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LIFE CYCLE OF ENTREPRENEURS: REGIONAL FEATURES

I. S. Pinkovetskaia (a), I. N. Nikitina (b)*
*Corresponding author

(a) Ulyanovsk State University, 432017, Leo Tolstoy Str., 42, Ulyanovsk, Russia, judy54@yandex.ru
(b) Samara State University of Economics, 443090, Soviet Army Str., 141, Samara, Russia, i.n.nikitina@gmail.com

Abstract

Currently, the role of entrepreneurs in national economies has increased significantly. They ensure the development of the production of goods, works and services in the vast majority of countries, create new jobs, and increase the level of competitiveness and innovation. The purpose of the research is to investigate the parameters describing three stages of the life cycle of entrepreneurs, namely the creation of their business, the activity of established entrepreneurs and termination of business activity. The study is based on surveys conducted in a number of modern economies. During the study the values of the distribution of the number of entrepreneurs in three main stages of the life cycle of their activity are determined. The differentiation by country of indicators of the proportion of entrepreneurs who are at different stages of their activity to the total adult population of these countries is shown. The ratios between the number of established business owners and the number of new entrepreneurs and those who have left the business, as well as between the number of early entrepreneurs and those who have ceased operations are calculated. Countries with high and low values of indicators are identified. The research has theoretical and practical significance both for government and for entrepreneurs. The results of the study can help government agencies and public organizations to solve the problems of monitoring the effectiveness of measures for entrepreneurship support, as well as to determine strategies for improving the efficiency of business activity.

Keywords: Entrepreneurs, life cycle, countries, stages of entrepreneurial activity.

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1. Introduction

Entrepreneurship plays an important role in the modern economy. It provides a significant increase in the production of goods, works and services in the vast majority of countries, creates new jobs, increases the level of competitiveness and innovation. Theoretical works and empirical studies confirm that entrepreneurship is a key factor in the development of national economies (Acs, Åstebro, Audretsch, & Robinson, 2016). The paper (Ács & Naudé, 2012) concludes that previously industrial policy was aimed at creating and growing state-owned companies, and at present, such policy should be based on a partnership between entrepreneurs and the state. Moreover, relations between entrepreneurs and the state depend on the level of economic development of a particular country. The article (Gupta, Guha, & Krishnaswami, 2013) examines how internal and external factors influence the development of entrepreneurial activity.

The surveys on the projects of the Global Monitoring of Entrepreneurship that has been carried out over the past 20 years playes a significant role in the study of the life cycles of modern entrepreneurship.

Our article is devoted to the analysis of entrepreneurial activity, including the creation, development and liquidation of entrepreneurial structures and the assessment of indicators specific to the description of their life cycle in modern economies.

The present study contributes to the literature on modern economics. It enriches the theoretical ideas about the stages of entrepreneurial activity in various countries. Besides that, we contribute to modern research in this field by suggesting the use of normal distribution density functions as models for the distribution of proportions of entrepreneurs at different stages of their life cycle.

2. Problem Statement

In most countries, particularly developing countries, there is an urgent need for accelerated growth of the business sector. This growth requires an understanding of the proportions of entrepreneurs to the total number of adult population in different countries. Besides, it is necessary to evaluate these indicators for entrepreneurs who are at various stages of their economic activity.

We study the indicators characterizing such stages of the life cycle of entrepreneurs as nascent entrepreneurship, when a potential entrepreneur actively participates in the creation of his business; new entrepreneurship, when a business is created and it exists for less than 3.5 years (up to 42 months). These two stages of entrepreneurship are sometimes combined by the general term early entrepreneurial activity. Some aspects of the development of entrepreneurial structures in the early stages of their development are considered in the work (Peris-Ortiz, Ferreira, & Fernandes, 2018). The level of early entrepreneurial activity describes the proportion of citizens (aged 18 to 64 years) who are at the time of a sociological survey in the process of starting a business (that is, they are nascent entrepreneurs involved in creating their own business) or owning a new business for less than 42 months, to the total number of working-age adults.

The next stage is established (mature) entrepreneurship. The level of established entrepreneurship reflects the proportion of citizens who own businesses that have been operating for more than 42 months to the total number of working-age adults. This indicator gives an idea of sustainability of the business sector of the national economy. The established entrepreneurship ensures stable production of goods and the provision of services, employment, the development of innovative products and processes. The works

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(Godley & Casson, 2014; Hallberg, 2015; McMullen, 2015) specify the economic tactics and strategy of mature entrepreneurial activity.

The final stage of the life cycle is the termination of production activities by entrepreneurs. The termination of their activities by entrepreneurs, also called as exit from their own business, is currently attracting much less attention of researchers than early entrepreneurial activity and the activities of established entrepreneurs. But it is obvious that someday every entrepreneur will cease his activities. Therefore, termination of business is an integral part of a comprehensive understanding of entrepreneurship as an economic phenomenon. The article (De Tienne, 2010) describes exit as the process by which the founders of their businesses leave them, removing themselves from that ownership and decision-making.

Features specific to the stages of entrepreneurship development in transition (to the market) economies are given in the work (Welter, 2005). The article (Pilkova & Kovacicova, 2015) provides an analysis of the life cycles of entrepreneurship in Slovakia for the period from 2012 to 2014. The article (Doran, McCarthy, & O'Connor, 2018) considers entrepreneurial activity in different countries on the basis of regression modeling.

3. Research Questions

In the course of the study we ask the following three questions:

1. How is the number of entrepreneurs distributed across three main stages of activity?

2. Is there a differentiation by country of indicators of the proportions of entrepreneurs who are at different stages of their activity to the total adult population of these countries?

3. What are the ratios between the number of established entrepreneurs and the number of new entrepreneurs and those that have left the business, as well as between the number of early entrepreneurs and those who have ceased operations?

At the same time, we respond to recent calls in the literature for a more systematic study of the life cycle of entrepreneurs (Witczak et al., 2014). The study evaluates the density functions of the normal distribution, characterizing the proportions of entrepreneurs at different stages of activity and the ratios of these indicators.

4. Purpose of the Study

The purpose of the article is to evaluate indicators that describe three main stages of the life cycle of entrepreneurs in different countries based on the data for 2018 These are the following stages. The first is the emergence of entrepreneurial intentions, and their implementation by creating a functioning enterprise. The second is mature entrepreneurship, that is, not only owning the business for a considerable time, but also directly participating in production processes management. The third is exit from the business in connection with the desire to get a residual profit by selling the business, the emergence of unsolvable problems in doing business, or for personal reasons.

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5. Research Methods

In the process of the study, the following indicators that characterize the participation of the adult population in entrepreneurship at different stages in 48 countries are considered:

- The proportion of early entrepreneurs, including citizens engaged in the creation of their business and owners of new enterprises to the total adult population;
- The proportion of established entrepreneurs to the total adult population;
- The proportion of entrepreneurs who have ceased their activities to the total adult population.

In addition, the following indicators, describing the existing ratios of proportions of entrepreneurs at different stages of the life cycle are evaluated:

- The ratio of the number of established entrepreneurs to the number of new entrepreneurs;
- The ratio of the number of those involved in early entrepreneurial activity to the number of entrepreneurs who have ceased their activities;
- The ratio of the number of established entrepreneurs to the number of entrepreneurs who have ceased their activities.

The results from the survey conducted in 2018 during the implementation of the global entrepreneurship monitoring are used as the empirical data for our research (Bosma & Kelley, 2019). The survey represent adult population (aged 18 to 64 years). It includes a comprehensive set of indicators on entrepreneurship in each economy under consideration. The population survey covers both informal and formal entrepreneurial activities. This project presents data for 48 countries, that is, almost a quarter of the total number of independent countries. These countries are divided into regions as follows: Europe - 20 countries, Latin America - 9 countries, Asia and Oceania - 12 countries, Africa - 5 countries, North America - 2 countries. They belong to one of three main groups in terms of income: high incomes - 30 countries, medium incomes - 11 countries, low incomes - 7 countries.

Assessment of the above indicators was based on the construction of density functions of the normal distribution. The construction of such functions, as shown by previous studies conducted by the authors, allows to obtain unbiased characteristics of the studied economic processes (Pinkovetskaia, Nikitina, & Gromova, 2018). The methodology of using the density functions of the normal distribution for assessing specific and relative indicators is given in the article (Pinkovetskaia, 2015). Spatial data characterizing the proportions and ratios for each of 48 countries are considered as initial data.

6. Findings

6.1. Research Results

This article presents the models developed by the authors that describe the distribution by countries of the values of indicators characterizing the various stages of entrepreneurial activity. The development of these models was based on information collected during the survey on the Global Entrepreneurship Monitoring Project in 2018 (Bosma & Kelley, 2019). Models are, as indicated earlier, density functions of the normal distribution. Such functions (y) that describe the proportion of citizens at different stages of involvement in entrepreneurship (x , %) to the total adult population for each country are given below:

- The share of early entrepreneurs;

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$$y_1(x_1) = \frac{205.71}{6.09 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_1 - 12.09)^2}{2 \times 6.09 \times 6.09}}; \quad (1)$$

- The share of established entrepreneurs;

$$y_2(x_2) = \frac{192.02}{4.98 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_2 - 8.54)^2}{2 \times 4.98 \times 4.98}}; \quad (2)$$

- The share of entrepreneurs who have ceased operations.

$$y_3(x_3) = \frac{96.20}{2.27 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_3 - 4.34)^2}{2 \times 2.27 \times 2.27}}. \quad (3)$$

In addition, normal distribution functions (y) that describe the ratios of prevailing indicators of entrepreneurial activity (x) in each country were developed. They are listed below:

- The ratio of the number of established entrepreneurs to the number of new entrepreneurs;

$$y_4(x_4) = \frac{37.71}{0.88 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_4 - 1.62)^2}{2 \times 0.88 \times 0.88}}; \quad (4)$$

- The ratio of the number of new entrepreneurs to the number of entrepreneurs who have ceased operations;

$$y_5(x_5) = \frac{44.57}{1.06 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_5 - 2.85)^2}{2 \times, 1.06 \times 1.06}}; \quad (5)$$

- The ratio of the number of established entrepreneurs to the number of entrepreneurs who have ceased operations.

$$y_6(x_6) = \frac{68.57}{1.77 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_6 - 2.38)^2}{2 \times 1.77 \times 1.77}}. \quad (6)$$

The quality of the developed models was evaluated using three tests. A computational experiment showed that the calculated values of the statistics for Kolmogorov-Smirnov test are in the range from 0.010 to 0.106 and less than the tabulated value, which at a significance level of 0.05 is 0.152. The calculated values for Pearson test are from 0.063 to 4.610, that is less than the tabulated value of 9.49. All calculated values of the test statistics are larger than the tabulated value that is equal to 0.93 at a significance level of 0.01. Besides, a logical analysis of the developed models was carried out, which showed that they well approximate the initial data over the entire range of their changes. Therefore, all developed functions are of high quality.

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6.2. Discussion

The density functions of the normal distribution (1) - (6) make it possible to identify a number of significant patterns characterizing the stages of entrepreneurial activity in the economies of different countries in modern conditions. Table 01 presents the main indicators of functions (1) - (6), as well as the average values (column 2) and the change intervals for most (68%) countries (column 3). It is known that the boundaries of these intervals are calculated as follows: the root-mean-square deviations are respectively added and subtracted to the average values given in column 2.

Table 01. Indicators characterizing the stages of the life cycle of entrepreneurs

Indicators	Average values	Values typical for most countries
1	2	3
Share of early entrepreneurs, %	12.09	6.00-18.18
Share of established entrepreneurs, %	8.54	3.56-13.52
Share of entrepreneurs who have ceased operations, %	4.34	2.07-6.61
Ratio of the number of established entrepreneurs to the number of new entrepreneurs	1.62	0.74-2.50
Ratio of the number of new entrepreneurs to the number of entrepreneurs who have ceased operations	2.85	1.79-3.91
Ratio of the number of established entrepreneurs to the number of entrepreneurs who have ceased operations	2.38	0.61-4.15

Source: authors.

The data in column 2 of Table 01 shows that during the period under review, the countries' average share of early entrepreneurs is about 12%. That is, in 48 countries under consideration, on average, every eighth adult citizen was involved in the creation of a new business in 2018. In most countries, the share of early entrepreneurs ranges from 6% to 18%. The value, exceeding the upper limit of the interval given in column 3 of Table 01, was observed in Angola, Chile, Guatemala, Lebanon, Peru, Sudan, Colombia, Madagascar. These countries are developing countries with relatively low per capita income. They are located in Latin America (4 countries), Africa (3 countries) and Asia (1 country). Low values (less than 6 %) took place in Russia, Japan, Poland, Germany, Italy and Cyprus. Low values of the indicator in question is due to the fact that profitability of entrepreneurial activity is not higher than of wage labor in most of these countries. At the same time, both labor costs and the risk assumed by the entrepreneur are significantly greater than that of the employee.

The average share of established (mature) entrepreneurs in the countries under review is 8.54%. Accordingly, every twelfth adult (aged 18 to 64 years) in these countries had his own business, functioning for more than 3.5 years in 2018. In most countries, the share of established entrepreneurs is in the range from 3.5% to 13.5%. A significant differentiation of this indicator is due to the social, economic, demographic, historical features of the development of specific countries. The values, exceeding the upper limit of the interval given in column 3 of table 01 occurred in 2018 in such developing countries as Madagascar, Lebanon, Brazil, Thailand, Angola, and Taiwan. Low values of the share of established entrepreneurs (from 3.4% to 1.9%) were observed in Luxembourg, China, Saudi Arabia, the United Arab Emirates, France and Puerto Rico.

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The average share of entrepreneurs who have ceased operations in 48 countries in the total adult population is 4.34%. At the same time, for most countries this indicator ranges from 2.1% to 6.6%. The share value above the upper limit of this range was noted in Canada, Peru, Angola, Morocco, Sudan, Saudi Arabia, Thailand and Lebanon. Contrariwise, Bulgaria, Japan, Spain, Germany, Italy, Russia, Indonesia showed low values (less than 2.1%). It is interesting to note that in countries such as Russia, Japan, Germany, and Italy, low share values of early entrepreneurship and of entrepreneurs who ceased operations were simultaneously observed.

The number of established entrepreneurs in all the countries under consideration was, on average, 1.6 times more than the number of new entrepreneurs. The trend of exceeding established entrepreneurs was observed in 36 countries. In 12 countries only, the number of new entrepreneurs exceeded the number of established entrepreneurs. These in 2018 included Panama, Luxembourg, Canada, Chile, Sudan, Angola, Egypt, Guatemala, Puerto Rico, UAE, China, Saudi Arabia. A significant increase in the number of new entrepreneurs (more than 2.5 times) was in Poland, Greece, Italy, Switzerland, Germany, Japan and India.

The ratio of the number of those involved in early entrepreneurial activity to the number of entrepreneurs who ceased operations reached an average of 2.85. For most countries, this indicator ranged from 1.8 to 3.9. In 2018 Indonesia, Korea, the Netherlands, Madagascar, Colombia, Brazil, China and Panama demonstrated values greater than 4.0. While lower values (from 1.7 to 1.2) were recorded in countries such as Cyprus, Angola, Iran, Saudi Arabia, Egypt, Sudan, Morocco.

The average ratio of the number of established entrepreneurs to the number of entrepreneurs who ceased operations in 48 countries was 2.38. The trend of exceeding the number of established entrepreneurs was observed in 37 countries. The number of entrepreneurs who ceased operations exceeded the number of established entrepreneurs only in 11 countries: Luxembourg, Canada, France, Uruguay, Puerto Rico, Angola, Egypt, Sudan, UAE, Morocco, Saudi Arabia. At the same time Indonesia, Switzerland, Poland, Madagascar, Korea, the Netherlands, Brazil, Germany and Bulgaria showed the highest value of the above ratio (more than 4.15).

7. Conclusion

Research findings containing scientific novelty include the following:

- Indicators describing the existing levels of development of business structures at three main stages of their life cycle using the density functions of normal distribution are assessed;
- Indicators reflecting the ratio of the number of entrepreneurs belonging to three stages of entrepreneurial activity are evaluated;
- High quality of approximation of initial data by functions (1) - (6) is proved;
- Average values of the considered indicators for 48 countries are established;
- A significant differentiation of indicators describing the proportions of entrepreneurs who are at different stages of their life cycle is proved;
- Countries with high and low levels of the considered indicators are defined.

The research findings have theoretical and practical significance both for government and for entrepreneurs. The density functions of the normal distribution given in the article can be used in elaboration of concepts, plans and programs for the development of entrepreneurship.

The proposed methodological approach and tools for assessing the levels of entrepreneurial activity at its three stages in the countries under consideration can be used in scientific research on entrepreneurship, as well as justification of development programs for this sector of the economy. The obtained data may be used in universities programs of bachelors and masters training, as well as in educational programs for continuing education in entrepreneurship. The results of the research are of great interest to entrepreneurs and authorities involved in business regulation. Further studies can be carried out to assess the proportion of entrepreneurs specializing in various types of economic activity.

The study provides governments and other authorities with information on the achieved level of entrepreneurial activity. The results of the study can help government agencies and public organizations to solve the problems of monitoring the effectiveness of measures for entrepreneurship support, as well as to determine strategies for improving the efficiency of enterprises. The modeling results can be used in compiling the ratings of the business climate, as well as determining the needs for assistance to entrepreneurs in regions where the business sector is underdeveloped. Such assistance may include measures to provide government subsidies, reduce interest on loans to enterprises, guarantee loans issued by banks. The results obtained by the authors of this study can be used by government agencies in designing policy for the development of entrepreneurship. During the study, there were limitations on empirical data due to the fact that only 48 countries were reviewed.

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