as the role of non-market business strategies involving corruption, connections, etc. for firms' prosperity increases, the potential value of decentralization for firms declines (due to a decline in comparative benefits from higher economic efficiency in the environment where economic success is to a large degree determined by non-market factors). To test our hypotheses empirically, we explore the relationship between decentralization strategies and the investment behavior of firms in Russian regions. We find that data is consistent with our theory.

Empirical analysis of the paper is based on the data of "Russian Firms in a Global Economy" (RuFIGE) survey that was conducted by the Higher School of Economics, Moscow, Russia, in 2014. The survey dataset provides unique data on organizational choices, hiring strategies, investment behavior and other characteristics or choices of approximately 2000 manufacturing firms across 60 Russian regions. For the purposes of our analysis, we complement firm-level data from the RuFIGE survey with data on the quality of institutions in Russian regions estimated from the "Business Environment and Enterprise Performance Survey" (BEEPS) that was run by the European Bank for Reconstruction and Development in cooperation with the World Bank in Russian regions in 2011–2012.

Russian institutional conditions are far from being good. In 2014 – the year of focus in our study – Russia scored 27 out of 100 by the Transparency International Corruption Perceptions Index, ranking much worse than many Eastern European post-Communist countries and being close to a number of Central Asian and African countries. According to the data of the Russian Public Opinion Fund, more than 50% of Russian people do not condemn those who give bribes; and 30% do not condemn those who take bribes. Russia's 2014 rule of law score from the World Bank Worldwide Governance Indicators was –0.7 out of a range from –2.5 (the worst) to 2.5 (the best). According to the World Values Survey 2011 data, only 28% of Russian people believe that most people can be trusted, and 66% of Russians think that one needs to be very careful in dealing with people. Thus, we believe, Russia represents a good case to study decentralization of firms in an environment with weak institutions.

Our empirical results suggest, that even in a weak institutional environment, such as that of Russia, the tradeoff between the benefits and costs of firms' *real decentralization* can be in favor of decentralization. The results of the regression analysis presented in this paper demonstrate that, while *cautiously decentralized* Russian firms do not differ from the centralized ones in terms of investment, *really decentralized* Russian firms are 40% more likely to invest compared to other firms. The difference is impressive.

Next, we exploit the variation in corruption across Russian regions to explore the effect of the institutional environment on the potential value of decentralization for the firms. The results of the presented regression analysis demonstrate that the gap in investment between *really decentralized* and other firms, while being very substantial at moderate levels of corruption, shrinks as corruption grows. Corruption disrupts fair competition and strongly contributes to

the prosperity of non-market business strategies, and, therefore, devalues potential benefits from decentralization for the firms. Nevertheless, according to the predictions of our regression models, *really decentralized* firms turn out to be significantly more successful in terms of investment under a wide range of corruption values, including the median for Russian regions' level of corruption, and even some higher levels.

Hereafter the paper is organized as follows. Section 2 presents the literature review. Section 3 discusses the theory. Section 4 describes the data and the empirical strategy. Section 5 presents and discusses the results of the empirical analysis. Section 6 concludes.

2. Literature Review

During recent decades, a sustainable tendency toward greater decentralization of firms has been observed in developed countries (Rajan and Wulf, 2006; Bloom et al., 2010(b); Quadalupe and Wulf, 2010). The theoretical literature outlines several channels through which decentralization can facilitate growth and improve the efficiency of firms. Not only does decentralization relax the time burden on the CEO, which is essential for a firm's growth (Penrose, 1959; Chandler, 1962), decentralization can also improve the incentives of managers and employees, facilitate communication, reduce negative consequences of information asymmetry and promote more efficient use of available information (Aghion and Tirole, 1997; Baker et al., 1999; Rajan and Zingales, 2001; Dessein, 2002; Aghion et al., 2014). However, decentralization is associated with agency costs, which stem from the misalignment of incentives between firms' owners/CEOs and their subordinates (Aghion and Tirole, 1997; Bloom et al., 2012(a); Aghion et al., 2014; et al.). The agency costs of decentralization become a particularly important issue in environments with weak institutions (Bloom et al., 2010(a)). Overall, from the theoretical perspective, the balance of benefits and costs of decentralization for a firm is unclear.

Empirically, a number of recent papers demonstrate a correlation between decentralization and economic performance of firms in developed countries. Acemoglu et al. (2007), using data on French and British firms, show that decentralized firms are on average more productive. Kastl et al. (2013) use data on Italian manufacturing firms to document that decentralized firms tend to spend more on R&D. Levina (2014) explores data on firms from 7 countries in Europe and demonstrates that decentralized firms are on average more innovative and more successful in international trade. Aghion et al. (2017) use data on firms from 10 OECD countries to provide evidence that decentralized firms are more resistant to economic crises: they demonstrate better performance in terms of survival chances, productivity, sales and profits during and after the crisis. Although these papers interpret correlation between decentralization and firms' economic outcomes in different ways that imply different directions of causality, they all indicate the same empirical pattern: decentralized firms tend to demonstrate superior economic performance in developed countries.

Bloom et al. (2012a) argue that the effect from firms' decentralization may spread far beyond the economic performance of particular firms. Decentralization creates preconditions for firms'

growth: it allows more productive firms to grow larger and to take market share from less productive firms and, thus, supports the efficient reallocation of capital and labor across firms. Therefore, greater firm-level decentralization may lead to higher productivity and competitiveness of the country.

However, the popularity of firms' decentralization varies significantly across countries. The literature demonstrates a strong influence of the environment, in particular, of the institutional environment on the decentralization choices of firms. Bloom et al. (2010b) show that higher product market competition leads to greater levels of decentralization. Authors reason that higher competition might make decentralization more likely by first, making local managers' information and quicker decision-making more valuable, and second, reducing the agency problem. Bloom et al. (2012a) demonstrate that higher trust in the region, as well as stronger rule of law in the country increases decentralization in firms. Higher trust and stronger rule of law relieve the agency problem, therefore, making decentralization less costly. Finally, Athanasouli and Goujard (2015) and Levina (2017) show that corruption makes firms' decentralization less likely.

In accord with these relations, survey data indicate that in countries with weak institutions, firms' decentralization is much less popular than in countries with good institutions (as noted, e.g., in Bloom et al., 2010(c), Bloom et al., 2012(a), Aghion et al., 2014). Despite the importance of the topic, evidence on decentralization of firms in countries with weak institutions is still very limited. Bloom et al. (2010a) present evidence on an extremely high degree of centralization of firms in developing countries. According to the authors, almost all major decisions at firms in developing countries are taken personally by owners, who do not consider delegation to be a viable option due to the fears of fraud and expropriation by managers. Authors relate a lack of decentralization in developing countries to a weak institutional environment, in particular, to low trust and poor rule of law, which make the agency risks from decentralization particularly high. Moreover, authors link the low productivity of firms in developing countries to their inability to successfully decentralize.

Even less is known about the decentralization of firms in post-Communist countries. Bloom et al. (2012b) study the management practices of firms from post-Communist countries and point to a huge variation in the quality of management both within and between ex-Communist countries. Authors find that while Central Asian post-Communist countries have on average a

very poor quality of management, Central European post-Communist countries demonstrate a rather good quality of management, which is only moderately worse than in Western European countries. Authors also demonstrate a strong link between the quality of management and economic performance of firms in post-Communist countries. However, this study explores quality of management, not decentralization of firms from post-Communist countries. Levina (2016) studies the decentralization practices of Russian firms and is, to the best of our knowledge, the first study to present empirical evidence on the positive experiences of decentralization of firms in an environment with weak institutions. The author shows that Russian firms that accompany decentralization with competitive hiring for top positions are on average more innovative and more likely to export their production.

This paper adds to the literature by providing more evidence on the possibilities for the successful decentralization of firms in an environment with weak institutions and taking the first steps to understanding the conditions under which decentralization (even if successful) can be valuable for firms in an environment with weak institutions. In contrast to prior literature, this paper concentrates not on the costs of decentralization in an environment with weak institutions, but on the potential benefits for efficiency that the firm can gain from decentralization even in an environment with weak institutions. The paper introduces the concepts of *real decentralization* for firms that decentralize decision-making to competitively hired professionals, and *cautious decentralization* for firms that decentralize decision-making to people hired through connections and explores the relationship between decentralization strategies and investment outcomes of Russian firms in different institutional settings.

3. Theory

Decentralization can enhance firms' efficiency and competitiveness through several channels. First, decentralization creates preconditions for more efficient use of CEOs' and top managers' time (by allowing them to concentrate on the most important or challenging questions while delegating other questions to lower level employees), for quicker decision-making on a wider range of questions and reacting more quickly to changes in the environment. Moreover, decentralization can also strongly improve the efficiency of decision-making by creating an environment that stimulates the more efficient use of available information and better communication. Finally, decentralization is associated with greater involvement, greater independence and greater responsibility of employees, which can have an important effect on employees' motivation.

However, decentralization is associated with agency risks: risks that employees can use the delegated authority not necessarily in the best interests of the firms, but in their own interests. Agency risks of decentralization can be particularly high in countries with weak institutions. Firms that choose to decentralize in a weak institutions environment have to take the risk that employees can use the delegated authority to cheat the firm in various ways, to take bribes for promoting non-optimal suppliers, partners or projects, or even to directly steal. Weak social norms, high corruption and high social tolerance to corruption, and a poorly functioning judicial system make misuse of delegated authority by employees much more likely and more difficult to fight.

To mitigate agency risks of decentralization, firms may choose to decentralize decision-making authority to people whom firms' owners or CEOs trust to due to some type of relations or acquaintance, recommendations from friends, etc. This implies that firms hire people for the key positions not on the basis of open competition (that would allow for choosing the most efficient and professional people), but through connections, from the highly restricted pool of candidates whom firms' owners or CEOs trust to. Such a strategy, while making decentralization much less risky, is at the same time likely to result in much lower efficiency and professionalism of people hired for the key positions, which can be detrimental for the efficiency of decentralization.

Therefore, in economies with weak institutions, it is important to distinguish between the two firms' decentralization strategies: *real decentralization* – decentralization of decision-making authority to competitively hired professionals, and *cautious decentralization* – to

people hired through connections, not necessarily professionals. *Cautious decentralization* allows for the relaxation of time limitations of CEOs and top managers without taking substantial additional agency risk. However, *cautious decentralization* is unlikely to create conditions under which decision-making authority can be delegated to highly efficient professionals, which makes its opportunities to improve significantly firms' efficiency really questionable.

At the same time, *real decentralization* does create conditions for the decentralization of decision-making authority in favor of highly professional, talented and motivated employees (hired competitively at the open labor market), which has a potential to yield huge benefits to firms' efficiency and competitiveness – benefits from higher speed and efficiency of decision-making and higher motivation of high-qualified employees. In this paper, we suggest that benefits from real decentralization can be so high that they can outweigh the agency costs of decentralization even in an environment with weak institutions. Therefore, our first hypothesis is:

Hypothesis 1: Real decentralization (decentralization of decision-making authority to competitively hired professionals) can have an economic payoff for firms even in an environment with weak institutions.

However, weak institutions can hamper decentralization not only by increasing agency risks. Weak institutions can also devalue potential benefits from decentralization (even from real decentralization), which can play an even more important role for firms' low willingness to even try to decentralize under weak institutions. Potential benefits from real decentralization – benefits for firms' efficiency from improvements in the speed and efficiency of decision-making and in the motivation of employees – can be highly valuable for firms in a competitive environment. However, the lower is the role of market competition, and the higher is the role of non-market business strategies (based on corruption, connection to the bureaucrats, and the like) for firms' economic success under weak institutions, the lower becomes the value of economic efficiency and, hence, the potential value of real decentralization for the firms. This brings us to our second hypothesis:

Hypothesis 2: As the role of non-market factors (such as corruption, connections, etc.) for firms' prosperity increases, economic payoff from real decentralization for the firms declines.

4. Data and Empirical Strategy

Empirical analysis presented in this paper is based on the data of a large survey of Russian manufacturing firms "Russian Firms in a Global Economy" (RuFIGE), that was run in 2014 by the Higher School of Economics Institute for Industrial and Market Studies. Approximately 2000 manufacturing firms from 60 Russian regions took part in the survey[1]. The RuFIGE survey provides unique data on the organizational choices and hiring strategies of Russian manufacturing firms. In addition to this, the survey provides much other information about the firms, including information on firms' investment behavior, property structure, connections with the state, etc., that allows us to conduct a rigorous regression analysis.

The RuFIGE decentralization question is formulated in the following way: "With reference to strategic decisions, which of the following statements better describes your firm's situation?

1. Decisions in your firm are centralized: the CEO/owner takes most decisions in every area
2. Decisions in your firm are decentralized: managers can take autonomous decisions in some business areas"[2]

Note that the wording of the decentralization question is rather soft. However, even with this soft wording, only 17% of Russian manufacturing firms referred themselves as being decentralized.

The question about firms' strategies of hiring for top positions allows us to distinguish between cautious decentralization and real decentralization. The question is phrased as: "What are the most important factors the owners/CEO of your firm take into account primarily when they appoint employees to the key managerial positions? Choose two most important factors:

1. Level and quality of education
2. Previous professional experience at your firm

[1] The survey sample was designed to be representative by firms' industry and size, with one exception: to make statistical analysis in the group of large firms possible, large firms were intentionally overrepresented in the sample. The survey provides sampling weights that allow us to work with survey data as with representative by industry and size of the firms. This approach is standard for firms' surveys. More information about the survey can be found at the site of the Institute for Industrial and Market Studies, Higher School of Economics: https://iims.hse.ru/en/rfge/.

[2] The question is formulated analogously to the decentralization question of the earlier firms' survey "European Firms in a Global Economy" (EFIGE), that was run in 2010 by the European think tank Bruegel. More information about the survey can be found at http://bruegel.org/efige/.

3. Professional experience at other firms (organizations)
4. References from acquaintances or people whom owners/CEO of your firm trust to
5. References from former employers or recruitment agencies
6. Personal acquaintance with the candidate
7. Interview results"[3]

Note that respondents were asked to select two answer choices. The answer choices proposed in the question fall into two categories: factors that are associated with fully competitive hiring (interview results, level and quality of education, professional experience at other firms (organizations), references from former employers or recruitment agencies), and factors that take into account some sort of connections or prior acquaintance with the candidates and, thus, imply deviations from fully competitive hiring (personal acquaintance with the candidate, references from the acquaintances or people whom owners/CEO of this firm trust to, previous professional experience at this firm).

We define our variable for decentralization strategy on the basis of the decentralization and hiring strategy questions as:

A firm is
- **Centralized** if it responded to the decentralization question that decisions in the firm are centralized
- **Cautiously decentralized** if it responded to the decentralization question that decisions are decentralized but selected in the hiring question at least one factor that implies deviations from fully competitive hiring for top positions
- **Really decentralized** if it responded to the decentralization question that decisions are decentralized and did not select in the hiring question any factors that imply deviations from fully competitive hiring for top positions

[3] This question was formulated particularly for the "Russian Firms in a Global Economy" (RuFIGE) survey. It has no analogues, either in the "European Firms in a Global Economy" (EFIGE) survey, or in the other surveys that study decentralization at the firms. The novel combination of decentralization and hiring strategy questions in the RuFIGE survey provides us the unique opportunity to study the interplay between firms' organizational choices and hiring strategies.

According to the data, the vast majority of Russian manufacturing firms, 87%, are centralized. 10% are cautiously decentralized. The share of fully decentralized firms is impressively small and amounts to only 7%.

For the purposes of our analysis, we supplement the RuFIGE firm-level data with the data on quality of institutions in Russian regions, which we estimate from the "Business Environment and Enterprise Performance Survey" (BEEPS). The BEEPS collected extensive information about firms and their estimates of the business environment in Russian regions; in particular, the survey questionnaire includes a wide range of questions on the quality of institutions in Russian regions. The BEEPS sample covers 4200 firms in 37 Russian regions. The sample is representative within each region, which allows aggregating survey data at the level of regions[4]. We estimate business corruption from the BEEPS question "To what degree is corruption an obstacle to the current operations of your establishment?" as a share of firms (in the region) that perceive corruption to be an obstacle to their operations, and the quality of judicial system from the question "To what extent do you agree to the following statement: "The court system is fair, impartial and uncorrupted" as a share of firms (in the region) that agree or tend to agree with this statement.

Finally, we use data on GRP per capita in Russian regions from the Russian Federal State Statistics Service (Rosstat). Descriptive statistics for the variables used in the empirical analysis of this paper are provided in Table A1 in the Appendix.

To test whether our theory is consistent with the data, we explore the relationship between the decentralization strategies and investment outcomes of Russian firms. We do not rely on data of firms' financial performance because information about the financial performance of firms from countries with weak institutions – Russian firms in particular – is often being hidden or manipulated and, thus, in general is considered to be highly unreliable[5]. Thus, to avoid problems with the low quality of firms' financial performance data, we work with data on firms' investment outcomes, suggesting that more economically successful firms are more likely to

[4] The BEEPS data cover nearly 80% of the RuFIGE sample (namely, 35 regions with 1536 of 1950 RuFIGE firms). To account for possible deviation from the representativeness of the RuFIGE data that might occur when we limit the RuFIGE sample by adding into analysis BEEPS-based regional variables, we use the re-weighting procedure.

[5] For example, only approximately half of Russian firms responded to the question about revenue in Russian Firms in a Global Economy survey – the survey the analysis of this paper is based on.

implement investment. We use business corruption in Russian regions to measure the spread and importance of non-market factors for firms' prosperity.

Therefore, to test Hypothesis 1, which assumes that real decentralization can have an economic payoff for firms even in an environment with weak institutions, we estimate the following probit regression models:

$$(1)\ P\{\ Invest_i\ \} = \Phi(\beta_1 \cdot Cautiously\_Decentr_i + \beta_2 \cdot Really\_Decentr_i + \beta_3 \cdot Firm\_Controls_i)$$

where

$Invest_i$ is a dummy variable equal to 1 if firm i implemented capital investment during three pre-survey years,

$Cautiously\_Decentr_i$ and $Really\_Decentr_i$ are dummy variables for cautiously decentralized and really decentralized firms, respectively (centralized firms are the reference category),

$Firm\_Controls_i$ – a vector of control variables that includes log employment at the firm, dummy variable for firms that are part of holdings, dummy variable for change of main shareholders during the three pre-survey years, dummy variables for the presence of state and foreign property in the firm's property structure, dummy variables for the receipt of support from government or state orders by the firm, log revenue and (as approximately half of the firms in our sample did not respond to question about revenue) dummy variable for non-response to the revenue question, dummies for the type of locality firm operates in (regional center/other city or town/village).

To test Hypothesis 2, which suggests that the economic payoff from real decentralization should be lower in an environment with a higher importance of non-market factors for firms' prosperity, we add the interaction of firm's decentralization strategy with business corruption in the region to the regression models (1). As the results of estimation of regression models (1) demonstrate that there is no difference between centralized and cautiously decentralized firms in terms of investment, for the sake of simplicity in this analysis, we combine these two groups of firms into one – the reference group. Therefore, we estimate the following probit regression models with robust standard errors clustered at the level of regions:

$$(2)\ P\{Invest_{ij}\} =$$
$$= \Phi(\beta_1 \cdot Really\_Decentr_{ij} + \beta_2 \cdot Corruption_j + \beta_3 \cdot Really\_Decentr_{ij} \cdot Corruption_j +$$
$$+ \beta_4 \cdot Regional\_Controls_j + \beta_5 \cdot Firm\_Controls_{ij})$$

where index *i* stands for the firm, and *j* – for the region firm is located in;

$Invest_{ij}$, as above, is the investment dummy for firm *i* situated in region *j*,

$Really\_Decentr_{ij}$ is a dummy variable for really decentralized firms (centralized and cautiously decentralized firms are the reference category),

$Corruption_j$ denotes corruption in region *j*,

$Regional\_Controls_j$ is a vector of region-level control variables that includes log GRP per capita and a measure of quality of judicial system in region *j*,

$Firm\_Controls_{ij}$ is a vector of firm-level control variables, the same as in the regression models (1), with the only exception being that (due to the presence of region-level controls) dummies for the firm's region are excluded.

5. Empirical Results

This section presents the results of the regressions analysis. Regressions presented in Table 1 explore the potential link between decentralization strategies and the investment behavior of the firms. Models 1.1 – 1.5 vary by the list of control variables. In the baseline Model 1.1, we estimate the relationship between firms' decentralization strategies and investment, controlling only for the firms' size, sector and region. In Model 1.2, we control for firms' belonging to a holding, recent change in main shareholders, and presence of state and foreign shares in firms' property. In Model 1.3, we add controls for the receipt of support from the government or state orders – factors that are likely to affect investments of firms in a Russian weak institutions environment, as well as control for the type of locality the firm operates in, and the position of the respondent. In Model 1.4, we add control for the firms' revenue. However, as only approximately half of the firms in our sample answered the question about revenue, the best we can do is to add control for revenue for the firms that responded to the revenue question together with control for the fact of non-response to the revenue question. Finally, in Model 1.5, we re-estimate Model 1.4 with the sub-sample of firms that responded to the question about revenue.

Models 1.1 – 1.5 demonstrate that, while cautiously decentralized firms – firms that decentralize decision-making authority to people hired through connections – do not differ in the probability of investment from centralized firms (the reference group), really decentralized firms – firms that decentralize decision-making authority to competitively hired professionals – are significantly more likely to invest.

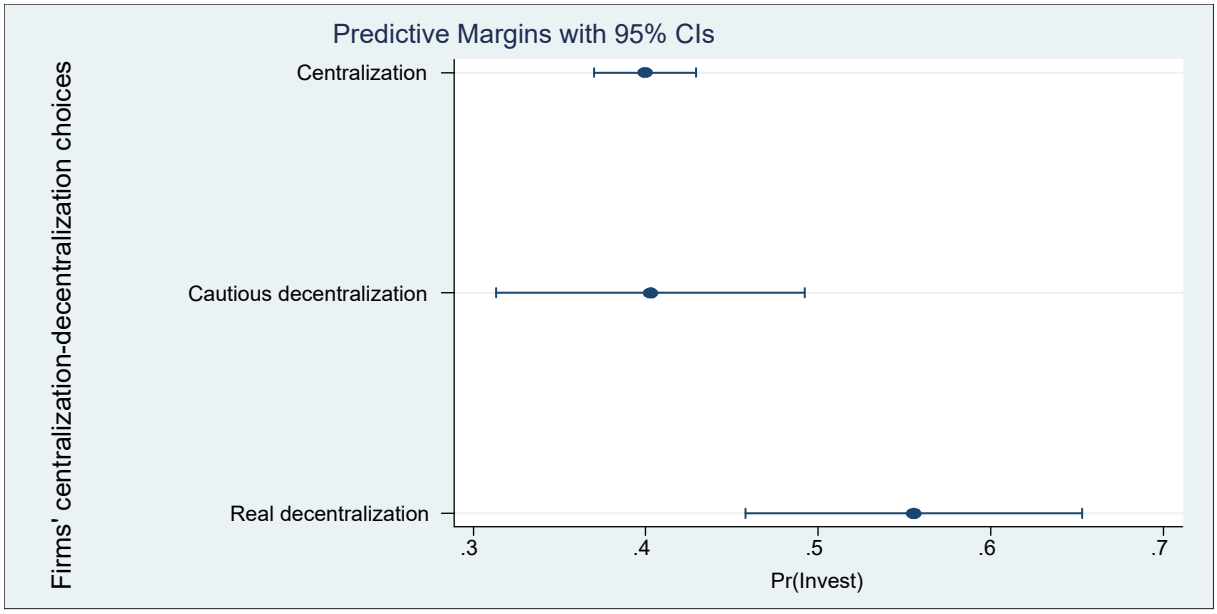
Table 1: Decentralization and investment of Russian firms

	(1)	(2)	(3)	(4)	(5)
	Firm implements investment				
Firm is centralized	*Reference group*				
Firm is cautiously decentralized	–0.074	–0.020	–0.020	0.010	–0.310
	(0.137)	(0.142)	(0.152)	(0.153)	(0.190)
Firm is really decentralized	0.451***	0.448***	0.446***	0.479***	0.594***
	(0.145)	(0.149)	(0.159)	(0.159)	(0.230)
Employment at the firm, log	0.300***	0.286***	0.326***	0.267***	0.213***
	(0.034)	(0.037)	(0.040)	(0.043)	(0.065)
Firm belongs to a holding		0.204	0.149	0.153	–0.074
		(0.141)	(0.150)	(0.149)	(0.210)
Main shareholders changed during last 3 years		0.150	0.166	0.069	0.367*
		(0.167)	(0.170)	(0.166)	(0.210)
Firm has state share in property		–0.478**	–0.543**	–0.558**	–0.331
		(0.209)	(0.219)	(0.223)	(0.325)
Firm has foreign share in property		0.059	0.022	–0.004	–0.030
		(0.235)	(0.240)	(0.247)	(0.310)
Firm receives support from government			0.130	0.121	0.163
			(0.115)	(0.117)	(0.160)
Firm receives state orders			0.166	0.112	0.079
			(0.108)	(0.111)	(0.151)
Revenue, log (zero values for firms that did not respond to the question about revenue)				0.130***	
				(0.040)	
Firm did not respond to the question about revenue				0.002	
				(0.167)	
Revenue, log					0.163***
					(0.050)
Control for type of locality (regional center/other city or town/village)			Yes	Yes	Yes
Control for position of the respondent			Yes	Yes	Yes
Control for sector	Yes	Yes	Yes	Yes	Yes
Control for region	Yes	Yes	Yes	Yes	Yes
Observations	1,734	1,658	1,602	1,602	883
Pseudo R-squared	0.139	0.141	0.159	0.181	0.210

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

To illustrate the size of the effect of firms' decentralization choices on the probability of investment, we present predictive margins of centralized, cautiously decentralized and really decentralized firms, estimated from Model 1.4 (our most accurate full sample specification) in Graph 1. We see that really decentralized firms are approximately 40% more likely to invest compared to other firms. The difference is really impressing.

Graph 1: Decentralization and investment of Russian firms



The results are consistent with our Hypothesis 1, which suggests that real decentralization might have an economic payoff even for firms that operate in a weak institutions environment. Does this imply that really decentralized firms are so lucky as to be never cheated by their employees who gain responsibility and decision-making authority under decentralization, even in Russian conditions with weak formal and informal institutions? No, it does not. However, our results demonstrate that the benefits from real decentralization (from the improved firm's efficiency due to the softening of the CEO's time limitation constraint, increase in speed of firm's reaction, better access to information, enhancement in motivation of employees, in particular of key employees, and so on) can be large enough to strongly outweigh (on average) the probably inevitable losses from decentralization, even under weak institutions.

Regressions presented in Table 2 estimate firms' pay off from real decentralization in terms of investment at different levels of corruption. These regressions include the interaction between firm-level real decentralization and business corruption in the region. As the results of the regression analysis presented in Table 1 did not reveal any difference in terms of investment between cautiously decentralized and centralized firms, for the sake of simplicity, we join these two groups together in the subsequent analysis. Similar to the regression models presented in Table 1, Models 2.1 – 2.5 vary by the list of control variables.

According to the predictions of Models 2.1 – 2.5, really decentralized firms are more likely to invest under relatively low values of corruption (see the positive significant coefficient for the dummy variable for really decentralized firms), but as corruption grows, the gap in investment between really decentralized firms and other firms decreases (see the negative and statistically significant coefficient for the interaction term). At high values of corruption, the gap disappears.

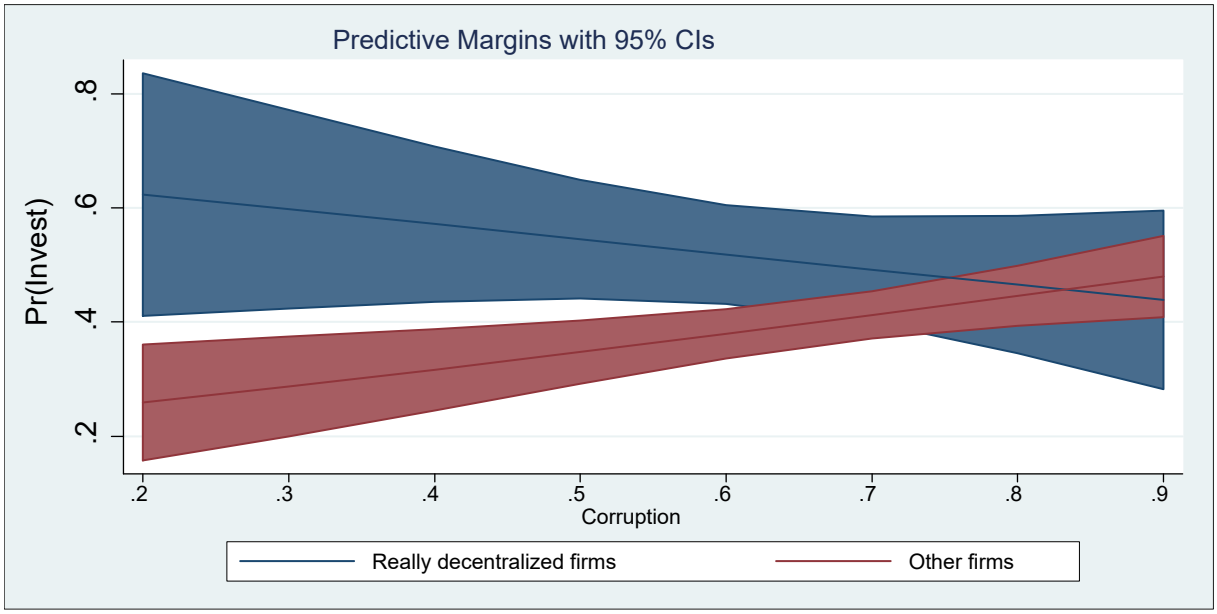
Table 2: Corruption, decentralization and investment

	(1)	(2)	(3)	(4)	(5)
	Firm implements investment				
Firm is really decentralized	0.976**	1.238**	1.696***	1.441***	4.524***
	(0.398)	(0.547)	(0.503)	(0.499)	(1.169)
Corruption in the region	0.485	0.593	0.817**	0.974***	0.784
	(0.446)	(0.411)	(0.344)	(0.372)	(0.494)
(Firm is really decentralized) * (Corruption in the region)	–1.095**	–1.503*	–2.179***	–1.732**	–6.347***
	(0.551)	(0.777)	(0.720)	(0.718)	(1.870)
GRP per capita, log	–0.279	–0.231	–0.133	–0.152	–0.351*
	(0.197)	(0.183)	(0.184)	(0.174)	(0.186)
Quality of judicial system in the region	0.044	0.238	0.786	0.659	0.623
	(0.669)	(0.614)	(0.652)	(0.626)	(0.662)
Employment at the firm, log	0.282***	0.269***	0.298***	0.229***	0.151*
	(0.036)	(0.037)	(0.042)	(0.045)	(0.083)
Firm belongs to a holding		0.420**	0.359*	0.323	0.118
		(0.178)	(0.192)	(0.198)	(0.254)
Main shareholders changed during last 3 years		0.055	0.028	–0.058	0.323
		(0.164)	(0.173)	(0.184)	(0.210)
Firm has state share in property		–0.476**	–0.538**	–0.560*	–0.441
		(0.215)	(0.265)	(0.295)	(0.338)
Firm has foreign share in property		–0.057	–0.066	–0.101	–0.375
		(0.273)	(0.312)	(0.331)	(0.367)
Firm receives support from government			0.092	0.147	0.396**
			(0.129)	(0.129)	(0.192)
Firm receives state orders			0.231*	0.172	0.169
			(0.120)	(0.120)	(0.173)
Revenue, log (zero values for firms that did not respond to the question about revenue)				0.165***	
				(0.042)	
Firm did not respond to the question about revenue				0.210	
				(0.201)	
Revenue, log					0.189***
					(0.051)
Control for type of locality (regional center/other city or town/village)			Yes	Yes	Yes
Control for position of the respondent			Yes	Yes	Yes
Control for sector	Yes	Yes	Yes	Yes	Yes
Observations	1,357	1,302	1,261	1,261	728
Pseudo R-squared	0.0624	0.0709	0.0923	0.119	0.162

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

To visualize the results of the regression analysis, Graph 2 presents the predictive margins of really decentralized firms vs. other firms at different levels of corruption estimated from Model 2.4. We see that under low corruption, really decentralized firms are much more likely to invest. As corruption grows, the probability of investment of not really decentralized firms increases, which probably reflects that these firms benefit from the use of non-market strategies under higher corruption (on average). At the same time, for really decentralized firms, the probability of investment declines as corruption grows. Thus, the gap between really decentralized firms and other firms decreases as corruption grows and disappears at high values of corruption. The results are consistent with our Hypothesis 2, which suggests that the potential value of real decentralization for the firms declines as the role of non-market strategies for firms' economic success increases.

Graph 2: Predicted probability of investment for firms with different decentralization strategies at different levels of corruption



Note, however, that according to Graph 2, real decentralization remains economically beneficial for Russian firms (at least in terms of investment) under a wide range of values of corruption, including actually, the high ones. Graph 2 shows that really decentralized firms are more likely to invest under the median for Russian regions (covered by the BEEPS sample) level of corruption (0.55), and even under some higher values. This suggests that considerable room for decentralization can be present under a wide range of institutional conditions, including those far from perfect, e.g., Russian ones.

6. Conclusion

In this paper, we challenge the popular belief that decentralization of firms cannot be successful under weak institutions. Speaking about decentralization of firms in transition and developing countries, researchers and businessmen usually emphasize the high agency risk of decentralization in an environment with weak institutions. A popular view is that under poor social norms, weak judicial system, and high corruption, the agency costs of decentralization are so high that decentralization becomes senseless (if not destructive) for firms. However, the potential benefits for firms' efficiency that decentralization can bring with it (due to improvement in firms' speed of reaction, widening the spectrum of questions that can be solved simultaneously, enhancement in motivation of firms' employees, etc.) are basically overlooked in this discussion.

In this paper, we use evidence from Russian firms to explore whether the benefits of decentralization can outweigh its inherent costs in an environment with weak institutions. We distinguish between the strategies of real decentralization (decentralization of decision-making authority to competitively hired professionals) and cautious decentralization (decentralization to people hired through connections). Real decentralization creates opportunities for the efficient delegation of decision-making responsibilities to competitively hired highly professional people, while cautious decentralization is unlikely to create such conditions. To explore whether decentralization can be successful under weak institutions, we compare the investment behavior of centralized, cautiously decentralized and really decentralized Russian firms.

Using the unique data about decentralization and hiring strategy choices of Russian manufacturing firms from the "Russian Firms in a Global Economy" (RuFIGE) database, we show empirically that real decentralization can be beneficial for firms even in an environment with weak institutions. Empirical analysis, presented in the paper, demonstrates that really decentralized firms are 40% more likely to invest compared to other firms. The difference is impressive! Given the low quality of Russian formal and informal institutions, this implies that benefits from decentralization can be really strong.

However, the benefits from decentralization, while being highly valuable for firms in a competitive environment, can be strongly devalued as the environment deviates from a competitive one and the importance of non-market business strategies (such as corruption, connections, etc.) for firms' economic success increases. We show that the gap in investment

between really decentralized firms and other firms shrinks as corruption grows, becoming statistically insignificant under very high values of corruption. Nevertheless, according to the predictions of our regression analysis, really decentralized firms demonstrate significantly better performance in terms of investment under a wide range of corruption values, including the high ones. For example, at the median for Russian regions level of corruption[6], the average payoff from real decentralization (in terms of investment) is still substantial.

Our results demonstrate that there are firms that do manage to successfully decentralize even in the Russian institutional climate with weak social norms, low trust, high corruption and high social tolerance to corruption, weak rule of law, etc. We can suggest that successful decentralization of firms in an environment with weak institutions should require the creation of some type of special mini-environment – with higher trust and better norms – at least within the firm. Do successfully decentralized Russian firms have a special better-than-average mini-climate? While up to now this is not explicitly confirmed by the data, logic and anecdotal evidence suggest that they do. Could these effects spread beyond these firms and contribute to the improvement of trust and social norms climate at the level of the locality, region, or, maybe, even the entire country? We believe this is a very important question for further development of this research.

[6] Regions covered by the BEEPS data are considered.

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Appendix

Table A1: Descriptive statistics

Variable	Type of variable	Number of observations	Mean	Min	Max
Firm-level data					
Employment at the firm	continuous	1822	101.85	10	53000
Firm's revenue, mln rub	continuous	1019	8820.2	0.01	7500000
Firm did not respond to question about revenue	binary	1950	0.48	0	1
Firm implements investment	binary	1899	0.41	0	1
Firm is centralized	binary	1898	0.83	0	1
Firm is cautiously decentralized	binary	1866	0.10	0	1
Firm is really decentralized	binary	1866	0.07	0	1
Firm belongs to a holding	binary	1935	0.10	0	1
Main shareholders changed during last 3 years	binary	1853	0.06	0	1
Firm has state share in property	binary	1950	0.02	0	1
Firm has foreign share in property	binary	1950	0.02	0	1
Firm receives support from government	binary	1891	0.17	0	1
Firm receives state orders	binary	1883	0.21	0	1
Region-level data					
GRP per capita, thousand rub	continuous	1950	285.07	127.52	1327.22
Corruption in the region	continuous	1536	0.56	0.22	0.94
Quality of judicial system in the region	continuous	1536	0.33	0.001	0.61