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László Szerb, William N. Trumbull
Regional Innovation and Entrepeneurship Research Center

Regional Innovation and Entrepreneurship Research Center
Faculty of Business and Economics
University of Pécs

H-7622, Pécs Rákóczi str. 80.

Phone: +36-72-501-599/23121

www.webcím.hu

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László Szerb[1]
Institute director and full professor
University of Pécs
Faculty of Business and Economics
Management Science Institute
Pécs, Rákóczi 80, H-7622, Hungary
Tel: +36-72-501599 ext. 23125
Fax: +36-72-501553
E-mail: szerb@ktk.pte.hu

William N. Trumbull
Dean and Robert A. Jolley Chair
The Citadel
School of Business
Charleston, SC. 29409, USA
E-mail: bill.trumbull@citadel.edu

[1] Corresponding author

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Abstract

We compare Russia with other post-socialist countries using various macro-level measures of economic and political performance and find that Russia is not a 'normal country,' Shleifer and Treisman (2005) assert. Despite many advantages in terms of its resource base, human capital, past scientific achievement, and much more, Russia's performance has been poor relative to the post-socialist countries that have joined the European Union and even relative to most of the former republics of the Soviet Union, perhaps due to a low level of new firm entry compared to other post-socialist countries (Aidis and Adachi, 2007; Kihlgren, 2003). Thus, we investigate whether Russia is a normal country in terms of entrepreneurship. We use the Global Entrepreneurship Index (GEI) methodology to analyze Russia's quality-related individual as well as institutional features from a system perspective. We set up four hypotheses to answer our main research question, whether Russia is a normal country in terms of entrepreneurship. The in-depth analysis of Russia's entrepreneurial profile reveal significant differences both in comparison to other post-socialist countries and similarly developed efficiency-driven economies. According to the three sub-indices of entrepreneurship, Russia's entrepreneurial profile is similar to the other former socialist countries in attitudes and abilities. However, Russia's scores are less than the scores of other post-socialist countries in six out of the nine pillars of entrepreneurial attitudes and abilities. These differences are even higher if we compare Russia's scores to the similarly developed Visegrad countries. In sum, conditions supporting entrepreneurship in Russia lag seriously behind other post-socialist countries.

Key Words: Russia, transition, entrepreneurship GEM, Global Entrepreneurship Index

JEL Codes: P20, L26, C43

Entrepreneurship development in Russia: Is Russia a normal country?

1. Introduction

Shleifer and Treisman (2005) and Treisman (2014) call Russia a "normal country." What they mean is that, while Russia certainly has both economic and political defects, these are about what one would expect of any middle-income country. For instance, they compare Russia with countries like Mexico and Argentina and find similar defects. Leeson and Trumbull (2006) criticize this view, pointing out that Russia may be middle class in terms of per capita GDP but it is very different from the countries Shleifer and Treisman compared it to in terms of many other characteristics of development, including education, political standing in world affairs, military capability, and scientific achievement. Leeson and Trumbull compare Russia not to capitalist countries like Argentina and Mexico, with which Russia has little in common, but with the other transition economies with which Russia has a great deal in common, including per capita GDP, and find that Russia's performance has been anything but normal.

We return to this question after the passage of some ten years[2] and ask whether it might now be possible to characterize Russia as a normal country. After all, both Shleifer and Treisman and Leeson and Trumbull used data that extended very little past the turning point in the late 1990s, when the Russian economy stopped contracting after the default of 1998 and began what turned out to be a ten-year period of rapid growth. While that growth was interrupted by the financial crisis starting in 2008, growth has resumed and it may even be the case that Russia has surpassed Hungary in terms of per capita GDP relative to what it was just prior to transition.

[2] Leeson and Trumbull (2006) used data ending in 2002 or 2003, for the most part. It is possible today to access much more current data than they were able to use in their paper.

Besides institutional development transition means the change of individual factors including the populations' attitudes and firms' abilities and aspirations. The formulation of new ventures became one of the key points of development right after the start of transition (Estrin and Mickiewicz, 2011; Cieslik and van Stel, 2012; McMillan and Woodruff, 2002). Similar to the macroeconomic analysis, Russia has had a very low level of new firm entry as compared to other transition countries (Aidis and Adachi, 2007; Kihlgren, 2003).

Although, there have been numerous papers and studies analyzing Russia's macroeconomic conditions, institutional development and entrepreneurship, there is lack of comprehensive studies. In particular, Russia's entrepreneurial performance has been investigated mainly in terms of entrepreneurial activity not in quality related measures. In this paper we use similar macro-level measures Leeson and Trumbull (2006) but add a unique dataset, the Global Entrepreneurship Index (GEI). This index combines institutional factors of transition relating to entrepreneurship or new business creation with measures of individual capabilities, motivations, and attitudes about entrepreneurship.

Our macro-level comparisons with other transition countries tell a very similar story as Leeson and Trumbull (2006): Russia is not a normal country, despite the impressive growth seen since the late 1990s. Our GEI comparison is equally negative: Conditions supporting entrepreneurship in Russia lag seriously behind conditions in other transition countries.

We turn in the next section to our comparison of Russia with other transition countries using macro-level measures, such as per capita GDP, measures of economic and political freedom, and

corruption.[3] The third section sets out our multi-dimensional approach to analyzing entrepreneurship and business creation that goes beyond mere institutional change to include behavioral responses to the institutional changes. This analysis is based on a unique dataset, the Global Entrepreneurship Index (GEI). The GEI is based on the Global Entrepreneurship Monitor (GEM), which measures individual-level characteristics of economies based on large surveys. Specifically, the GEI combines institutional-level measures with the individual-level measures of the GEM. The final section presents the results of our analysis, followed by our concluding remarks.

2. Comparison of Russia and Other Transition Countries

The transition countries included in most of our analysis are Russia and former socialist countries that are now member countries of the European Union. Thus, our analysis includes Russia, the Visegrad countries (the Czech Republic, Hungary, Poland, and Slovakia), the Baltic countries that are former republics of the Soviet Union (Estonia, Latvia, and Lithuania), the former socialist countries of Southeastern Europe (Bulgaria and Romania), and Slovenia, one of the states of the former market-socialist Yugoslavia. We have excluded Croatia, another EU country that was once part of market-socialist Yugoslavia, because its initial years as a transition economy were heavily affected by warfare. We do make some comparisons between Russia and the other (non-Baltic) republics of the former Soviet Union, as well.

Figure 1 shows an index of per capita GDP, measured on a PPP basis using 2011 dollars, from the World Bank's World Development Indicators, where the base of the index is the year prior to

[3]Similar to Leeson and Trumbull (2006).

the launch of transition.[4] For some countries, like Poland, the base year is 1989, the year the Berlin Wall fell, as these countries launched their transitions very quickly. For the former republics of the Soviet Union, year 0 is the last year of the Union, 1991. We generally follow Roland (2000) in dating the beginnings of transition.[5]

Note that Poland has probably the most successful transition among these countries in at least four respects. First, its transformation depression is very short and shallow. Second, it takes the shortest time to fully recover from its transformation depression, reaching essentially 100 percent of its pre-launch income after just six years.[6] Third, it has grown its economy more than any of the other countries (though from a smaller base than most) except Estonia, which has grown only slightly more. Finally, it is the only country to escape recession during the period after recovery from the transformation depression, including after the 2008 financial crisis. In fact, Poland is the only country in the European Union to escape recession following the financial crisis.

[Figure 1]

[4] The current WDI reports these data from 1990 to 2012. We use similar data from The Maddison-Project (2013) to calculate growth rates to allow us to extrapolate back to 1989, where needed, and growth rates reported in the CIA World Factbook to calculate per capita GDP for 2013.

[5] There is good reason to distrust such data, based on official reporting, because of the switch of incentives from over-reporting output under the socialist regime to under-reporting output during transition (to avoid taxation) and from the problem of valuing output in the absence of markets, as Shleifer and Treisman (2005) point out. On the other hand, there is no reason we are aware of that these effects would not be more or less the same for all these countries. Thus, while we might not have a great deal of trust in the absolute values of GDP for each country, we can probably feel more comfortable using these data as a basis for comparative purposes.

[6] The Czech Republic very nearly does, as well, but then it goes into another recession that lasts three years and does not finally cross the 100 mark until the ninth year.

Estonia is another contender for most successful, having grown its economy slightly more than Poland (and with two fewer years to do it). However, its economy has not been as consistent as has Poland's. After years of very rapid growth, Estonia was hit very hard by the financial crisis. Nevertheless, its recovery has been strong since then, with growth of nearly eight percent in 2011.

Russia, on the other hand, has the worst transition experience. It has the deepest contraction (along with Lithuania) and, by far, the longest. After its fifth year of contraction, it flirted with growth but then fell back into recession leading up to the 1998 default and did not begin a real recovery until its eighth year. Since then, and until the financial crisis ten years later, its growth has been strong, primarily due to strong energy exports (gas and oil), thanks to a dramatic rise in gas and oil prices during that time. For a few recent years Russia does beat Hungary in terms of its final growth since launching transition, thanks to slow growth in the Hungarian economy, but most recently Russia has fallen into a slump and Hungary's growth has picked up. All EU post-socialist countries have grown their economies more than has Russia

It is surprising that Russia's macro performance has been so poor given that Russia is arguably the resource-richest country in the world and it started the period as one of the highest-income countries in the group. Russia has an abundance of almost any resource one can think of, including diamonds, gold, platinum, tin, timber, and coal. Its wealth in oil and natural gas has been responsible for most of Russia's export growth since the 1998 default. The EU post-socialist countries, on the other hand, are resource poor. While during the socialist period, Russia was selling oil to these countries at prices substantially below the world level, it now charges

generally world prices for oil and natural gas. Thus, Russia has enjoyed a very favorable change in the terms of trade for its major export commodities relative to the EU post-socialist countries. Furthermore, most of these countries are highly dependent on Russia for their energy needs. The Baltics, for instance, receive all, and Bulgaria and Slovakia nearly all, their natural gas from Russia. Most of the Czech Republic's and Hungary's natural gas and nearly half of Poland's is from Russia.

Russia's macroeconomic performance relative to the EU post-socialist countries has been disappointing, but perhaps these countries had advantages, like proximity to the West, the promise of membership in the EU, and financial and other kinds of support from the EU that Russia did not have (Treisman, 2014). How did Russia perform relative to the non-Baltic former republics of the Soviet Union (FSU)? Figure 2 shows how much each of these countries grew their economies since 1991, the final year of the Union. As this figure reveals, Russia's performance was not impressive, even compared to this cohort. Of the other eleven former non-Baltic republics, Russia outperforms five (Tajikistan, Moldova, Ukraine, Kyrgyzstan, and Georgia) and falls short relative to six. Russia is in poor company, indeed. All the countries Russia has outperformed have suffered civil strife, stalled reform, tumultuous politics, and endemic corruption.

[Figure 2]

As disappointing as Russia's macroeconomic performance has been, it has been perhaps even more disappointing in various political and social dimensions of transition that likely have

economic ramifications. Figure 3 shows values from 1993 to the present of the Freedom House (2015) press freedom index. This index assigns points on the basis of three groups of variables reflecting the press's independence from government: the legal environment (laws enabling or restricting the press's freedom of operation), the political environment (official or unofficial censorship, editorial independence, harassment, etc.), and economic environment (media concentration, infrastructure, ownership structure, selective control of subsidies, corruption, etc.). In Figure 3, we present the index on a scale from 0 (completely unfree) to 100 (completely free). A score above 70 corresponds to Freedom House's "Free" category, a score between 40 and 69 corresponds to "Partially Free", and a score below 40 corresponds to "Not Free."

[Figure 3]

From Figure 3, we can discern three groups today. The first comprises the Baltics, Slovenia, and the Visegrad countries other than Hungary. All achieve the "Free" category of the Freedom House index. Estonia and the Czech Republic are at the top of this group, a position they were able to establish very quickly after launching transition. This group has index values comparable to the EU countries of Western Europe. In fact, Estonia and the Czech Republic have higher (freer) values than do Austria, France, Greece, Italy, Spain, and the UK.

The second group, all "Partially Free," includes Bulgaria, Hungary, and Romania. Hungary had been in the top group but has lost considerable ground in the past four or five years.

And then there is Russia in a group by itself. Russia's index was actually quite good in 1993, more or less in the middle of the pack. However, it has declined almost without pause since. Its index today places it among the least free in the world. In regard to freedom of the press, Russia is a clear outlier in our sample.

Turning next to corruption, Figure 4 shows data from Transparency International (1997-2013)'s Corruption Perceptions Index for 1997 to 2013 for Russia and the EU post-socialist countries. This index rates countries on a scale of 0 (extremely corrupt) to 10 (very clean).

Russia is the most corrupt and has been for most of the period. Furthermore, there is a wide gap between Russia and the next most corrupt countries, Bulgaria and Romania. Estonia is the least corrupt of all these countries, according to the TI index. Once again, Russia is an outlier.

The impression one gets from the profiles shown in Figures 1 through 4 is that some countries, in particular the Baltics, the Visegrad countries, and Slovenia, come very close to having fully developed market economies, as well as fully developed democratic political systems. Other countries perhaps have some tasks remaining to fully develop into market economies. And others, especially Russia and some of the other former republics of the Soviet Union, have a long way to go. It is hard, therefore, on the basis of these common measures of economic and political performance, to conclude that Russia is a "normal country," especially given its dominant position in the post-socialist world at the beginning of transition and its resource advantages.

[Figure 4]

Until this point, we have focused on macro measures of the overall economies of the post-socialist countries, as well as measures of institutional development, such as media freedom and corruption. In the remaining sections, we turn our attention to entrepreneurship or new business development. Although Russia has had very impressive growth since the default of 1998, more than doubling its per capita GDP despite being hard hit by the financial crisis of 2008, much of that growth has come from a dramatic increase in oil and other commodity prices prior to the financial crisis of 2008 when oil prices fell sharply. There was then a partial recovery of oil prices until mid-2014 followed by yet another dramatic drop as China's demand for energy has cooled and oil production in the U.S. has increased. Russia is highly dependent on its oil exports, which accounts for nearly sixty percent of its total exports. Another source of growth has been an increase in capacity utilization, which is unlikely to be the case in the future. The current World Bank forecast for growth is a contraction of 2.7 percent in 2015 followed by a very modest increase of 0.3 percent in 2016.[7] Thus, prospects for future growth may depend on new business development.

3. Is Russia Normal in Terms of New Business Development?

Rather than attempt to measure entrepreneurship with a single level indicator, the approach we use is based on an index of entrepreneurial ecosystem, the Global Entrepreneurial Index (GEI) developed by Acs and Szerb (2009), which builds on a well-known data of the Global Entrepreneurship Monitor (GEM). GEM measures reflect individuals' attitudes and capabilities concerning entrepreneurship and their perceptions of entrepreneurial opportunities and barriers.

[7] Press release: World Bank, 2015. World Bank Revises its Growth Projections for Russia for 2015 and 2016. Available at http://www.worldbank.org/en/news/press-release/2015/06/01/world-bank-revises-its-growth-projections-for-russia-for-2015-and-2016. World Bank, Washington, DC.

GEI adds country-level measures of the institutional environment to the individual-level variables in GEM to construct the GEI. Economic transition implies a radical change at the institution level as the institutions of the planned-socialist economy are replaced by the institutions of a market economy. Presumably, but perhaps more slowly, individual perceptions, capabilities, and attitudes change, as well.

Productive entrepreneurship, in the sense of Baumol (1990), which includes innovation and the search for value-adding opportunities, is not permitted in the state-socialist system, although there may be considerable unproductive entrepreneurship such as rent seeking and criminal activity. For there to be productive entrepreneurship, it must be permitted. But much more than some sort of permissive legislation is necessary. Productive entrepreneurship may be legal, but very little will actually happen without well-developed institutions of a market economy, such as clearly defined and enforced private-property rights. The Soviet Union during the *perestroika* period and Russia prior to the 1998 default stand as clear illustrations of that principle.[8]

Yet, even with well-developed market institutions, perhaps indistinguishable from those of the most advanced market economies, transition may not be complete because transition requires more than institution building. Transition must, as well, include the transformation of individual attitudes and capabilities. Transition not only includes the development of property rights but also the development of a population that knows what it means to use property for productive ends, for instance. Transition means the development of a population that understands the market economy.

[8] Åslund (2007) concludes that perestroika "built a hothouse of rent seeking" (p. 53), a "perfect rent-generating machine" (p. 58).

Transition comprises various tasks such as privatization, price liberalization, trade liberalization, and much more. Each task, in turn, comprises several stages. Taking privatization as an example, transition requires first permissive legislation. Private property is not permitted in the socialist economy, for the most part, so the first step is to make private ownership of property legal. Such legislation can be achieved relatively quickly, in principle. Once the legislation is passed, the task is done, though revisions can always occur later, as needed.

Much more difficult is the task of developing an infrastructure to enforce whatever property rights have been defined. Enforcement includes a police force whose members actually believe that enforcement of property rights is important. To a large extent, this is an attitudinal issue. The police may have the responsibility to enforce property rights but if no one believes this is a priority, nothing will happen. Enforcement likewise requires a prosecutory structure with the authority to act on violations of property rights. And it requires the development of a judiciary that has the capacities to judge property-rights conflicts and whose decisions can make any difference. Where are these lawyers and prosecutors and judges to come from? Recall that under the socialist system, such persons were members of the "parasitic classes" whose role was to follow the orders of the communist party. They tend to be poorly paid and trained and have low social status, the perfect setup for corruption. Developing a fully functioning infrastructure to enforce property rights is likely to be a very lengthy proposition.

Another task that has proven difficult and has not been completed in any country is privatization of state-owned enterprises and other assets, such as land and buildings. How this is done matters.

In Russia, for instance, 70 percent of state assets were privatized in just a few years, mainly through a voucher scheme (Frydman et al., 1996). Does the fact that most state assets were quickly privatized mean that Russia was well along in its transition to a market economy within just a few years? Most economists would argue that the mechanisms of privatization in Russia, and the poor development of an infrastructure to enforce property rights, meant that, in fact, Russia had made very little progress in developing a market economy (Åslund, 2007).

Finally, individual attitudes about private ownership of property must change. Just because individuals were given the right to own capital and land does not mean that they will have any idea how to use them productively. Under the communist system, individuals had been taught that private ownership is wrong, morally reprehensible. Only the people as a whole, represented by the state, can own such property. Individuals were responsible for their own personal space (thus, the notion of personal, as opposed to private, property) and for performing whatever was expected of them in the workplace. The rest was up to the state. Suddenly, they were told that the state was giving up, that it was up to individuals to own and decide how to use non-labor means of production. Attitudes and capabilities have to change, a process that may take a very long time and may or may not be complete two decades after the launch of transition.

Thus, the approach we take here is to combine the institutional factors with the individual. The Global Entrepreneurship Monitor (GEM) is designed to measure the individual capabilities, motivations, and attitudes about entrepreneurship. The Global Entrepreneurship Index (GEI) adds the macro-level institutional dimensions of transition as it relates to entrepreneurship to the

individual-level dimensions of the GEM. The resulting index, therefore, accounts for all the stages of transition, both macro and individual, discussed above.

The GEI views country-level entrepreneurship from a system perspective involving both the individual and the institutional sides. Formally we define country-level entrepreneurship as "…the dynamic, institutionally embedded interaction between entrepreneurial attitudes, abilities, and aspirations by individuals, which drives the allocation of resources through the creation and operation of new ventures." (Acs et al., 2014a p. 11)

Like other composite indexes, the GEI has a multilevel structure. Specifically, the GEI comprises three sub-indexes (Attitudes, Abilities, and Aspirations) each of which comprises four or five "pillars" that combine both individual-level and country-level variables (See Table 1 and Table 2).

While the abilities and aspiration sub-indices (outlined below) capture actual entrepreneurship abilities and aspiration as they relate to nascent and startup business activities, the entrepreneurial attitude (ATT) sub-index aims to identify the attitudes of a country's population as they relate to entrepreneurship. For example, the pillar known as opportunity perception potential is essential to recognizing and exploring novel business opportunities. It is also critical to have the proper startup skills and personal networks to exploit these opportunities. Moreover, fear of failure to start a business can have a negative effect on entrepreneurial attitudes, even when opportunity recognition and startup skills exist. Entrepreneurial attitudes influenced by the crucial institutional factors of market size, level of education, the level of risk in a country, rate of Internet use, and culture, all of which are interaction variables of the indicator.

The entrepreneurial abilities (ABT) sub-index is principally concerned with measuring some important characteristics of the entrepreneur and the startup with high growth potential. This high growth potential is approached by quality measures, including opportunity motivation for startups that belong to a technology-intensive sector, the entrepreneur's level of education, and the level of competition. The country-level institutional variables include the freedom to do business, technology adsorption capability, the extent of staff training, and the dominance of powerful business groups.

[Table 1]

The entrepreneurial aspiration (ASP) sub-index refers to the distinctive, qualitative, strategy-oriented nature of entrepreneurial activity. Entrepreneurial businesses are different from regularly managed businesses, so it is particularly important to be able to identify the most relevant institutional and other quality-related interaction variables. The newness of a product and of a technology, internationalization, high growth ambitions, and informal finance variables are included in this sub-index. The institutional variables measure the technology transfer and R&D potential, the sophistication of a business strategy, the level of globalization, and the depth of capital market.[9]

[Table 2]

[9] This description of the index structure is based on Acs et al. (2014b), Chapter 6.

A unique feature of the GEI approach is the system view of entrepreneurship in which the value of the index is determined more by the pillar with the lowest value than the pillar with the highest value. The worst performing pillar acts, in effect, as a bottleneck that negatively interacts or interferes with the other pillars. Consequently, the optimal allocation of entrepreneurial resources can be reached by equaling the normalized values of the 14 pillars. Therefore, the advantages of the better performing pillars cannot be fully capitalized when there is an unbalance. The size of the penalty depends on the magnitude of the bottleneck: The larger the difference between a particular pillar and the bottleneck pillar the larger the penalty is.[10]

There are some important policy related consequences of the bottleneck methodology. First, the different pillars cannot be fully substituted with each other. In other words, the performance of the better performing pillar only partially compensates for the bad performance of the bottleneck pillar. Second, the whole GEI index can be improved the most by increasing the bottleneck pillar. The magnitude of the enhancement depends on the relative size of the bottleneck as compared to the other pillars. Third, for policy makers, it means that improving the worst performing bottleneck pillar is the most important priority for entrepreneurship policy.

In what follows, we develop hypotheses about the development of entrepreneurship in Russia. As presented in the previous sections of this paper, Russia has followed a different path of transition than many of the other post-socialist countries. We now ask whether Russia has similarly followed a different path with entrepreneurship. While there are studies of small businesses in Russia, in-depth analysis of entrepreneurship in Russia is missing (Ojala and Isomäki, 2011). We can take advantage of the unique GEI dataset and analytical tool to provide a

[10] For more information about the methodology see Appendix 2 and Acs et al. (2014b).

comprehensive view about the present situation of Russia's entrepreneurship, its strengths and weaknesses. It is also possible to investigate the individual and the institutional factors of entrepreneurship.

Unlike the post-socialist countries of central Europe, where only two generations of entrepreneurs were lost in countries that had well-developed capitalist economies prior to World War II, Russia has had very little experience in entrepreneurship under market principles. While the amount of entrepreneurial potential was huge, the country was dominated by monopolies both in politics and in the economy even before the socialist period. The centralized power combined with the overwhelming state ownership and control in the Soviet era provided limited autonomy for entrepreneurs to exploit opportunities (Ageev et al., 1995; Hisrich and Grachev, 1993). In the mid-1980s, the Gorbachev-lead *perestroika* and *glasnost* opened up dramatic changes that ultimately led to the end of the Soviet system and the Soviet Union in the late 1980s and early 1990s. While entrepreneurship and small businesses are vital for successful market transition, formal and informal institutional constraints still limit the development of entrepreneurship in Russia (Dana and Kaynak, 2013; Timofeyev and Yan, 2013). After more than ten year of transition, Kihlgren (2003) found that Russia was lagging behind other European transition countries. According to Kihlgren (2003), this slow transition was due to limited historical experience with entrepreneurship and to the existence of large influential interest groups that lead to the inefficient allocation of resources and unproductive and sometimes destructive entrepreneurship. Thus, our expectations with respect to the development of entrepreneurship in Russia are expressed in the following four hypotheses:

Hypothesis 1: Russia's level of entrepreneurship is significantly lower than implied by its development and significantly lower than that of the other transition countries other than some of the poorest, most conflict-burdened countries.

Investigating seventeen years of Russian transition Ojala and Isomäki (2011 p. 115) concluded "...that there have not been many changes in the factors fostering and hindering entrepreneurship and small businesses in Russia..." In recent years under the Putin regime there has been an increasing centralization of both political and economic power. While the violent pressure of the government and bureaucracy focused on certain oligarchs, it probably has had a deleterious effect on entrepreneurship (Yakovlev, 2012). Therefore, we expect that Russia's entrepreneurship development did not change or may have actually decreased in the 2011-2014 time period.

Hypothesis 2: Russia's entrepreneurial development over the 2006-2014 period has been stagnant.

After 1988, liberalizing legislation opened the possibility of new venture creation that was also supported by spontaneous privatization. As in other transition countries, a large number of new startups occurred mainly to serve local needs. However, real entrepreneurial businesses development was lacking (Aidis et al., 2008; Radaev, 2001). Unlike other European transition countries, where market institutional development was more advanced, Russia still has many existing regulations dating back to the Soviet era. Moreover, the enforcement of law is contradictory causing instability and opportunities for arbitrary bureaucratic intervention (Aidis et al., 2008; Chadee and Roxas, 2013).

After a vigorous increase of small businesses in the 1988-1993 period, startup activity fell back and the number of businesses stabilized at a relatively low level (Radaev, 2001). Weak institutional development, lack of rule of law, *ad hoc* enforcement of regulations, regional autonomy, and corruption all contributed to constrain entrepreneurship (Aidis and Adachi, 2007; Tyimofeyev and Yan, 2013). Another harmful consequence of the lack of institutional development was the appearance and the dominance of organized crime hindering further the emergence of entrepreneurs (Kuznetsov et al., 2000; Volkov, 1999). It is likely, therefore, that Russian entrepreneurs possess fewer entrepreneurial skills than entrepreneurs in other similarly developed transition country. That is, we expect that Russia is lagging behind other transition countries both in the institutional and the individual context of entrepreneurship, as summarized in the following two hypotheses:

Hypothesis 3: Russia's institutional development is significantly lower than that of the other transition countries other than some of the poorest, most conflict-burdened countries.

Hypothesis 4: Russia's entrepreneurs possess significantly less individual entrepreneurial characteristics than that of the other transition countries other than some of the poorest, most conflict-burdened countries.

4. Russia's entrepreneurial performance based on the Global Entrepreneurship Index

In this section, we portray Russia's entrepreneurship based on the GEI database. Most of the analyses focus on the most recent 2014 data, although we also look at performance in previous

years. Global Entrepreneurship Monitor survey data for Russia are available for 2002 and 2006-2014. While we do compare Russia to all the other 131 countries based on the GEI 2014 data, our analysis concentrates on a comparative analysis involving the European transition and former Soviet countries.

Table 3 shows the rank of the countries' overall GEI scores for the 2014 year. The GEI scores correlate highly with the level of development as measured by the per capita GDP (correlation coefficient = 0.88). Table 3 also includes the World Economic Forum's (WEF) Global Competitiveness Index classification (the column labeled Dev.), where the classification 1 indicates the lowest developed resource-driven countries, 2 indicates the medium developed efficiency-driven countries, and 3 indicates the highest developed innovation-driven countries (Schwab, 2011). The most developed countries, which include the US, Nordic countries, and other Anglo-Saxon nations, have economies in which the major engine of growth is innovation, while the next tier have economies in which growth comes primarily from achieving greater efficiencies in the allocation of resources. Note that only four of the transition economies we study here, the Czech Republic, Estonia, Slovakia, and Slovenia, are classified in the top group as innovation-driven economies. The rest are classified as efficiency driven except Moldova that is a resource-driven country. While we have institutional data for all the 132 countries, we lack the individual variables for some countries. We denoted with one star those countries where individual data are from previous years and denoted with two stars those countries where individual data are estimations. Out of the transition countries these are Albania, Bulgaria, Moldova, and Ukraine. These countries' entrepreneurial scores should be viewed with discretion.

We highlight the examined 21 transition countries with light grey. One of the Baltic countries, Estonia, leads the rank of transition countries with 57.5 GEI points followed by the other two Baltic countries, Lithuania and Latvia. The most developed transition country, Slovenia, is next with just over 50 points and then Poland with just under. The two other innovation-driven economies, Slovakia and Czech Republic, have lower GEI points (46.5 and 44.5) than the development-implied trend line would predict. Hungary and Romania, with 45.3 and 45.1 points, are ahead of the more developed Czech Republic. Bulgaria and Croatia follow with just over 40 points each. Montenegro, Macedonia, Kazakhstan Ukraine, Russia, Moldova, Serbia, Albania, Georgia, and Bosnia and Herzegovina follow them with much lower GEI scores of 37.6-28.8. With the exception of Russia and Kazakhstan, these GEI scores are pretty much in line with expectations given the level of economic development in these countries. On the other hand, both Kazakhstan and Russia have much lower entrepreneurship scores than predicted by level of development. Russia occupies the 68th place in the global ranking, ahead of Moldova, Serbia, Albania, Georgia, and Bosnia but behind Montenegro, Macedonia, Kazakhstan, and Ukraine.

[Table 3]

Table 4 provides us more details about the connection between the GEI scores and the development of the countries. After calculating the third degree polynomial adjusted scores for each of the countries we can examine the differences between the actual GEI scores and GEI scores implied by per capita GDP (GEI trend).

[Table 4]

The average deviation score of the transition countries is quite small (and positive) but this small average hides some very high deviations, both positive and negative. Among the positive, the three Baltic countries have GEI scores around 20 percent above that predicted by their level of economic development. So does the much poorer Ukraine.

Most of the countries with GEI scores below predicted have very small deviations from zero. The Czech Republic breaks into double digits with a GEI score of about 11.5 percent below predicted. Kazakhstan, a resource-rich country that, like Russia, is over-reliant on energy exports and has failed to develop a diversified economy, has a score around 20 percent lower than predicted. And then there is Russia, by far the worst performer in terms of GEI score relative to its level of economic development, with a score nearly 30 percent below predicted.
This is certainly in line with our expectations, as stated in Hypothesis 1.

Table 5 shows GEI scores for Russia for 2002 and 2006 through 2014 (all substantially below the average of 40.7 over all transition countries in 2014). Although there was some improvement

from 2002 to 2006, the GEI score has been remarkably stagnant since then. The score was 32.1 in 2006 and 32.2 in 2014. Other than an initial early improvement, our expectation as expresses in Hypothesis 2 is borne out.

[Table 5]

Table 5 also shows the three sub-indexes Attitudes (ATT), Abilities (ABT), and Aspirations (ASP). While Russia's 2014 GEI score is 21% lower than the transition country average, not all of the sub-indexes are all that low. ABT is very close to the average, only six percent under. ATT is 13 percent below the average. The big difference is with ASP, which is 41 percent below the transition average. Interestingly, this is the sub-index where the transition countries are the strongest on average.

Examining further differences in terms of the fourteen pillars of entrepreneurship, we compare Russia to the efficiency-driven transition and non-transition countries in Figure 5. The average GEI score for the non-transition efficiency-driven countries is 33.7; for the transition efficiency-driven countries, the average is 39.5. This difference closely reflects differences in per capita GDP. However, the two country groups have rather different pillar profiles: The non-transition countries are better in opportunity perception, risk acceptance, opportunity startups, competition, and product innovation. The differences are marginal in networking and cultural support. Finally, the transition countries are better in all the other seven pillars. The differences are particularly high in internationalization and risk capital.

Russia does not resemble either of the two country groups. The Attitude-related pillars are more similar to the transition countries with its low opportunity perception and high networking. At the same time, the cultural support of entrepreneurship is extremely low in Russia. In the Abilities sub-index, Russia scores extremely high in human capital, since most Russian entrepreneurs have a tertiary-education degree. The characteristics of Russia's Aspiration-related pillars are more similar to the non-transition efficiency-driven countries, but even here Russia has extremely bad performance in internationalization and also in risk capital. It is also straightforward that the pillars are not really harmonized; Russia is wasting 14% of its resources because of the imbalances of the pillars.

[Figure 5]

Table 6 provides us further details about Russia's entrepreneurial profile at the variable level. Russia is among the best countries (top 25%) in four variables and above average in another six variables. Most of Russia's institutional variables are in the below-average dark grey zone except corruption, technology absorption, and business strategy. Nine out of Russia's individual variables are in the darkest grey zone implying that the entrepreneurial characteristics of new Russian entrepreneurs, nascent, and startup businesses are very low compared to other countries.

[Table 6]

Finally, we examine Russia's position in terms of individual and institutional development. We show the averages of the fourteen individual and the fourteen institutional variables in Table 7.

The innovation-driven transition countries have higher institutional and individual scores, on average, than do both transition and non-transition efficiency-driven countries. However, the difference is much larger for the institutional variables (0.12) than the individual variables (0.04). Interestingly, there is little difference between transition and non-transition efficiency-driven countries. The former have a marginally higher institutional average and a marginally lower individual average.

How does Russia fit into this picture? Russia actually does well with its institutional average. This is not surprising given Russia's past role as the dominant republic in the former superpower, the Soviet Union. Still, its average is below the averages for the Baltic and Visegrad efficiency-driven, and certainly the innovation-driven, countries. The countries that Russia exceeds are substantially less developed. Russia's per capita income is more than double Albania's and triple Georgia's, for instance. Also, many of the countries with institutional variables averaging less than Russia's suffered years of violent conflict. Thus, we conclude that Hypothesis 3 is a quite accurate representation of Russia today.

On the other hand, Russia's average for individual variables is lower than any other transition country and is substantially below the average for all efficiency-driven transition countries. Hypothesis 4, therefore, does not go far enough to describe how poorly Russia is performing in terms of its individual variables. Rather, Russia's individual-variable average is below all transition countries, whether poor and conflict-burdened or not.

[Table 7]

5. Summary and conclusion

Based on a macro level analysis we conclude that Russia is not a normal country in the sense that its economy is about what one would expect it to be given its level of economic development, as Schleifer and Treisman (2005) claim. Though it began transition as one of the highest-income countries with a tremendous resource base and with high levels of education, a highly literate work force, a huge domestic market, and high levels of research and development, which are reflected today in high scores on some of the GEI institutional variables, it has largely failed to capitalize on these advantages, at least in terms of creating a vibrant, well balanced economy with high levels of entrepreneurship and business creation. Instead, it has lagged behind most of the other post-socialist economies, appearing more like those post-socialist countries that have much lower per capita incomes or have suffered from violent internal conflict or both.

While Russia's economic transition and macroeconomic condition has been widely investigated, there was much less written about the country's entrepreneurship development, perhaps because little entrepreneurship development has actually occurred (Aidis et al., 2008; Kuznetsov et al., 2000; Ojala and Isomäki, 2011). These studies agree that Russia's institutional development lags other transitional countries. Neither formal nor non-formal institutions support individual initiation and business startup (Chepurenko, 2011). In fact, regulation, limited rule of law, and corruption severely hinders innovation capacity and performance of existing businesses (Chadee and Roxas, 2013). The presence of unproductive and even organized crime-related destructive entrepreneurship is more prevalent as compared to other transition countries (Volkov, 1999).

Unlike other studies using single-level entrepreneurial measures, the GEI methodology provides a methodology to analyze Russia's quality-related individual as well as institutional features from a system perspective. We set up four hypotheses to answer our main research question, whether Russia is a normal country in terms of entrepreneurship. The in-depth analysis of Russia's entrepreneurial profile prevails significant differences both in comparison to other transition countries and similarly developed efficiency-driven economies. According to the three sub-indices of entrepreneurship, Russia's entrepreneurial profile is similar to the other former socialist countries in attitudes and abilities. However, Russia's scores are less than the other transition country score averages in six out of the nine pillars of entrepreneurial attitudes and abilities. The exceptions are opportunity perceptions, networking, and human capital. The deviations are even higher in the five entrepreneurial aspirations pillars where Russia is well behind the transition countries. While the overall development of the financial markets is good and Russia spends a lot for R&D, informal investment and outdated technology hinder entrepreneurial aspiration. Based on the extremely low score in internationalization, it seems that Russia is still a closed country. These differences are even higher if we compare Russia's scores to the similarly developed Visegrad countries.

Thus, to sum up, Russia's transition from the socialist period to date has been distinctly unimpressive, despite the many advantages cited above, including its huge resource base, the overall level of education, R&D spending, and a huge domestic market, Russia has so far failed to create the conditions necessary for entrepreneurship and business start-up, which may bode poorly for Russia's future economic development.

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Appendix

Appendix 1A. The description of the individual variables used in the GEI

Individual variable	Description
Opportunity Recognition	The percentage of the 18-64 aged population recognizing good conditions to start business next 6 months in area he/she lives
Skill Perception	The percentage of the 18-64 aged population claiming to posses the required knowledge/skills to start business
Risk Acceptance	The percentage of the 18-64 aged population stating that the fear of failure would not prevent starting a business
Know Entrepreneurs	The percentage of the 18-64 aged population knowing someone who started a business in the past 2 years
Carrier	The percentage of the 18-64 aged population saying that people consider starting business as good carrier choice
Status	The percentage of the 18-64 aged population thinking that people attach high status to successful entrepreneurs
Career Status	The status and respect of entrepreneurs calculated as the average of Carrier and Status
Opportunity Motivation	Percentage of the TEA businesses initiated because of opportunity start-up motive
Technology Level	Percentage of the TEA businesses that are active in technology sectors (high or medium)
Educational Level	Percentage of the TEA businesses owner/managers having participated over secondary education
Competitors	Percentage of the TEA businesses started in those markets where not many businesses offer the same product
New Product	Percentage of the TEA businesses offering products that are new to at least some of the customers
New Tech	Percentage of the TEA businesses using new technology that is less than 5 years old average (including 1 year)
Gazelle	Percentage of the TEA businesses having high job expectation average (over 10 more employees and 50% in 5 years)
Export	Percentage of the TEA businesses where at least some customers are outside country (over 1%)
Informal Investment Mean	The mean amount of 3 year informal investment
Business Angel	The percentage of the 18-64 aged population who provided funds for new business in past 3 years excluding stocks & funds, average
Informal Investment	The amount of informal investment calculated as INFINVMEAN* BUSANG

Source: Own construction

Appendix 1B. The description and source of the institutional variables used in the GEI

Institutional variable	Description	Source of data	Data availability
Domestic Market	Domestic market size that is the sum of gross domestic product plus value of imports of goods and services, minus value of exports of goods and services, normalized on a 1–7 (best) scale. 2014-2015 data	World Economic Forum	World Economic Forum dataset http://reports.weforum.org/global-competitiveness-report-2014-2015/
Urbanization	Urbanization that is the percentage of the population living in urban areas, data are from the Population Division of the United Nations, 2014	United Nations	http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS/countries
Market Agglomeration	The size of the market: A combined measure of the domestic market size and the urbanization that later measures the potential agglomeration effect. Calculated as Domestic market*Urbanization	Own calculation	-
Tertiary Education	Gross enrolment ratio in tertiary education, 2014 or latest available data.	UNESCO	http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=167
Business Risk	The business climate rate "assesses the overall business environment quality in a country… It reflects whether corporate financial information is available and reliable, whether the legal system provides fair and efficient creditor protection, and whether a country's institutional framework is favorable to intercompany transactions" (http://www.trading-safely.com/). It is a part of the Country Risk Rate. The alphabetical rating is turned to a seven point Likert scale from 1 ("D" rating) to 7 (A1 rating). 30 December 2014 data.	Coface	http://www.coface.com/CofacePortal/COM_en_EN/
Internet Usage	The number Internet users in a particular country per 100 inhabitants, 2014 data	International Telecommunication Union	http://www.itu.int/

Appendix 1B. Continued

Institutional variable	Description	Source of data	Data availability
Corruption	The Corruption Perceptions Index (CPI) measures the perceived level of public-sector corruption in a country. "The CPI is a "survey of surveys", based on 13 different expert and business surveys." (http://www.transparency.org/policy_research/surveys_indices/cpi/2009) Overall performance is measured on a ten point Likert scale. Data are from 2010.	Transparency International	http://www.transparency.org/
Economic Freedom	"Business freedom is a quantitative measure of the ability to start, operate, and close a business that represents the overall burden of regulation, as well as the efficiency of government in the regulatory process. The business freedom score for each country is a number between 0 and 100, with 100 equaling the freest business environment. The score is based on 10 factors, all weighted equally, using data from the World Bank's *Doing Business* study". (http://www.heritage.org/Index/pdf/Index09_Methodology.pdf). Data are from 2010.	Heritage Foundation/ World Bank	http://www.heritage.org/index/explore.aspx
Tech Absorption	Firm level technology absorption capability: "Companies in your country are (1 = not able to absorb new technology, 7 = aggressive in absorbing new technology)".2014-2015 data	World Economic Forum	World Economic Forum dataset http://reports.weforum.org/global-competitiveness-report-2014-2015/
Staff Training	The extent of staff training: "To what extent do companies in your country invest in training and employee development? (1 = hardly at all; 7 = to a great extent)".2014-2015 data	World Economic Forum	World Economic Forum dataset http://reports.weforum.org/global-competitiveness-report-2014-2015/
Market Dominance	Extent of market dominance: "Corporate activity in your country is (1 = dominated by a few business groups, 7 = spread among many firms)". 2014-2015 data.	World Economic Forum	World Economic Forum dataset http://reports.weforum.org/global-competitiveness-report-2014-2015/

Appendix 1B. Continued

Institutional variable	Description	Source of data	Data availability
Technology Transfer	These are the innovation index points from GCI: a complex measure of innovation including investment in research and development (R&D) by the private sector, the presence of high-quality scientific research institutions, the collaboration in research between universities and industry, and the protection of intellectual property.	World Economic Forum	World Economic Forum dataset http://reports.weforum.org/global-competitiveness-report-2014-2015/
GERD	Gross domestic expenditure on Research & Development (GERD) as a percentage of GDP, year 2013 or latest available data Puerto Rico, Dominican Republic, and United Arab Emirates are estimated	UNESCO	http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=2656
Business Strategy	Refers to the ability of companies to pursue distinctive strategies, which involves differentiated positioning and innovative means of production and service delivery.2014-2015 data	World Economic Forum	WorlEconomc Forum dataset http://reports.weforum.org/global-competitiveness-report-2014-2015/
Globalization	A part of the Globalization Index measuring the economic dimension of globalization. The variable involves the actual flows of trade, Foreign Direct Investment, portfolio investment and income payments to foreign nationals as well as restrictions of hidden import barriers, mean tariff rate, taxes on international trade and capital account restrictions. Data are from the 2014 report and based on the 2010 survey.	KOF Swiss Economic Institute	http://globalization.kof.ethz.ch/
Depth of Capital Market	The Depth of Capital Market is one of the six sub-indices of the Venture Capital and Private Equity index. This variable is a complex measure of the size and liquidity of the stock market, level of IPO, M&A and debt and credit market activity. Note that there were some methodological changes over the 2006-2012 time period so previous years comparison is not perfect. The data set is provided by Alexander Groh.*	EMLYON Business School France and IESE Business School, Barcelona, Spain	Groh, A, H.Liechtenstein and K. Lieser 2012 The Global Venture Capital and Private Equity Country Attractiveness Index 2012 Annual, http://blog.iese.edu/vcpeindex/about/

Source: Own construction

*We thank Alexander Groh and his team for the provision of the Depth of Capital Market data.

Appendix 2. The GEI methodology

In the constructing the index we followed seven points:

1 ***The selection of variables:*** We start with the variables that come directly from the original sources for each country involved in the analysis. The variables can be at the individual level (personal or business) that are coming from the GEM Adult Population Survey or the institutional/environmental level that are coming from various other sources.

2 ***The construction of the pillars:*** We calculate all pillars from the variables using the interaction variable method; that is, by multiplying the individual variable with the proper institutional variable.

$z_{i,j} = IND_{i,j} * INS_{i,j}$ (1)

for all j= 1 ... k, the number of individual and institutional variables

$IND_{i,j}$is the original score value for country i and variable j individual variable

$INS_{i,j}$is the original score value for country i and variable j institutional variable

$z_{i,j}$is the original pillar value for country i and pillar j

3 ***Normalization:*** pillars values were first normalized to a range from 0 to 1:

$x_{i,j} = \frac{z_{i,j}}{\max z_{i,j}}$ (2)

for all j= 1 ... k, the number of pillars

where $x_{i,j}$ is the normalized score value for country i and pillar j

$z_{i,j}$ is the pillar value for country i and pillar j

$max\ z_{i,j}$ is the maximum value for pillar j

4 ***Capping:*** 95 All index building is based on a benchmarking principle. In our case we selected the 95 percentile score adjustment meaning that any observed values higher than the 95 percentile is lowered to the 95 percentile.

5 ***Average pillar adjustment:*** The different averages of the normalized values of the indicators imply that reaching the same indicator values require different effort and resources. Since we want to apply GEDI for public policy purposes, the additional resources for the same marginal improvement of the indicator values should be the same components. Equation 3 shows the calculation of the average value of pillar j:

$$\bar{x}_j = \frac{\sum_{i=1}^{n} x_{i,j}}{n}. \qquad (3)$$

We want to transform the $x_{i,j}$ values such that the potential minimum value is 0 and the maximum value is 1:

$$y_{i,j} = x_{i,j}^{k} \qquad (4)$$

where k is the "strength of adjustment", the k-th moment of X_j is exactly the needed average, $\bar{y}_j$. We have to find the root of the following equation for k

$$\sum_{i=1}^{n} x_{i,j}^{k} - n\bar{y}_j = 0 \qquad (5)$$

It is easy to see based on previous conditions and derivatives that the function is decreasing and convex which means it can be quickly solved using the well-known Newton-Raphson method with an initial guess of 0. After obtaining k, the computations are straightforward. Note that if

$\overline{x}_j < \overline{y}_j \quad k < 1$
$\overline{x}_j = \overline{y}_j \quad k = 1$
$\overline{x}_j > \overline{y}_j \quad k > 1$

that is k be thought of as the strength (and direction) of adjustment.

6 ***Penalizing:*** After these transformations, the PFB methodology was used to create indicator-adjusted PFB values. We define our penalty function following as:

$$h_{(i),j} = miny_{(i),j} + \mathrm{a}(1 - e^{-\mathrm{b}(y_{(i)j} - miny_{(i),j})}) \qquad (6)$$

where $h_{i,j}$ is the modified, post-penalty value of pillar j in country i

$y_{i,j}$ is the normalized value of index component j in country i

y_{min} is the lowest value of $y_{i,j}$ for country i.

i = 1, 2,……n = the number of countries

j= 1, 2,…….m= the number of pillars

0 ≤a, b ≤ 1 are the penalty parameters, the basic setup is a=b=1

7. The pillars are the basic building blocks of the sub-index: entrepreneurial attitudes, entrepreneurial abilities, and entrepreneurial aspirations. The value of a sub-index for any country is the weighted average of its average equalized pillars for that sub-index multiplied by a 100. The maximum value of the sub-indices is 100 and the potential minimum is 0, both of which reflect the relative position of a country in a particular sub-index.

$$ATT_i = 100 \sum_{j=1}^{5} y_{i,j} * w_{i,j} \qquad (7a)$$

$$ABT_i = 100 \sum_{j=6}^{9} y_{i,j} * w_{i,j} \qquad (7b)$$

$$ASP_i = 100 \sum_{j=10}^{14} y_{i,j} * w_{i,j} \qquad (7c)$$

where $y_{i,j}$ is the average adjusted value of pillar j in country i

$w_{i,j}$ is the is the penalty-weight of pillar j in country i

i = 1, 2,……n = the number of countries

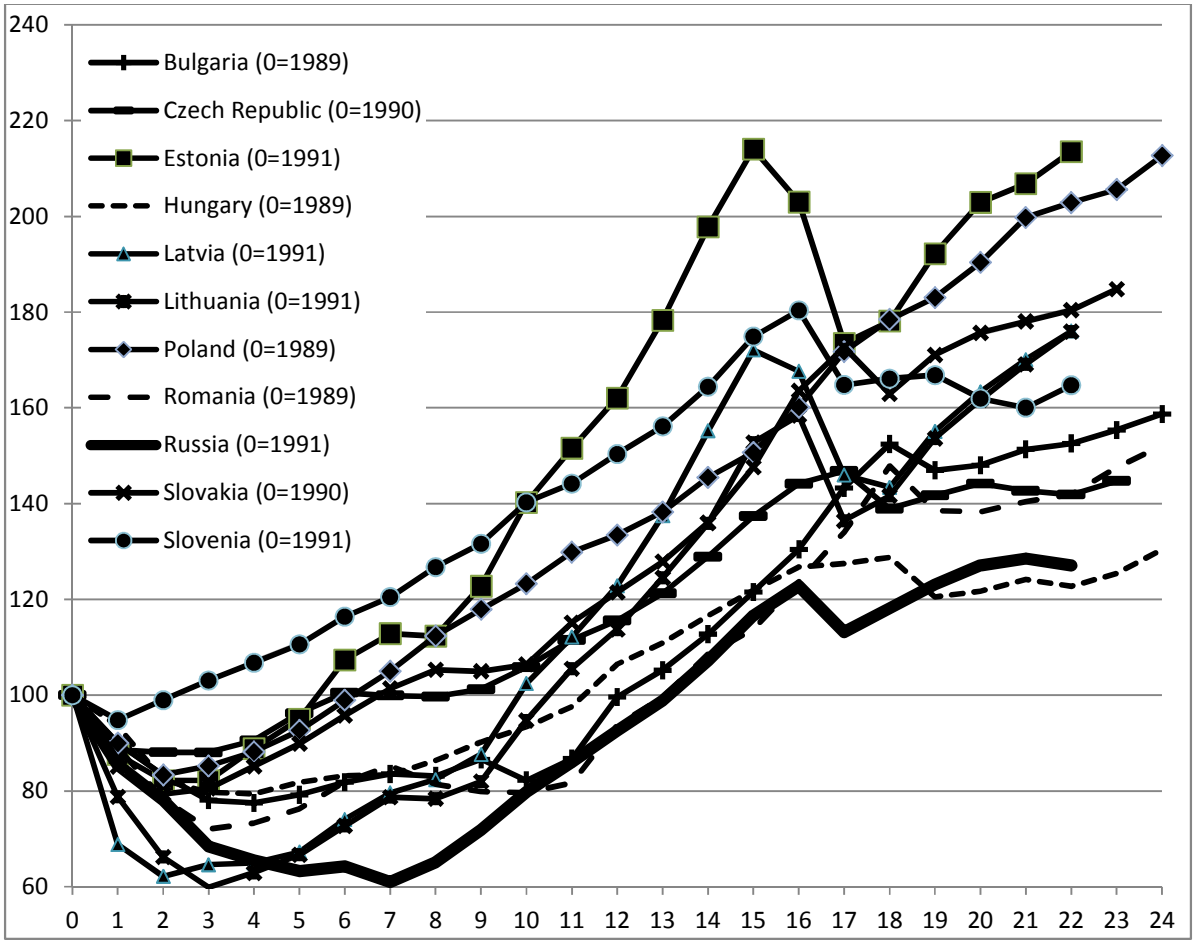
j= 1, 2,.……14= the number of pillars

8. The super-index, the Global Entrepreneurship Index, is simply the average of the three sub-indices. Since 100 represents the theoretically available limit the GEDI points can also be interpreted as a measure of efficiency of the entrepreneurship resources

$$GEI_i = \frac{1}{3}(ATT_i + ABT_i + ASP_i) \qquad (8)$$

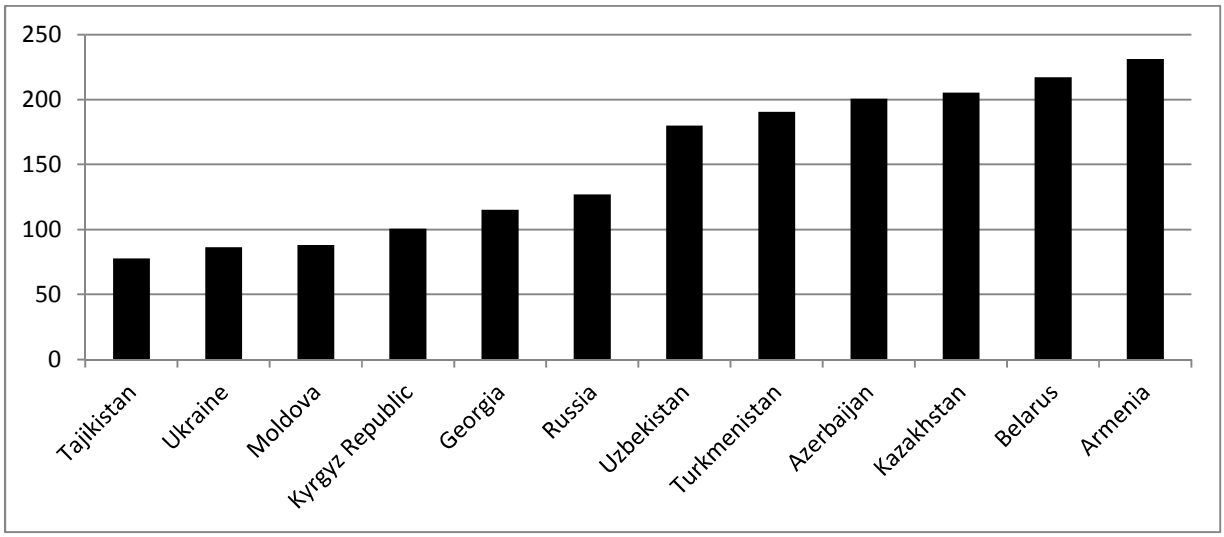
where i = 1, 2,……n = the number of countries

Figure 1. Index of Per Capita GDP (PPP) for Russia and EU Post-Socialist Countries



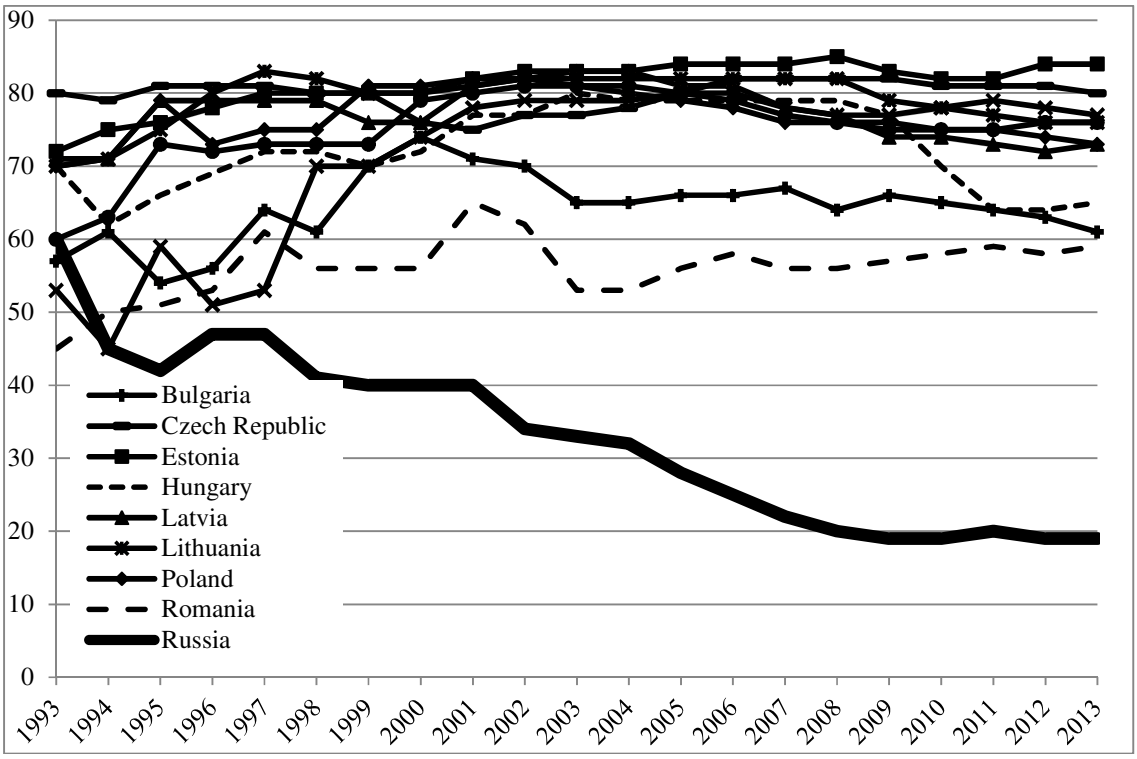
Source: Own construction based on World Bank (2015). Early values extrapolated back using growth rates calculated from The Maddison-Project (2013).

Figure 2. Percent size of Per Capita GDP Relative to 1991 for Russia and Non-Baltic FSU Countries



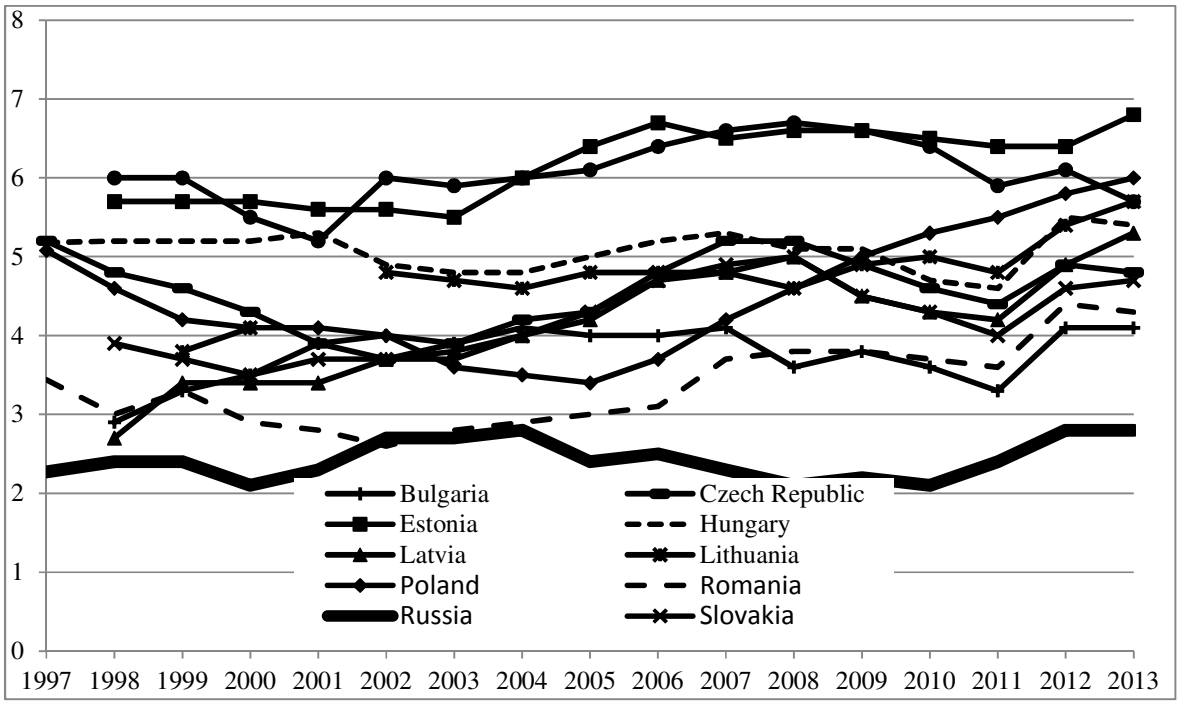
Source: Own construction based on World Bank (2015)

Figure 3. Freedom House Index of Press Freedom for Russia and EU Post-Socialist Countries



Source: Own construction based on Freedom House (2015)

Figure 4. Transparency International's Corruption Perceptions Index for EU Post-Socialist Countries



Source: Own construction based on Transparency International (1997-2013)

Table 1. The structure of the Global Entrepreneurship Index

THE STRUCTURE OF THE GLOBAL ENTREPRENEURSHIP INDEX		
Attitudes Sub-Index	**Abilities Sub-Index**	**Aspirations Sub-Index**
OPPORTUNITY PERCEPTION	**COMPETITION**	**RISK CAPITAL**
OPPORTUNITY	*COMPET*	*INFINV*
MARKETAGGLOM	MARKDOM	DEPTH OF CAPITAL MARKET
STARTUP SKILLS	**HUMAN CAPITAL**	**INTERNATIONALI-ZATION**
SKILL	*HIGHEDUC*	*EXPORT*
EDUCPOSTSEC	STAFFTRAIN	GLOB
RISK PERCEPTION	**TECHNOLOGY ABSORPTION**	**HIGH GROWTH**
RISK ACCPTANCE	*TECHSECT*	*GAZELLE*
BUSINESS RISK	TECHABSORP	BUSS STRATEGY
NETWORKING	**OPPORTUNITY STARTUP**	**PROCESS INNOVATION**
KNOWENT	*TEAOPPORT*	*NEWT*
INTERNETUSAGE	FREEDOM	GERD
CULTURAL SUPPORT		**PRODUCT INNOVATION**
CARSTAT		*NEWP*
CORRUPTION		TECHTRANSFER

Table 2. The description of the GEI index pillars

Pillar name	Description
Opportunity Perception	Opportunity Perception refers to the entrepreneurial opportunity perception potential of the population weighted with the size and the level of agglomeration of that country reflecting the potential size of the market.
Start-up Skills	Start-up Skill captures the perception of start-up skills in the population and weights this aspect with the quality of human resources available for entrepreneurial processes in the country.
Risk Perception	Risk perception captures the inhibiting effect of fear of failure of the population on entrepreneurial action combined with a measure of the country's business risk.
Networking	This pillar combines two aspects of Networking: (1) a proxy of the ability of potential and active entrepreneurs to access and mobilize opportunities and resources and (2) the possible use of the internet.
Cultural Support	The Cultural Support pillar combines how positively a given country's inhabitants view entrepreneurs in terms of status and career choice and how the level of corruption in that country affects this view.
Opportunity Startup	The Opportunity Startup pillar captures the prevalence of individuals who pursue potentially better quality opportunity-driven start-ups (as opposed to necessity-driven start-ups) and weights this against regulatory constraints.
Technology Absorption	The Technology Absorption pillar reflects the technology-intensity of a country's start-up activity combined with a country's capacity for firm-level technology absorption.
Human Capital	The Human capital pillar captures the quality of entrepreneurs as weighing the percentage of start-ups founded by individuals with higher than secondary education with a qualitative measure of the propensity of firms in a given country to train their staff.
Competition	The Competition pillar measures the level of the product or market uniqueness of start-ups combined with the market power of existing businesses and business groups.
Product Innovation	The Product Innovation pillar captures the tendency of entrepreneurial firms to create new products. This pillar was created by weighting the percentage of firms that offer products that are new to at least some of their customers with a complex measure of innovation.
Process Innovation	The Process Innovation pillar captures the use of new technologies by start-ups combined with the Gross Domestic Expenditure on Research and Development (GERD). GERD serves as measurement of the systematic research activity as opposed to easy to copy technological improvements.
High Growth	The High Growth pillar is a combined measure of (1) the percentage of high-growth businesses that intend to employ at least ten people and plan to grow more than 50 percent in five years and (2) business strategy sophistication.
Internationalization	The Internationalization pillar captures the degree to which a country's entrepreneurs are internationalized, as measured by businesses' exporting potential weighted by the level of economic globalization of the country.
Risk Capital	The Risk Capital pillar combines two measures of finance: informal investment in start-ups (Reynolds et al., 2005) and a measure of the availability of finance. The Depth of Capital Market is one of the six sub-indices of the Venture Capital and Private Equity Index (Groh et al., 2012).

Source: Acs et al. (2014b)

Table 3. The position of the examined transition countries in Global Entrepreneurship Index Rank of the Countries, 2014

Rank	Country	GDP 2013	GEI	DEV.	Rank	Country	GDP 2013	GEI	DEV.	Rank	Country	GDP 2013	GEI	DEV.
1	United States	51 340	86.6	3	**45**	Greece	24 540	42.3	3	**89**	Jamaica	8 607	27.4	2
2	Canada	41 894	79.7	3	**46**	Bulgaria**	15 695	41.8	2	**90**	Egypt*	10 733	27.4	2
3	Australia	42 831	78.4	3	**47**	Uruguay	18 966	41.4	2	**91**	Philippines	6 326	26.9	1
4	Sweden	43 741	76.2	3	**48**	Italy	34 167	41.3	3	**92**	Brazil	14 555	26.2	2
5	Denmark	41 991	76.2	3	**49**	Cyprus**	27 394	41.2	3	**93**	Paraguay**	7 833	26.0	2
6	Taiwan	40 393	69.8	3	**50**	Croatia	20 063	40.1	2	**94**	Lao PDR**	4 667	25.9	1
7	Iceland*	41 250	69.2	3	**51**	Lebanon*	16 623	39.8	2	**95**	Swaziland**	6 471	25.8	2
8	Switzerland	54 697	68.2	3	**52**	Barbados	15 299	38.6	2	**96**	El Salvador	7 515	25.7	2
9	United Kingdom	37 017	68.0	3	**53**	South Africa	12 106	38.6	2	**97**	Sri Lanka**	9 426	25.5	2
10	France	37 154	66.7	3	**54**	Montenegro*	14 152	37.6	2	**98**	India	5 238	24.9	1
11	Singapore	76 237	66.2	3	**55**	Brunei Darussalam**	69 474	37.4	1	**99**	Ghana*	3 864	24.6	1
12	Netherlands	44 945	66.0	3	**56**	Malaysia	22 589	36.9	2	**100**	Venezuela*	17 615	24.1	1
13	Ireland	44 931	65.9	3	**57**	Macedonia*	11 609	36.7	2	**101**	Cambodia**	2 944	23.0	1
14	Germany	43 207	64.8	3	**58**	Costa Rica	13 431	36.2	2	**102**	Zambia*	3 800	22.9	1
15	Austria	44 376	63.5	3	**59**	Kazakhstan	22 467	35.1	2	**103**	Indonesia	9 254	22.8	2
16	Chile	21 714	62.3	2	**60**	China	11 525	34.9	2	**104**	Kenya**	2 705	22.1	1
17	Belgium	40 607	62.1	3	**61**	Argentina	18 709	34.8	2	**105**	Honduras**	4 445	22.0	1
18	Finland	38 846	62.0	3	**62**	Tunisia*	10 768	34.5	2	**106**	Senegal**	2 170	21.7	1
19	Norway	62 448	61.6	3	**63**	Ukraine**	8 508	33.6	2	**107**	Guatemala	7 063	21.2	2
20	United Arab Emirates*		61.3	2	**64**	Thailand	13 932	33.4	2	**108**	Guyana**	6 336	19.8	2
21	Israel	31 029	57.6	3	**65**	Jordan*	11 407	33.3	2	**109**	Pakistan*	4 454	19.8	1
22	Estonia	25 132	57.5	3	**66**	Botswana	15 247	33.1	1	**110**	Nicaragua**	4 494	19.5	1
23	Luxembourg	87 737	57.3	3	**67**	Panama	18 793	32.3	2	**111**	Suriname	15 556	19.3	2
24	Qatar		56.6	3	**68**	Russia	23 564	32.2	2	**112**	Angola	7 488	18.6	1
25	Lithuania	24 483	55.0	2	**69**	Bolivia	5 934	32.0	1	**113**	Rwanda**	1 426	18.4	1
26	Latvia*	21 825	53.7	2	**70**	Peru	11 396	31.9	2	**114**	Ethiopia**	1 336	17.6	1
27	Korea	32 708	53.6	3	**71**	Dominican Republic*	11 795	31.5	2	**115**	Cameroon	2 739	17.6	1
28	Turkey*	18 660	52.9	2	**72**	Namibia*	9 276	31.3	2	**116**	Mozambique **	1 070	17.6	1
29	Bahrain**	42 428	52.1	2	**73**	Moldova**	4 521	31.3	1	**117**	Myanmar**	0	17.5	1
30	Japan	35 614	50.7	3	**74**	Serbia*	12 893	31.0	2	**118**	Gambia. The**	1 608	17.4	1
31	Slovenia	27 576	50.7	3	**75**	Algeria*	12 893	30.6	1	**119**	Liberia**	850	17.4	1
32	Spain	31 596	50.6	3	**76**	Albania**	10 405	30.1	2	**120**	Côte d'Ivoire**	3 107	17.0	1
33	Portugal	25 596	50.2	3	**77**	Belize	8 215	29.8	2	**121**	Tanzania**	1 718	16.8	2
34	Poland	22 877	49.5	2	**78**	Morocco*	6 967	29.4	2	**122**	Mali**	1 589	16.6	1
35	Puerto Rico	33 638	48.4	3	**79**	Libya*	20 371	28.9	1	**123**	Uganda	1 368	15.9	1
36	Saudi Arabia*	52 068	47.9	1	**80**	Iran	15 090	28.8	1	**124**	Benin**	1 733	15.8	1
37	Slovakia	26 263	46.5	3	**81**	Georgia	6 946	28.8	2	**125**	Bangladesh*	2 853	15.2	1
38	Oman**	42 649	45.9	2	**82**	Bosnia and Herzegovina	9 387	28.8	2	**126**	Burkina Faso	1 582	15.1	1
39	Kuwait**		45.7	1	**83**	Trinidad & Tobago	29 469	28.3	3	**127**	Madagascar* *	1 369	14.6	1
40	Hong Kong*	51 509	45.4	3	**84**	Vietnam	5 125	28.2	1	**128**	Sierra Leone**	1 495	14.4	1
41	Hungary	22 914	45.3	2	**85**	Nigeria*	5 423	28.1	1	**129**	Mauritania**	2 945	13.2	1
42	Romania	18 200	45.1	2	**86**	Gabon**	18 646	27.8	1	**130**	Malawi*	755	12.4	1
43	Colombia	12 025	44.9	2	**87**	Mexico	16 291	27.5	2	**131**	Burundi**	747	11.9	1
44	Czech Republic*	27 959	44.5	3	**88**	Ecuador	10 541	27.5	2	**132**	Chad**	2 022	9.9	1

Source: Own calculations

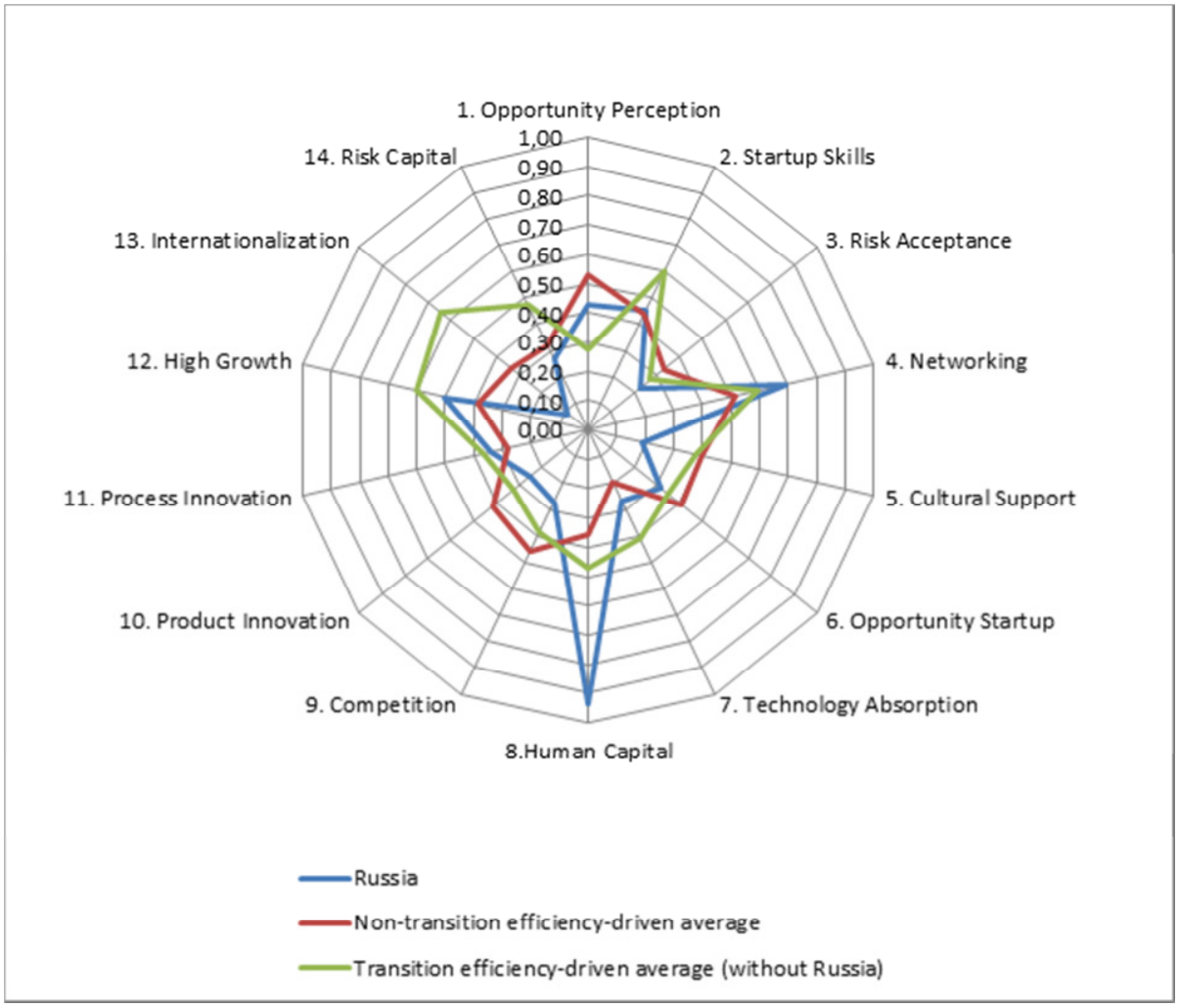
Legend: GDP: 2011 per capita GDP in Purchasing Power Parity, in constant 2011 $ International, World Bank
DEV. = level of development: 1: resource driven country, 2: efficiency driven country, 3: innovation driven country
*Country individual data are from earlier time period, **Country individual data are estimated,
The examined transition countries are denoted with light grey color.

Table 5. The change of Russia's GEI scores, 2002-2014

Country	Year	ATT	ABT	ASP	GEI
Russia	2002	16.5	27.8	31.3	25.2
Russia	2006	26.4	40.0	29.9	32.1
Russia	2007	21.4	41.1	28.9	30.5
Russia	2008	20.8	39.5	28.3	29.5
Russia	2009	25.0	36.2	28.5	29.9
Russia	2010	24.7	33.7	26.1	28.2
Russia	2011	29.2	35.9	25.1	30.1
Russia	2012	31.3	36.1	24.9	30.8
Russia	2013	31.0	37.0	25.8	31.3
Russia	2014	34.0	36.4	26.2	32.2
Transition average	**2014**	**38.9**	**38.9**	**44.3**	**40.7**

Source: Own calculations

Figure 5. The comparison of Russia, the efficiency driven transitional non transition countries' pillar values



Source: Own construction

Table 6. Russia's Full traffic of individual variables, institutional variables and the fourteen pillars (Based on 2014 GEM data)

	PILLARS		INSTITUTIONAL VARIABLES		INDIVIDUAL VARIABLES	
Entrepreneurial Attitudes	Opportunity perception	0.42	Market Agglomeration	0.88	Opportunity Recognition	0.38
	Start-up skills	0.45	Tertiary Education	0.90	Skill Perception	0.33
	Risk acceptance	0.22	Business Risk	0.37	Risk Perception	0.51
	Networking	0.69	Internet Usage	0.80	Know Entrepreneurs	0.63
	Cultural support	0.19	Corruption	0.39	Career Status	0.59
	Entrepreneurial Attitudes	**34.0**				
Entrepreneurial Abilities	Opportunity startup	0.32	Economic Freedom	0.61	Opportunity Motivation	0.36
	Technology absorption	0.26	Tech Absorption	0.46	Technology Level	0.42
	Human capital	0.94	Staff Training	0.55	Educational Level	1.00
	Competition	0.27	Market Dominance	0.60	Competitors	0.31
	Entrepreneurial Abilities	**36.4**				
Entrepreneurial Aspirations	Product innovation	0.25	Technology Transfer	0.58	New Product	0.44
	Process innovation	0.34	GERD	0.71	New Tech	0.30
	High growth	0.50	Business Strategy	0.50	Gazelle	0.69
	Internationalization	0.09	Globalization	0.58	Export	0.15
	Risk capital	0.27	Depth of Capital Market	0.80	Informal Investment	0.36
	Entrepreneurial Aspirations	**26.2**				
	GEI	**32.2**	**Institutional**	**0.62**	**Individual**	**0.46**

Source: Own calculations based on GEM (2014) data

Legend: white: best 25%; light grey: best 50%; dark grey: worst 50%; darkest grey: worst 25%

Table 7. Individual and the institutional variable averages for the transition countries and the non-transition efficiency-driven countries (does not include resource-driven Moldova)

Country	Institutional average	Individual average
Innovation-driven transition		
Czech Republic	0.71	0.58
Estonia	0.72	0.65
Slovakia	0.64	0.63
Slovenia	0.69	0.66
Average	**0.69**	**0.63**
Efficiency-driven transition		
Albania	0.48	0.56
Bosnia and Herzegovina	0.47	0.58
Bulgaria	0.57	0.61
Croatia	0.58	0.59
Georgia	0.49	0.50
Hungary	0.67	0.54
Kazakhstan	0.51	0.64
Latvia	0.65	0.67
Lithuania	0.70	0.66
Macedonia	0.53	0.60
Montenegro	0.52	0.66
Poland	0.69	0.59
Romania	0.57	0.65
Russia	**0.62**	**0.46**
Serbia	0.48	0.57
Ukraine	0.53	0.58
Average	**0.57**	**0.59**
Efficiency-driven average non-transition	**0.55**	**0.60**

Source: Own calculations