

Increasing Small- and Medium-Enterprise Contribution to Local and Regional Economic Growth by Assessing the Institutional Environment

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Purpose: A neo-institutional methodology defines the entrepreneurial environment for SMEs as a multidimensional set of interacting formal/informal institutions influencing regional economic growth. Acknowledging the multidimensional nature of SME growth, this study tests an approach to measure SME institutional environment quality through the identification of regional-level determinants.

Design/methodology/approach: The method used in this paper is based on Bruns et al. (2017) model, and is tested on 81 Russian Federation regions. The approach seeks to determine variation in entrepreneurial ecosystems based on quality and estimated marginal effects of difference across geographical regions.

Findings: The most severe obstacle to SME development in Russia is its shadow economy and corruption. Access to finance, high transportation fees and instability in the political and economic field rank second and third, respectively. Results suggest governments should eliminate main obstacles at country-level, which hampers the SME sector's development. While this is noted for this case looking at Russia, this is a common argument found in SME research.

Practical implications: Findings from this study are useful in managerial practice, aimed at increasing innovative development and increasing the competitiveness of Russian SMEs. A neo-institutional approach is one of the theoretical strands with the emphasis on enhanced understanding of organizational behavior and social capital, including cultural norms and beliefs.

Originality/value: Utilizing an extended empirical approach to assess the institutional environment for SMEs addresses a research gap—offering novel insight on SME growth useful for policy makers. The results can inform managerial practices to increase SME contribution to economic growth.

JEL Classifications: Q31; Q32; O43

Keywords: SMEs, economic growth, growth obstacles, neo-institutional methodology, institutional environment

Introduction

After a nearly 25-year transition to a market-based economy and democracy, economic stability and prosperity in Russia has not yet been achieved (Szerb and Trumbull, 2018). Negative impacts resulting from economic policies are clearly manifested in the last several years due to unfolding international economic and political circumstances. At the end of 2015, Russia's GDP (per capita) fell to 2006 levels (in real terms) and average salaries decreased to 2007 levels. Low oil prices and a weak currency inhibited the Russian economy's growth. As a result, Russian society and the state need to understand that innovative development is the goal to achieve market reform and GDP growth so to increase international relations, political influence and closer economic integration.

According to experts, the central pillar of most countries with advanced economies is the SME sector (see Criscuolo et al., 2017; Farzin, 2017; Moen et al., 2017). The creation of new small- and medium-sized firms plays a crucial role in economic development (Battilana and Casciaro, 2012; Willis, 2011) because such firms have the advantage of being flexible in the face of fluctuating pressures—acting as vehicles to distribute innovation and technology. Therefore, the SME sector acts as a catalyst for economic growth. A great number of studies show that a country's economic growth is linked to SME development (e.g. Ayyagari, et al., 2011; Filippetti et al., 2018; Mahmood, 2008; Maxwell and Stone, 2004). For example, Mahmood (2008) notes there are robust positive relationships between the relative size of the SME sector and indicators of economic growth, noting the contribution of SMEs to the economy is high—contributing to

(about) 50 percent of GDP. Ayyagari et al. (2011) in their investigation revealed SME sector businesses with less than 250 employees were engines of growth, and there are oftentimes clear regional disparities (see Filippetti et al., 2018).

The crucial role of SMEs in Russia's contemporary economy should not be underestimated. Policymakers highlight Russia's SME sector has potential, especially under the current economic and political circumstances, as import substitution policies support domestic production, implementation of economic modernization (see Szerb and Trumbull, 2018). However, external and internal factors influence Russian SMEs, resulting in a significant negative impact on their growth and development. This is because adverse economic conditions for the development of SMEs result from a lack of mechanisms for the enforcement of laws and regulations governing the development of entrepreneurship. This fact makes it very difficult (and even impossible) to directly implement models of development and support for SMEs in Russia that have been deemed successful, when compared to some developed countries (Fuller and Moran, 2001; Gail and Graham, 2006; Huggins and Williams, 2011). The promotion of entrepreneurship in recent work has discussed successful policies in several emerging economies, including for example: Iran (Farzin, 2017), Indonesia (Tambunan, 2011), Colombia (Fernando, et al., 2016), Vietnam (Nguyen, et al., 2015), Slovenia (Ruzzier, et al., 2007), India (e.g. Kumar and Borbora, 2019) and Serbia (Wise et al., 2017). Each article argues that entrepreneurial policies aimed at reproduction processes create more stable economic systems at the local, regional and national levels.

At first, this research presents and reviews issues hampering SME growth in Russia, addressing external factors that impact on SME development. The main objective of this paper is to verify the idea that possible differences, in the effect of entrepreneurship on economic growth through the transformation of available entrepreneurial ecosystems surrounding innovation activity, may be explained by differences in the regional entrepreneurial ecosystem. In other words, we assume that the entrepreneurial ecosystem can constrain the effect of entrepreneurial activity on economic growth. The contribution of this paper is the testing of developed by Bruns et al. (2017) empirical method in Russia that is useful for academic researchers and policymakers in emerging economies to adopt and consider so to improve (and increase) the contribution of the SME sector to economic growth. Findings from this study are useful in managerial practice, aimed at increasing economic development and competitiveness of Russian SMEs.

The next section discusses the recent literature on determinants of SME growth to acknowledge the previous research on the issue related to the topic discussed in this paper. This paper presents a research methodology, which notes the process of selecting variables. The paper then presents the data-set used and results of the country-level analysis to support its reliability, devoted to the testing the proposed methodical approach to the regional-level analysis of institutional environment for SMEs. The contribution of this paper is the testing of a method in Russia that is useful for academic researchers and policymakers in emerging economies to adopt and consider so to improve (and increase) the contribution of the SME sector to Russia's economic growth.

Theoretical Background

Entrepreneurial ecosystems and economic growth

It is widely recognized that firms that regularly innovate have higher growth rates than those that do not (Freel and Robson, 2017). Recently, the role of entrepreneurship as part of new growth theory is concerned with increasing entrepreneurial capital and scaling-up (Bravo-Biosca et al., 2016; Das, 2015; Harrison and Baldock, 2015; OECD, 2018). The entrepreneurial ecosystem is complex, with interacting, multilevel institutions involved in supporting productive entrepreneurship (Acs et al. 2017). Thus, the external environment plays a crucial role in SME sector growth and development (Cowell et al. 2018; Gibb 2000; Obeng 2019). Such research aligns with the 'barriers to growth' literature (see Madsen, 2009; Prykhodko, 2015; Rauch et al., 2013; Spolaore and Wacziarg, 2014). Considered together, these investigations affirm that the ability of SMEs to secure their growth potential is hampered by the external business environment. This

paper assumes that financial, legal and corruption related problems distort firm growth. Moreover, a poor investment climate hampers and discourages firm growth. This is extremely essential in emerging economy countries where unclear tenure rights, limited access to financial and other services, create barriers to growth and development. It is also important to mention that existing policies and regulations can inhibit SMEs more so than large-firms (Gauthier and Gersovitz, 1993; Sleuwaegen and Goedhuys, 2002; van Biesebroeck, 2005). Gree and Thurnik (2003) divided the obstacles faced by SMEs into two groups: external and internal. Gree and Thurnik (2003) found the most significant barrier impacting growth was finance, followed by surrounding management skills, location, corruption and regulations. These findings are in line with the results presented in the World Bank Enterprise Survey of emerging economies, as these issues have persisted from 2003 to the present time (World Bank Group, 2019). Mason and Brown (2011) considered in their investigation the effect of different policy approaches on firms' growth in Scotland, whereas Lee (2013) examined the obstacles hampering high growth of SMEs across the United Kingdom. Fariza (2012) suggested that governments should continuously upgrade the environment so that it is contributing to enterprise growth and development by proactively seeking international business opportunities, strengthening legal institutions, administrative and financial establishments, and formulating appropriate policies.

Institutional factors and economic growth

The literature concerning the research problem linked to this paper highlights the significant role played by common institutions and policies in affecting a firm's economic results. Although, different business environments may have differential impacts when we consider the supply of SMEs and the changing incentives for entrepreneurship. The improvement in the institutional environment, and increased certainty about the future, have much impact on entrepreneurial behavior. If those institutions support entrepreneurship, with more supportive policies that promote start-ups, SMEs would be more likely to succeed and grow (García-Ramos, et al., 2017; Huang, et al., 2017). According to Andersson and Henrekson (2015), it is crucial to reveal the effects of local entrepreneurial environment in the different localities, regions and countries. The impact of these entrepreneurial environment on economic growth differs not only between countries but also among regions within a country (Acs and Armington, 2004; Hall and Sobel, 2008, et al). Andersson and Henrekson (2015, 45) further argue, and their conclusions assume, "the magnitude of local multipliers and growth effects associated with the local presence of entrepreneurial and knowledge-intensive activities are a function of the local institutional environment". It is through collaboration between organizations, and institutions and society, that synergistic effects are reached and then maintained to achieve sustainable outcomes (Caglio and Ditill, 2009; Fantino et al., 2014). Meanwhile, in struggling markets, interactions are time-consuming and costly. In this regard, the contribution of the neo-institutional approach of economics is very useful in reaching a better understanding of differing economic processes. In such imperfect markets, interactions are accompanied by transaction costs, including discovering market prices and the costs of writing and enforcing contracts (Williamson, 1975). The New Institutional Economics literature brought the discussion of institutions and their impact on economic growth to the forefront of academic debate. Some studies present evidence that an unfavorable institutional environment has an adverse impact on SME growth (e.g. Atiase, et al, 2018; García-Ramos, et al., 2017; Obeng, 2019). A complicated, or undeveloped business environment, creates incentives for SMEs to avoid regulations by moving to the informal sector, which encourages rent-seeking behavior and contributes to the growth of corruption—each form an anti-competitive environment. A neo-institutional approach is one of the theoretical strands with the emphasis on enhanced understanding of organizational behavior and social capital, including cultural norms and beliefs (see Finkenbusch, 2017). This approach distinguishes between the institutional environment and the institutional arrangements. The institutional environment refers to the rules, of the game, including political, social and legal ones that mark out and support the transaction of actors (Brousseau, 2008; Arrunada, 2008; Johnson et al., 2010;

Nye, 2008; Ricketts, 2006).

Institutional arrangements refer to the modes of organization of transactions within these rules (Menard, 2003; North, 1990). Concerning the case of Russia, an ‘institution’ integrates at the macro- and micro-levels. According to Zaslavskaya and Shabanova (2002), the institution consists of three main elements: the formal legal and administrative norms established and controlled by the state; the sociocultural norms, controlled by civil society; and institutionalized social practices. The basis of each institution constitutes legal norms formally embodied in laws, regulations and other legal documents. The completeness, consistency and legitimacy of these norms, and their fairness from a societal point of view, determine the quality and efficiency of the social institution (Fernando et al., 2016; Vasin and Gamidullaeva, 2015). Quality control of legal compliance is also important (Acemoglu et al., 2001; Rodrik et al., 2004). The execution of socio-cultural norms is controlled through cultural mechanisms—based on public opinion and the moral assessment of individuals. The functioning of public institutions is manifested in social practices so to practically implement legal and cultural norms. According to this way of understanding institutions, they are commonly divided into formal (constitution, legislation, regulation) and informal (norms of behavior) rules (Edquist, 1997). Changes in formal rules (or enforcement mechanisms) usually require significant resources. The ruling political elite act as agents of these changes. However, institutionalization also originates bottom-up resulting from the fixation the daily life of people in a specific set of socio-economic conditions and norms.

Using the neo-institutional approach to explain entrepreneurial ecosystem impacts on economic growth

Abiding to a neo-institutional methodology framework, leading into the next section, it is important to distinguish two approaches to the notion of ‘region’: theoretical and practical (Lapin, 2006). From a theoretical point of view, a region is a historically established territorial community of people that is a part of the whole society (Storey, 2003). Region is based on ethnic and cultural identity of the population living in a given territory, develops because of activity of the population, closely interrelated in pursuing economic interests (the division of labor, exchange) and social organization (structure, institutions). Regions forms close socio-cultural environments, where its members, as individuals, motivate their actions; this suggests a complex representation of direct relations of individuals with each other, and indirect, ones with the society (Lapin, 2006). Each region has its features that distinguish it from other regions of the country. From practical point of view, a region is a territorial unit with a political, administrative, economic and socio-cultural structure. In Russia, the constitution defines a region’s legal status—which is sometimes limited to a specific territory (designated or politically defined). A region is also characterized by various factors: originality of the natural environment; ethnic and religious demographics; domestic traditions; specialization of production/exchange of goods and services; number and structure of workplaces; social infrastructure; differentiated quality of life levels among various sectors of the population; and organization of political and administrative management (Storey, 2003).

To begin making the link to the importance of utilizing a neo-institutional methodology, it is important to distinguish between formal and informal institutional factors (rules, beliefs, norms and organizations). Formal institutions should be understood based on statutory restrictions, involving benefits and preferences for innovative enterprises. For instance, these are specialized institutions who focus on the protection of intellectual property. Better protection of property rights increases the expected future private benefits of entrepreneurs (see Johnson et al. 1999). Accordingly, informal institutions historically established, rooted in the minds and behavior of people through various ideas, norms, values, beliefs, patterns or rules of behavior that are not formally fixed, but indirectly determine the nature and methods of relationships in the innovation system (Greif, 2012). These institutions, for example, showcase entrepreneurial culture, trust, social capital, and are crucial in making decisions. Decision making is especially important when analyzing financing or considering venture investors. It is through informal rules that convictions, norms and organizations that have developed in the practice of entrepreneurial activity (informal

networks and organizations) often contribute to the economic development of regions (Andersson and Henrekson 2015; Bosma et al. 2013).

It can be argued that regional entrepreneurial ecosystems offer a set of formal and informal institutions for the institutional environment at the national and regional level that have influence on SME economic activity in a particular region. In the research conducted by Bruns et al. (2017, 34-35), the authors focused on “researching a channel through which the moderating effect of the entrepreneurial ecosystem on growth will become visible in variation in the contribution of observed entrepreneurial activity to growth”. Furthermore, Burns et al. (2017) encouraged other researchers to test their empirical method with more disaggregated data, so to repeat their study and determine what different findings may/will exist. Therefore, this article is partly devoted to testing this empirical method with new empirical data. Building on previous work, we assume that there is a direct positive relationship between entrepreneurship and regional growth in Russia, but these relationships will vary across regions due to constraints posed by the range of regional entrepreneurial ecosystems.

Methodology

In building on the previous section just above, it is noteworthy to point out that with the clear understanding of the importance of institutions, there are a lack of quantitate and qualitative studies explaining and characterizing the institutional environment. More thorough research, accompanied by quantitative estimations, can help reveal necessary and sufficient conditions for development of the institutional environment. Generally, studies within the institutional methodology are not empirically rich. Therefore, it is crucial to measure the quality of entrepreneurial institutional environment to identify and isolate the effect empirically. There have been some attempts to measure the institutional quality of entrepreneurial institutional environment, but the variables used to measure the quality cannot cover the institutional context and with accuracy (see Rodriguez-Pose, 2013) because they are mostly based on sociological surveys and expert opinions. Bruns et al. (2017, 31) proposed a new methodological approach that derives from the assumption that “variation in entrepreneurial ecosystem quality should result in variation in the estimated marginal effect of entrepreneurial activity on economic growth”; moreover, they suggest their method “would reveal significant differences across smaller geographical units”. This paper will apply their method to estimate the quality of institutions within the entrepreneurial environment of the Russian Federation’s regions.

Hollingsworth (2000) identifies five main components of institutional analysis: institutions (rules, norms, conventions, habits, values of society); institutional arrangements (markets, networks, hierarchies, the state community); institutional sectors (financial system, research system, education and training, business and legal systems); organizations (in a tandem with the first component); and output and performance (new products, new technologies, administrative decisions). This paper acknowledges that this taxonomy should be adapted in accordance with the purpose of this study. Therefore, this paper will focus primarily on examining institutional structures by excluding from consideration the products, organizations and technologies. Also important to note is institutions must adhere to legal regulations when planning their activities and strategies. Hollingsworth (2000, 614) argues the importance of analyzing organizations because “institutional rules, norms and conventions unfold in tandem with organizational structures.” Such a broad understanding of institutions and the vagueness of system concept are typical of institutional studies.

It is obvious that the disparities in the development level of different regions would continue to exist. For instance, socio-economic development across regions within a country often greatly differ, especially in such a large and diverse country like Russia—and when considered alongside the development of a market economy, this becomes more intense. Accordingly, the search for effective models of regional development, which focuses primarily on stimulating and developing rather than compensating aspects, is one of the key points of institutional development. According to the neo-institutional approach, there are relevant institutions at the national level,

such as rule of law, regulations, ease of starting a business, taxation system, property rights, labor market institutions and social security. Moreover, there are regional institutions related with the local taxation system and regulations, presence of universities, research institutes, skills and cultural norms of entrepreneurs. Thereby, identification of all the possible reserves at both national-, regional- and local-levels is important, because such understandings can offer insight on the use of reserves of development, and, correspondingly, to increase SME sector contribution to economic growth. To summarize the direction of this research, the following two hypotheses (see also Figure 1) frame the direction of this study:

H1: There are institutional obstacles at the national level to the economic development of SME sector in different regions.

H2: The institutional environment in the regions of Russia affects the growth and development of SMEs.

To test the first hypothesis, this study considers obstacles to firm growth in different regions of Russia, with, presumably, different institutional environment. Data for this research was collected using survey questionnaires, which is an approach commonly used in the literature and was most useful to collect data related to the task at hand for this study. According to the level of development of the national institutional environment identified based on the results of SMEs' survey, it is required to determine the effectiveness of the national institutional environment in Russia. This, in turn, to a certain extent, affects the level of SME development. The research scheme outlining hypothesis 1 and 2 is detailed in Figure 1.

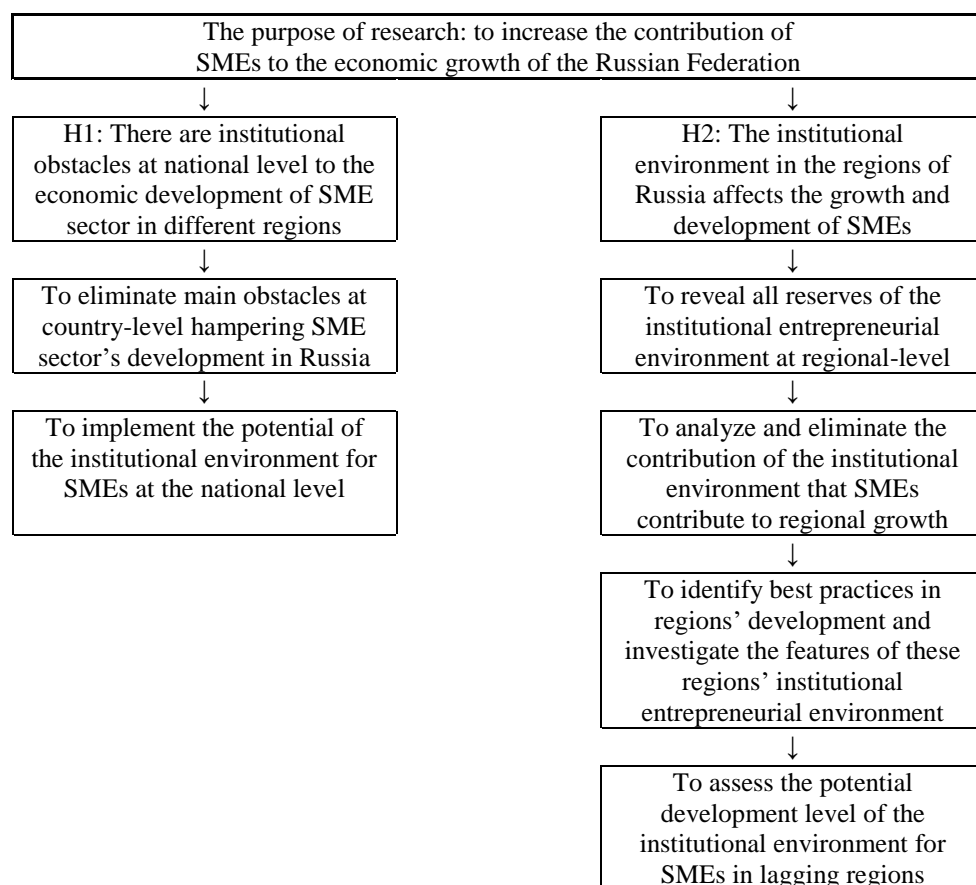


Figure 1. Scheme of research outlining hypothesis 1 and hypothesis 2

An extended survey to gather relevant information and data for this study was collected from respondents who are entrepreneurs of micro-, small- and medium-sized businesses (all respondents completing the questionnaire were business owners and managers). The tool was

designed to assess the obstacles faced by SMEs in different Russian regions. The assessment is based on the owner's/manager's perception of these obstacles or barriers. During the study, respondents were encouraged to give truthful answers and their anonymity was ensured. Responses were electronically coded and analyzed using the statistical program SPSS. The survey is a firm-level survey conducted through 112 firms in different Russian regions over a period of 10 months from April 2016 to February 2017. In the survey, a random stratified sample of firms was selected (representative of the economy). The sample of firms is stratified by size and location. The firms in this panel data-set are from different sectors of the economy: manufacturing (39%), retail (12%) and other service sectors (49%).

Participants were asked to rate the impact of obstacles on their performance, on a scale from 1 (the feature was not an obstacle) to 5 (indicating that it was a serious obstacle). The components used in this study is based on predicted main obstacles facing SMEs (based on key conclusions from the economic literature concerning the research problem), including the following variables:

- tax rates and tax administration
- instability in the political and economic fields
- administrative barriers
- shadow economy and corruption
- infrastructure conditions
- access to finance (bank lending)
- inadequately educated workforce and low access to well qualified staff
- high transportation fees
- high costs for premises rental

The mean averages, variance and percentages for arguments and opinions assess the obstacles of SME development. The survey contained the sections based on each of the points outlined above: tax rates and tax administration; instability in the political and economic fields; and administrative barriers.

Obtained results of the survey characterize the degree of development of the institutional environment for SMEs nationally, but cannot explain the differences in the marginal effect on economic growth in different regions. To assess these differences, the third stage approach proposed by Bruns et al. (2017) assesses entrepreneurial contribution to economic growth of European regions—adjusted for this research. It is necessary to estimate the quality of institutional environment for SME in different Russian regions that presumably differs across regions, to ensure practical application of research results. Therefore, to test the proposed hypotheses, the two-step empirical process in this study is based on the method of Bruns et al. (2017). The study adapts the method developed for the investigation of European regions to apply it for the assessment of Russian regions' institutional environment for SMEs. It is also important to note that this study does not involve clustering regions within the country, nor controlling for country effect by revealing the heterogeneity in the coefficients of usual factors-contributors. This study suggests that in Russia the fixed part of entrepreneurship in different regions contributes equally to regional growth, as observed in other cases (e.g. Cravo et al., 2015). Hence, the study is primarily interested in how regional diversity across Russia, using a two-step procedure. Firstly, the study should account for share of Gross Regional Product (GRP) created by SMEs caused by the 'usual contributors' at national level (Mankiw et al., 1992). Furthermore, this study extends the standard growth model with the SME and the regional controls in an OLS estimation to establish the effect of SME on growth at regional-level.

The analysis utilizes Mankiw et al. (1992) extended model, referred to as the MRW model:

$$\frac{\ln Y_i(T) - \ln Y_i}{T - T_0} = \alpha_0 + \alpha_1 s_i^k + \alpha_2 s_i^h + \alpha_3 n_i + \alpha_4 \ln y_i(T_0) + \alpha_5 E_i + \varepsilon_i$$

In the model, i indexes regions, s_i^k and s_i^h are the average shares of income invested in human and physical capital (in the period $T_0 - T$), respectively, N is the average growth rate of the population; E_i is the proxy for small- and medium-sized entrepreneurship; ε_i – residual variation; α_5 – the marginal effect of SMEs on growth. Equation 1 is estimated with different regional controls such as population density, industry structure, and demographic structure of the region. Secondly, SME variables from growth regression are excluded. After confirming the relation between the unexplained growth and SME, it is possible to compare the OLS model residuals, which are assumed to be relevant to the quality of the institutional regional environment, which moderates the contribution of SME activity on regional growth. This provides the opportunity to reveal the quality level of different regions' institutional environment for SMEs. Then it is possible to explore further the regions with the most favorable institutional environment that highly contributes to the economic growth, and then attempt to replicate this experience in lagging regions.

Descriptive Results

Table 1 shows the size and age distribution of enterprises for country-level analysis of obstacles to SME development. Research results show that the most severe obstacle to SME development in Russia is its 'shadow economy and corruption'. Access to finance, high transportation fees and instability in the political and economic field rank second and third, respectively (displayed in Table 2 and Figure 2). Descriptive statistics for the variables is shown in Table 3.

Table 1. Size and age distribution of enterprises for country-level analysis of obstacles to SME development – Panel data (in percentages)

Size/Age	1-5 years	6-12 years	>13 years	Total
Micro	0.10	0.52	0.38	30.4
Small	0.34	0.42	0.24	48.2
Medium	0.26	0.52	22	21.4

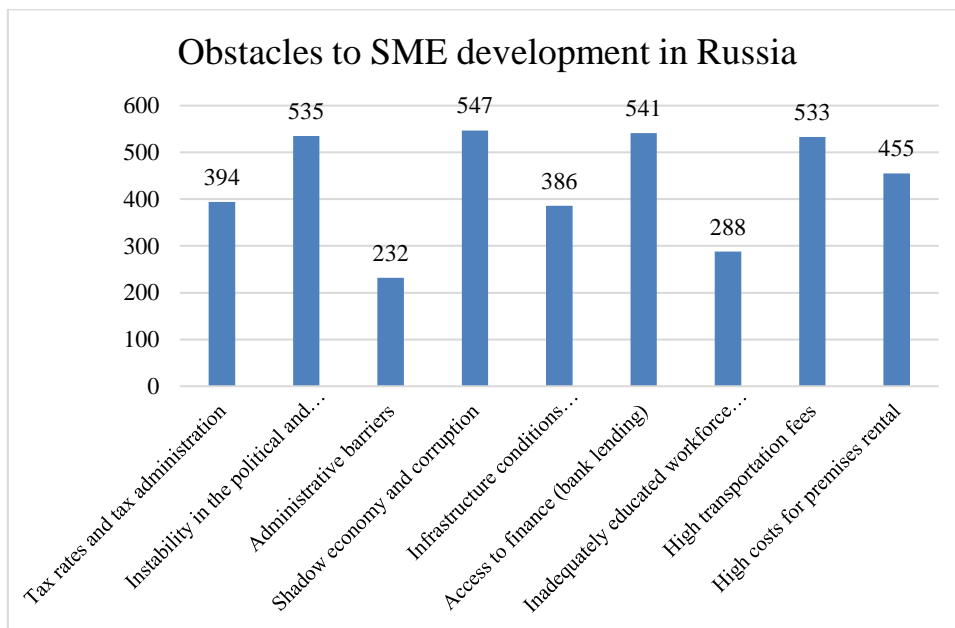


Figure 2. Obstacles to SME growth in Russia (total cumulative estimate)

Table 2. Summary of the obstacles

Variables	Frequency %
	1-1,8%
	2-16%
Tax rates and tax administration	3-28,5%
	4-3,6%
	5-45,5%
	3-2,7%
Instability in the political and economic fields	4-17%
	5-80,3%
	1-3,6%
Administrative barriers	2-85,7%
	3-10,7%
	4-11,6%
Shadow economy and corruption	5-88,4%
	2-19,6%
Infrastructure conditions	3-16,1%
	4-64,3%
Access to finance (bank lending)	4-17%
	5-83%
	1-8%
Inadequately educated workforce and low access to well qualified staff	2-32,1%
	3-54,5%
	4-5,4%
High transportation fees	4-24,1%
	5-75,9%
	3-18,8%
High costs for premises rental	4-56,2%
	5-25%

Data (Frequency %) is based on a Likert Scale from 1-5

Table 3. Descriptive statistics

	N	Min	Max	Sum	Average	Stand. deviation
Tax	112	1,00	5,00	394,00	3,5179	,88003
Instab	112	3,00	5,00	535,00	4,7768	,47855
Admin	112	1,00	3,00	232,00	2,0714	,37282
ShadEc	112	4,00	5,00	547,00	4,8839	,32175
Infr	112	2,00	4,00	386,00	3,4464	,80359
Fin	112	4,00	5,00	541,00	4,8304	,37701
Staff	112	1,00	4,00	288,00	2,5714	,71929
Trans	112	4,00	5,00	533,00	4,7589	,42966
Prem	112	3,00	5,00	455,00	4,0625	,66144
Valid number	112					

Regional-Level Data and Analysis

The data for the second part of this research comes from Russian Federation Federal State Statistics Service and introduced in Table 4, which displays summary statistics. The sample includes 81 regions of the Russian Federation. Due to the federal significance, Moscow and St. Petersburg are excluded in this study analysis (so obtained results are not affected by statistical outliers). In addition, regions such as Crimea and Sevastopol were also excluded from analyses due to the lack of relevant statistical data. To increase the trustworthiness of received results, statistical data was taken over a period of 10 years. In Appendix 1 the list of all regions in the

sample is presented. Data on GRP and the variables in the MRW growth from Russian Federation Federal State Statistics Service for the period from 2006-2015 (average variables were used over these years).

Regional GDP data is the dependent variable for each year from 2006-2015, considering the difference between the logarithms of GDP in the stated years, dividing by the number of years (10). According to the method proposed by Bruns et al. (2017), investment in human capital considers the share of the working-age population aged 20-24 and multiply it by the enrolment rates in tertiary education as percentage of the population aged 20-24. N involves the logarithmic average population growth. It is noteworthy that the variation in GRP growth rates is at average level. The mean growth rate of GRP in the period 2006-2015 is 1.13, with minimum of 1.1, for Republic of Ingushetia, and maximum of 1.24 for Komi Republic.

Following the Bruns et al. (2017) method, the study includes regional control on population density (*DENS*), regional diversification over industries (*DIVER*), and the share of young people aged of between 18 and 34 (*WORKAG*). To control any spillover effect, a vector variable (*SPILL*) is added. The neighboring regions for each region were identified and took the average physical capital share of those regions ($SPILL_s^k$), the average human capital share ($SPILL_s^h$) and the average population growth ($SPILL_n$).

In accordance with the purpose of this research, two types of entrepreneurship variables are included: SMEs and innovative SMEs. For the SMEs, the variable is the average number of SMEs per 100,000 inhabitants in the region for the period 2006-2015, and the second variable is the average share of innovative SMEs in total number of SMEs in the region over this period. Regional indicators over 10 years for all Russian regions are computed. Table 2 (and Appendix 2) presents the estimated correlations between these variables. The bivariate correlation between growth and the average share of income invested in physical capital is positive and highly significant (0.469). All variables were normally distributed. Observed from the Mankiw-Romer-Weil model, along with the share of income invested in physical capital, only the share of working age population also significant (0.335). Between two entrepreneurial variables, the SME variable is positively correlated with GDP growth at a significant level. Found correlations, therefore, cannot be considered as causal relations, as interdependencies between different regions are not considered.

Table 5 displays results of all the variables on GRP growth from 2006-2015 as regressed in a standard OLS regression, following the specification from the MRW model. The OLS regression, involving the regional controls, including an index of specialization of region (*SPEC*), the share of the working-age population that is between 18 and 34 (*WORKAG*), and density of the region's population (*DENS*). Furthermore, to assess spillover effects, mean levels of the physical, human capital and population growth of a region's neighboring regions (*SPILL*) were estimated. *SPEC* variable is negative and significant (-0.332), showing that more diversified subjects have grown faster in these years. Furthermore, the effects of neighboring physical, human capital and population growth are jointly insignificant. Given the working age population has no effect on economic growth is opposite Bruns et al. (2017) findings, who found working age was not significant in explaining growth across European regions over nine years. Column (1) in Table 5 presents results of the OLS regression of standard MRW model where column (2) adds regional variables. Measures for SMEs and innovative SMEs are displayed in columns 3 and 4 in Table 5. This procedure changes the estimated coefficients of other variables only slightly.

Table 4. Summary statistics

Variable	Mean	Min.	Max.	N	Unit	Year	Source
$\Delta \ln Y$	1,06	0,67 Khanty-Mansi Autonomous Area	1,8 Republic of Ingushetia	81	% per annum	2006-2015	Russian Federation Federal State Statistics Service
$\ln Y (2006)$	11,735	9,1 (Republic of Ingushetia)	14,752 (Tyumen Region)	81	LN	2006	Russian Federation Federal State Statistics Service
S^k	0,289	0,176 (Kostroma Region)	0,6 (Chechen Republic)	81	Share of GRP	Average of 2006-2015	Russian Federation Federal State Statistics Service
S^h	2,017	1,04 (Nenets Autonomous Area)	14,56 (Moscow Region)	81	% of population	Average of 2006-2015	Russian Federation Federal State Statistics Service
N	6.403	-9,44 (Amur Region)	9,78 (Republic of Daghestan)	81	% change	Average of 2006-2015	Russian Federation Federal State Statistics Service
$WORKAG$	7.435	3.012 (Nenets Autonomous Area)	21.324 (Moscow Region)	81	% of population	Average of 2006-2015	Russian Federation Federal State Statistics Service
$SPEC$	53.455	36.334 (Sakhalin Region)	72.435 (Belgorod Region)	81	Share	2013	Russian Federation Federal State Statistics Service
$DENS$	8.1	0.07 (Chukotka Autonomous Area)	159.88 (Moscow region)	81	Share	2006-2015	Russian Federation Federal State Statistics Service
$SPILL_s^k$	0.34	0.12 (Perm Territory)	0.39 (Tyumen Region)	81	%	average of 2006-2015	Federal State Statistics Service
$SPILL_s^h$	2.13	1.89 (Chukotka Autonomous Area)	7.52 (Moscow region)	81	%	average of 2006-2015	Federal State Statistics Service
$SPILL_n$	5.58	-6.75 (Amur Region)	9.43 (Republic of Daghestan)	81	%	average of 2006-2015	Federal State Statistics Service
SME	3610,42	836,99 (Daghestan Republic)	4033,67 (Kaliningrad Region)	81	Share	average of 2006-2015	Federal State Statistics Service
SME_{inn}	4,14	1,34 (Nenets Autonomous Area)	10,29 (Altai Territory)	81	Share	average of 2006-2015	Federal State Statistics Service

Table 5. OLS regression of MRW model with regional controls and entrepreneurship

	Dependent variable - $\Delta \ln Y$ (2006–2015)			
	(1)	(2)	(3)	(4)
<i>lnY (2006)</i>	-0,440** (0,027)	-0,416* (0,021)	-0,503* (0,0204)	-0,381** (0,001)
<i>S^k</i>	0,505 (0,031)	0,484 (0,029)	0,508 (0,032)	0,468* (0,057)
<i>S^h</i>	-0,316* (0,024)	-0,386* (0,029)	-0,397** (0,032)	-0,275* (0,013)
<i>N</i>	0,254 (0,003)	0,312 (0,011)	0,288 (0,009)	0,070 (0,538)
<i>WORKAG</i>		-0,049** (0,003)	-0,060** (0,013)	0,056* (0,624)
<i>SPILL</i>		0,069** (0,004)	0,042** (0,003)	0,159 (0,161)
<i>DENS</i>		-0,123** (0,087)	-0,076** (0,064)	-0,117 (0,303)
<i>SPEC</i>		-0,356* (0,039)	-0,321* (0,034)	-0,294 (0,008)
<i>SME</i>			0,225 (0,049)	0,191 (0,094)
<i>SME_{inn}</i>				-0,033 (0,771)
<i>Constant</i>	0,156	0,153	0,163	0,155
<i>R²</i>	0,425	0,517	0,564	0,532
<i>Observations</i>	81	81	81	81
<i>AIC</i>	287,134	279,345	276,321	278,435

Standard errors in parentheses *p<0.10, **p<0.05, ***p<0.01

Akaike information criteria (AIC) provides a measure of the log-likelihood of the model to choose the most appropriate model. The model with the lowest AIC is the most accurate. Thereby, from this sample, regional variables and small- and medium-sized entrepreneurship controls can improve the standard growth model as the model including measures with the lowest AIC (276,321). Therefore, it is possible to examine whether the effect of the SME sector varies between federal regions of the Russian Federation. This is necessary only for SMEs, because this was the variable with a positive significant effect in the OLS estimation. Moreover, residuals from the MRW model considering them as a measure of ‘unexplained growth’ and regress them on SME variable. As shown in Figure 3 the correlation between these controls is insignificant (0,142). Consequently, it was not possible to frame the second hypothesis of this research that the institutional environment in the regions of Russia affects the growth and development of SMEs.

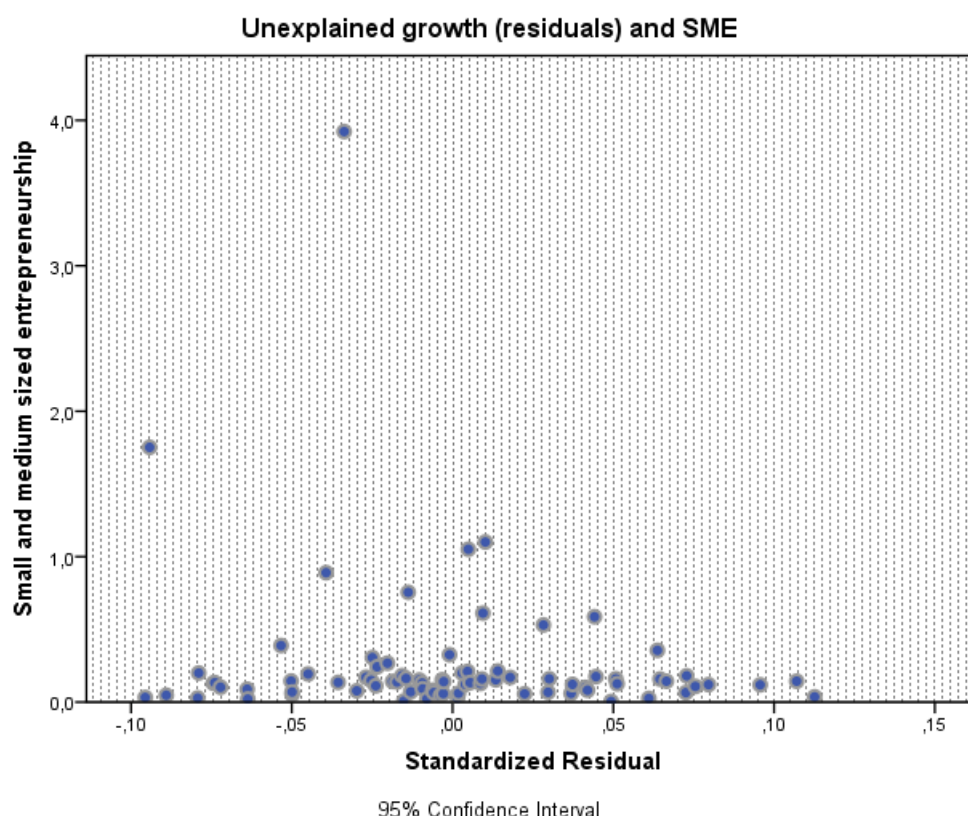


Figure 3. Relation between unexplained growth and SME

Discussion, Concluding Remarks and Future Research Directions

This paper argues the entrepreneurial environment for SMEs is multidimensional dependent on interacting formal and informal institutions that influence/contribute to regional economic growth. A holistic two-level methodological approach was discussed and used in this paper to measure the quality of the SME institutional environment through the identification and isolation of the effect empirically, integrating both country and regional-level determinants. Research results at national level show that the most severe obstacle to SME development in Russia is the shadow economy and corruption. Access to finance, high transportation fees and instability in the political and economic field rank second and third, respectively. At the regional-level (it is supposed that) the entrepreneurial environment for SME must reveal itself in the empirical data through influencing the impact of SME activity on GDP growth. If the entrepreneurial environment for SME varies in quality across regions of the Russian Federation, it gives an opportunity to identify the existence of SME institutional environment in the heterogeneity of impacts of SME activity on GDP growth at the regional-level.

Moreover, this study examined whether the effect of SME sector varies between federal regions in Russia. This was considered only for SMEs as this was the variable with a positive significant effect in the OLS estimation. Residuals from MRW model were saved, considered a measure of 'unexplained growth' and regressed them on the SME variable. However, the correlation between these controls was insignificant. The obtained results do not mean that the institutional environment for SME does not have an impact on economic growth. There are several explanations of the results. For instance, the sample in this study may not include an appropriate number of regions to reveal a heterogeneous effect. Based on findings in related studies, it is difficult to be entirely certain that the data is reliable given that it is extremely difficult to assess the effect of entrepreneurship. Such a limitation was determined by Carree and Thurik (2008), put such research is important to conduct and the approach brought forward in this paper is an attempt

to test an approach that measures SME institutional environment quality through the identification of regional-level determinants. Such analyses are useful to seek understandings and explain insight going forward and to attempt to influence policy changes. What also needs noted was the economic development of Russian regions in this period was affected by the impacts of the global financial crisis and the Russian financial and economic crisis. Additionally, research results can be interpreted that the regional entrepreneurial systems for SME differ slightly or have inconsiderable influence on the contribution to economic growth in the observed period.

The revealed obstacles to SME growth at national level need further considered and dealt with, and this requires systemic measures. Governments should eliminate main obstacles at country-level, which hampers the SME sector's development. While this is noted for this case looking at Russia, this has also been noted in other findings as well, with scholars highlighting the need for better regulatory environments (e.g. Farzin, 2017; García-Ramos, et al., 2017). For example, specific to the findings in this paper, eradicating corruption may be impossible but there is a need for a comprehensive approach to address corruption. It would contribute significantly to the development of favorable institutional environment for SMEs if addressed.

It is appropriate to ask: to what extent the perception of obstacles to growth by SME managers is a true reflection of real barriers? This is a common problem that researchers in this field of study commonly face. Although the analysis of real growth restrictions is not the focus of this article, we believe, along with many other researchers in this field, that the analysis of perceived barriers is indicative and useful. The main findings of the study are consistent with theory, as well as with the results of many individual country studies (see, for example, earlier studies by, Pissarides, et al., 2003; Gree and Thurnik, 2003).

The neo-institutional approach adapted here in this paper is concerned with the national entrepreneurial environment in Russia, but to the wider research community it offers an analysis that may not be sensitive enough to assess differences between countries. In countries such as Russia that are considered emerging economies, this work offers much scope and insight for scholars working in these countries and are assessing their national entrepreneurial environments. Something else addresses are related concerns can be caused by the lack of analysis whereby researchers consider the interpretation of regional differences, this is especially relevant in a country like Russia given its vast geographical size and dispersed population. Therefore, it would be legitimate to ask whether the use of country data in our analysis was optimal. Unfortunately, given the complexity of the task, the use of panel data or time-series data, this had to be abandoned for practical reasons. Meanwhile, we are inspired that the findings of our research are consistent with the results of many highly cited studies. These results may provide further evidence contributing to discussions that focus on improving the effectiveness of SMEs in emerging economies.

Additionally, the proposition of an extended empirical approach to assessment the SME institutional environment addresses a gap in literature, offering novel insight on the entrepreneurial growth. For the wider audience, research results and the approach presented in this paper can be implemented into managerial practices and is useful for policymakers who are assessing regional growth, change and entrepreneurship to increase the contribution of SME sector to a country's economic growth. A key recommendation from this paper is a policy response by the Russian state could involve federal and regional authorities creating favorable economic, political, social and legal conditions, to then better equip and enable the formation of economic mechanisms that would facilitate the development of SMEs across the country. When we consider future research directions, this article helps create the basis for future investigations, in terms of conceptualization and theoretical justification of the impact of various effects of entrepreneurial activity on economic growth. Moreover, by using institutional quality indicators it is reasonable that future research can help to predict class distribution, whereby studies can then better reveal those institutions that make significant contributions to raising the effectiveness of the entrepreneurship locally, regionally and nationally.

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