Geography and persistence of entrepreneurship in Russia

Maksim Belitski, Yulia Tsareva & Stepan Zemtsov

View supplementary material ↗

Published online: 21 Jul 2023.

Submit your article to this journal ↗

Article views: 235

View related articles ↗

View Crossmark data ↗

Routledge
Taylor & Francis Group

RSA Regional Studies
Association

Geography and persistence of entrepreneurship in Russia

Maksim Belitski[a,b] , Yulia Tsareva[c] and Stepan Zemtsov[c]

ABSTRACT
Can entrepreneurial activity be stronger and more persistent than the continuity of socialist institutions? The answer to this question is overwhelmingly positive. Using the historical data on entrepreneurship, retail trade and cooperatives in Russian regions, this study shows a strong persistence of entrepreneurship activity in Russia during the period 1926–2018, while we also evidence that the restructuring of the Soviet economy resulted in a structural break in the 1970s. By distinguishing three periods of 1998–99, 2000–07 and 2008–18 since the transition started, we demonstrate that the historical persistence of entrepreneurship is not constant and may change from one period to another.

KEYWORDS
geography; institutions; persistence of entrepreneurship; Russia; region

1. INTRODUCTION

Given the vital role of entrepreneurship in regional economies, scholars and policymakers have shown much interest in identifying the factors driving entrepreneurship (Fritsch & Wyrwich, 2019, 2022). Supporting entrepreneurial activity has been particularly important for economies in transition, and in Russia, where entrepreneurship has been associated with antisocial and destructive activities in the Soviet period (Aidis et al., 2008).

The extent to which the regional distribution of entrepreneurship activity is historically persistent has been thoroughly analysed by economic geographers (Colombelli et al., 2020; Decker et al., 2020; Dvoulety, 2017, 2018; Fritsch et al., 2019a, 2022b). Yet many unknowns exist related to the short- and long-term effects of Communism and whether entrepreneurship activity after transition could change its association with past levels of entrepreneurship (Fritsch et al., 2014, 2019b). Analysis of the historical persistence of entrepreneurship in Russia is more complex than in Germany. The sudden reunification of Germany in 1990 led to the adoption of the West German system of formal institutions overnight in East Germany (Brezinski & Fritsch, 1995). However, the Russian regions did not have a model they could adopt to transition to a market economy, and had to develop their own

model that could affect the short- and long-term persistence of entrepreneurship.

In relation to Decker et al. (2020) and other studies on the persistence of entrepreneurship in different European countries (Andersson & Koster, 2011; Fritsch et al., 2021, 2022b), there is a paucity of knowledge about whether persistence of entrepreneurship is universal, and how the historical roots of entrepreneurship change for countries with different experiences of transition. The most relevant and up-to-date studies on the historical persistence of entrepreneurship remain Fritsch et al.'s (2021, 2022a) examinations of the determinants of regional differences in entrepreneurial activity in German regions, which call for further research into the historical persistence of entrepreneurship in other economic systems and under different market conditions and dynamics.

This study's purpose is thus to investigate the determinants of the historical persistence of entrepreneurship using data on entrepreneurial activity in Russian regions during the Soviet regime (1926–89) and since the beginning of transition (1998–2018). In doing so, this paper examines the effects of formal and informal Soviet institutions on current rates of small business density post-transition by using different periods during the Soviet era as a springboard for comparison and discussion. By distinguishing three periods of 1998–99, 2000–07 and 2008–18 since the transition started, we demonstrate that the

CONTACT Maksim Belitski m.belitski@reading.ac.uk; mbelitski@groupe-igs.fr
[a] Henley Business School, University of Reading, Reading, UK
[b] ICD Business School, IGS-Groupe, Paris, France
[c] Russian Presidential Academy of National Economy and Public Administration, Institute of Applied Economic Research, Moscow, Russia
 Supplemental data for this article can be accessed online at https://doi.org/10.1080/00343404.2023.2224382

historical persistence of entrepreneurship is not constant as the historical persistence of entrepreneurship has changed significantly in 2008–18 (financial crises, slow growth and sanctions) as compared with prior periods of 1998–99 (crises and market liberalisation) and 2000–17 (economic growth). We argue about the roots of the changing effect of entrepreneurial persistence, linking it to an increase in planning and centralisation during 2008–18. We also find how long it may take to restore a liberal market economy and the historical persistence of entrepreneurship if Russia is to move to a new cycle of economic liberalisation.

Our study extends what we know about the role of socio-economic and political contexts to entrepreneurship (Fritsch et al., 2022b; Welter & Baker, 2020), and the effects of historical memory of entrepreneurship during both Communism and the transition period (Fritsch et al., 2019b; Fritsch & Wyrwich, 2019; Fuchs-Schuendeln & Schuendeln, 2020).

We contribute to regional studies and economic geography literature in two important ways. First, by examining the role of geography and institutional factors that predict the persistence of regional entrepreneurship activity, and by investigating the economic consequences of historical shocks to the economic system (Fritsch & Wyrwich, 2019) on the persistence of entrepreneurship (Fotopoulos & Storey, 2017; Fritsch & Wyrwich, 2014) in the context of Russian regions. Second, while previous research has identified the persistence of regional entrepreneurship across different regions in transition (Andersson & Koster, 2011; Fuchs-Schuendeln & Schuendeln, 2020), we further this research by investigating (1) how historical levels of entrepreneurship during the Soviet regime affect the level of entrepreneurship in regions after Communism; (2) how historical persistence of entrepreneurship changed in the post-Communist period, as differences in formal and informal institutions have taken place in Russia after 1990 and in particular between each of three periods of 1998–99 (Boris Yeltsin's market economy), 2000–07 (Vladimir Putin's early growth) and 2008–18 (crisis and sanctions).

Our analysis shows a significantly positive coefficient for historical retail activity in Russia in the first years after the revolution and the positive effect of small business density in the 1940–50s. The historical persistence of entrepreneurship disappears in the 1970s. This indicates that exposure to a Communist regime and the Cold War of the 1950–70s terminated the historical persistence of entrepreneurship, changing regional institutions. In the early stages of the transition process in 1991–99 and in the early years of economic growth in Russia in 2000–07 we found a greater positive effect of historical retail activity in 1926 and cooperatives in 1989 compared with the same coefficients for 2008–18. It is likely to be associated with the economic shocks and an increasing role of the state in the economy.

Despite its distinctiveness, the case of Russia has much in common with other former Soviet countries (Fuchs-Schuendeln & Schuendeln, 2020; Fritsch et al., 2022b). The insights presented in this paper may thus be generalisable for countries where the transition has been ad-hoc and there is a need to study the dynamic of entrepreneurship in a post-Communist period, as well as in countries with a risk of authoritarian transition (e.g., East Europe, Central Asia). In particular, it could be generalisable for countries that have been exposed to Communist rule but have found elements of authoritarian economic planning in the post-Communism period (e.g., Kazakhstan, Turkmenistan, Belarus, Azerbaijan, etc.).

In sharp contrast to the extant literature on the persistence of entrepreneurship under relatively 'stable' socio-economic conditions in developed European countries (Andersson & Koster, 2011), our study furthers Fritsch et al. (2022b) and has demonstrated that socialist-type institutions pre-empt the persistence of entrepreneurship. We argue about the reasons of this as we found that spatial effects became significant in predicting regional entrepreneurship activity only since the beginning of 'Perestroika' period in 1989 and not earlier during the Soviet era.

The remainder of the paper is organised as follows. Section 2 overviews the literature to date, while section 3 introduces the data, variables and method. The empirical results are described in section 4. Section 5 discusses the major findings and concludes with major contributions, limitations and suggestions for future research.

2. THEORETICAL FRAMEWORK

2.1. Brief overview of the historical roots of entrepreneurship in Russia

Large-scale entrepreneurship was first observed in Russia following the collapse of the feudal system with the personal dependency of peasants from landlords in 1861 and the introduction of personal freedoms (Ageev et al., 1995). Personal freedom enabled peasants to form family businesses and master new skills (e.g., shopkeeping, cab companies, leather workshops, fishing, dairies, etc.), with wealthy peasants continuing to trade in agricultural products (Bessolitsyn, 2013). While entrepreneurs were not directly competing with large industrialists and landowners, certain regions formed clusters of specialisation in trade, fishing and crafts. The first entrepreneurial societies appeared near busy crossroads, in seaports and regional market centres. The liberalisation from peasantry enslavement pushed the development of entrepreneurship as a survival tool. Large family businesses and well-known dynasties (e.g., Morozovs, Tretyakovs, Smirnovs, Ryabushinskys) gradually formed in Russian cities (Ageev et al., 1995), helping each region to develop its own personality (Stuetzer et al., 2018) while nurturing an entrepreneurship culture. For example, in the Ivanovo region, a textile cluster emerged, while the Vologda region nurtured a dairy and cheese cluster, and the Urals and Tula regions developed an iron-working cluster.

Entrepreneurship activity in Russian regions formed in the early 1900s was disrupted by the Revolution in 1917, the ensuing Civil War between 1918 and 1921, and the formation of the Soviet economic system in the early

1920s. In the Soviet Union, the New Economic Policy was implemented in 1926, which allowed the persistence of trade establishments. During the 1920s, these new firms were often based in the same regions where former merchants, fishermen, farmers, beekeepers, craftsmen and others were already located before the Revolution of 1917. Private ownership threatened the existence of the socialist system and was later abolished by Joseph Stalin's regime in 1929 (Bessolitsyn, 2013). While no private property formally existed, retailers and farmers continued to sell their products at fairs and local bazaars (collective farm markets). Since military and large infrastructure projects continued to serve the country's war needs in the 1930s–40s, farmers and cooperatives in the agriculture sector continued the production of goods for consumers (Ageev et al., 1995; Sauka & Chepurenko, 2017). The militarisation of the Soviet economy in the 1950s–60s led small businesses and cooperatives to operate within the five-year plans.

Soviet institutions eroded entrepreneurial culture and distorted the historically nurtured entrepreneurship memory in Russia as in Germany (Fritsch et al., 2019b). The limitations of Soviet planning and the planned economy made it very complicated to modernise or shut down businesses if it contradicted the pre-planned distribution of production forces and planned indicators of regional growth. The negative consequences of this policy resulted in an increased number of inefficient large factories; incompatibility with supply and demand resulted in a constant deficit of key consumer products.

Unlike many other countries of the Soviet bloc, private business was a criminal activity (profiteering) and offense in the Soviet Union, especially since the late 1950s. Private businesses existed in 'opaque' and necessity-driven forms (Chepurenko et al., 2004), except for the sale of surplus from household farms and art crafts. Mikael Gorbachev's era introduced the Soviet Law 'On Individual Labour Activity' in May 1987 legalising entrepreneurship activity again, leading to a renaissance of entrepreneurship in Soviet Russia.

Along with the law 'On Cooperation in the USSR' (1988), entrepreneurial-minded individuals could again create enterprises, leading to a 10–20 times increase in employment in the private sector (Chepurenko et al., 2004). While entrepreneurship was mainly necessity-driven ('buy and sell pathway'), it generated new sources of income for employed and unemployed individuals, raising entrepreneurial culture and aspirations (Aidis et al., 2008).

2.2. Persistence of entrepreneurship in Russia

The persistence of entrepreneurship is the process by which entrepreneurial activity today is conditional (dependent) on rates of entrepreneurship in the past (Fritsch & Wyrwich, 2018; Martin & Sunley, 2006).

There are several arguments for why a historical pattern is likely to leave a persistent imprint and shape the present and future regional differences in entrepreneurship. Persistence in entrepreneurship is the result of path-dependent processes that determine the regional

behaviour of entrepreneurs (Andersson & Koster, 2011), which Fritsch et al. (2019b) termed the 'entrepreneurship memory of a place'. The literature on the persistence of entrepreneurship (Fritsch & Wyrwich, 2014, 2018, 2022) elaborates on two major sources of entrepreneurial persistence.

The first explanation for the persistence of regional entrepreneurship is the continuity of the determinants of regional market opportunities such as formal institutions (Fritsch et al., 2019a), the personality traits of a region (Stuetzer et al., 2018), and the cultural values and entrepreneurial abilities of the regional population, as in the case of German regions (Fritsch & Wyrwich, 2014). For example, differences in entrepreneurship in German and UK regions originate from the influence of historical factors of Roman heritage (Fritsch et al., 2021), such as markets, baths and a developed road system.

The second explanation for the persistence of regional entrepreneurship is the existence of localised externalities, such as the physical infrastructure (Audretsch & Belitski, 2021a), and the institutional context, for example, a positive entrepreneurial climate, access to resources and sticky knowledge (Asheim & Isaksen, 2002; De Clercq et al., 2013). While infrastructure may depend on large government and private projects, entrepreneurial culture emerges from the role models, visibility and peer effects of past self-employment and business incorporation, with the example of entrepreneurs as leaders who change a region for the better (Fritsch et al., 2019b). These effects may trigger tacit knowledge transfer across generations and social learning, forming a regional culture of entrepreneurship (Fritsch & Wyrwich, 2019), which persists independently from formal institutions (e.g., Soviet or other).

Regions with communities where a culture of self-employment was preserved (Dvouletý, 2017, 2018) throughout the Soviet era were able to build on newly emerging institutions. Some of these communities were based on family skills transfer (e.g., Jewish communities of jewellers, clock-makers and musicians), along with other individuals. This also happened in East Germany, which saw a significant increase in start-up activity after the reintroduction of a market economy in the 1990s (Fritsch et al., 2022b).

Unsurprisingly, the persistence of institutions in Russia before and during the Soviet era significantly affected the landscape and entrepreneurial culture of Russian regions, while economic and political liberalisation during the early years of transition (1989–99) led to a significant increase in the number of private-sector firms in regions, where entrepreneurial culture has been strongly present, including the formation of the first cooperatives in 1988–89. New formal institutions emerged in place of informal institutions conducive to entrepreneurship, such as norms and the intergenerational transfer of entrepreneurial skills (in particular, in professions such as artists, musicians, craftsmen, traders, jewellers, etc.).

As in other European countries with histories of socialist regimes, for example, East Germany, Fritsch et al. (2022a) also use the example of the Ore Mountains and

the neighbouring region of Dresden, which managed to preserve their tradition of high industrial diversity during the socialist German Democratic Republic (GDR) regime, and exhibited the highest rate of self-employment in 1989. In Russia, the good example is the wild harvesting in Siberia or gold mining in the Magadan region.

Drawing on the recent work of Fritsch et al. (2022b), our key explanation for the positive impact of historical retail and cooperative activity on small businesses is the change in the institutional framework since the beginning of transition, particularly the ease of starting and growing business conditions based on localised externalities, and competitive advantages. Another factor that could explain the historical persistence of small businesses is the backlog of demand for services and products that were in short supply in the Soviet Union, with entrepreneurs finding a market niche (Fritsch, 2004). Fritsch et al. (2022b) demonstrated using East Germany that a historical tradition of entrepreneurship may indicate that an entrepreneurial culture is positively linked to the re-emergence of entrepreneurship in the transition to a market economy (Fritsch et al., 2014, 2019a), and that entrepreneurial culture is rooted in regions to the extent that it could be only temporarily eradicated by Soviet institutions. We hypothesise:

Hypothesis 1: Historical levels of entrepreneurship predict the current level of regional entrepreneurship.

2.3. Spatial effects and the persistence of entrepreneurship

Entrepreneurial activity in adjacent regions will spur the development of informal and formal institutions in a region, changing the cultural and cognitive proximity for regional entrepreneurship (Audretsch & Belitski, 2021a; Balland et al., 2015). A conducive climate for entrepreneurship in a region will stimulate the 'entrepreneurial climate' of neighbouring regions through knowledge spillovers (Caragliu et al., 2016).

One of the main factors affecting entrepreneurship activity in Russian regions in the past was the availability of natural resources (Zemtsov & Tsareva, 2018). Historically the distribution of entrepreneurial skills and culture was spatially biased, as was the distribution of entrepreneurial skills and culture in adjacent regions within Russia. The development of physical and digital infrastructure in Russian regions was traditionally low compared with European countries, and the great physical distances between regions meant that adjacent regions within Russia sometimes created clusters of entrepreneurial culture. This was the case in the South and the West of Russia, where the region's size is on average smaller, and regions have denser physical infrastructure and shared culture. Entrepreneurship in a neighbouring region would complement regional entrepreneurship with entrepreneurial skills transfer, raising the historical persistence of entrepreneurial activity.

While the historical distribution of entrepreneurial skills was disrupted throughout Russia during the Soviet regime, with a substantial relocation of labour forces and militarisation of the Russian economy, some adjacent regions within Russia continued to collaborate, sharing entrepreneurial culture. The culture of an adjacent region was thus conducive to starting an individual business in the other region which could benefit from co-location of entrepreneurial skills. Once private ownership was legal again in 1988–89, small business activity started clustering (Ageev et al., 1995; Chepurenko et al., 2004).

Since the beginning of transition in 1989, when entrepreneurs gained the ability to optimise the economic costs of entrepreneurship and engage in cost minimisation, local markets where there was a demand for entrepreneurial skills and innovation and where local supply chains could have been built gained momentum. In contrast with the Soviet era, in Yeltsin's and then Putin's Russia, new business owners continued to trade locally and develop local supply chains that enabled them to minimise production costs in Russia's increasingly competitive market economy (Chepurenko et al., 2004). In fact, many entrepreneurs and small businesses preferred to stay local, supported by claims of local corruption and misuse of government funds (Aidis et al., 2008). In addition, resource availability and knowledge were important for small firm start-ups (Yakubovich, 2005). A set of spatially bounded factors that enabled the transfer of formal and informal institutions between neighbouring regions may have indirectly changed the historical persistence of regional entrepreneurship (Fritsch et al., 2019a, 2022a, 2022b; Guriev & Vakulenko, 2015). An increase in entrepreneurial activity in an adjacent region further intensifies the historical persistence of entrepreneurship as tacit face-to-face knowledge transfer matters for entrepreneurship activity (Audretsch & Belitski, 2023). Adjacent regions with entrepreneurial skills and ideas were more likely to pass them to entrepreneurs in close geographical proximity during the Soviet era and after market liberalisation in 1989, enhancing regional entrepreneurship. We hypothesise:

Hypothesis 2: Entrepreneurial activity in adjacent regions moderates the historical persistence of a regional entrepreneurial activity.

3. DATA AND METHOD

3.1. Sample

This study of the persistence of small businesses across Russian regions over time is particularly striking because it explores data collected in four distinct periods. First, the period just after the Civil War in Russia reflected the outcome of Lenin's new economic policy in the Soviet Union in the 1920s (Glaza, 2009), while in the second period we can see the impact of Stalin's reforms (1940s) and the beginning of the Cold War in the 1950s–60s. The third period covers Leonid Brezhnev's era of the Cold War, start of extensive oil and gas exports. The

discovery of oil and gas fields in Western Siberia and their export to Western Europe that allowed the Soviet Union to curtail all undertakings of liberalisation under Brezhnev with the trade within the country began to shift to the East and the North, losing touch with historical distribution. The fourth period covers Gorbachev's 'Perestroika' policy during 1985–90 and the establishment of cooperatives as the first market-oriented organisations with mixed (private and collective) forms of property. Our longitudinal data component includes 68 regions during 1998–2018 with 1428 observations. For the regions of Russia included and not included in the study, see Table A1 in Appendix A in the supplemental data online.

Although the average share of small and medium-sized enterprises (SMEs) in gross regional product (GRP) in Russia is approximately 20%, SMEs play an important part in the Russian economy and job creation (Belitski et al., 2021; Chepurenko, 2012; Chepurenko et al., 2004). Figures 1 and 2 show entrepreneurial activity measured as the number of trade establishments in 1940 and 1970 per 1000 residents; Figure 3 shows number of cooperatives in 1989 per 1000 residents; and Figure 4 shows the number of small businesses in 2018 per 1000 residents as a proxy for entrepreneurship.

Data are missing for some years and regions. For example, in 1998–99 it was not possible to collect data on the Chechnya region as well as other regions in Southern Russia due to the military conflict which was not included in the analysis. We thus used only 68 regions in our sample for historical comparisons.

3.2. Variables
3.2.1. Dependent variable
Measuring entrepreneurship in developing countries such as Russia is not straightforward (Zemtsov et al., 2022). Given the paucity of institutions in Russia and other developing countries, as well as the lack of support given to the self-employed, lack of control for rule of law, and tax payments and labour market regulations, self-employed individuals often conduct their business informally and do not enter formal statistics (Belitski et al., 2021). Many of the self-employed in transition economies are pushed into entrepreneurship and are necessity-driven self-employed (Audretsch et al., 2022). This is different for incorporated enterprises such as firms, as firm size is positively correlated with a need for incorporation even in the context of weak institutions. In addition, the regional statistics and regulations on data collection for entrepreneurship vary between Russian regions, particularly for individual entrepreneurs. The different degrees of government quality in Russian regions is also reflected in how self-employment is calculated formally and perceived informally across different regions. Small business registration has been consolidated and unified across Russian regions, which is a more consistent and homogeneous indicator than self-employment.

We analyse how historical and institutional shocks affect the long-term trajectory of a region's entrepreneurship as measured by the small business density per 1000 residents (Korosteleva & Belitski, 2017; Pahnke et al., 2023). The limitation of using small business density as a dependent variable is that we are unlikely to capture all
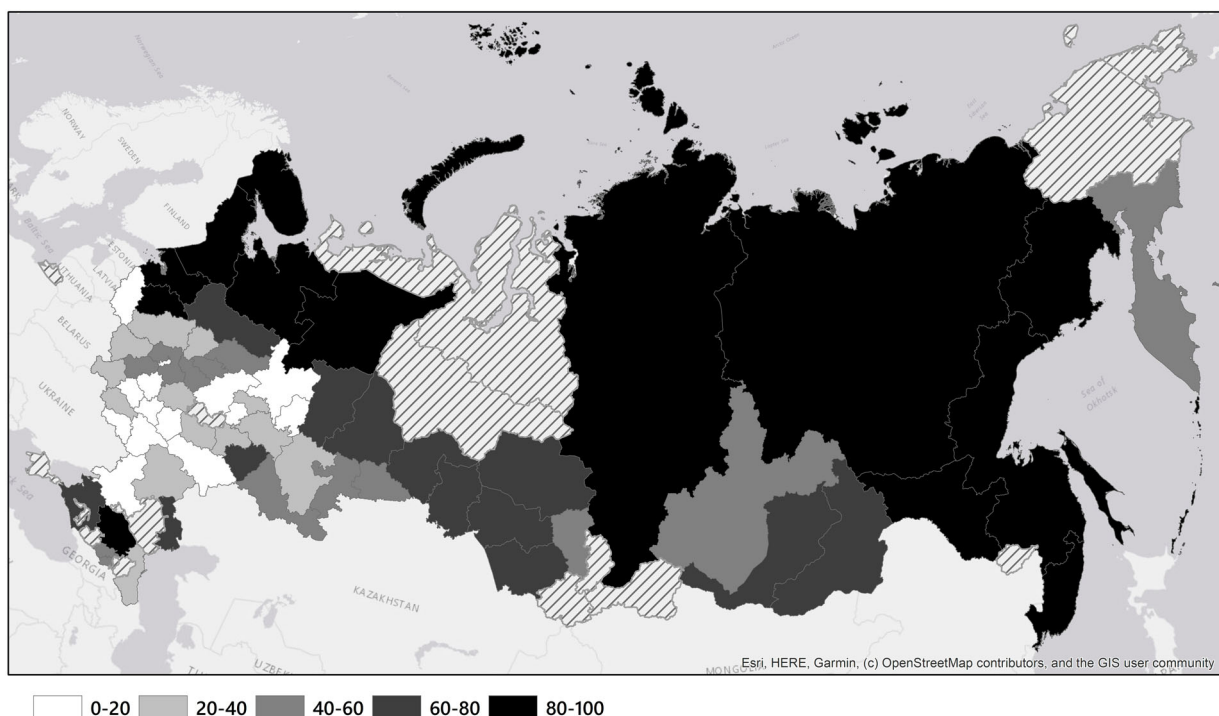

0-20   20-40   40-60   60-80   80-100

Figure 1. Regional entrepreneurship in 1940.
Note: Figure produced in 2021.
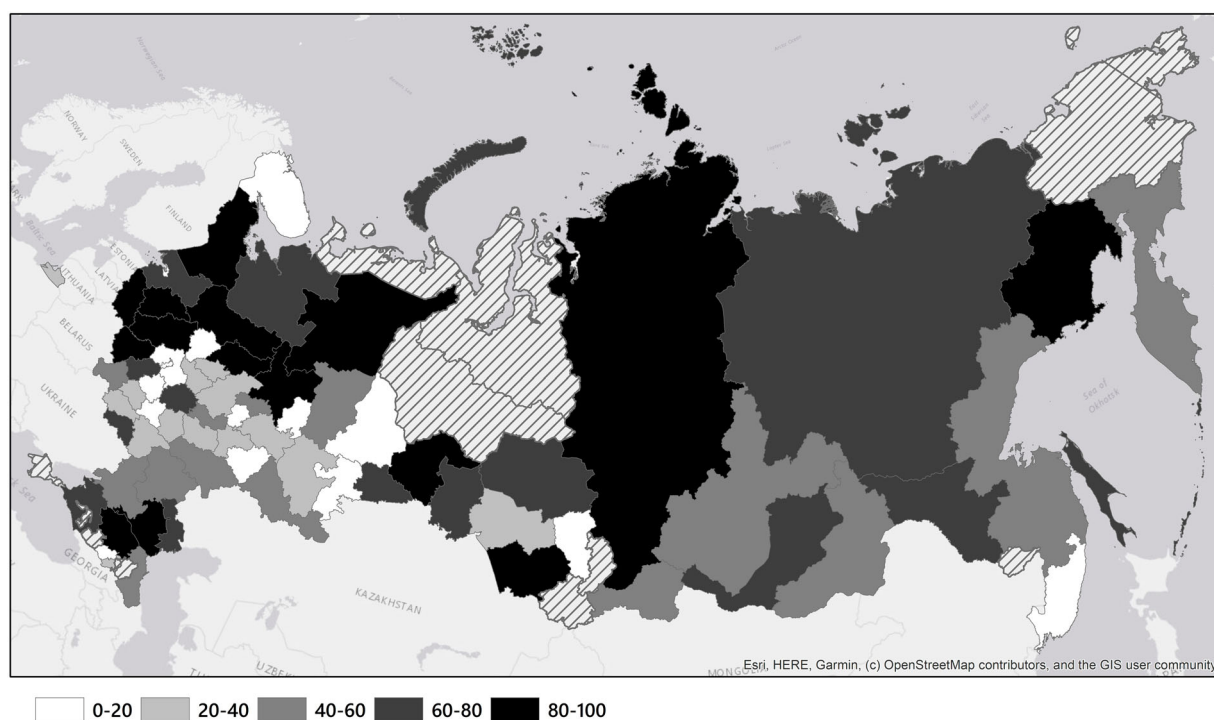Source: *National Economy of the RSFSR in 1958* (Statistical Yearbook).

Figure 2. Regional entrepreneurship in 1970.
Note: Figure produced in 2021.
Source: *National Economy of the RSFSR in 1970* (Statistical Yearbook).
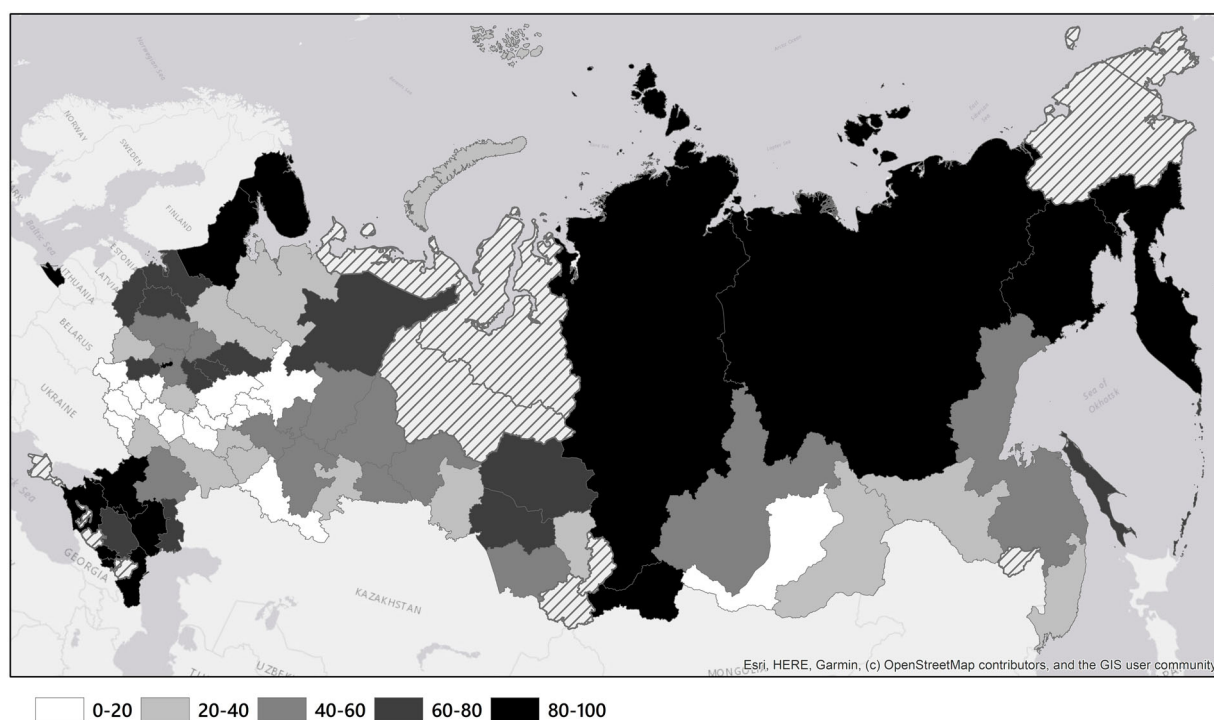
Figure 3. Regional entrepreneurship in 1989.
Note: Figure produced in 2021.
Source: *National Economy of the RSFSR in 1989* (Statistical Yearbook).

entrepreneurial activity in a region. Prior research has demonstrated that no matter if entrepreneurs employ other people or not, it is a type of behaviour which characterises entrepreneurs (Dvouletý, 2017). Measuring entrepreneurial activity at the regional and national levels

remains complex, particularly in transition economies (Dvouletý, 2017, 2018).

We use small business density as the ratio of all micro- and small firms per 1000 economically active population (EAP) in a region in time t (Parker, 2009) as a proxy for
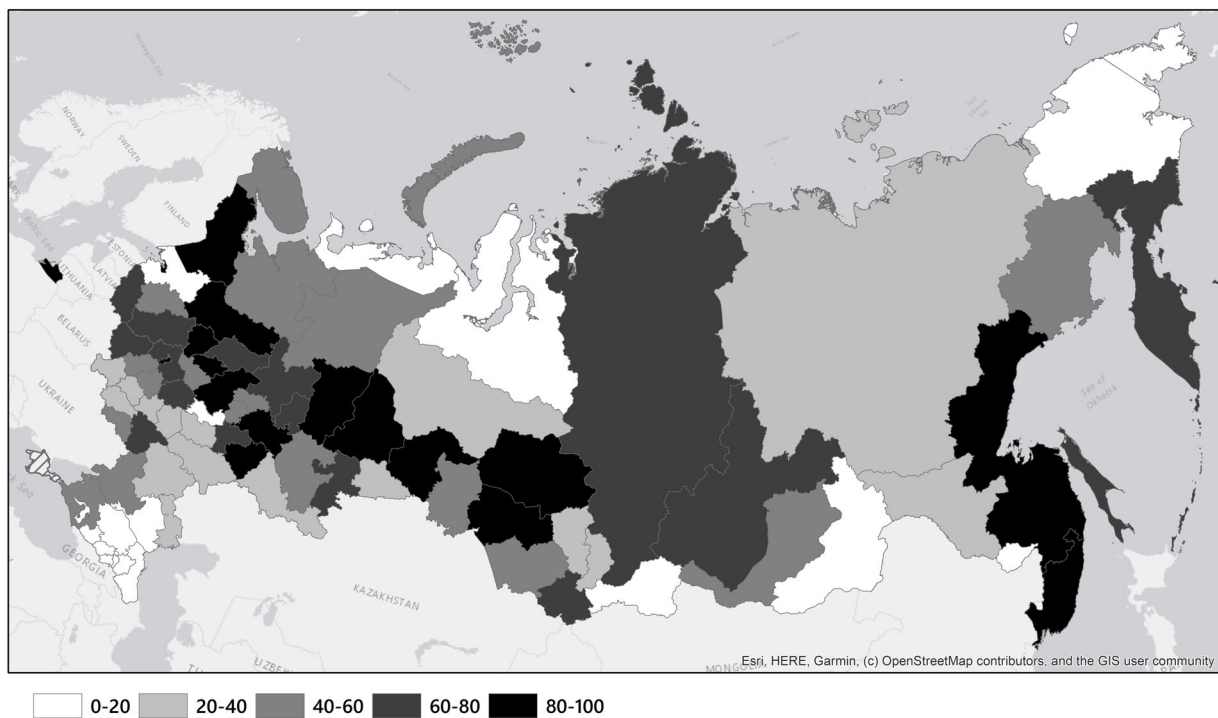
Figure 4. Regional entrepreneurship in 2018.
Note: Figure produced in 2021.
Source: Russian Statistical Service, *Small and Medium Entrepreneurship in Russia in 2019* (Statistical Yearbook).

entrepreneurship activity in a region. Small business density is sensitive to both the registration requirements in the region and the public involvement in entrepreneurship activity (Zemtsov et al., 2022). It is different from the indicators of the registration activity (new firms) that consider only the fact of registration and can be distorted by the presence of so-called 'one-day firms' (Wennekers et al., 2005). A similar indicator was recently used by Fritsch et al. (2022a), who examined the persistence of entrepreneurship using the average annual numbers of start-ups in different sectors and time periods per 10,000 persons in the regional workforce.

The limitation of this variable is that it is likely to be distorted by the influence of mergers and acquisitions. We argue that the correlation of this distortion with the number of small and micro-enterprises during 2005–18 was high. The threshold for micro-firms is less than 15 full-time employees (FTEs), and 15–100 FTEs for small companies. This is different from the threshold of small European firms, which have up to 49 FTEs. Both small and micro-firms require formal registration in Companies House in Russia.

3.2.2. Explanatory variables
Our first set of explanatory variables relate to the persistence of entrepreneurship activity and entrepreneurial culture: number of cooperatives per 1000 population in the region (*Cooperatives 1989*) and the number of retail enterprise units per 1000 population in the region in 1940, 1950 and 1970 (*Retail sector 1940*, *1950*, *1970*). Together these numbers represent the entrepreneurial preferences and preconditions for the 'culture' of entrepreneurship. Given the data limitations for the retail trade sector in 1926,

we used the share of employers in retail trade per total workforce (including agriculture) as a measure of entrepreneurship. We expect a significantly positive sign for these variables if the persistence of entrepreneurship exists.

Our second explanatory variable is spatial effects for entrepreneurial activity derived from the entrepreneurship activity in adjacent regions multiplied by the spatial matrix of the neighbouring regions. More specifically, we calculate the spatial effects of neighbouring regions as a product of our dependent variable *Entrepreneurship* and the spatial matrix of Russian regions. The spatial matrix is 68 regions by 68 regions and is 0 for non-adjacent regions and 1 for adjacent regions.

3.2.3. Control variables
We selected control variables that are known to facilitate entrepreneurship activity based on previous regional entrepreneurship research (Dvouletý, 2017, 2018; Fritsch et al., 2019a, 2019b).

First, we control for regional market potential (Zemtsov et al., 2022). The market potential of a region i at time t is calculated as a cumulative indicator. This includes the region's own GRP as well as (weighed by distance) access to other regions within the country, with their market potential represented by the GRP of a region, and with other countries represented by the gross domestic products (GDPs) of those countries (weighted by the distance between these countries and a region). All market potentials represented by GRPs and GDPs are calculated in Russian roubles (in trillions) in constant 1998 prices.

We control for the unemployment rate in a region (Dvouletý, 2018; Fritsch & Storey, 2014; Fritsch &

Table 1. Descriptive statistics.

Variable	Description	Mean	SD	Minimum	Maximum
Small business density	Number of micro- and small businesses (with full-time employees up to 100) per 1000 economically active (employed) population in a region	17.79	11.30	1.79	77.60
GRP	Gross regional product per capita, thousands of roubles in constant 1998 prices	22.61	24.01	3.88	266.37
Unemployment	Unemployment (%)	8.01	3.89	0.80	32.40
Population density	Population per 1 km^2	142.95	661.70	0.31	4831.10
Market potential	Market potential is calculated as a cumulative indicator which includes its own GRP as well as weighed by distance access to other regions within the country with their market potential represented by GRP of a region and with neighbouring countries of Russia represented by their gross domestic products (GDPs) (weighted by the distance between these countries and a region). GRPs and GDPs are calculated in Russian roubles (trillions) in constant 1998 prices	15.06	10.12	1.31	58.52
Spatial effects	Spatial effects for entrepreneurial activity is a product of our dependent variable 'entrepreneurship' and a spatial matrix (W). The spatial matrix is (68 × 68 regions) with 0s for non-adjacent regions and 1 for adjacent regions	80.37	53.69	8.51	302.18
Human capital	Average years of schooling for residents with International Standard Classification of Education (ISCED) 1–7 levels. This includes secondary education, post-secondary non-tertiary education, short-cycle tertiary education, bachelor's or master's or equivalent level	12.94	0.85	9.69	14.88
Universities	Number of universities in a region	7.12	11.98	2.00	59.00
Multimodal transportation	Binary variable = 1 if a region could be accessed by air, rail and road transportation, 0 otherwise	0.71	0.35	0.00	1.00
Retail sector 1926 in levels	Share of employers in retail trade per total workforce (including agriculture) non-standardised	0.04	0.06	0.004	0.34
Retail sector 1940 in levels	Number of retail enterprise units per 1000 population in a region in 1940 non-standardised	2.27	0.78	1.10	5.55
Retail sector 1950 in levels	Number of retail enterprise units per 1000 population in a region in 1950 non-standardised	2.79	1.29	1.43	9.89
Retail sector 1970 in levels	Number of retail enterprise units per 1000 population in a region in 1970 non-standardised	2.93	0.54	1.49	4.27
Cooperatives 1989 in levels	Number of cooperatives per 1000 population in a region non-standardised	0.71	0.33	0.01	2.54

Note: Data are available for 68 regions during 1998–2018 unless otherwise specified.
Sources: Russian Federation Federal State Statistics Service, The Central Bank of the Russian Federation, *National Economy of the RSFSR in 1958, 1970* (Statistical Yearbook), *National Economy of the RSFSR in 1989* (Statistical Yearbook).

Wyrwich, 2014) measured as the share of unemployed in the total number of residents in the working age. More unemployment indicates less resilience and fewer capabilities, but also more labour reserves and greater market mobility. We used the unemployment rate to control for labour pull, known from prior research to create a labour reserve for entrepreneurship (Fritsch & Storey, 2014). We measure human capital (Glaeser et al., 1992), which is an important resource for high-growth and opportunity-driven entrepreneurship, as an average number of years of schooling in a region/year (Rodríguez-Pose & Crescenzi, 2008). In addition, we control for number of universities in each region, as universities are known to be centres of knowledge generation and transfer to industry and entrepreneurship (Audretsch & Belitski, 2021b). To control for the role of infrastructure development for entrepreneurship (Audretsch et al., 2015), we use a binary variable 'Multi-modal transportation' which = 1 if a region

could be accessed by air, rail and road transportation, 0 otherwise. While all three means of transportation would be 1 for Moscow and St Peterburg over the period of our analysis, this is not the case for all Russian regions. For example, some regions of Siberia or the Far East of Russia can only be accessed by road or train, limiting the geographical accessibility of the region and its integration within Russia and with foreign partners. The accessibility of a region to major markets via road, rail and air may directly affect entrepreneurship activity by influencing market demand and the distribution of the EAP.

We control for economic development in Russian regions using GRP per capita used in prior research (Reynolds et al., 2005). We know that the rate of entrepreneurship activity may vary between wealthier and poorer regions. We use population density as a proxy for agglomeration economies, measured as the regional population divided by the region's land area. The description of variables is given in Table 1 with summary statistics of 1428 region–year (1998–2018) observations, and Table 2 represents correlation between the variables.

3.3. Method

We started our analysis by performing the pooled ordinary least squares (OLS) estimation for a sample of 1998–2018 (equation 1) to test Hypothesis 1. Furthermore, we use pooled OLS for 1998–2018, which also controls for unobservable region-specific effects over time (equation 2) to test the effect of adjacent regions on persistence of entrepreneurship following Wooldridge (2002). The equations are:

$$E_{it} = a + \beta_1' X_{i,} + \beta_2' Z_{it} + \rho_t + \varepsilon_{it} \qquad (1)$$

$$E_{it} = a + \beta_1' X_{i,t} + \beta_2' Z_{it} + + \beta_3' WE_{i,} + \rho_t + \mu_{it} \qquad (2)$$

where E_{it} is small business density in region i in year t; $WE_{i,t}$ is the spatial effects of the small business density in the adjacent region (W is a matrix of spatial weights) in region i in year t; β_1', β_2' β_3' are parameters to be estimated; X_{it} is a vector of independent explanatory variables in region i in year t; Z_{it} is a vector of exogenous control variables in region i in year t; ρ_t is set to control for unobserved time-specific effects in a regression; and $\varepsilon_{i,t}$ is the error term.

In the panel estimation (2) λ_i 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.); u_{it} consists of unobserved region-specific effects, v_i, and the observation-specific errors, e_{it} (Wooldridge, 2002). In order to address the concern of multicollinearity, we calculated variance inflation factor (VIF) analysis for all models which was less than 5 and is econometrically acceptable.

4. RESULTS

4.1. Persistence of entrepreneurship activity

Table 3 presents the results of equation (1) for the 1998–2018 period of 1428 observations across 68 regions. Our most noteworthy finding is that the regional level of

historical entrepreneurship proxied by retail sector activity in 1926 ($\beta = 12.228$, $p < 0.05$), 1940 ($\beta = 1.317$, $p < 0.001$) and 1950 ($\beta = 1.310$, $p < 0.001$) and cooperatives in 1989 ($\beta = 0.905$, $p < 0.01$) has a significantly positive effect on entrepreneurship activity, supporting Hypothesis 1 (specifications 2–6, Table 3). Our economic interpretation of the result is that in a region with on average, 1% higher share of employers in trade in 1926, one can observe on average 12.23 percentage points higher levels of small business density during 1998–2018. Meanwhile, an increase in retail enterprise density by 1% in 1940–50 is associated with, on average, 1.310–1.317% higher level of small business density during 1998–2018. Finally, in regions with, on average, 1 percentage point higher cooperative density in 1989, there is on average 0.329 percentage points higher level of small business density during 1998–2018. As explanatory variables are not standardised, we cannot directly compare the effect size. The retail sector coefficient in 1970 is insignificant, which means the level of retail trade distribution is not associated with small business density during 1998–2018 (specification 5, Table 3). The period 1950–70 evidenced the significant changes in industries according to the planned economy principles during the Cold War and related to development of oil and gas fields in Eastern Russia, along with the relocation of human capital and industrial infrastructure between Russian regions, particularly in the North of Russia, Siberia and the Far East. The Soviet Union significantly expanded in Central Asia, which again led to the relocation of financial and human resources and entrepreneurial skills between Russian regions following the Second World War. During 1950–80, the Soviet regime embarked on a significant military build-up, the nuclear arms race and the space race, leading to an increase in planning and the relocation of human capital resources between regions and industries, which significantly changed the market driven location of businesses. At the same time, when choosing the location for enterprises in the Soviet Union, planning authorities were guided by scientifically based approaches from the stationary theory of location, in particular, the number of trade enterprises was calculated depending on the population. This approach in retail did not sufficiently consider the income and diversity of household needs, especially in large cities. Trade enterprises shifted to the regions of new development, creating a shortage and unsatisfied demand in large centres. The historical memory of entrepreneurial and trade activity in most of the Russian regions was distorted. Enterprises stopped trading and collaborating with international regions independently of their spatial proximity. At the same time, a significant reduction in transport costs made it possible to locate enterprises and trade almost everywhere within the country. Overall, we found that historical levels of entrepreneurship experienced almost 20 years of a structural break. Once the Russian regions have experienced the transition to a market economy, since the establishment of cooperatives in 1988–89, market reforms and privatisation in the early 1990s, we evidence the correlation with the historical rates of

Table 2. Correlation matrix for 1998–2018 sample.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) *Small business density*	1.00												
(2) *GRP*	0.33	1.00											
(3) *Unemployment*	−0.51	−0.24	1.00										
(4) *Population density*	0.45	0.07	−0.24	1.00									
(5) *Market potential*	0.53	0.10	−0.46	0.09	1.00								
(6) *Spatial effects*	0.48	0.22	−0.43	−0.17	0.53	1.00							
(7) *Human capital*	0.61	0.28	−0.62	0.27	0.54	0.42	1.00						
(8) *Universities*	0.25	0.17	0.18	−0.36	0.11	0.12	0.35	1.00					
(9) *Multi-modal transportation*	0.13	0.16	0.14	0.11	0.06	0.12	0.04	0.30	1.00				
(10) *Retail sector 1926*	0.31	0.02	−0.08	0.56	0.00	−0.28	0.20	0.38	0.31	1.00			
(11) *Retail sector 1940*	0.04	0.16	0.10	−0.14	−0.14	−0.07	0.01	−0.17	−0.31	0.23	1.00		
(12) *Retail sector 1950*	0.01	0.15	0.12	−0.17	−0.20	−0.01	−0.02	−0.19	−0.33	0.09	0.58	1.00	
(13) *Retail sector 1970*	−0.19	0.13	0.13	−0.47	−0.08	0.08	−0.16	−0.42	−0.48	−0.27	0.41	0.39	1.00
(14) *Cooperatives 1989*	0.11	0.08	0.10	0.11	−0.09	−0.13	0.11	0.09	−0.02	0.19	0.44	0.41	0.28

Sources: Russian Federation Federal State Statistics Service; The Central Bank of the Russian Federation, *National Economy of the RSFSR in 1958, 1970* (Statistical Yearbook), *National Economy of the RSFSR in 1989* (Statistical Yearbook).

Table 3. Pooled ordinary least squares (OLS) estimation, 1998–2018. Dependent variable: Small business density per 1000 economic active population.

Model	(1)	(2)	(3)	(4)	(5)
GRP	0.092***	0.081***	0.081***	0.089***	0.087***
	(0.028)	(0.024)	(0.024)	(0.029)	(0.028)
Unemployment	−0.311**	−0.316**	−0.312**	−0.270*	−0.330**
	(0.133)	(0.123)	(0.126)	(0.139)	(0.138)
Population density	0.004***	0.006***	0.006***	0.006***	0.005***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Market potential	0.361***	0.374***	0.384***	0.351***	0.364***
	(0.059)	(0.056)	(0.058)	(0.057)	(0.056)
Human capital	2.859***	2.850***	2.818***	3.145***	2.81***
	(0.642)	(0.601)	(0.597)	(0.604)	(0.575)
Universities	0.120*	0.110	0.340	0.236	0.270
	(0.071)	(0.081)	(0.252)	(0.132)	(0.201)
Multi-modal transportation	0.002*	0.002	0.002	0.003	0.003
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Retail sector 1926 (H1)	12.228**				
	(0.468)				
Retail sector 1940 (H1)		1.317***			
		(0.395)			
Retail sector 1950 (H1)			1.317***		
			(0.433)		
Retail sector 1970 (H1)				0.135	
				(0.628)	
Cooperatives 1989 (H1)					0.905**
					(0.368)
Constant	−25.243***	−25.188***	−24.973***	−29.205***	−24.526***
	(8.242)	(7.737)	(7.665)	(7.868)	(7.477)
Observations	1428	1428	1428	1428	1428
R^2	0.575	0.580	0.581	0.568	0.573
F-statistics	320.90	327.00	326.42	311.00	318.37
Log-likelihood	−4877.5	−4870.09	−4870.82	−4890.64	−4881.10
Durbin–Watson statistic	0.21	0.21	0.21	0.20	0.21

Note: Significance *0.10%, **0.05%, ***0.01%. Standard errors are clustered by region. Number of regions = 68. This sample includes the 2008 year of financial crises. *F*-statistics reports on a joint significance of regressors in a model with a null hypothesis: all regressors are not significant (*p*-value).
Sources: Russian Federation Federal State Statistics Service; The Central Bank of the Russian Federation, *National Economy of the RSFSR in 1958, 1970* (Statistical Yearbook), *National Economy of the RSFSR in 1989* (Statistical Yearbook).

entrepreneurial activity across the Russian regions. This extends the findings of Fritsch et al. (2022b) for East Germany, who found that the level of entrepreneurship reached the West German level relatively soon after the transition. Unlike Fritsch et al., in our data we evidence 10 years of transition from the first cooperatives in 1988–89 to a free market economy of Yeltsin by the end of 1990s.

4.2. Spatial effects and the persistence of entrepreneurship

Using pooled OLS regression, we partly support Hypothesis 2, which states that entrepreneurial activity in adjacent regions moderates the historical persistence of regional

entrepreneurial activity. The direct spatial effects of the entrepreneurship activity during 1998–2018 in the adjacent regions for entrepreneurial activity in a focal region are positive and significant ($\beta = 0.042$–0.048, $p < 0.01$) (specifications 1–6, Table 4). This means that an increase in small business density in the adjacent regions by 1 percentage point increases the small business density in a region by 0.042–0.048 percentage points. While the effect is small, it still demonstrates that access to neighbouring markets and entrepreneurial opportunities created in the adjacent region may generate a knowledge spillover for neighbouring regions (Audretsch & Belitski, 2013; Audretsch & Feldman, 1996). The interaction effects of entrepreneurial activity in the adjacent regions and the

historical rate of entrepreneurship during 1926–89 are not statistically significant. The only coefficient that is statistically significant is the interaction of entrepreneurship in adjacent regions and the level of cooperatives in 1989 ($\beta = 0.025$, $p < 0.01$) (specification 6, Table 4). The economic interpretation of the finding is that an increase in small business density in the adjacent region, along with a 1 percentage point increase in the number of cooperatives in 1989, is associated with an increase in small business density of a region by 0.025% during 1998–2018. As in Table 3, we observe the structural break in the 1970s related to the Cold War and planned economy, but also for other previous periods. Our results demonstrate that spatial co-location of entrepreneurial activity matters, however, it only moderates the historical persistence of entrepreneurship for 1989 when the centrally planned economy was almost over, and private property became legal.

We argue that the Soviet institutions pre-empted the spatial effects of regional economic activity as less power was given to regional and local institutions and more power was concentrated in the national government in Moscow. In fact, Soviet institutions pre-empted the independence of regional authorities and their decision-making, and it was set as it in a planned economy. In addition, in the Soviet Union a constant movement of labour and production facilities around different republics of the former Socialist block had distorted localisation of supply chains based on economic rationale and market laws.

Notwithstanding the importance of clusters, the concept of planned economy implies the inseparability and complementarity of the political, spatial, economic, and cultural levels of social reality (Ould-Mey, 1999). The spatial distribution of economic activities had to comply with the planned distribution of industries focused on grand infrastructure projects (e.g., Baikal–Amur Mainline, Trans-Siberian railroads, academic and military towns, etc.) that again distorted the geographical distribution and economic efficiency of small organisations. Low transport costs (subsidised by the state) made it possible to develop and expand logistics almost everywhere within the Soviet Union, what can be the most reasonable explanation for the disappearance of the spatial effects. The spatial effects related to entrepreneurial activity and the location of small organisations have become more evident with the shift to market mechanisms of economic regulation since the beginning of transition in 1989, which is supported by the positive interaction coefficient between cooperatives level in 1989 and the spatial effects ($\beta = 0.025$, $p < 0.01$) (specification 6, Table 4).

Other variables remain statistically significant and positive, including regional economic development, population density, human capital and market potential. Inclusion of the interaction effects of spatial effects using the weighted distance matrix has not changed the goodness of fit of the model compared with the results in Table 3. While all Russian regions differ in size, and neighbouring effects may be physically distributed anywhere between 10 and 1000 miles, the weighted matrix of spatial co-location of regions leverages these spatial differences across Russian regions.

4.3. Institutional changes in Russia between 1990 and 2018

We divide the entire period of 1998–2018 into three distinct periods related to the changes in the Russian economy since the beginning of the transition in 1991.

The first period of 1998–99 saw the end of Yeltsin's reforms and Russia's transformation into a market economy, mild economic regulation and minimal government control, while also being affected by the 'corrupt capitalism' in Russia in the 1990s. Interestingly, this is just before Russia's dependence on short-term borrowing to manage budget deficits led to a severe financial crisis at the end of 1998. The massive economic crisis has led to widespread necessity entrepreneurship in the form of international 'shuttle' trade (Mukhina, 2009).

At the end of Yeltsin's era, Russia has transitioned into a market economy (Aidis et al., 2008). With the property rights and an increase in private ownership, the popularity of entrepreneurship activity in Russian regions has rocketed as entrepreneurs were able to choose a location and type of business activity they wished to run based on costs and profits, networks and entrepreneurial cognition, rather than the planned distribution in the Soviet times.

The second period of 2000–07 is associated with the first years of Putin's rule and the economic growth fostered by economic reforms (including business liberalisation in 2000–04) and high prices for oil and gas. Scientists often question the core differences in how Russia's economy is managed with Putin in the early 2000s and during the Yeltsin era of 1990–99, related to market reforms and economic liberalisation. The third period of 2008–18 includes the financial crises of 2008–09 and the period of sanctions on Russia during 2014–18. In the last years of the period under review the Russian government (including as a response to sanctions) increased its presence through support for systemic large enterprises, the growth of public procurement and increased state control (introduction of online cash registers, labelling, etc.).

We test Hypothesis 1 using the subsample of 68 regions from 1998 to 1999 with 136 region–year observations. Interestingly, the differences between estimated coefficients for 1998 and 2005–18 reveal differences in the strength of the historical persistence of entrepreneurship.

Table 5 confirms the prior results, with the historical retail activity predicting the small business density during 1998–99 (specifications 1–5, Table 3). The coefficient that operationalises the historical entrepreneurship activity in 1926 is significantly higher than for the 1998–2018 period ($\beta = 10.586$, $p < 0.01$) (specification 1, Table 5) as well as the coefficient for 1989 cooperatives ($\beta = 4.581$, $p < 0.001$) (specification 5, Table 5). This is interesting as it evidences that all these periods are crises with broad liberalisation and the spread of necessity-driven entrepreneurship.

Table 4. Regression results: pooled ordinary least squares (OLS) estimation with spatial effects interactions, 1998–2018. Dependent variable: Small business density per 1000 economic active population.

Model	(1)	(2)	(3)	(4)	(5)	(6)
GRP	0.101***	0.101***	0.091***	0.094***	0.094***	0.094***
	(0.021)	(0.018)	(0.014)	(0.016)	(0.021)	(0.018)
Unemployment	0.306	0.279	0.259	0.267	0.259	0.310
	(0.258)	(0.241)	(0.237)	(0.245)	(0.256)	(0.255)
Population density	0.003	0.001	0.003	0.003	0.002	0.003
	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)
Market potential	0.201***	0.201***	0.226***	0.237***	0.188***	0.213***
	(0.071)	(0.068)	(0.072)	(0.073)	(0.066)	(0.069)
Human capital	5.093**	3.835*	4.225**	4.386*	5.919***	4.798**
	(2.267)	(2.097)	(2.340)	(2.281)	(2.023)	(2.318)
Universities	0.125	0.127	0.119	0.121	0.122	0.130
	(0.086)	(0.082)	(0.077)	(0.081)	(0.075)	(0.080)
Multi-modal transportation	0.002	0.002	0.002	0.002	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Spatial effects	0.042***	0.049***	0.045***	0.041***	0.042***	0.048***
	(0.013)	(0.014)	(0.013)	(0.013)	(0.012)	(0.014)
Spatial effects × Retail sector 1926 (H2)		−0.023				
		(0.016)				
Retail sector 1926		13.323***				
		(1.136)				
Spatial effects × Retail sector 1940 (H2)			−0.001			
			(0.01)			
Retail sector 1940			1.744**			
			(0.860)			
Spatial effects × Retail sector 1950 (H2)				0.003		
				(0.008)		
Retail sector 1950				1.001**		
				(0.560)		
Spatial effects × Retail sector 1970 (H2)					0.015	
					(0.01)	
Retail sector 1970					0.934	
					(1.143)	
Spatial effects × Cooperatives 1989 (H2)						0.025**
						(0.012)
Cooperatives 1989						1.402
						(0.959)
Constant	−76.954**	−60.047*	−65.376**	−68.011**	−87.107***	−72.862**
	(30.503)	(34.897)	(31.719)	(31.099)	(27.758)	(31.499)
Observations	1428	1428	1428	1428	1428	1428
R^2	0.597	0.624	0.616	0.610	0.605	0.608
F-statistics	199.71	173.15	167.57	163.27	159.74	161.74
Log-likelihood	−3214.84	−3182.72	−3192.37	−3199.94	−3206.25	−3202.66
Durbin–Watson statistic	0.26	0.27	0.26	0.26	0.26	0.26

Note: Significance *0.10%, **0.05%, ***0.01%. Standard errors are clustered by region. Number of regions = 68. This sample includes the 2008 year of financial crises. F-statistics reports on a joint significance of regressors in a model with a null hypothesis: all regressors are not significant (p-value).
Sources: Russian Federation Federal State Statistics Service; The Central Bank of the Russian Federation, *National Economy of the RSFSR in 1958, 1970* (Statistical Yearbook), *National Economy of the RSFSR in 1989* (Statistical Yearbook).

Table 6 illustrates the second period of 2000–07 with 544 region–year observations across 68 regions. Hypothesis 1, which states that historical levels of entrepreneurship predict the current level of regional entrepreneurship, is supported. The historical entrepreneurial activity in 1926 predicts the small business density for 2000–07 ($\beta =$ 17.261, $p < 0.01$) (specification 1, Table 6), while the historical levels of entrepreneurship in 1940 and 1950 are also associated with on average higher small business density in 2000–07 ($\beta = 0.608$–1.021, $p < 0.01$) (specification

Table 5. Regression results: pooled ordinary least squares (OLS) estimation, 1998–99. Dependent variable: Small business density per 1000 economic active population.

Model	(1)	(2)	(3)	(4)	(5)
GRP	−0.040***	−0.059***	−0.056***	−0.046***	−0.059***
	(0.013)	(0.007)	(0.007)	(0.014)	(0.007)
Unemployment	−0.077	−0.114*	−0.098	−0.051	−0.212**
	(0.086)	(0.067)	(0.071)	(0.083)	(0.085)
Population density	0.008***	0.009***	0.009***	0.009***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Human capital	2.196***	1.998***	2.043***	2.423***	1.577***
	(0.462)	(0.41)	(0.457)	(0.501)	(0.5)
Universities	0.127*	0.134	0.145	0.140	0.138
	(0.068)	(0.088)	(0.087)	(0.080)	(0.077)
Multi-modal transportation	0.002	0.002	0.003	0.003	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Retail sector 1926 (H1)	10.586**				
	(5.081)				
Retail sector 1940 (H1)		1.35**			
		(0.521)			
Retail sector 1950 (H1)			0.757**		
			(0.334)		
Retail sector 1970 (H1)				0.574	
				(0.945)	
Cooperatives 1989 (H1)					4.581***
					(0.947)
Constant	−15.163***	−14.821***	−14.674***	−19.387***	−8.721**
	(5.446)	(4.711)	(5.147)	(7.105)	(3.636)
Observations	136	136	136	136	136
R^2	0.825	0.838	0.836	0.821	0.855
F-statistics	122.45	134.68	132.38	118.06	153.71
Log-likelihood	−334.26	−328.87	−329.85	−336.30	−321.27

Note: Significance *0.10%, **0.05%, ***0.01%. Standard errors are clustered by region. Number of regions = 68. F-statistics reports on a joint significance of regressors in a model with a null hypothesis: all regressors are not significant (p-value).
Sources: Russian Federation Federal State Statistics Service; The Central Bank of the Russian Federation, *National Economy of the RSFSR in 1958, 1970* (Statistical Yearbook), *National Economy of the RSFSR in 1989* (Statistical Yearbook).

3–3, Table 6). Finally, the most recent levels of entrepreneurship in 1989 proxied by the cooperatives predict a higher level of entrepreneurship in 2000–07 ($\beta = 3.239$, $p < 0.001$) (specification 5, Table 5). As for the previous period 1998–99, we observe a structural break in the 1970s. There are no statistical differences in the size of the effect of the historical level of entrepreneurship on small business density between 1998–99 and 2000–07. The results are consistent with economic reforms and economic growth also driven by an increase in resource prices during 2000–08, further facilitating regional entrepreneurship. Interestingly the coefficients for the number of universities for this specific period are positive and significant, which supports prior research that knowledge generated at universities, given the favourable institutions (Chowdhury et al., 2019) can facilitate entrepreneurial opportunity identification (Zemtsov et al., 2021). In the Soviet period, it was science that became the main area

for the application of enterprising talents. And many future oligarchs came from the scientific community.

Finally, we test Hypothesis 1 using the data on 2008–18 period with 68 regions and 748 region–year observations. In contrast to the previous findings in Table 3 (1998–2018) as well as the prior periods of 1998–99 and 2000–07, we no longer observe positive and significant historical persistence of entrepreneurship activity effect in 1926 ($\beta = 16.407$, $p > 0.10$) (specification 1, Table 7) and 1989 ($\beta = 0.934$, $p > 0.10$). This means that the past levels of entrepreneurship activity during the harsh economic crises (after the Civil War and Perestroika) are no longer directly associated with the small business density across regions during 2008–18.

The coefficients for 1940 ($\beta = 1.888$, $p < 0.001$) and 1950 ($\beta = 0.663$, $p < 0.01$) are still positive and significant (specifications 2 and 3, Table 7). As we previously found in Tables 3–6, there was a structural break in 1970.

Table 6. Regression results: pooled ordinary least squares (OLS) estimation, 2000–07. Dependent variable: Small business density per 1000 economic active population.

Model	(1)	(2)	(3)	(4)	(5)
GRP	0.006	−0.004	−0.004	0.002	−0.001
	(0.008)	(0.005)	(0.005)	(0.008)	(0.006)
Unemployment	−0.25***	−0.239***	−0.251***	−0.222***	−0.294***
	(0.063)	(0.061)	(0.061)	(0.069)	(0.069)
Population density	0.006***	0.007***	0.007***	0.007***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Human capital	0.740***	0.826***	0.851***	0.929***	0.644***
	(0.244)	(0.221)	(0.219)	(0.251)	(0.241)
Universities	0.123*	0.167*	0.155*	0.240*	0.178**
	(0.048)	(0.061)	(0.077)	(0.110)	(0.067)
Multi-modal transportation	0.001	0.004	0.005	0.006	0.005
	(0.001)	(0.002)	(0.004)	(0.005)	(0.005)
Retail sector 1926 (H1)	17.261***				
	(5.197)				
Retail sector 1940 (H1)		1.021*			
		(0.528)			
Retail sector 1950 (H1)			0.608**		
			(0.287)		
Retail sector 1970 (H1)				0.118	
				(1.001)	
Cooperatives 1989 (H1)					3.239***
					(1.047)
Constant	1.691	−1.046	−0.616	−0.614	1.762
	(3.128)	(3.002)	(2.887)	(4.971)	(3.019)
Observations	544	544	544	544	544
R^2	0.677	0.669	0.668	0.651	0.683
F-statistics	225.88	217.11	216.33	201.05	232.16
Log-likelihood	−1426.64	−1433.88	−1434.53	−1447.68	−1421.56

Note: Significance *0.10%, **0.05%, ***0.01%. Standard errors are clustered by region. Number of regions = 68. F-statistics reports on a joint significance of regressors in a model with a null hypothesis: all regressors are not significant (p-value).
Sources: Russian Federation Federal State Statistics Service; The Central Bank of the Russian Federation, National Economy of the RSFSR in 1958, 1970 (Statistical Yearbook), National Economy of the RSFSR in 1989 (Statistical Yearbook).

The historical persistence of entrepreneurship activity during 2008–18 has decreased compared with the levels of the Yeltsin period and the earlier years of Putin (2000–07). We argue that these differences might have demonstrated increased administrative forms of economic control and limitation on market operations. The period 2008–18 has seen the great financial crises and an increase in sanctions pressure since 2014. Given an increase in the administrative pressure on private business (regulations, strengthening government control, international trade restrictions, etc.), new policy may limit entrepreneurship activity (Audretsch & Moog, 2022). The historical memory of entrepreneurship may be substituted with administrative planning and import substitution policy in the future, forcing entrepreneurs to allocate in sectors where government creates more incentives for entrepreneurs to stay or enter. These incentives could be driven by other factors and not market demand. As an example, the collaboration between

Russian and European businesses has reduced as a result of sanctions since 2014, and, accordingly, the number of small businesses in the adjacent to Europe border regions decreased, where it was high during periods of trade liberalisation.

Our findings add to the prior research of Puffer and McCarthy (2007) and highlight the changes in the persistence of entrepreneurship activity over time. Changes in the historical rates of entrepreneurship activity highlight the end of the Yeltsin market economy and Putin's early years of growth, with the beginning of economic crises and international conflicts resulting in a set of economic and political sanctions on the economy and individuals. This changes the way the incentives for entrepreneurs work in a free market economy, as entrepreneurs may be motivated to enter specific sectors or leave the sectors if this contradicts the national economic protection programmes or government priorities, for example, entrepreneurs who are involved in imports which are substituted or

in sanctioned trade. The structural break, which might be similar to the one we found during the Soviet period, appears to be related to the historical entrepreneurship activity of the early cooperatives in 1989. This demonstrates a significant relocation of human and financial capital across Russian regions since the beginning of the free market economy, but also negative effects, including the capital fly and 'brain drain' and entrepreneurial relocation. The changes observed since 2008 may have had a pronounced effect in 2010–18 on the distribution of entrepreneurial skills and entrepreneurial memory of regions, leading to discontinuity of entrepreneurial competencies in 2008–18 compared with 1989, and earlier years of the Yeltsin and Putin governments. However, the distribution of cooperatives in 1989 and shopkeepers in 1926 was market driven, and it took place during the period of the restructuring of the economic systems once after the revolution and another at the end of the Soviet era.

5. DISCUSSION AND CONCLUSIONS

The regional studies literature has demonstrated the persistence of economic activity in different settings (e.g., Davis & Weinstein, 2002; Martin & Sunley, 2006) with several studies testing the persistence of entrepreneurship (Decker et al., 2020; Fritsch et al., 2022b; Fritsch & Mueller, 2007; Fritsch & Wyrwich, 2014). This study investigated the historical persistence of entrepreneurship in Russian regions, examining how historical levels of retail trade distribution in 1926, 1940, 1950 and 1970 along with cooperative activity in 1989 predicted small business density in Russian regions during 1998–2018.

Using the historical data for almost an entire century (1926–2018), our results demonstrated that the determinants of small business in Russia are spatially 'sticky' and that the transition to a market economy in the 1990s and early 2000s is positively associated with historical

Table 7. Regression results: pooled ordinary least squares (OLS) estimation, 2008–18. Dependent variable: Small business density per 1000 economic active population.

Model	(1)	(2)	(3)	(4)	(5)
GRP	0.089***	0.078***	0.083***	0.085***	0.088***
	(0.016)	(0.012)	(0.014)	(0.018)	(0.017)
Unemployment	−1.407***	−1.446***	−1.387***	−1.326***	−1.359***
	(0.331)	(0.295)	(0.307)	(0.32)	(0.311)
Population density	0.003	0.004*	0.004*	0.004*	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Human capital	4.916*	5.443**	5.586**	6.071**	5.417**
	(2.841)	(2.579)	(2.659)	(2.779)	(2.691)
Universities	0.127*	0.134	0.145	0.140	0.138
	(0.068)	(0.088)	(0.087)	(0.080)	(0.077)
Multi-modal transportation	0.002	0.002	0.003	0.003	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Retail sector 1926 (H1)	16.407				
	(11.377)				
Retail sector 1940 (H1)		1.888***			
		(0.707)			
Retail sector 1950 (H1)			0.663**		
			(0.33)		
Retail sector 1970 (H1)				0.856	
				(1.496)	
Cooperatives 1989 (H1)					0.934
					(1.395)
Constant	−36.682	−46.909	−46.899	−54.58	−43.763
	(39.03)	(35.425)	(36.306)	(39.678)	(36.99)
Observations	748	748	748	748	748
R^2	0.434	0.444	0.433	0.428	0.428
F-statistics	113.70	118.72	113.20	111.09	110.87
Log-likelihood	−2620.64	−2613.54	−2621.35	−2624.37	−2624.69

Note: Significance *0.10%, **0.05%, ***0.01%. Standard errors are clustered by region. Number of regions = 68. *F*-statistics reports on a joint significance of regressors in a model with a null hypothesis: all regressors are not significant (*p*-value).
Sources: Russian Federation Federal State Statistics Service; The Central Bank of the Russian Federation, *National Economy of the RSFSR in 1958, 1970* (Statistical Yearbook), *National Economy of the RSFSR in 1989* (Statistical Yearbook).

levels of entrepreneurial activity. Our results for Russian regions demonstrated that the historical persistence of entrepreneurship dissipated from 1950 onwards, resulting in a structural break in 1970; however, the entrepreneurial activity was restored once the country liberalised its markets and moved to market economy in the 1990s. Factors that led to the discontinuity of the historical persistence of entrepreneurship during 1950–70s are the Soviet 'five-year plans', which involved industrialisation, collectivisation, relocation of fixed assets and human capital, and the reliance on large enterprises distorting the entrepreneurial skills and memory (Baburin & Zemtsov, 2017; Welter & Baker, 2020). Strikingly, almost after 70 years, after the abolishment of private business, the Soviet natural experiment has not been able to completely remove entrepreneurship culture off the regional map. Therefore, our results evidence the return to the pre-Soviet geographical distribution of entrepreneurship once the private property and cooperatives were restored.

To demonstrate the differences in the historical persistence of entrepreneurship in Russia we investigated three distinct time periods during 1991–2018: the market reforms and liberalisation of Yeltsin (1991–99), the economic growth of early Putin's Russia (2000–08), and the period of growth, economic crises and sanctions (2008–18). While the historical persistence of entrepreneurial activity in the first two periods of 1991–99 and 2000–08 was confirmed across the entire historical period, some patters disappear once we control for the third period of 2008–18. We argue that the historical persistence of entrepreneurship has changed since 2014, as financial sanctions have slowed down economic development, resulting in increased government expenditures, and the cost of doing business (Chernopyatov et al., 2018). The reduction in a historical persistence of entrepreneurship in the 'sanctions period' of 2008–18, compared with 1926 and 1989 levels of entrepreneurship activity, is the outcome of changes in the public policy in Russia reducing support to entrepreneurship and shifting the focus to support of the large businesses, stimulating the retention of their market share and achieving the economies of scale (Zemtsov et al., 2020). At the same time, the government, to stimulate entrepreneurship, established a set-aside programme for small businesses in public procurement and procurement of large state-owned companies, and raised the thresholds for tax incentives for small businesses. During the period 2008–18 the regional economies financed an increase in government spending caused including macro-projects such as the Sochi Winter Olympics in 2014 and the FIFA World Cup in 2018. These large projects have continued to further affect the geographical distribution of small business across Russia.

Interestingly, during 1998–2018 the regional distribution of entrepreneurship in Russia has demonstrated the spatial dependence. However, spatial effects are not associated with the historical levels of entrepreneurship during the Soviet period. Our results demonstrated that an increase in entrepreneurship activity in the adjacent region by 1 percentage point is associated with an increase

of entrepreneurial activity in a focal region by at least 0.05 percentage points. We argue that the Soviet system has pre-empted the spatial effects based on spillovers across neighbouring regions and the existence of a common cognitive and geographical proximity between adjacent regions (Balland et al., 2015). These links were disrupted during the Soviet legacy due to the significant reshuffling of labour and production across the Soviet Union. Soviet institutions also aimed to create a common unified economic and cultural space through the reduction of transport costs and the introduction of elements of Soviet culture and ideology (Kuzio, 2005).

5.1. Policy implications

The empirical results could have several policy implications. First, in addition to research on the historical persistence of self-employment in East Germany (Fritsch et al., 2022b), we add to the knowledge that the persistence of entrepreneurship has long-term effects and defines the distribution and level of entrepreneurship activity in the post-Communist period. As in the work of Fritsch et al., we find that Communism had a limited long-term effect on the willingness to be a business owner and the geographical distribution of entrepreneurship, as the small business density has increased in 1998–99, just eight years since the beginning of the transition. Regional distribution of entrepreneurship in Russia of in the 1990s and the early 2000s has been strongly connected to the geographical distribution of entrepreneurship in the Tsar's Russia and the first years of the Soviet Union.

Second, we do not find any significant differences in entrepreneurship between Russian regions as the entire country has been under the natural experiment and not parts of the country. While the prior research of Alesina and Fuchs-Schündeln (2007) and Falck et al. (2017) argues that this effect is long-term and people's willingness to become entrepreneurs still differs in West and East Germany, the dynamic of entrepreneurship in Russia during 1998–2018 is strongly related to its historical levels.

Third, this study has a methodological novelty as it enables us to test the historical persistence of entrepreneurship throughout the natural experiment taken place. This is important for policymakers and it is different from the prior research that has used statistical data before and after the experiment (Fritsch et al., 2022a; Fritsch & Wyrwich, 2022). In doing so we are able to continuously evaluate the changes in the persistence of entrepreneurship and discover structural breaks. We used the retail rate activity as the proxy for the historical rate of entrepreneurship during the Soviet Union period. This approach may be especially particularly useful to analyse historical persistence of entrepreneurship in countries and regions, where regulation may prevent or limit entrepreneurial activity, but retail business activity data may still exist. We recognise that the attribution of trade enterprises in the Soviet period to entrepreneurial activity is problematic. These enterprises were largely subject to state planning. However, trade has been the most market-driven industry of the Soviet economy.

Finally, we argue that the historical persistence of entrepreneurship may fully disappear in future should the financial constraints and sanctions persist and in case the administrative policy continues affecting the (re)allocation of regional entrepreneurs in the present-day Russia. For example, the government may continue prioritising support to large firms and relocating investments to the military sector and defence, including internal borrowing, which will further disrupt the historical persistence of entrepreneurship. Hostile home and foreign conditions for Russian small businesses may result in a further redistribution of entrepreneurial skills and competencies, including 'brain drain' and financial capital fly outside Russia draining resources for entrepreneurial start-ups over time. History may repeat itself, echoing East Germany's experience when entrepreneurs and firms migrated to West Germany (Falck et al., 2013), leading to a massive loss of entrepreneurial capacity and talent. In the absence of new start-ups that can compensate for the hostile institutional environment inside Russia, the risks of returning to a planned economy are high.

5.2. Limitations and future research

This study has several limitations. The first is that in Russia we cannot differentiate between a low-quality necessity- and opportunity-driven entrepreneurship activity, with the results applying for the total entrepreneurship activity. Further research may use different operationalisations of entrepreneurship, including opportunity-driven and productive entrepreneurship to test whether the historical persistence effect is equally important. The second limitation is that we were unable to recover historical data on entrepreneurship activity by occupation in Russian regions before the Soviet Union, which can be found scattered across Russian household surveys in the 1890s. The difficulty of using these data is that the borders of Russian regions have significantly changed because of the two revolutions (1905 and 1917) and the civil war (1918–21). Further research on the historical persistence of entrepreneurship in developed and developing economies calls for more accessible statistical history and better longitudinal data availability, which may include using the archives data and further work on making indicators which often change, more compatible and comparable. The third limitation is that we do not have a control group for Russia comparable with West and East Germany (Fritsch et al., 2022b) as all Russian regions were part of the Soviet Union. Having a control group for regions that were part or not of a natural experiment (e.g., countries within the socialist block, but not part of the Soviet Union in Europe, Central Asia, Africa and South America) could provide an interesting and robust further avenue for research on the historical persistence of entrepreneurship. Finally, we are limited with the available control variables in our study, which we would be able to include for the entire period 1998–2018. Additional controls for the level of poverty, socio-economic conditions and sectoral distribution across regions that are important in explaining the level of regional entrepreneurship could be included in future research.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

ORCID

Maksim Belitski http://orcid.org/0000-0002-9895-0105
Yulia Tsareva http://orcid.org/0000-0002-9204-0362
Stepan Zemtsov http://orcid.org/0000-0003-1283-0362

REFERENCES

Ageev, A. I., Gratchev, M. V., & Hisrich, R. D. (1995). Entrepreneurship in the Soviet Union and post-socialist Russia. *Small Business Economics*, *7*(5), 365–376. https://doi.org/10.1007/BF01302737

Aidis, R., Estrin, S., & Mickiewicz, T. (2008). Institutions and entrepreneurship development in Russia: A comparative perspective. *Journal of Business Venturing*, *23*(6), 656–672. https://doi.org/10.1016/j.jbusvent.2008.01.005

Alesina, A., & Fuchs-Schündeln, N. (2007). Goodbye Lenin (or not?): The effect of communism on people's preferences. *American Economic Review*, *97*(4), 1507–1528. https://doi.org/10.1257/aer.97.4.1507

Andersson, M., & Koster, S. (2011). Sources of persistence in regional start-up rates – Evidence from Sweden. *Journal of Economic Geography*, *11*(1), 179–201. https://doi.org/10.1093/jeg/lbp069

Asheim, B. T., & Isaksen, A. (2002). Regional innovation systems: The integration of local 'sticky' and global 'ubiquitous' knowledge. *The Journal of Technology Transfer*, *27*(1), 77–86. https://doi.org/10.1023/A:1013100704794

Audretsch, D. B., & Belitski, M. (2013). The missing pillar: The creativity theory of knowledge spillover entrepreneurship. *Small Business Economics*, *41*(4), 819–836. https://doi.org/10.1007/s11187-013-9508-6

Audretsch, D. B., & Belitski, M. (2021a). Towards an entrepreneurial ecosystem typology for regional economic development: The role of creative class and entrepreneurship. *Regional Studies*, *55*(4), 735–756. https://doi.org/10.1080/00343404.2020.1854711

Audretsch, D. B., & Belitski, M. (2021b). Three-ring entrepreneurial university: In search of a new business model. *Studies in*

Higher Education, 46(5), 977–987. https://doi.org/10.1080/03075079.2021.1896804

Audretsch, B. D., & Belitski, M. (2023). The limits to open innovation and its impact on innovation performance. *Technovation*, 119, 102519. https://doi.org/10.1016/j.technovation.2022.102519

Audretsch, D. B., Belitski, M., Chowdhury, F., & Desai, S. (2022). Necessity or opportunity? Government size, tax policy, corruption, and implications for entrepreneurship. *Small Business Economics*, 58(4), 2025–2042. https://doi.org/10.1007/s11187-021-00497-2

Audretsch, D. B., Belitski, M., & Desai, S. (2015). Entrepreneurship and economic development in cities. *Annals of Regional Science*, 55, 33–60. https://doi.org/10.1007/s00168-015-0685-x

Audretsch, D. B., & Feldman, M. P. (1996). R&D spillovers and the geography of innovation and production. *American Economic Review*, 86(3), 630–640. http://www.jstor.org/stable/2118216

Audretsch, D. B., & Moog, P. (2022). Democracy and entrepreneurship. *Entrepreneurship Theory and Practice*, 46(2), 368–392. https://doi.org/10.1177/1042258720943307

Baburin, V. L., & Zemtsov, S. P. (2017). *Innovation potential of the Russian regions*. KDU 'University Book'.

Balland, P. A., Boschma, R., & Frenken, K. (2015). Proximity and innovation: From statics to dynamics. *Regional Studies*, 49(6), 907–920. https://doi.org/10.1080/00343404.2014.883598

Belitski, M., Desai, S., & Godley, A. (2021). Small business and poverty: Evidence from post-Soviet cities. *Regional Studies*, 55(5), 921–935. https://doi.org/10.1080/00343404.2020.1826037

Bessolitsyn, A. A. (2013). *History of Russian entrepreneurship* (3rd ed.). Moscow Financial and Industrial University 'Synergy'.

Boschma, R. A., & Frenken, K. (2006). Why is economic geography not an evolutionary science? Towards an evolutionary economic geography. *Journal of Economic Geography*, 6(3), 273–302.

Brezinski, H., & Fritsch, M. (1995). Transformation: The shocking German way. *MOCT-MOST: Economic Policy in Transitional Economies*, 5(4), 1–25. https://doi.org/10.1007/BF00996593

Caragliu, A., de Dominicis, L., & de Groot, H. L. (2016). Both Marshall and Jacobs were right! *Economic Geography*, 92(1), 87–111. https://doi.org/10.1080/00130095.2015.1094371

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. https://www.econorus.org/enjsub.phtml?id=223

Chepurenko, A., Yasin, E. G., Buev, V. V., & Shestoperov, O. M. (2004). *Small business in Russia: Past, present and future*. New Publishing House.

Chernopyatov, A., Makushenko, L., Popova, V., & Antonova, N. (2018). Entrepreneurship development and business activity in the Russian federation. *Journal of Entrepreneurship Education*, 21(4), 1–12.

Chowdhury, F., Audretsch, D. B., & Belitski, M. (2019). Institutions and entrepreneurship quality. *Entrepreneurship Theory and Practice*, 43(1), 51–81. https://doi.org/10.1177/1042258718780431

Colombelli, A., D'Ambrosio, A., Meliciani, V., & Quatraro, F. (2020). Newborn firms and regional diversification patterns: The role of cultural diversity. *Economic Geography*, 96(4), 336–362. https://doi.org/10.1080/00130095.2020.1807320

Davis, D. R., & Weinstein, D. E. (2002). Bones, bombs, and break points: The geography of economic activity. *American Economic Review*, 92(5), 1269–1289. https://doi.org/10.1257/000282802762024502

De Clercq, D., Lim, D. S., & Oh, C. H. (2013). Individual-level resources and new business activity: The contingent role of institutional context. *Entrepreneurship Theory and Practice*, 37(2), 303–330. https://doi.org/10.1111/j.1540-6520.2011.00470.x

Decker, S., Estrin, S., & Mickiewicz, T. (2020). The tangled historical roots of entrepreneurial growth aspirations. *Strategic Entrepreneurship Journal*, 14(4), 616–638. https://doi.org/10.1002/sej.1348

Dvouletý, O. (2017). Can policy makers count with positive impact of entrepreneurship on economic development of the Czech regions? *Journal of Entrepreneurship in Emerging Economies*, 9(3), 286–299. https://doi.org/10.1108/JEEE-11-2016-0052

Dvouletý, O. (2018). How to analyse determinants of entrepreneurship and self-employment at the country level? A methodological contribution. *Journal of Business Venturing Insights*, 9, 92–99. https://doi.org/10.1016/j.jbvi.2018.03.002

Falck, O., Gold, R., & Heblich, S. (2017). Lifting the iron curtain: School-age education and entrepreneurial intentions. *Journal of Economic Geography*, 17(5), 1111–1148. https://doi.org/10.1093/jeg/lbw026

Falck, O., Guenther, C., Heblich, S., & Kerr, W. R. (2013). From Russia with love: The impact of relocated firms on incumbent survival. *Journal of Economic Geography*, 13(3), 419–449. https://doi.org/10.1093/jeg/lbs035

Fotopoulos, G., & Storey, D. J. (2017). Persistence and change in interregional differences in entrepreneurship: England and Wales, 1921–2011. *Environment and Planning A*, 49(3), 670–702. https://doi.org/10.1177/0308518X16674336

Fritsch, M. (2004). Entrepreneurship, entry and performance of new business compared in two growth regimes: East and west Germany. *Journal of Evolutionary Economics*, 14(5), 525–542. https://doi.org/10.1007/s00191-004-0230-z

Fritsch, M., Bublitz, E., Sorgner, A., & Wyrwich, M. (2014). How much of a socialist legacy? The re-emergence of entrepreneurship in the east German transformation to a market economy. *Small Business Economics*, 43(2), 427–446. https://doi.org/10.1007/s11187-014-9544-x

Fritsch, M., Greve, M., & Wyrwich, M. (2022a). One transition story does not fit them all: Initial regional conditions and new business formation after communism. *Post-Communist Economies*, 34(8), 1001–1028. https://doi.org/10.1080/14631377.2021.1943912

Fritsch, M., Greve, M., & Wyrwich, M. (2022b). The long-run effects of communism and transition to a market system on self-employment: The case of Germany. *Entrepreneurship Theory & Practice*, 1–23. https://doi.org/10.1177/10422587221094498

Fritsch, M., & Mueller, P. (2007). The persistence of regional new business formation-activity over time–assessing the potential of policy promotion programs. *Journal of Evolutionary Economics*, 17(3), 299–315. https://doi.org/10.1007/s00191-007-0056-6

Fritsch, M., Obschonka, M., Wahl, F., & Wyrwich, M. (2021). *Cultural imprinting: Ancient origins of entrepreneurship and innovation in Germany* (Jena Economic Research Papers No. 012).

Fritsch, M., Obschonka, M., & Wyrwich, M. (2019b). Historical roots of entrepreneurial culture and innovation activity – An analysis for German regions. *Regional Studies*, 53(9), 1296–1307. https://doi.org/10.1080/00343404.2019.1580357

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

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

Fritsch, M., & Wyrwich, M. (2014). The long persistence of regional levels of entrepreneurship: Germany 1925 to 2005. *Regional Studies*, *48*(6), 955–973. https://doi.org/10.1080/00343404.2013.816414

Fritsch, M., & Wyrwich, M. (2018). Regional knowledge, entrepreneurial culture and innovative start-ups over time and space – An empirical investigation. *Small Business Economics*, *51*(2), 337–353. https://doi.org/10.1007/s11187-018-0016-6

Fritsch, M., & Wyrwich, M. (2019). *Regional trajectories of entrepreneurship, knowledge, and growth – The role of history and culture*. Springer. https://link.springer.com/book/10.1007978-3-319-97782-9

Fritsch, M., & Wyrwich, M. (2022). Initial conditions and regional performance in the aftermath of disruptive shocks: The case of East Germany after socialism. *Industrial and Corporate Change*, *31*(6), 1428–1459. https://doi.org/10.1093/icc/dtac033

Fuchs-Schuendeln, N., & Schuendeln, M. (2020). The long-term effects of Communism in Eastern Europe. *Journal of Economic Perspectives*, *34*(2), 172–191. https://doi.org/10.1257/jep.34.2.172

Glaeser, E. L., Kallal, H. D., Scheinkman, J. A., & Shleifer, A. (1992). Growth in cities. *Journal of Political Economy*, *100*(6), 1126–1152. https://doi.org/10.1086/261856

Glaza, H. M. (2009). Lenin's new economic policy: What it was and how it changed the Soviet Union. *Inquiries Journal*, *1*(11).

Guriev, S., & Vakulenko, E. (2015). Breaking out of poverty traps: Internal migration and interregional convergence in Russia. *Journal of Comparative Economics*, *43*(3), 633–649. https://doi.org/10.1016/j.jce.2015.02.002

Korosteleva, J., & Belitski, M. (2017). Entrepreneurial dynamics and higher education institutions in the post-communist world. *Regional Studies*, *51*(3), 439–453. https://doi.org/10.1080/00343404.2015.1103370

Kuzio, T. (2005). Western multicultural theory and practice and its applicability to the post-Soviet states. *Journal of Contemporary European Studies*, *13*(2), 221–237. https://doi.org/10.1080/14782800500212475

Martin, R., & Sunley, P. (2006). Path dependence and regional economic evolution. *Journal of Economic Geography*, *6*(4), 395–437. https://doi.org/10.1093/jeg/lbl012

Mukhina, I. (2009). New losses, new opportunities: (Soviet) women in the shuttle trade, 1987–1998. *Journal of Social History*, *43*(2), 341–359. https://doi.org/10.1353/jsh.0.0255

Ould-Mey, M. (1999). The new global command economy. *Environment and Planning D: Society and Space*, *17*(2), 155–180. https://doi.org/10.1068/d170155

Pahnke, A., Welter, F., & Audretsch, D. B. (2023). In the eye of the beholder? Differentiating between SMEs and Mittelstand. *Small Business Economics*, *60*(2), 729–743. https://doi.org/10.1007/s11187-022-00612-x

Parker, S. C. (2009). Why do small firms produce the entrepreneurs? *The Journal of Socio-Economics*, *38*(3), 484–494. https://doi.org/10.1016/j.socec.2008.07.013

Puffer, S. M., & McCarthy, D. J. (2007). Can Russia's state-managed, network capitalism be competitive?: Institutional pull versus institutional push. *Journal of World Business*, *42*(1), 1–13. https://doi.org/10.1016/j.jwb.2006.08.008

Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., Lopez-Garcia, P., & Chin, N. (2005). Global entrepreneurship monitor: Data collection design and implementation 1998–2003. *Small Business Economics*, *24*(3), 205–231. https://doi.org/10.1007/s11187-005-1980-1

Rodríguez-Pose, A., & Crescenzi, R. (2008). Research and development, spillovers, innovation systems, and the genesis of regional growth in Europe. *Regional Studies*, *42*(1), 51–67. https://doi.org/10.1080/00343400701654186

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

Saxenian, A. (1994). *Regional networks: Industrial adaptation in Silicon Valley and Route 128*. Harvard University Press.

Stuetzer, M., Audretsch, D. B., Obschonka, M., Gosling, S. D., Rentfrow, P. J., & Potter, J. (2018). Entrepreneurship culture, knowledge spillovers and the growth of regions. *Regional Studies*, *52*(5), 608–618. https://doi.org/10.1080/00343404.2017.1294251

Welter, F., & Baker, T. (2020). Moving contests onto new roads: Clues from other disciplines. *Entrepreneurship in Theory and Practice*, *45*(5), 1154–1175. https://doi.org/10.1177/1042258720930996

Wennekers, S., Van Wennekers, A., Thurik, R., & Reynolds, P. (2005). Nascent entrepreneurship and the level of economic development. *Small Business Economics*, *24*(3), 293–309. https://doi.org/10.1007/s11187-005-1994-8

Wooldridge, J. M. (2002). *Econometric analysis of cross section and panel data*. Cambridge University Press.

Yakubovich, V. (2005). Weak ties, information, and influence: How workers find jobs in a local Russian labor market. *American Sociological Review*, *70*(3), 408–421. https://doi.org/10.1177/000312240507000303

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. https://doi.org/10.17323/2500-2597.2021.4.61.77

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

Zemtsov, S. P., & Tsareva, Y. V. (2018). Entrepreneurial activity in the Russian regions: How spatial and temporal effects determine the development of small business. *Journal of the New Economic Association*, *1*(37), 118–134. https://doi.org/10.31737/2221-2264-2018-37-1-6

Zemtsov, S., Tsareva, Y., Barinova, V. A., Belitski, M., & Krasnoselskikh, A. N. (2022). Small business in Russia: Institutions, market potential, taxes and digitalization. *Post-Communist Economies*, *34*(8), 1029–1053. https://doi.org/10.1080/14631377.2022.2108244