Small business in Russia: institutions, market potential, taxes and digitalization

Article

Accepted Version

Zemtsov, S., Tsareva, Y., Barinova, V. A., Belitski, M. ORCID: https://orcid.org/0000-0002-9895-0105 and Krasnoselskikh, A. N. (2022) Small business in Russia: institutions, market potential, taxes and digitalization. Post-Communist Economies, 34 (8). pp. 1029-1053. ISSN 1463-1377 doi: 10.1080/14631377.2022.2108244 Available at https://centaur.reading.ac.uk/108525/

It is advisable to refer to the publisher's version if you intend to cite from the work. See Guidance on citing.

www.reading.ac.uk/centaur

CentAUR

Central Archive at the University of Reading

Reading's research outputs online

Small business in Russia: institutions, market potential, taxes and digitization

Stepan Zemtsov*

Institute of applied economic research, Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia.

Email: Zemtsov@ranepa.ru ORCID: 0000-0003-1283-0362

Yulia Tsareva

Institute of applied economic research, Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia.

Email: tsareva-yv@ranepa.ru ORCID: 0000-0002-9204-0362

Maksim Belitski

Henley Business School, University of Reading, Reading, UK.

Email: m.belitski@reading.ac.uk ORCID: 0000-0002-9895-0105

ICD Business School, IGS-Groupe, Paris, France.

Email: mbelitski@groupe-igs.fr

Vera A. Barinova

Institute of applied economic research, Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia.

Email: barinova@iep.ru ORCID: 0000-0002-9596-4683

Alexander N. Krasnoselskikh

HSE University, Moscow, Russia.

E-mail: rednaxela204@yandex.ru ORCID: 0000-0002-0783-4126

* Corresponding author (zemtsov@ranepa.ru)

Abstract

In this paper we use an institutional approach and apply a regional perspective to explore how market potential, formal institutions, taxes, access to finance, regional policy instruments and digitization have affected small business activity in 83 Russian regions during 2008-2018. We use various regional data sources and official statistics to study the effects of the business environment in the regions and how it may affect entrepreneurship. Our results suggest, that Russia's business environment is important in explaining small business activity, however digitization and the role of market potential can be better controlled by entrepreneurs in terms of what skills to learn and where to locate their businesses. In addition, we discuss the effect of exogenous shocks and changes in the business environment , along with dynamics, challenges and perspectives of entrepreneurship in Russia.

1.   Introduction

Entrepreneurship research in a large developing country, such as Russia, requires an in-depth view into the history, institutions, and socioeconomic structure of its regions. A diversity in entrepreneurial culture, level of technological and economic development, resource allocation and access to finance and venture capital networks may explain an uneven distribution of entrepreneurial activity in Russian regions (Chepurenko and Vilenski 2016; Fritsch et al. 2019; Arshed et al., 2020).

Despite significant research on what drives regional entrepreneurship in developed economies (Audretsch, Thurik, 2000; Djankov et al., 2002; Djankov, 2009; Audretsch, Keilbach, 2004; Urbano et al., 2019), Russia is one of the post-socialist countries, where a transition to an entrepreneurial economy is slow and limited due to significant public property, lack of entrepreneurial culture and the stringency of formal institutions (Sauka and Chepurenko, 2017). Despite the declaration of entrepreneurship being the national priority in Russia since the 2010s (Arshed et al., 2020), institutional reforms aimed at creating a conducive environment for entrepreneurial activity have been delayed. In the attempt to boost doing business conditions and entrepreneurial growth, regional policymakers have looked at a set of original drivers that might help facilitate small business activity (Kudrin et al., 2019; Zemtsov et al., 2020). Such set of conditions included a reduction of bureaucratic procedures, digitization of public services, different tax benefits, special economic zones, regional tax incentives and tax holidays. In addition, the Agency for Strategic Initiatives (ASI) was established for deregulation of business environment (Freinkman, Yakovlev, 2015). While because of these formal changes in doing business conditions Russia has jumped from 124th place in 2010 to 28th in 2020 in the Doing Business ranking of the World Bank (Doing business, 2020). Same policies have also been considered by other transition economies, such as Belarus and Kazakhstan in their attempt to support small businesses (World bank, 2019). Business rankings, however, did not mean that the informal institutions and the entrepreneurial culture that is very different across Russian regions have also changed overnight. In particular, high rankings of doing business could be associated with the wealthiest and most entrepreneurial regions of Moscow and St. Petersburg, while in the rest of Russia, small business activity has either declined or not changed (Baranov et al., 2015; Chepurenko, 2012). Russian scholars started to look at other ways to facilitate small businesses such as digitization, taxation, regional economic development policy, etc. (Zemtsov et al., 2020).

Prior research on entrepreneurship in Russian regions (Aidis et al. 2008, 2012; Shurchkov, 2012; Yakovlev and Zhuravskaya, 2013; Bruno et al., 2013) revealed a significant negative impact of institutions on entrepreneurial activity and focused on the role of informal institutions such as corruption, restrictions on media freedom, length of governors' terms etc. Despite significant achievements in using the systemic approach to understand entrepreneurship in developed economies (Stam, 2015; Audretsch and Belitski, 2021), there has been a lack of such studies for Russian regions in recent years. Understanding is important as it may shed light further on the heterogeneity of regional level of entrepreneurship activity in Russian regions and on what systemic measures should be undertaken to further enhance entrepreneurship in Russia. In particular, the role of regional market size, access to finance, legal framework, administrative burden,

2

taxation, and financial support in facilitating entrepreneurship in Russia needs further analysis.

One of the key issues in supporting entrepreneurship remains significant is a government ownership of resources, including land and capital, that reflects the pattern in other post-socialist countries (Abramov et al., 2017; Sauka, Chepurenko, 2017; OECD, 2018).

In this paper, we use an institutional approach to explore empirically the ways in which regional market potential, formal institutions, taxes, access to finance and digitization have influenced entrepreneurial development in Russian regions. Our approach builds on the work of (North 1990, 1993; Djankov et al., 2005; Fritsch et al. 2019) in highlighting the impact of institutional incentives and structures on entrepreneurial activity. We utilize data collected from multiple sources, but mainly through the Federal State Statistics Service (Rosstat) to explore the ways in which the context of Russian regions influences the small business embarking on entrepreneurial activity. We do this in a comparative way by first, at the regional level, we examine the role of market potential for different Russian regions formal institutions and tax regulation, the role of digitization and access to finance in the region as well as the use of special economic zones to boost entrepreneurship in Russia. This paper therefore supplements the relatively sparse empirical literature on institutions and entrepreneurship in Russia (Aidis et al. 2008, 2012; Korosteleva and Belitski, 2017) and understanding the role of regulation (Djankov et al., 2002; Djankov, 2009; Chowdhury et al. 2019).

Therefore, the main objective of this research is to identify a set of institutional conditions that facilitate small business development in Russian regions.

This study contributes to the regional science and post-communist studies literature by examining a set of factors related to institutions, market potential, digitization, and regional economic development. Previous studies on post-communist countries have not considered the complex combination of factors for a transition economy at the regional level.

This paper is structured as follows. Section 2 introduces the case study of Russia and develops main research hypotheses. Section 3 introduces data and methodology. Section 4 presents the results, while section 5 discusses the main findings and concludes.

2. **Theoretical background**
2.1. Genesis of entrepreneurial activity in Russia

Cross-disciplinary research of entrepreneurship considers economic, sociological, psychological, and other aspects (Bygrave and Hofer, 1991, Fritsch and Storey, 2014). Usually, several groups of traditional entrepreneurship determinants are distinguished: demand for goods and services of SMEs (regional GDP and income per capita), labour supply for SMEs (e.g., workforce qualification, unemployment), the general business environment and public support (Verheul et al., 2002; Nielsen, 2014; Fritsch and Storey, 2014). These factors have been well studied in developed economies (Fritsch, 2013; Urbano et al., 2019).

Studies on post-communist countries (Estrin and Mickiewicz, 2011; Smallbone, and Welter, 2012; Sauka and Chepurenko, 2017) paid special attention to various transition trajectories from a planned to a market economy, and the influence of the state and informal sectors on business is assessed.

Several studies devoted to the Russian case identified unfavourable business environment (Djankov et al., 2005; Bruno et al., 2013), high regional variation of small business (Chepurenko et al., 2017; Obraztsova and Chepurenko, 2020) and weak institutions (Aidis et al. 2008; Yakovlev and Zhuravskaya, 2013; Zemtsov et al., 2021) as bottlenecks

for development. It is worth mentioning that post-socialist socio-cultural norms in Russia may directly restrict entrepreneurial activity due to perceptions of the speculative nature of business and low trust level (Auzan et al., 2020).

In recent years, the entrepreneurial ecosystem concept has explained significant differences in the interregional variation in entrepreneurship (Acs et al., 2017; Audretsch and Belitski, 2017, 2021). According to the systematic approach, business agents interact with each other in a specific business environment and form sustainable networks (Stam, 2015). At the same time, agents perform different functions and occupy different market niches by analogy with natural ecosystems. Our empirical approach involves the study of the mentioned institutional conditions and business development resources (Sternberg, 2009; Zemtov, Baburin, 2019). For good and bad reasons, the federal (national) and regional authorities are one of the main stakeholders of the Russian regional entrepreneurial ecosystems.

2.2. Market potential and small business

Access to markets and the market potential is essential for entrepreneurship growth and aspirations (Reynolds et al. 2002, 2005; Hanson, 2005; Barinova et al., 2018). While the market size depends on the Gross Regional Product (GRP), it also depends on the population and the total sales of products and services in a region. Demand for products and services also depends on the income. Brown et al. (2008) analysed the dynamics of new enterprises' creation in the Russian regions. The results show that firms that are created in regions with high market potential are more likely to survive during 5–10 years. Note that the literature usually considers domestic markets exclusively, although many businesses in Russia engage in international trade.

The market potential was found by Barinova et al. (2018) to be higher in the Russian regions near large metropolitan areas with higher population density, wealthier households, and in agglomeration economies, however, the agglomeration economies do not automatically increase the market potential.

The geographical location of a region may affect its market potential through conditions for industry specialization (marine transport, logistics, mining, trade, etc.) and the industry-specific infrastructure. In addition, the border and coastal regions with better export and import channels and located near countries with greater GRP have greater market potential. In remote and sparsely populated areas (Northern Russia and the Far East), due to high transport costs and regional specialization, entrepreneurship activity is low because many of these regions are resource-driven and dominated by large firms. Market potential has become increasingly important for international trade and cooperation, as well as the extent a region is open for doing business and entrepreneurship culture (Fritsch et al. 2022). With Russia being part of multiple international trade agreements, including the world trade organization, market potential is even more important for the regions involved in international trade (Mukhtarova, 2012). Based on the above argument we hypothesize:

Hypothesis 1: Market potential increases small business activity by increasing demand for services and products in a region.

2.3. Formal institutions and small business

In addition to the market potential, formal institutions that define the rules of the game' in a specific jurisdiction may either facilitate or impede entrepreneurship (North, 1990; Audretsch et al. 2019). Entrepreneurs adjust their activities and strategies to fit the market opportunities and limitations provided through the institutional framework

(North, 1997). Institutions are formal (regulations, contracts, procedures, etc.) and informal (culture, values, social norms). Formal institutions may reduce transaction costs with officially established rules, while informal ones reduce the level of uncertainty in the individual decision-making (North, 2005; Aparicio et al., 2016). Formal institutions can be changed over a short period instead of the informal ones that tend to persist and change slowly (Williamson, 2000). While both institutions are important formal rules are designed to facilitate exchange by reducing transaction costs (Aidis et al. 2012), and they are more likely to affect individuals and entrepreneurs in their decision to start a business (North 1994). While transition economies, such as Russia have often experienced significant changes in formal and informal institutions, both have been often maintained even if inefficient (North 1990).

A conducive institutional framework encourages entrepreneurial activity (Audretsch et al. 2019) and the growth orientation of entrepreneurs (Baumol, 1993; Aparicio et al., 2016; Belitski et al., 2021).

Small businesses will aim to comply with formal institutions, including regulation, while in the transition economies with a high cost of entry, corruption (Aidis et al. 2012) it may become difficult and complex (Gunningham and Kagan, 2005; Baldwin et al., 2011). To comply with regulation, business needs financial and knowledge resources, and in conditions of scarce resources, and when regulation is not enforced, paying bribes may become an alternative option for paying taxes, leading to an increase in the shadow economy and formally registered businesses (Belitski et al. 2016). Firm owners, if they perceive that their taxes are not used to improve communities and regions, could opt out of paying them also if they are perceived as not helping economic development (Hutter and Jones, 2007; Hutter and Amodu, 2008).

The protection of entrepreneurs' private property and other business rights is important for entrepreneurial growth (Chowdhury et al. 2019) and may affect both the number and density of small businesses (Anokhin, Schulze, 2008; Xheneti, Bartlett, 2012; Yakovlev, Zhuravskaya, 2013). Legislation gaps also known as institutional voids and weaknesses, need fixing in order to facilitate entrepreneurship activity in a region. Protection of property rights in transition economies could be one of the key factors in formally registering a new venture (Belitski and Desai, 2021). We hypothesize:

Hypothesis 2: Well-functioning formal institutions increase small business activity in a region.

2.4. Access to finance and small business

Access to finance is a game-changer for entrepreneurs (Audretsch, Belitski, Brush, 2021). Access to equity and debt funding via the banking sector and venture capital creates further grounds for investment in entrepreneurship and helps entrepreneurs, often in yet latent stage, to decide on market entry and growth of their existing business (Audretsch et al. 2022).

Access to bank finance as part of the formal institutional framework to legalize and support entrepreneurship is important for entrepreneurial aspirations (Estrin et al. 2013; Chowdhury et al. 2019).

Prior research on financing for entrepreneurship in transition economies by Kuzilwa (2005), Nielsen (2014) and Barinova et al. (2018) has demonstrated the essential role of finance access, bank credit availability for small business growth. The lack of funding and a high-interest rate are the main obstacles for many potential entrepreneurs, especially in developing countries (Aparicio et al., 2016). They are able to slow down SME's development. Aparicio et al. (2016) use the percentage of the adult population

that has at least one credit loan in a private bank as a proxy for finance access. Nielsen (2014) suggests using the percentage of the population who personally provided funds for a new business. The alternative indicators are the degree of financial instruments' diversity, the number of investment companies and the interest rate on loans. Note that in Russia, banking capital remains the main source of SME's additional cash flow (after its profits) because of the weak development of venture financing (Zemtsov et al., 2021). We hypothesize:

Hypothesis 3: Access to finance increases small business activity in a region.

2.5. Tax burden and small business
Government policy may significantly affect small business growth (Spencer, Gómez, 2004; Djankov et al., 2002; Chowdhury et al. 2019) to improve the quality of regulation, for example, by reliving a tax burden, providing tax incentives and other.
For example, by changing the tax burden on firms, the government changes the cost of doing business, increasing business entry (Belitski et al. 2016; Audretsch et al. 2021). A high tax burden, on the contrary, increases the cost of starting a business, thus reducing the willingness to become entrepreneurs (Djankov et al., 2010). For example, introducing a progressive marginal tax rate in the USA lowered the probability of becoming self-employed for upper-middle-income households by about 20 percent (Gentry, Hubbard, 2000). On the other hand, Bruce and Mohsin (2006) conclude that different taxes (federal income, payroll, capital gains, corporate income, and estate) have significant but small effects on self-employment activity. Finally, the effect of the administrative tax burden varies over the entrepreneurial life cycle from strongly negative to insignificant. The most pronounced negative effects appear in the early stages of entrepreneurship. In the recent study of Braunerhjelm, Eklund and Thulin (2021), authors conclude that a 10% reduction in the administrative tax burden increases the propensity for new business establishments by 4%. Their finding demonstrated that tax simplification could be one of the most direct ways to encourage small business activity and may not affect tax revenues, as companies start paying taxes and do not aim to avoid taxes (Audretsch et al. 2022). In Russia, regional authorities may stimulate small businesses using regional tax incentives (reduced regional tax rates) for a simplified taxation system for SMEs (USN) and tax holidays for the self-employed.

Hypothesis 4: Tax burden reduces small business activity in a region.

2.6. Special economic zones and small business
 To help entrepreneurs reduce the startup risks, many governments pursue a special SME support policy. This policy involves adopting legislative acts, protecting entrepreneurs, and establishing special programs that improve the institutional context for doing business; therefore they may result in more new business creation (Spencer and Gómez, 2004). The impact of state institutional support on small business development may be ambiguous, since empirical studies often underestimate the 'screening effect' when the strongest firms are supported (Storey, 2003). As Chepurenko (2012) notices regarding Lerner (2009), the adequate programs are often implemented in rich countries with the Anglo-Saxon legal tradition. Negative public opinion and low confidence in the state support in Russia and other developing countries may decrease the possible positive effects of applying specific regional support programs such as free (special) economic zones (Yakovlev and Avraamova, 2008).

One of the most popular regional economic development tools is the establishing special regimes on certain territories, that creates, for example, special economic zones. In recent years, dozens of similar special economic zones have been created in Russia to support entrepreneurship and business growth (Sosnovskikh, 2017). For example, special economic zones provide a speedy registration process, lower taxes, tariffs and privileges in importing and exporting products aimed at SEZ residents. This may include duty-free trade, and improved access to infrastructure, equity and debt finance. They can create a large number of new service companies for residents. Until recently, there have been few assessments of the impact of such a policy on small businesses (Zeng, 2010). We hypothesize:

Hypothesis 5: Special economic zones as a regional economic development tool facilitate small business activity in a region

2.7. Digitalization and small business.
The introduction of digital technologies during current technological change leads to a significant minimization of transaction costs due to electronic workflow. Digital platforms such as Uber, Alibaba, Airbnb, etc., dramatically expand market entry opportunities. For example, the development of the Alibaba platform for product distribution has allowed the creation and scale-up of millions of small firms worldwide (Jin and Hurd, 2018). In fact, enterprises now can reach subcontractors, suppliers, and customers worldwide. The resources of small firms for customizing products and services have significantly increased.
Thus, regional digital divide is emerging as one of the barriers for SME development (Nambisan, 2017). There are several forms of the digital divide (Scheerder et al., 2017), resulting in uneven access to ICT infrastructure, uneven abilities for Internet usage and for business digitalization. Digitization of business processes helps entrepreneurs to speed up the process of value creation and commercialization. Firms use digitization to reduce costs, for example, by transferring their employees to remote work and using e-commerce and web pages to disseminate information about products and services and to outreach potential customers. With internet access, more developed digital infrastructure makes digital platforms more integrated and eases online commerce (Kudrin et al., 2021). Startups can better develop radically new offerings using online commerce and online collaboration, including co-creation of products with customers and receiving immediate feedback on products and services using digital tools (Nambisan, 2017). We hypothesize:

Hypothesis 6: Access to internet increases small business activity in a region.

3. Data and method
We use regional panel data during 2008-2018 across 83 Russian regions to test our research hypothesis. The main source of data is the Federal State Statistics Service (Rosstat).

3.1. Variables
Dependent variable
We used the number of small businesses per 1000 residents in working age or «small business density» to assess entrepreneurship activity in a region (Parker, 2009; Aidis et al. 2012; Korosteleva and Belitski, 2017). Small firms in Russia include companies with less

than 100 employees, and revenues of less than 800 million roubles, independent from large firms and the state. Small businesses are established and managed by entrepreneurs[1] in contrast to large companies run by managers or government officials. We do not include the category of sole proprietorships[2] and self-employed, who belong to the informal sector in Russia as it is impossible to track them by region. We argue that the use of regional fixed effects may partly account for the size of the informal sector as entrepreneurship activity, including informal entrepreneurship that demonstrates regional persistence (Fritsch et al. 2021).

The geographical distribution of small enterprises in Russia has been shaping for the last 30 years. During this period, several sustainable types of entrepreneurial ecosystems have formed (Zemtsov and Baburin, 2019). Small business density is higher and has been growing faster in 2008-2018 in the regions with the largest agglomerations: Perm, Moscow, Yekaterinburg, Kazan (Tatarstan), etc. (Zubarevich, 2013) (Fig.1), with the favourable business environment: Tatarstan, Tyumen, Voronezh, Yaroslavl and Moscow regions (Baranov et al., 2015; Barinova et al., 2018), as well as with an advantageous geographical position near large foreign (Sakhalin, Khabarovsk regions, Karelia) and regional markets (Yaroslavl, Pskov, Ivanovo and Ryazan oblast). It is lower and, in some cases, has decreased in the northern and the far eastern part, where transport and energy costs are high, as well as in the south, where the share of the informal (shadow) economy is higher, and the business environment is worse. Over the period under review, the indicator was growing in a number of regions that pursued a proactive policy of SMEs supporting and improving the business environment: Perm, Tyumen, Ulyanovsk, Voronezh regions, Tatarstan, etc.

FIGURE 1 ABOUT HERE

Explanatory variables
Studies on new economic geography demonstrate that both size and concentration of economic activity significantly influence regional development (Jacobs, 1969; Fujita et al., 2001; Hanson, 2005; Zemtsov and Smelov, 2018; Lavrinenko et al., 2019). There is a greater supply of entrepreneurs in areas with a high demand for products. In other words, the bigger the regional market and demand for products and services, the more the competition, and entrepreneurial opportunities will attract small businesses.

We used the number of crimes per 1,000 economically active (employed) population in a region to measure the efficiency of formal institutions. It is known that crimes are negatively associated with entrepreneurial activity (Glaeser et al. 2010).

We used Tax inspections as a proxy for the quality of institutions and administrative burden. Tax inspections are measured by a number of field tax inspections by the Federal Tax Service (FTS) per 1 thousand of the total number of enterprises in the region. In Russia, the tax inspections of enterprises are a significant administrative burden to SMEs

---

[1] Serial entrepreneurs most often create their new firms in the same regions where the previous ones are located. Therefore, there may be fewer entrepreneurs than registered firms in the leading regions, but these entrepreneurs may be more productive.

[2] In Russia, these are two different categories that both refer to informal employment. Moreover, sole proprietorships can hire additional employees, and self-employed can be both in a legal form (after tax authority registration) and unreported (shadow economy). Many individual enterprises (sole proprietorships) are created for the purpose of tax evasion. In the informal sector, there are other development factors, and entrepreneurial ecosystems are mainly considered within the framework of formal productive business. Therefore, these categories were not considered in our study.

development (Barinova et al., 2018). In some cases, inspections are used as a tool to put pressure on businesses and might be even considered to be a form of political entrepreneurship. According to (Russian Union of Industrialists and Entrepreneurs, 2016), 93.6% of surveyed companies underwent scheduled inspections and 54.2% underwent unscheduled inspections in 2015.

We use Banking Index as a proxy for entrepreneurs' access to finance. The index of regional banking services availability characterizes regional bank infrastructure density per capita: credit institutions availability, deposits, etc. For Russia, we use the cumulative index of bank services availability. The index characterizes regional bank infrastructure density per capita: credit institutions' availability, deposits, etc. (Barinova et al., 2018). We use various indicators of tax regulation such as the total amount of tax benefits (for income tax, property tax, transport tax and land tax); the simplified taxation system for SMEs known as USN; and a binary variable for tax benefits equals 1, if tax holidays for the self-employed were introduced in the region and is 0 otherwise.

We use a number of special economic zones in a region as a proxy for state support. Finally, to demonstrate the role of the Internet and digitization in facilitating small business, we use a percentage of individuals (households) with access to the Internet.

Control variables

Population density is a proxy for agglomeration economies (Glaeser et al. 2010). It is known to affect entrepreneurship in two different ways (Verheul et al., 2002). First, high population density may promise high demand and provides access to markets, business infrastructure, skilled labor, and the possibility of cooperation and knowledge spillovers (Fritsch and Falck, 2007; Bosma and Schutjens, 2011). Second, high concentration increases competition and creates higher entry barriers (Santarelli and Tran, 2012).

We control for the level of unemployment in Russian regions. On the one hand, high unemployment may limit resources to start a business, reducing the number of small firms. On the other hand, a high unemployment rate may result in an increase of small businesses number as it means labour resources are available. So it lowers labour costs, and encourages necessity-driven self-employment (Storey, 1991, Verheul et al., 2002, Fritsch and Falck, 2007). Necessity-driven entrepreneurs start a business because they have no other income-generating opportunities (Audretsch et al. 2021).

The average income per capita and population density is commonly used in empirical studies of regional new business formation in transition economies (Barinova et al., 2018). All continuous variables are taken in logarithms.

We used regional fixed effects to control for informal institutions across Russian regions. As informal ties and networks, corruption and behaviour, which in turn have opened the way for various types of crimes, political entrepreneurship, and shadow economy (Tonoyan et al., 2010). Institutional trust during the period of our analysis 2008-2018 has not changed and in particular within the same region in Russia (Aidis et al. 2008) and therefore could be perceived as a fixed factor for regions. Description of variables and data sources are presented in Table 1.

TABLE 1 ABOUT HERE

Table 2 and 3 illustrate the descriptive statistics and correlations. We do not include all variables together in the same model due to high correlation. As an example, we used GRP per capita as an alternative indicator of income with a one-year lag to avoid potential endogeneity problems.

TABLE 2 AND 3 ABOUT HERE

Econometric model

To test our hypotheses, we proposed the following econometric model (1):

$$Y_{it} = a + \beta_1' X_{it} + \beta_2' Z_{it} + \lambda_i + \varepsilon_{it} \qquad (1)$$

where $Y_{i,t}$ is entrepreneurial activity in region i in year t proxied by small business density, β_1', β_2' are parameters to be estimated, X_{it} is a vector of independent explanatory variables in region i in year t that includes market potential (hypothesis 1), administrative burden and crimes as a proxy for institutional quality (hypothesis 2), Banking Index as a proxy for access to finance (hypothesis 3), tax mechanisms (hypothesis 4), SEZ (hypothesis 5) and digitization of regions (hypothesis 6); Z_{it} is a vector of exogenous control variables in region i in year t; λ presents regional fixed effects to measure the potential changes within each region over time (e.g. region specific characteristics such as culture, traditions, informal institutions etc.). In the panel estimation the error term ε_{it} consists of unobserved region-specific effects, v_i and the observation-specific errors, e_{it}. To address the concern of multicollinearity, we calculated variance inflation factor (VIF) which was never greater than 5.

4. Results

We evaluated models with fixed (Table 4) and random effects (Table 5) as a part of the robustness check. According to the Hausman test, we should give preference to fixed effects estimations[3]. However, since we used a number of time-invariant variables, random effects estimations may also be appropriate.

We support H1, which states that market potential is positively associated with small business activity. We found that a 1% increase in market potential leads to an increase in the number of small firms (per workforce participants) by 0.16-0.31% (Table 4).

TABLE 4 AND 5 ABOUT HERE

Institutions and quality of regulation matter for entrepreneurship. Our H2, which states that formal institutions facilitate small business activity, is supported. A low crime rate can also act as a proxy for the average level of trust in a region (highly correlated variables). If the crime rate in a region is 1% lower, then the density of small businesses will be higher by 0.23-0.31% (table 4).

The number of field tax audits per firm is insignificant, which does not support H2. There has been a substantial reduction in the total number of inspections in recent years (Zemtsov et al., 2020), so it's likely that this form of administrative burden no longer affects entrepreneurial decision-making.

Our H3, which states that access to finance increases small business activity, is supported. Access to finance is another essential factor. According to our estimates, if a region has a 1% higher banking accessibility index, it may lead to a 0,26-0,48% higher density of small firms (Table 4).

Our H4, which stated that higher taxes reduce entrepreneurship, is supported. In a region with tax holidays, small business density is 0.11-0.25% higher (Table 4). And 1% growth in regional tax incentives may increase small business density by 0.14-0.22% (Table 4), but it is insignificant considering other characteristics of the business environment. Tax

---

[3] The random effects model is useful when all objects are extracted randomly from some general set. For regional samples fixed effects estimation are commonly used (*Dougherty, 2011*).

breaks also affect small business activity, for example, a 1% increase in the number of tax benefits per firm leads to a 0.014-0.018% increase in the number of small businesses. This is because many of these concessions are targeted at large businesses, and their development, in turn, can partially stimulate the growth of the number of small firms. Our H5, which stated that special economic zones are a tool for Russia's regional economic development, is supported. In general, the density of small businesses is higher in regions (0.077) with every new special economic zone (Table 5).

Our H7 that states that digitization increases small business activity is overwhelmingly supported. Access to the internet changes the way we shop and do business, and it is used by small businesses to work on digital platforms to sell. We found that a 1% increase in the proportion of households with Internet access may lead to a 0.164-0.169 increase in small firms (Table 5) and by 0.157 (Table 4).

Other findings relate to the effect of unemployment, income and human capital in small business activity. According to our estimations, if household incomes in a region are lower by 1%, the number of small enterprises per member in the workforce is lower by 0.35-0.58%. The local markets demand constitutes one of the essential factors because most SMEs sell their goods and services in local markets. The alternative measure, GRP per capita, has a similar effect (0.27-0.44.)

The impact of unemployment on the small business density is insignificant, as its effect on lower incomes is already directly considered in the model. However, a 1% increase in unemployment in a previous year may lead to an 0.1-0.16% increase in the number of small firms in a current year. If corresponding variables are not included in the models, then unemployment becomes a negative factor.

The human capital variable is not significant (only some calculations are given below). Some entrepreneurship activities (e.g. trade, construction, recreation, etc.) do not require high specialization. On the other hand, it is essential for tech start-ups (Zemtsov et al., 2021). In Russia, this indicator is also skewed by the low quality of education in a number of underdeveloped regions with weak institutions. Thus, the share of employed people with higher education is higher in such regions.

Robustness check

For robustness check, we recalculated the model (1) using data on all small and medium-sized businesses, including the sole proprietorships. The latter category is associated with the informal sector and necessity-driven entrepreneurship; also, this is a legal form used for tax evasion. Their share is high in the least developed regions with weak institutions, for example, the North Caucasus. Most of the identified factors have turned out to be insignificant since the informal sector and tax optimization schemes do not follow normal SME patterns. The considered policy measures aimed at legal businesses, as expected, do not affect the informal sector or some of them changed their sign to negative (tax incentives for large companies and free trade zones).

5.   Discussion and Conclusion

Russia is a vast and very heterogeneous country with multiple regional cultures, languages, and histories. Unfortunately, regional factors are often underestimated, making it harder to understand the dynamics of entrepreneurship in Russian regions. While the government policy has been de-jure friendly for entrepreneurship, complexity in formal and informal institutions in many Russian regions has slowed down entrepreneurship development (Aidis et al. 2012). it is important to understand for Russia that it is not only the formalities such as setting up the online cash registers or issuing anti-crisis subsidies through online applications, or reducing the time to register a business to pay tax matter. Often these are systemic measures that need to be undertaken more complex to support small businesses.

Unlike most developed countries, Russia is very diverse in terms of its regions, and the same federal support measures have different effects and don't work properly across Russia.

This study is important as it brings together several factors named by Reynolds et al. (2002, 2005) as important drivers of entrepreneurial activity in developed countries, which were found to be also valid and strong for entrepreneurship in Russia. In addition to factors traditionally described conducive to entrepreneurship (Fritsch et al. 2021, 2022; Fritsch and Storey, 2004) it is the market potential of a region, quality of formal institutions and the reduction in administrative burden and taxes, tax benefits, special economic zones that facilitate original development and finally the digital infrastructure for entrepreneurs and their access to the Internet.

Interestingly, this study demonstrated that the market potential of a region matters, and it's likely to a greater extent for countries with a smaller size than for Russia . In Russian regions, access to the international markets could be costly and time-consuming. Therefore, the location of the region in Russia close to international markets, trade centres, and large regional markets works as a magnet for entrepreneurs. As the size of international trade and integration into the global economy by the Russian region may decrease, understanding the role of market potential and particularly how much it can hurt a region and entrepreneurship is important for the economy and policy.

In countries, such as Russia, with a significant share of government property and government control over the business, the effect that the entrepreneurial ecosystem may have on entrepreneurial activity is likely to be limited (Stam, 2015; Audretsch and Belitski, 2021). This is because of the complexity of inter-relationship within a region. It's also the formal and informal framework that matter for entrepreneurship. While public support to entrepreneurship is formally declared, the question of who gets public support or government support may still be announced and may be related to political entrepreneurship (Belitski et al. 2021). It has become clear from this study that to significantly change the factors that define entrepreneurship in Russian regions, it's important to work with the taxation system alongside reducing administrative burden and facilitating the localized regional development tools such as free economic zones in the south, north and east of Russia (Zemtsov, Baburin, 2019). These factors are indulgent for the government and may be used quickly to adjust to the external shocks for Russian regions due to the international institutional context. Some things that can be changed also relate to increased Internet access in digital infrastructure, digital skills, not only subsidizing entrepreneurs with taxes but teaching entrepreneurs digital skills that they can implement to commercialize the ideas on digital platforms.

The extant literature talks a lot about informalities and the shadow economy. However, the more digitization will penetrate Russian regions and Russian businesses, the less there will be a fraud and political entrepreneurship as the system overall will become more transparent. With the high uncertainty of doing business and high cost of entering the market, small firms may stay in the informal sector. There must be tools used and in particular digital tools. There is a question to be answered, how much the government can affect the procedural activity and support small businesses in times of crisis (Kudrin et al., 2019). This answer remains overwhelmingly positive as we see lots of tools and potential government control mechanisms, both on regional and on federal levels.

Based on our findings, we believe the following policy and managerial implications could be useful. First of all, it would be useful to pursue a demand support policy. This implies the provision of long-term and affordable bank loans for households and businesses. The digitalization of business is timely, including online access to tax payments, subsidies, loans, access to public and private procurement, etc. Unfortunately, in our

recommendations, we are in a certain way locked in a formal framework that still forces us to search for a public-private solution, as the role of the government is very visible and significant.

The managerial implication may include supporting digital tools and learning skills for small business digital transformation. In the long term, improving market access by developing infrastructure, lowering transport tariffs, and removing trade barriers will also help small business development. Managers may want to consider whether they want to be located in the special economic zones or not, while many of the zones have become obsolete and are often used as a loop of tax evasion and privileges in a certain industry. We believe the special economic zones as a regional development tool should be revised to understand to what extent they are helping the region and not hurting the businesses, that are not part of these zones.

Limitations and future research.

We acknowledge we cannot measure all entrepreneurship activity in Russian regions, particularly the informal sector, as measures of the informal sector have significant drawbacks. The data on business owners and total entrepreneurship activity (TEA) available from the Global entrepreneurship monitor (GEM) (Rynolds et al. 2002, 2005) is available for some Russian regions only for one year (Chepurenko et al., 2017) and does not cover all regions for the period 2008-2018. Firms' birth rates can contain data on organizations that are registered for one-off projects, corrupt financial schemes and often political entrepreneurship (Belitski and Grigore, 2021). This data does not reveal the death rate of firms or their contribution to the regional economy (Obraztsova and Chepurenko, 2020; Fritsch et al., 2021).

6.   Data availability in particular on the measurement of formal and informal institutions longitudinally, remains a grand challenge. We call for future research on institutional aspects of entrepreneurship building on cognitive, regulatory and normative pillars (Scott et al. 2014) The persistence of entrepreneurship may play an important role (Fritsch et al. 2022) in explaining current and future levels of entrepreneurship in Russian regions. Due to industrial distribution and entrepreneurial culture, important works related to the persistence of entrepreneurship may also help prioritize the policies to boost entrepreneurship in a specific region (Zazdravnykh, 2019; Fritsch et al., 2019).

Future research may look at the formal and informal institutions within and between regions. Models that can predict the outcome of changes in institutional quality would be useful for policymakers and entrepreneurs.

The business environment is constantly changing. It becomes difficult and challenging to predict, how these external shocks will affect the Russian economy and small businesses in the near future. Therefore, this study calls for future research on understanding different scenarios and analysing entrepreneurship in conditions of high risk and uncertainty. An attempt to forecast the development of small business in the future is limited with the Covid-crises and the Western sanctions on Russian economy.

Finally, what does entrepreneurship mean for policymakers across Russian regions and how it is operationalized across Russian regions? Further research could incorporate various measures of entrepreneurial activity, such as the number of entrepreneurs per capita, if available, and even perception measures. It may also be useful to conduct a separate analysis on entrepreneurs in specific regions to reveal, whether entrepreneurship is perceived as a risk-taking independent profit-seeking activity equally in different regions.

7.   References

Abramov, A., Radygin, A., & Chernova, M. (2017). State-owned enterprises in the Russian market: Ownership structure and their role in the economy. Russian Journal of Economics, 3(1), 1-23.

Acemoglu, D. & Restrepo, P. (2017). Robots and jobs: Evidence from US labor markets. NBER Working Paper, No. 23285. https://doi.org/10.3386/w23285

Acs, Z. J., Audretsch, D. B., Braunerhjelm & Carlsson, B. (2012). Growth and entrepreneurship. *Small Business Economics*, 39(2), 289-300. Doi: 10.1007/s11187-010-9307-2

Acs, Z. J., Stam, E., Audretsch, D. B., & O'Connor, A. (2017). The lineages of the entrepreneurial ecosystem approach. Small Business Economics, 49(1), 1-10.

Aidis, R., Estrin, S., & Mickiewicz, T. (2008). Institutions and entrepreneurship development in Russia: A comparative perspective. *Journal of business Venturing*, *23*(6), 656-672.

Aidis, R., Estrin, S., & Mickiewicz, T. M. (2012). Size matters: entrepreneurial entry and government. *Small Business Economics*, *39*(1), 119-139.

Anokhin, S. & Schulze, W. S. (2008). Entrepreneurship, innovation, and corruption. *Journal of Business Venturing*, 24(5), Doi: 465-476. 10.1016/j.jbusvent.2008.06.001

Aparicio, S., Urbano D. & Audretsch, D. (2016). Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence. *Technological Forecasting and Social Change*, (102), 45-61. Doi: 10.1016/j.techfore.2015.04.006

Arshed N., Barinova V., Do H., Drummond I., Li X., Mazwai T., Mitsui I., Ndemo B., Piasecki B., Potter J., Rogut A., Smallbone D., Storey D., Xheneti M., Xu J., Zemtsov S. (2020) Research Agenda for Entrepreneurship Policy. Ed. by Smallbone D., Welter F. Cheltenham: Edward Elgar Publishing, 224 p.

Audretsch D. & Thurik A. (2000). Capitalism and democracy in [th]e 21st century: from the managed to the entrepreneurial economy. *Journal of Evolutionary Economics*, Vol. 10, No. 1—2, pp. 17-34.http://doi.org/10.1007/s001910050003

Audretsch, D. & Keilbach, M. (2005). Entrepreneurship capital and regional growth. *The Annals of Regional Science*, 39(3), 457-469. Doi: 10.1007/s00168-005-0246-9

Audretsch, D. B., & Belitski, M. (2017). Entrepreneurial ecosystems in cities: establishing the framework conditions. The Journal of Technology Transfer, 42(5), 1030-1051.

Audretsch, D. B., Belitski, M., & Desai, S. (2019). National business regulations and city entrepreneurship in Europe: A multilevel nested analysis. *Entrepreneurship theory and practice*, *43*(6), 1148-1165.

Audretsch, D. B., Belitski, M., Chowdhury, F., & Desai, S. (2021). Necessity or opportunity? Government size, tax policy, corruption, and implications for entrepreneurship. *Small Business Economics*, 1-18.

Audretsch, D. B., & Belitski, M. (2021). Towards an entrepreneurial ecosystem typology for regional economic development: the role of creative class and entrepreneurship. *Regional Studies*, *55*(4), 735-756.

Audretsch, D. B., Belitski, M., Caiazza, R., & Desai, S. (2022). The role of institutions in latent and emergent entrepreneurship. *Technological Forecasting and Social Change*, *174*, 121263.

Auzan, A. A., Bakhtigaraeva, A. I., Bryzgalin, V. A., Zolotov, A. V., Nikishina, E. N., Pripuzova, N. A., & Stavinskaya, A. A. (2020). Sociocultural factors in economics: milestones and perspectives. Voprosy Ekonomiki, (7), 75-91.

Baldwin, R., Cave, M., & Lodge, M. (2011). *Understanding regulation: theory, strategy, and practice*. Oxford university press.

Baranov, A., Malkov, E., Polishchuk, L., Rochlitz, M. & Syunyaev, G. (2015). How (not) to measure Russian regional institutions. *Russian Journal of Economics*, 1(2), 154-181, Doi: 10.1016/j.ruje.2015.11.005.

Barinova, V.A., Zemtsov, S.P. & Tsareva, Yu. V. (2018). Entrepreneurship and institutions: does the relationship exist at the regional level in Russia? *Voprosy economiki*, (6), 92-116. Doi: 10.32609/0042-8736-2018-6-92-116 (in Russian)

Baumol, W. J. (1993). *Entrepreneurship, management, and the structure of payoffs*. London: The MIT Press.

Belitski, M., Chowdhury, F., & Desai, S. (2016). Taxes, corruption, and entry. *Small Business Economics*, *47*(1), 201-216.

Belitski, M., & Desai, S. (2021). Female ownership, firm age and firm growth: a study of South Asian firms. *Asia Pacific Journal of Management*, *38*(3), 825-855.

Belitski, M., & Grigore, A. M. (2021). The economic effects of politically connected entrepreneurs on the quality and rate of regional entrepreneurship. *European Planning Studies*, 1-27.

Belitski, M., Grigore, A. M., & Bratu, A. (2021). Political entrepreneurship: entrepreneurship ecosystem perspective. *International Entrepreneurship and Management Journal*, 1-32.

Bosma, N. & Schutjens, V. (2011). Understanding regional variation in entrepreneurial activity and entrepreneurial attitude in Europe. *The Annals of Regional Science*, 47(3), 711-742. Doi: 10.1007/s00168-010-0375-7

Brown, D. (2008). D*eath of distance? Economic implications of infrastructure improvement in Russia*. EIB Papers, (2), 126-148.

Bruce, D. & Mohsin, M. (2006). Tax policy and entrepreneurship: New time series evidence. *Small Business Economics,* 26(5), 409-425.

Bruno, R. L., Bytchkova, M., & Estrin, S. (2013). Institutional determinants of new firm entry in Russia: A cross-regional analysis. Review of Economics and Statistics, 95(5), 1740-1749.

Bygrave, W. & Hofer, C. (1991). Theorizing about entrepreneurship. *Entrepreneurship Theory and Practice*, 16(2), 13-22.

Chepurenko, A. (2010). Small entrepreneurship and entrepreneurial activity of population in Russia in the context of the economic transformation. Historical Social Research/Historische Sozialforschung, 301-319.

Chepurenko, A. (2012). What is Entrepreneurship and What Entrepreneurship Policy Does Russia Need? (Marginal Notes on Works of Modern Foreign Classics). *The Journal of the New Economic Association*, 14(2), 102-124.

Chepurenko, A. Y. (2017). Combining universal concepts with national specifics: SME support policy (In Russian). *Public Administration Issues*, (1), 7-30.

Chepurenko, A., & Vilenski, A. (2016). SME Policy of the Russian State (1990-2015): From a" generalist" to a" paternalist" Approach. Higher School of Economics, National Research University.

Chepurenko, A., Popovskaya, E., & Obraztsova, O. (2017). Cross-regional variations in the motivation of early-stage entrepreneurial activity in Russia: determining factors. In Entrepreneurship in Transition Economies (pp. 315-342). Springer, Cham.

Chowdhury, F., Audretsch, D. B., & Belitski, M. (2019). Institutions and entrepreneurship quality. *Entrepreneurship Theory and Practice*, *43*(1), 51-81.

Djankov, S. (2009). The regulation of entry: A survey. *The World Bank Research Observer*.

Djankov, S., Ganser, T., McLiesh, C., Ramalho, R., & Shleifer, A. (2010). The effect of corporate taxes on investment and entrepreneurship. *American Economic Journal: Macroeconomics*, 2(3), 31-64.

Djankov, S., La Porta, R., López-de-Silanes, F. & Shleifer, A. (2002). The regulation of entry. *The quarterly Journal of economics*, 117(1), 1-37.

Djankov, S., Miguel, E., Qian, Y., Roland, G., & Zhuravskaya, E. (2005). Who are Russia's entrepreneurs? *Journal of the European Economic Association*, 3(2–3), 587–597.

Doing business (2020). Comparing Business Regulation in 190 Economies. Available at: https://documents1.worldbank.org/curated/en/688761571934946384/pdf/Doing-Business-2020-Comparing-Business-Regulation-in-190-Economies.pdf

Dougherty, C. (2011). *Introduction to econometrics*. Oxford University Press.

Estrin, S., & Mickiewicz, T. (2011). Entrepreneurship in transition economies: The role of institutions and generational change. The dynamics of entrepreneurship: Evidence from the global entrepreneurship monitor data, 181-208.

Estrin, S., Korosteleva, J., & Mickiewicz, T. (2013). Which institutions encourage entrepreneurial growth aspirations?. *Journal of business venturing*, *28*(4), 564-580.

Fritsch, M. & Falck, O. (2007). New business formation by industry over space and time: a multidimensional analysis. *Regional studies*, 41(2), 157-172. Doi: 10.1080/00343400600928301

Fritsch, M. & Storey, D. (2014). Entrepreneurship in a regional context: Historical roots, recent developments and future challenges. *Regional Studies*, 48(6), 939-954. Doi: 10.1080/00343404.2014.892574

Fritsch, M. (2013). New Business Formation and Regional Development: A Survey and Assessment of the Evidence. *Foundations and Trends in Entrepreneurship*, 9(3), 249-364.

Fritsch, M., Sorgner, A., Wyrwich, M. & Zazdravnykh, E. (2019). Historical shocks and persistence of economic activity: evidence on self-employment from a unique natural experiment. *Regional Studies*, 53(6), 790-802. Doi: 10.1080/00343404.2018.1492112

Fritsch, M., Greve, M., & Wyrwich, M. (2021). One transition story does not fit them all: initial regional conditions and new business formation after communism. Post-Communist Economies, 1-28.

Fritsch, M., Greve, M., & Wyrwich, M. (2022). The Long-Run Effects of Communism and Transition to a Market System on Self-Employment: The Case of Germany. *Entrepreneurship Theory and Practice*, 10422587221094498.

Fujita, M., Krugman, R. & Venables, A. J. (2001). *The spatial economy: Cities, regions, and international trade*. Cambridge: MIT Press.

Gentry, W.M. & Hubbard, R.G. (2000). Tax policy and entrepreneurial entry. *The American economic review*, 90(2), 283-287.

GEM (Global Entrepreneurship Monitor) (2022). Global Entrepreneurship Monitor 2021/2022 Global Report: Opportunity Amid Disruption. London: GEM.

Glaeser, E. L., Rosenthal, S. S., & Strange, W. C. (2010). Urban economics and entrepreneurship. *Journal of urban economics*, *67*(1), 1-14.

Gonzalez-Pernía, J. L. & Peña-Legazkue, I. (2011). The impact of export-oriented entrepreneurship on regional economic growth. *Small Business Economics*. 45(3), 505-522.

Gunningham, N., Kagan, R. A. (2005). Regulation and business behavior. Law & Pol'y, 27, 213.

Hanson, G.N. (2005). Market potential, increasing returns and geographic concentration. *Journal of International Economics*, 67(1), 1-24. Doi: 10.1016/j.jinteco.2004.09.008.

Hipp J.R., Williams S.A., Kim Y.-A., Kim J.H. (2019). Fight or flight? Crime as a driving force in business failure and business mobility. Social Science Research, 82, 164-180

Hutter, B. M., & Amodu, T. (2008). Risk regulation and compliance: Food safety in the UK. *London: The London School of Economics and Political Science*.

Hutter, B. M., & Jones, C. J. (2007). From government to governance: External influences on business risk management. *Regulation & Governance*, *1*(1), 27-45.

Jacobs, J. (1969). *The Life of Cities*. New York: Random House.

Jayet H., Mariev O., Pushkarev A. & Davidson N. (2021). Communist heritage and Russian firms' location decisions. *Post-Communist Economies*. Doi: 10.1080/14631377.2020.1867447

Jin, H. & Hurd, F. (2018). Exploring the impact of digital platforms on SME internationalization: New Zealand SMEs use of the Alibaba platform for Chinese market entry. *Journal of Asia-Pacific Business*, 19(2), 72-95.

Korosteleva, J. & Belitski, M., (2017). Entrepreneurial dynamics and higher education institutions in the post-Communist world. Regional Studies, 51(3), 439-453.

Kudrin, A., Sinelnikov-Murylev, S., & Radygin, A. (ed.) (2019). Russian Economy in 2018. Trends and Outlooks. Issue 40. Moscow: Gaidar Institute for Economic Policy.

Kudrin, A., Mau, V., Radygin, A. & Sinelnikov-Murylev S. (ed.) (2021) Russian Economy in 2020. *Trends and Outlooks. (Issue 42)*. Moscow: Gaidar Institute Publishers.

Kuzilwa, J. (2005). The role of credit for small business success: A study of the National Entrepreneurship Development Fund in Tanzania. *The Journal of Entrepreneurship*, 14(2), 131-161.

Lavrinenko, P. A., Mikhailova, T. N., Romashina, A. A., & Chistyakov, P. A. (2019). Agglomeration effect as a tool of regional development. Studies on Russian Economic Development, 30(3), 268-274.

Lerner, J. (2009). *Boulevard of broken dreams: Why public efforts to boost entrepreneurship and venture capital have failed and what to do about it*. Princeton: Princeton University Press.

Mukhtarova, L. A. (2012). Russia on its way to the World Trade Organisation: Pros and Cons. The category of world economy and investment. *Journal of Economics and Social Sciences*, (1), 11-12.

Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029-1055. Doi: 10.1111/etap.12254

Nielsen, G. (2014). Determinants of Cross-National Entrepreneurial Activity. *The Journal of Politics and Society,* 25(2), 46-72. Doi: 10.7916/D889154V

North, D.C. (1990). Institutions, institutional change and economic performance. Cambridge university press.

North, D. (1994). Economic performance over time. American Economic Review, 84, 359–368.

North, D. (1997). The contribution of the new institutional economics to an understanding of the transitional problem. Paper presented at Wider Annual Lectures, United Nationals University World Institute for Development Economics Research, Helsinki.

North, D.C. (2005). *Understanding the process of economic change*. Cambridge university press.

Obraztsova, O., & Chepurenko, A. (2020). Entrepreneurial activity in Russia and its cross-regional differences. Journal of the New Economic Association, 46(2), 198-210.

OECD (2018). Entrepreneurship at a Glance. Paris: OECD Publishing.

Parker, S.C. (2009). Why do small firms produce the entrepreneurs? The Journal of Socio-Economics, 38(3), 484-494.

Reynolds, P.D., Bygrave, W.D., Autio E., Cox L.W. & Hay, M. (2002). *Global Entrepreneurship Monitor Global 2002 Executive Report*. Kansas City: Kaufman Center.

Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., ... & Chin, N. (2005). Global entrepreneurship monitor: Data collection design and implementation 1998–2003. *Small business economics*, *24*(3), 205-231.

Russian Union of Industrialists and Entrepreneurs, (2017). *Business climate in Russia in 2016: Report*, Moscow, March.

Sadyrtdinov, R., Korablev, M. & Vladimirova, S. (2015). Assessment of Small Entrepreneurship Impact on the Development of Far East Federal District Regions of the Russian Federation. *Procedia Economics and Finance*, 24, 557-562, Doi: 10.1016/S2212-5671(15)00632-2.

Santarelli, E., Tran, H. T. (2012). Growth of Incumbent Firms and Entrepreneurship in Vietnam. *Growth and Change*, 43(4), 638-666. Doi: 10.1111/j.1468-2257.2012.00601.x

Sauka, A., & Chepurenko, A. (Eds.). (2017). Entrepreneurship in transition economies: Diversity, trends, and perspectives. Springer.

Scheerder, A., van Deursen, A. & van Dijk, J. (2017). Determinants of Internet skills, uses and outcomes. A systematic review of the second-and third-level digital divide. *Telematics and informatics*, 34(8), 1607-1624.

Shurchkov, O. (2012). New elites and their influence on entrepreneurial activity in Russia. *Journal of Comparative Economics*, 40(2), 240-255. Doi: 10.1016/j.jce.2011.12.003.

Smallbone, D., & Welter, F. (2012). Entrepreneurship and institutional change in transition economies: The Commonwealth of Independent States, Central and Eastern Europe and China compared. Entrepreneurship & Regional Development, 24(3-4), 215-233.

Sosnovskikh, S. (2017). Industrial clusters in Russia: The development of special economic zones and industrial parks. *Russian Journal of Economics*, 3(2), 174-199.

Spencer, J.W. & Gómez, C. (2004). The relationship among national institutional structures, economic factors, and domestic entrepreneurial activity: a multicountry study. *Journal of Business Research*, 57(10), 1098-1107.

Stam E. (2015). Entrepreneurial ecosystems and regional policy: a sympathetic critique. *European Planning Studies*. 23(9). 1759-1769. Doi: 10.1080/09654313.2015.1061484

Sternberg R. (2009). Regional dimensions of entrepreneurship. *Foundations and Trends in Entrepreneurship*. (4) 211-340.

Storey, D.J. (1991). The birth of new firms—does unemployment matter? A review of the evidence. *Small business economics*, 3(3), 167-178.

Storey, D.J. (2003). Entrepreneurship, small and medium sized enterprises and public policies. *Handbook of entrepreneurship research*. Springer US, 473—511.

Tonoyan, V., Strohmeyer, R., Habib, M., & Perlitz, M. (2010). Corruption and entrepreneurship: How formal and informal institutions shape small firm behavior in transition and mature market economies. *Entrepreneurship theory and practice*, 34(5), 803-832.

Urbano, D., Aparicio, S. & Audretsch, D. (2019). Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned? *Small Business Economics*, 53(1), 21-49. Doi: 10.1007/s11187-018-0038-0.

Verheul, I., Wennekers, S., Audretsch, D. & Thurik, R. (2002). Entrepreneurship: Determinants and policy in a European-US comparison. In *An eclectic theory of entrepreneurship: policies, institutions and culture*. Springer US, 11-81.

Williamson, O. E. (2000). The new institutional economics: taking stock, looking ahead. *Journal of economic literature,* 38(3), 595-613.

Wong, Ho Y. & Autio, E. (2005). Entrepreneurship, innovation and economic growth: Evidence from GEM data. *Small business economics*, 24(3), 335-350.

World Bank (2019). Fast-Paced Reforms Lead to Improvements in Ease of Doing Business Across Kazakhstan. Available at: https://www.worldbank.org/en/news/press-release/2019/06/17/doing-business-in-kazakhstan-2019

Xheneti, M. & Bartlett, W. (2012). Institutional constraints and SME growth in post-communist Albania. *Journal of Small Business and Enterprise Development*, 19(4), 607-626. Doi: 10.1108/14626001211277424

Yakovlev A. & Avraamova E. (2008) Public attitudes toward business in contemporary Russia: influence of economic policy and opportunities for corporate response. *Post-Communist Economies*, 20(3), 263-286, Doi: 10.1080/14631370802281373

Yakovlev, E. & Zhuravskaya, E. (2013). The unequal enforcement of liberalization: evidence from Russia's reform of business regulation. *Journal of the European Economic Association*, 11(4), 808-838. Doi: 10.1111/jeea.12026

Zazdravnykh E. A. (2019). The historical effects of the regional entrepreneurial activity. *Russian Management Journal,* 17(1), 97–120. Doi: 10.21638/spbu18.2019.105

Zemtsov, S. & Smelov, Y. (2018). Factors of regional development in Russia: geography, human capital and regional policies. *Journal of the New Economic Association*, 40(4), 84-108. Doi: 10.31737/2221-2264-2018-40-4-4

Zemtsov, S.P. & Baburin, V.L. (2019). Entrepreneurial ecosystems in Russian regions. *Regionalnye issledovaniya*, 2, 4-14. Doi: 10.5922/1994-5280-2019-2-1

Zemtsov, S.P., Chepurenko, A.Y., Barinova, V.A. & Krasnoselskih, A.N. (2020) New entrepreneurship policy in Russia after the 2020 crisis. *Voprosy Ekonomiki*.(10), 44-67. (In Russ.) https://doi.org/10.32609/0042-8736-2020-10-44-67

Zemtsov S., Chepurenko A. & Mikhailov A. (2021) Pandemic Challenges for the Technological Startups in the Russian Regions. *Foresight and STI Governance*, 15(4), 61–77. DOI: 10.17323/2500-2597.2021.4.61.77

Zeng, D. Z. (Ed.). (2010). Building engines for growth and competitiveness in China: Experience with special economic zones and industrial clusters. World Bank Publications.

Zubarevich, N. (2013). Four Russias: Human potential and social differentiation of Russian regions and cities. In Russia 2025 (pp. 67-85). Palgrave Macmillan, London.

Table 1. Description of the variables used in the study and data sources. Data on 83 regions, 2008-2018.

Factor	Variable	Description	Source
Dependent variable			
Entrepreneurship development	Small business density	Number of micro and small businesses (legal entities with full-time employees up to 100) per 1,000 economically active (employed) population (in other words: per labour force participants) in logarithm	Rosstat[4]
Independent variables			
Market potential (H1)	Market potential	The total sales in a region, trillion roubles in constant 2008 prices in logarithm	Authors' calculations
Institutions (H2)	Crimes[5]	Number of crimes per 1,000 economically active (employed) population in a region in logarithm	Rosstat[6]
	Tax inspections (Administrative burden)	Number of field tax inspections by the Federal Tax Service (FTS) per 1 thousand of the total number of enterprises in region. in logarithm	Unified Interdepartmental Statistical Information System in Russia[7]
Access to finance (H3)	Banking Index	The index of regional banking services availability characterizes regional bank infrastructure density per capita: credit institutions availability, deposits' volumes, etc.	Central Bank of the Russian Federation reports[8]
Taxes (H4)	Tax benefits	The total amount of tax benefits (for income tax, property tax, transport tax and land tax) per one organization, roubles. in logarithm	Federal Tax Service[9]
	USN reduced tax rates	Presence of regional tax incentives (reduced tax rates) for USN payers. The USN is a simplified taxation system for SMEs in Russia. A binary variable that takes the value 1 if additional reduced rates for USN taxpayers were introduced in a region and takes 0 otherwise.	Data on Regional Legislations[10]
	Tax holidays	Presence of tax holidays for the self-employed in a region. A binary variable that takes the value 1 if tax holidays for the self-employed were introduced in the region and is 0 otherwise.	Data on Regional Legislations[11]

[4] https://rosstat.gov.ru/folder/210/document/13223

[5] All kinds of crimes are included. Hipp et al. (2019) found that not only economic but also violent crime rate may affect business activity. Moreover, violent crimes force potential entrepreneurs to leave their place of residence.

[6] https://www.fedstat.ru/indicator/36224

[7] https://www.fedstat.ru/indicator/42571

[8] https://cbr.ru/about_br/publ/nadzor/

[9] https://www.nalog.ru/rn77/related_activities/statistics_and_analytics/forms/. Data on SME support (subsidies) is available only since 2012. Accordingly, we use it for the period 2012-2018.

[10] https://www.glavbukh.ru/art/55851-tablitsa-ponijennyh-stavok-usn-v-2021-godu-po-regionam

[11] http://www.consultant.ru/document/cons_doc_LAW_190568/

Special economic zones (H5)	Special economic zones (SEZ)	Number of special economic zones in a region in logarithm	Special Economic Zones[12]
Digitalization (H6)	Internet	Percentage of individuals (households) with access to the Internet	Rosstat[13]
Control variables			
Controls	Agglomeration	Population density-	Rosstat[14]
	Income per capita	Monthly income minus subsistence minimum[15] (average value for the 12 months), roubles per person	Authors' calculations according to Rosstat[16]
	GDP per capita	Gross regional product per capita, thousand roubles in constant 1998 prices in logarithm	Authors' calculations according to Rosstat[17]
	Unemployment	Average yearly unemployment rate according to the methodology of the International Labour Organization, %	Rosstat[18]
	Human capital	Average number of years in education per employee Average number of years of study of a representatitev individual in a region (basic, secondary, higher education).	Rosstat[19]

Table 2. Descriptive statistics.

Variable	Mean	Standard Deviation	Minimum	Maximum	Observations
Small business density	23.215	11.003	2.453	77.604	913
Income per capita	14982.101	8918.925	1608.310	64395.571	911
GDP per capita	35.285	41.281	3.974	355.548	902
Unemployment	7.565	5.63	.800	53.300	913
Market potential	20.356	10.865	4.134	58.582	913
Population density	126.732	632.122	.069	4831.105	913
Internet	50.206	20.113	0.000	88.700	907
Banking Index	0.801	0.218	0.150	1.940	876
Crimes	31.981	11.698	5.293	92.258	913
Tax inspections	12.115	9.956	0.458	105.116	913
Tax benefits	62404.25	179076.17	0.000	4128604.80	913
USN reduced tax rates	0.496	0.502	0.000	1.000	913
Tax holidays	0.313	0.464	0.000	1.000	913
SEZ	0.242	0.475	0.000	3.000	913
Human capital	13.460	0.433	7.718	14.884	913

Source: Rosstat

---

[12] http://eng.russez.ru/ A discrete variable that takes on the values 0, 1, 2, or 3, depending on the number of SEZs in the region..

[13] https://www.fedstat.ru/indicator/34078

[14] https://rosstat.gov.ru/folder/210/document/13204

[15] For such a large country as Russia, it is important to take into account inter-regional differences in prices. To do so, we use the cost of living, which expresses the purchasing power of the rouble and the real households' incomes in different territories

[16] https://rosstat.gov.ru/folder/13397

[17] https://rosstat.gov.ru/accounts

[18] https://rosstat.gov.ru/labour_force

[19] https://rosstat.gov.ru/folder/210/document/13204

Table 3. Correlation Matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Small business density	1.00													
(2) Income per capita	0.45*	1.00												
(3) GRP per capita	0.32*	**0.73***	1.00											
(4) Unemployment	-0.51*	-0.54*	-0.46*	1.00										
(5) Market potential	0.35*	0.28*	-0.11*	-0.23*	1.00									
(6) Population density	0.29*	0.26*	0.10*	-0.44*	0.11*	1.00								
(7) Internet	0.55*	**0.62***	0.35*	-0.40*	0.49*	0.11*	1.00							
(8) Banking Index	0.68*	0.33*	0.35*	**-0.65***	0.13*	0.31*	0.42*	1.00						
(9) Crimes	0.21*	-0.08*	0.19*	-0.08*	-0.43*	-0.12*	-0.03	0.33*	1.00					
(10) Tax inspections	-0.62*	-0.47*	-0.16*	0.40*	**-0.63***	-0.24*	**-0.64***	-0.38*	0.06	1.00				
(11) Tax benefits	0.16*	0.36*	0.48*	-0.32*	0.00	0.06	0.18*	0.17*	0.00	-0.08*	1.00			
(12) USN reduced tax rates	0.19*	0.30*	0.13*	-0.15*	0.31*	0.10*	0.37*	0.12*	-0.10*	-0.30*	0.11*	1.00		
(13) Tax holidays	0.32*	0.33*	0.09*	-0.14*	**0.70***	0.01	0.46*	0.10*	-0.11*	**-0.59***	0.07*	0.32*	1.00	
(14) SEZ	0.14*	0.16*	-0.04	-0.10*	0.15*	0.26*	0.06	0.00	-0.20*	-0.20*	-0.06	0.13*	0.07*	1.00
(15) Human capital	-0.02	-0.05	-0.02	0.07	0.05	-0.05	0.00	-0.07	-0.09*	0.03	-0.03	0.00	0.02	0.03

*** p<0.01, ** p<0.05, * p<0.1

Source: Rosstat

Table 4. Fixed effects estimation results for 2008-2018.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Market potential (H1)	.172*** (.045)	.251*** (.04)	.163*** (.044)	.180*** (.037)		.179*** (.043)	.166*** (.038)		.229*** (.035)
Population density					.000 (.000)			.000 (.000)	
Banking services (H3)			.306*** (.092)				.266*** (.084)	.270*** (.094)	.301*** (.077)
Crimes (H2)				-.315*** (.074)			-.259*** (.07)	-.236*** (.071)	-.317*** (.09)
Tax inspection (H2)					-.053* (.029)			-.031 (.025)	
Tax benefits (H4)						.018** (.008)	.015* (.008)	.014* (.008)	.020** (.008)
Internet (H6)		.157*** (.056)							.092* (.046)
Income per capita	.461*** (.068)		.38*** (.064)	.351*** (.066)	.582*** (.063)	.456*** (.066)	.296*** (.065)	.445*** (.064)	
GRP per capita		.272 (.25)							.090 (.216)
Unemployment	.149** (.061)	.097* (.055)		.159*** (.053)	.147** (.056)	.166*** (.055)			
Human capital	.015 (0.29)								
Constant	-1.998*** (.6)	.647 (.752)	-.926* (.515)	-.033 (.75)	-2.676*** (.671)	-2.290*** (.559)	.575 (.662)	-.398 (.766)	2.714*** (.617)
Number of observations	834	900	876	911	911	906	871	871	862
Within R^2	.54	.524	.563	.557	.513	.533	.577	0.555	.580
Between R^2	.02	.150	.480	.053	.147	.021	.160	0.236	.158
SIC	-526.926	-495.888	-574.585	-563.897	-478.329	-522.256	-594.395	-542.622	-589.076

Notes: Fixed effects estimation results. Included 83 cross-sectional units. Time-series length = 5-10. Dependent variable: Small business density – Number of micro and small businesses (with full-time employees up to 100) per 1,000 economically active (employed) population in a region. Robust (HAC) standard errors. All variables are log-transformed. Robust standard errors are in parentheses. ***, ** and * mean that the coefficient is significant at the 1%, 5% and 10% level, respectively. Source: Rosstat

Table 5. Random effects estimation results for 2008-2018.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Market potential (H1)	.302*** (.034)	.361*** (.031)		.310*** (.032)			
Population density			.0002*** (.000)		.0001*** (.000)	.0001** (.000)	.0001** (.000)
Banking services (H3)						.483*** (.089)	.476*** (.086)
Crimes (H2)						-.148* (.083)	-.175** (.086)
Tax benefits (H4)						.017* (.010)	.018* (.010)
Tax holidays (H4)			.247*** (.025)		.183*** (.024)	.110*** (.022)	.114*** (.022)
Tax incentives (H4)	.131*** (.032)			.141*** (.031)	.221*** (.031)	.017 (.03)	×
SEZ (H5)		.077* (.04)		.061 (.038)	.096** (.041)	.059 (.045)	
Internet (H6)						.164*** (.045)	.169*** (.043)
GRP per capita	.365*** (.137)	.356*** (.118)	.448*** (.131)	.300*** (.116)	.340*** (.122)	.251*** (.097)	.259*** (.1)
Unemployment	.004 (.055)	.064 (.048)	-.026 (.056)	.0370 (.048)	-.042 (.049)		
Human capital	-.016 (.296)						
Constant	1.009** (.508)	.690* (.399)	1.507*** (.474)	1.005** (.405)	1.788*** (.434)	2.010*** (.292)	2.062*** (.301)
Number of observations	825	902	902	902	902	862	862
Within R^2	.502	.477	.330	.414	.415	.544	.542
Between R^2	.068	.101	.206	.152	.152	.567	.555

Notes: Random effects estimation results. Included 83 cross-sectional units. Time-series length = 5-10. Dependent variable: Small business density – Number of micro and small businesses (with full-time employees up to 100) per 1,000 economically active (employed) population in a region. Robust (HAC) standard errors. All variables are log-transformed except tax incentives for USN payers, number of SEZ and tax holidays because they are discrete or binary variables. Robust standard errors are in parentheses. ***, ** and * mean that the coefficient is significant at the 1%, 5% and 10% level, respectively. Source: Rosstat

Number of micro and small businesses per 1,000 economically active population in 2018

☐ < 20   ☐ 20 - 30   ☐ 30 - 40   ☐ > 40

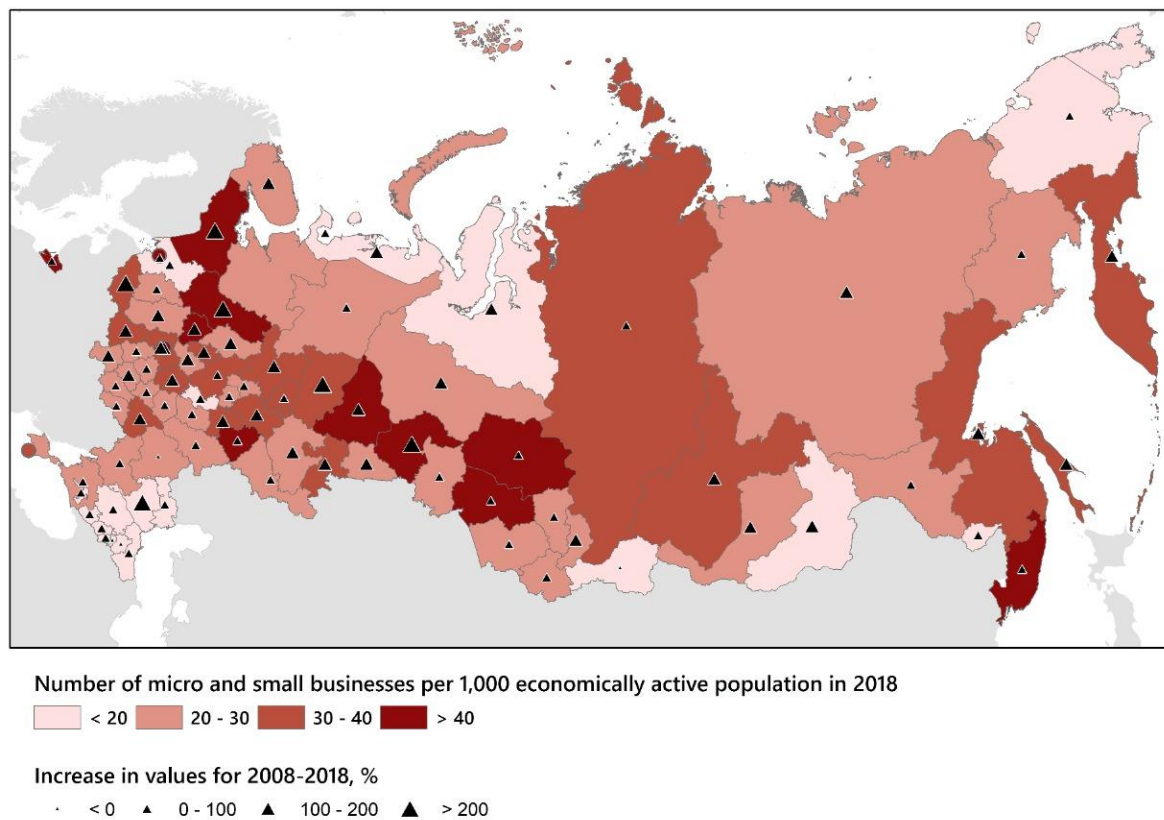Increase in values for 2008-2018, %

· < 0   ▲ 0 - 100   ▲ 100 - 200   ▲ > 200

Figure 1. The number of small businesses per labour force