

DOI: 10.7596/taksad.v8i2.2153

Citation: Pinkovetskaia, I. S., Kryukova, L. I., Arbelález Campillo, D. F. & Rojas-Bahamon, M. J. (2019). Female Entrepreneurship: Types of Economic Activity. *Journal of History Culture and Art Research*, 8(2), 253-265. doi:<http://dx.doi.org/10.7596/taksad.v8i2.2153>

Female Entrepreneurship: Types of Economic Activity

Iuliia S. Pinkovetskaia¹, Liudmila I. Kryukova²

Diego Felipe Arbelález Campillo³, Magda Julissa Rojas-Bahamon⁴

Abstract

In recent years women entrepreneurs have made a significant contribution to the economic growth of most countries. Therefore, at the present stage of the entrepreneurship study, it is relevant to analyze the patterns that characterize the current level of women's entrepreneurial activity as well as determine the sectoral structure of women's entrepreneurship. The purpose of the study is a comprehensive assessment of women's early entrepreneurial activity and their sectoral preferences in creating their own business. In the course of the study, the results of the report on the global monitoring project for female entrepreneurship for the years 2016-2017 as to 74 countries is used. The levels of entrepreneurial activity of women in these countries also reviewed. The sectoral structure of women's entrepreneurship was assessed in five groups including typical types of economic activity by using normal density distribution functions. According to the results of the researches, conclusions were drawn on the predominance of such types of economic activity as trade (46.54%), health care, education and social services (19.22%), management and personal services as (15.70%). The obtained results can be used by entrepreneurs as well as by government bodies related to the business activities regulation. In the article, the original tools for assessing the sectoral structure of women's entrepreneurship is proposed.

Keywords: Female business, Women entrepreneurship, Sectoral structure, Types of economic activity.

¹ Corresponding author. Ulyanovsk State University, Ulyanovsk, Russia. E-mail: pinkovetskaia@gmail.com

² Penza State University, Penza, Russia. E-mail: liudmila.kriukova@yandex.ru

³ Editor Revista Amazonia investiga. Colombia. E-mail: dfaca@hotmail.com

⁴ University Jorge Eliécer Gaitán, Colombia. E-mail: mjulissa@gmail.com

The development of small and medium businesses is associated with the increasing role of female entrepreneurship in this sector of the economy. In recent years women entrepreneurs have made a significant contribution to the economic growth of most countries despite the fact that they face more serious problems in their activities compared to men entrepreneurs. Therefore, at the present stage of the entrepreneurship study, it is relevant to analyze the patterns that characterize the current level of women's entrepreneurial activity as well as determine the sectoral structure of women's entrepreneurship. The purpose of the study is a comprehensive assessment of women's early entrepreneurial activity and their sectoral preferences in creating their own business. In the course of the study, we used the results of the report on the global monitoring project for female entrepreneurship for the years 2016-2017 as to 74 countries. We have studied and analyzed the levels of entrepreneurial activity of women in all the countries reviewed. Lists of the countries with a high and low level of female entrepreneurship development are given. The sectoral structure of women's entrepreneurship was assessed in five groups including typical types of economic activity by using normal density distribution functions. According to the results of the computational experiment, conclusions were drawn on the predominance of such types of economic activity as trade, health care, education, and social services, as well as on the substantial differentiation of the levels of women's entrepreneurial activity on a territorial basis. The obtained research results can be used in further research, in the educational process in higher educational institutions as well as by government bodies related to the business activities regulation. In addition, they are of interest directly to entrepreneurs and their public organizations.

1. Introduction

The importance of women's entrepreneurship for economic development is beyond doubt. Numerous studies demonstrate a positive influence of women entrepreneurs on the economic growth and development of many countries (Cuberes and Teignier, 2015; Fetsch et al., 2015; Lewis et al, 2014). Besides, the role of women entrepreneurs as employers contributing to increasing employment and reducing social tensions, especially in developing countries, is important. Countries with a high level of women's entrepreneurial activity are more resistant to financial crises and less susceptible to economic recession (Global Entrepreneurship Research Association. 2017). In recent years female entrepreneurs have made a significant contribution to the economic growth of most countries. At the same time, women entrepreneurs face more serious problems both in setting up their own businesses and in the course of their activity as compared with men entrepreneurs. Such problems are not unique to individual countries, they are pronounced both in developing countries and in economically developed countries. Among the problems that women entrepreneurs face there are objective and subjective ones. The objective problems are caused by difficulties in achieving a balance between entrepreneurship and personal life including childcare, household and family responsibilities (Woldie and Adersua, 2004; Achtenhagen and Welter, 2003; Welter et al, 2003). The subjective problems are caused by social and cultural prejudices, by institutional, legal and tax gaps in the legislation of many countries as well as the current stereotypes associated with the role of women, especially in patriarchal societies (Ogbor, 2000; Hamilton, 2013; Gupta et al., 2009). A comprehensive and overall solution to these problems can reveal the full potential of women entrepreneurs. According to the study (Woetzel et al., 2015), better utilization of women's potential and their participation in the economy at a level comparable to that of men can increase the global GDP by 26 percent.

The problem of a significant increase in the production of goods and services by the forces of women's entrepreneurship requires an understanding of its specific features and differences as compared to men's entrepreneurship. To develop measures to increase the contribution of women to entrepreneurship and reduce the existing gender gap in the number of enterprises owned by women and men it is necessary that a wide range of issues related to women's entrepreneurship be investigated. Therefore, at the present stage

of entrepreneurship studies, it is relevant to analyze the patterns that characterize the current level of entrepreneurial activity of women as well as identify the sectors in which this activity is manifested to a high and low degree.

The aim of the study is a comprehensive assessment of the early entrepreneurial activity of women and their sectoral preferences in creating their own business. In the course of our research the following objectives were solved:

- The values of women's entrepreneurial activity in the early stages in various countries in the years 2016–2017 were studied;
- The existing sectoral structure of female entrepreneurship was evaluated.

The conducted research will provide new information on women's entrepreneurial activity, as well as on the sectors in which it has gained the greatest development. The availability of such information is necessary for potential entrepreneurs to make informed decisions about starting a business and choosing its type. In addition, relevant data are needed by government agencies for the formation of plans, programs and forecasts for the development of the business sector.

2. Literature Review

A large number of studies is aimed at improving understanding of the role of women and their participation in entrepreneurial activities, among them the most interesting are (Aidis and Weeks, 2016; Golla et al., 2011; Wang, 2015). Currently, there is a widespread evidence that the so-called gender gap in entrepreneurship is associated with the predominance of men as owners of businesses (Jennings and Brush, 2013). At the same time such papers as Demirguc-Kunt et al., 2015) indicate that in many countries the significant gender differences remain in access to capital, bank accounts, and finance, while in economically developed countries such differences are practically absent. An analysis of the types of economic activity in which more women entrepreneurs are involved is represented in the paper (Klapper and Parker, 2011). It states that women set up their business in labor-intensive sectors such as trade and services. Their share of capital-intensive industries, in particular, in the manufacturing industry, is significantly less.

Russian researchers have begun to pay attention to women's entrepreneurship since 2002. Among the works published in these years are the following. Starova (2002) analyzes some aspects of women's individual entrepreneurship in the cosmetics trade using network marketing. In the paper (Morozov, 2003) concluded that the formation of a community of women who are business owners at the initial stage was based on the initiative of some engineering and technical intelligentsia in the process of transformation of state enterprises and organizations. The overview carried out by Dolgorukova and Kolesnikova (2004) is devoted to differences characteristic of female entrepreneurship in Russia. In her paper, (Gilmanova 2007) she focuses mainly on the development of women's entrepreneurship in the conditions of Bashkortostan and the predominance of trade and real estate operations there. Features of entrepreneurship in another region (the Omsk region) are considered by Kipevar and Sevelova (2009). The paper states that among the Russian entrepreneurs in zero years women accounted for 25% - 30%. Moreover, among female businesses there dominated enterprises with a small number of employees. The types of economic activity most actively mastered by women were retail trade, catering, and health care. The article by Polutova (2015) demonstrates the possibilities for the development of female entrepreneurship in the post-industrial period when services, not goods, become the dominant product type.

3. Research Methods, Design, and Data

This article is devoted to studying the problem of women's involvement in entrepreneurship in various countries. In the course of the research, we used the results of the report on the global monitoring of entrepreneurship project (Global Entrepreneurship Monitor, 2017) for the years 2016-2017. Global

monitoring of entrepreneurship is aimed at organizing country studies on the development of entrepreneurship and entrepreneurial activity. The project is based on a survey of the adult working-age population (citizens aged from 18 to 64) with the help of specially designed questionnaires. In the process of global monitoring for the years 2016-2017, the data characterizing a wide range of indicators for 74 countries were collected.

The level of entrepreneurial activity at the early stages (that is also called Total Early-stage Entrepreneurial Activity (TEA)) describes the relative share (%) of the number of women (men) aged from 18 to 64 who at the moment of conducting a sociological survey were in the process of starting a business or owning a new business for less than 42 months in the total number of women (men) of specified age in the country under the survey.

To assess the existing sectoral structure of female entrepreneurship at the early stages we considered the five industries combining the most popular economic activities among women entrepreneurs. The composition of these industries is as follows:

- (1) Agriculture and mining.
- (2) Industry and transport.
- (3) Wholesale and retail trade.
- (4) Health care, education, and social services.
- (5) Management and personal services.

To ensure comparability across the countries the research was based on relative indicators. We considered the two groups of indicators. The first group included the values of early entrepreneurial activity that were formed during the period under review in each of the countries that were part of the monitoring project. The second group of indicators included the specific weights of the number of women entrepreneurs belonging to each of the five above mentioned sectors in the total number of entities of early female entrepreneurial activity.

Each female entrepreneur acts as an independent entity, defines goals and objectives taking into account the specific situation, and conducts risky economic activities. In all the countries their number is large enough. Accordingly, the totality of women entrepreneurs located in each of the countries and belonging to a particular sector includes a significant number of entrepreneurs. Economic, historical, climatic, demographic, educational and other features of the development of specific countries have a significant impact on the indicators of such a combination. They act independently of each other, so we can assume a probabilistic (stochastic) distribution of indicator values.

From the Chebyshev's theorem (Kramer, 1962) it follows that the values of individual random variables can have a significant variation, and their arithmetic average is relatively stable. A similar conclusion follows from the Central Limit Theorem (Jenish, Prucha, 2009) which states that the arithmetic mean of a sufficiently large number of independent random variables loses the character of a random variable. Thus the values of the levels of entrepreneurial activity across countries and sectors are random variables. They may have a significant variation, but we can predict their arithmetic mean.

Kramer's (1962) study states that individual random variables may have a significant variation, and their arithmetic mean is stable. We note that in accordance with the Lyapunov theorem the distribution of mean values of independent random variables approaches the normal distribution if the following conditions are met: all values have finite mathematical expectations and variance, none of the values sharply differ from the others. As Gmurman (2003) noted the distribution of average values of independent random variables rather quickly (already starting from ten of them) approaches the normal distribution. The number of women entrepreneurs in each of the countries related to specific sectors varies from hundreds to tens of thousands which is much more than the Gmurman's criterion.

Thus, there are theoretical prerequisites for using the functions of normal distribution to describe the distribution of the established values of entrepreneurial activity across the countries and sectors.

In the process of the research the following hypothesis was put forward and tested: the indicators of the second group have a significant differentiation as to the countries. To test this hypothesis, we modeled the distribution of the weights of the number of women entrepreneurs as to the sectors in each of the 74 countries. The normal distribution functions were considered as such models. These functions are widely used in modern scientific research in economics, engineering, medicine, psychology and biology. They as shown in the work of the author (Pinkovetskaia, 2017) well approximate the values of relative indicators for a significant number of objects. The minimum number of observations used in developing density functions of normal distribution is justified in the article (Heinhold and Gaede, 1964) which states that the number of observations must be at least 40. The total number of observations in our study is greater than this value since it is 74 (which corresponds to the number of countries covered by global monitoring).

The quality of the developed functions for normal distribution was checked by appropriate tests. As the analysis of literary sources (Bolshev and Smirnov, 1983; Hollender and Wulf, 1999; Pearson at al., 1977; Shapiro and Francia, 1972.) has shown the most common in modern studies are the tests of Kolmogorov-Smirnov, Pearson and Shapiro-Vilk.

4. Female Entrepreneurial Activity in the Early Stages

The data on early entrepreneurial activity for all countries covered by global monitoring in 2016–2017 are given in Table 1. The TEA values are presented in descending order.

Table 1. Characteristics of the overall early entrepreneurial activity (TEA) of women, %

Country	TEA	Country	TEA	Country	TEA
Senegal	36.8	Mexico	10.0	South Africa	5.9
Ecuador	30.2	Uruguya	9.9	Russia	5.7
Burkina-Faso	30.2	Saudi Arabia	9.7	Croatia	5.6
Botswana	30.1	Latvia	9.6	Finland	5.6
Belize	27.3	Kazakhstan	9.5	Great Britain	5.6
Cameroon	26.5	Israel	9.4	South Korea	5.3
Colombia	24.7	Iran	8.9	Switzerland	5.3
Peru	24.0	Jamaica	8.8	Tunisia	5.3
Brasil	19.9	China	8.6	Taiwan	5.2
Barbados	19.8	Netherlands	8.6	Slovenia	5.1
Chile	19.8	Poland	8.1	Hungary	5.0
Philippines	19.5	Austria	8.1	Belgium	5.0
Guatemala	16.4	Puerto-Rico	7.7	Greece	4.8
Lebanon	16.1	India	7.6	Spain	4.7
Thailand	15.7	Slovakia	7.6	Malaysia	4.5
Indonesia	15.6	Romania	7.5	Morocco	4.5
Vietnam	15.5	Egypt	7.5	Bulgaria	4.3
El Salvador	13.6	Cyprus	7.3	Norway	3.8

Canada	13.3	Ireland	7.3	Macedonia	3.7
Argentina	13.1	Qatar	6.8	UAE	3.7
Panama	12.3	Hong Kong	6.5	France	3.4
Estonia	11.7	Georgia	6.5	Italy	3.3
Australia	11.5	Luxembourg	6.5	Jordan	3.3
USA	10.5	Sweden	6.3	Germany	3.1
Turkey	10.0	Portugal	6.1	On average	10.8

The table is compiled by the authors on the basis of the monitoring project data calculations (Global Entrepreneurship Monitor, 2017).

As the data in Table 1 show the levels of early entrepreneurial activity of women are in a very wide range of values (from 3.1% to 36.8%). At the same time, the average for all 74 countries is 10.8%. The highest levels of early entrepreneurial activity of women (from 24% to 36.8%) are noted in such countries as Senegal, Burkina Faso, Botswana and Cameroon located in Africa (to the south of Sahara) as well as the countries of Latin America -Ecuador, Belize, Colombia, and Peru.

Seven of the 74 countries included in the list show low (from 3% to 4%) indicators of early entrepreneurial activity of women. Four of them are highly developed European countries in which hired workers have good economic and social conditions, often better than start-up entrepreneurs (Nielsen et al., 2010). In addition, it is possible to point out other aspects hampering the development of female entrepreneurship in some European countries. Childcare facilities play a role in supporting or limiting women's entrepreneurship. Germany is characterized by a fairly traditional distribution of labor where men provide the main contribution to income while women are more concerned with childcare. At the same time, in Germany, only 9% of preschool age children are in kindergartens. In the Nordic countries, institutional conditions are much more favorable for women. Thus, in Sweden, 60% of children attend kindergartens (Gustafsson and Wetzels, 1997). This situation is largely determined by the low level of importance of early entrepreneurial activity of women in Germany (3.1%) and significantly higher in Sweden (6.3%). In addition, social and tax policies produce a negative impact on the development of women's entrepreneurship with regard to the level of social security associated with entrepreneurial activities. In particular, the paper (Holst, 2001) points out the aspects of the German tax system that limits female entrepreneurship.

It should be noted that a similar situation is typical of other economically developed countries in Europe. At the same time in such economically developed countries as the USA, Australia, and Canada, the TEA levels are significantly higher compared to European countries since they implement programs for the development of women's entrepreneurship.

In Russia, the value of the early entrepreneurial activity of women accounts for 5.7% and it is at the average European level. In 2016 the ratio of female and male entrepreneurial activity in the early stages equaled to 0.83, that is for 10 early male entrepreneurs there were 8.3 female entrepreneurs. The prevailing ratio of female and male entrepreneurial activity in the early stages in Russia is significantly higher as compared to similar indicators for the United States (0.71) and the largest economies of the European Union (from 0.47 to 0.59). The lag of early entrepreneurial activity of women from the same indicator for male entrepreneurs is due, in our opinion, to the high workload of women in the family, the presence of barriers caused by the existing cultural, social and religious stereotypes, as well as the requirements for the educational level of entrepreneurs. Let's consider the latter reason in more detail. In 2015 there were 27.7% of women who had higher education (Indicators of education, 2017), which exceeded the similar value for men (23.4%). It is known that the majority of women have a higher humanitarian and economic education. This creates

certain difficulties when they organise enterprises of a technical and technological orientation that are areas of high growth. Consequently, it is important to encourage young women to study such disciplines as natural science, technology, engineering and mathematics (known at schools and universities as STEM). We note that this aspect of stimulating the development of women's entrepreneurship is considered among other measures in the European Parliament document (Women's Entrepreneurship, 2015).

5. Sectoral structure of early entrepreneurial activity

An assessment of the current sectoral structure of women's early entrepreneurial activity was based on the information obtained in the process of global monitoring. These data were used to determine the share of the main types of economic activity characteristic for women entrepreneurs in each of the 74 countries. The computational experiment on the economic and mathematical modeling of empirical data for all the countries in question was based, as stated in the methodology, on the development of normal distribution density functions.

The developed density functions of a normal distribution which describe the specific gravities of women's enterprises specialized in the above groups of the types of economic activity are listed below:

- as to enterprises of agriculture and mining

$$y_1(x_1) = \frac{151.2}{5.48 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_1-8.05)^2}{2 \times 5.48 \times 5.48}} \quad (1)$$

- as to industrial and transport enterprises

$$y_2(x_2) = \frac{333.30}{5.58 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_2-9.29)^2}{2 \times 5.58 \times 5.58}} \quad (2)$$

- as to enterprises of wholesale and retail trade

$$y_3(x_3) = \frac{822.23}{20.17 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_3-46.54)^2}{2 \times 20.17 \times 20.17}} \quad (3)$$

- as to organizations of health care, education and social services

$$y_4(x_4) = \frac{444.34}{9.97 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_4-19.22)^2}{2 \times 9.97 \times 9.97}} \quad (4)$$

- as to organizations providing management and personal services

$$y_5(x_5) = \frac{82.00}{1.36 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_5-5.05)^2}{2 \times 1.36 \times 1.36}} \quad (5)$$

Checking how well the normal distribution functions approximate the data studied is based on the application of tests derived from the theory of mathematical statistics. Table 2 shows the actual values of the statistics based on the results of the computational experiment.

Table 2. Estimated values of statistics

Function Number	Calculated Values for Quality Tests by		
	Kolmogorov-Smirnov	Pearson	Shapiro-Vilk
1	2	3	4
(1)	0.03	1.81	0.98
(2)	0.04	1.26	0.99
(3)	0.10	4.91	0.94
(4)	0.07	1.57	0.97
(5)	0.05	4.60	0.95

The table is compiled by the authors as to the results of the computational experiment.

The authors used the Kolmogorov-Smirnov, Pearson and Shapiro-Vilk tests. The tests allow us to compare the empirical distribution of the studied parameters with the described theoretical functions of normal distribution. The tests demonstrate the level of deviation of the empirical data from the specified functions. The methodology for using tests is detailed in the reference literature. Table 2 shows the calculated values of the corresponding statistics. The calculated statistics values for the Kolmogorov-Smirnov test (listed in the second column of Table 2) range from 0.03 to 0.10 which is less than the tabular value of 0.152 at a significance level of 0.05. Similarly, the calculated values of the Pearson test (shown in the third column of Table 2) are from 1.26 to 4.91 which is less than the table value of 9.49. The calculated values of the Shapiro-Vilk test (given in the fourth column of Table 2) are from 0.94 to 0.99. These values are larger than the tabular value of 0.93 at a significance level of 0.01. Thus, all the developed models (1) - (5) are of high quality for all tests and describe the approximable data well.

The density functions of normal distribution allow us to determine the average values of the prevailing specific weight of the early entrepreneurial activity of women depending on the sector specialization. The corresponding indicators are shown in Table 3. The same table presents the intervals of the change of the indicators under consideration (column 3) which are characteristic of most countries (68%). The intervals are calculated on the basis of the average values of the indicators and the values of standard deviations. It is known that for calculating the boundaries of the interval the specified deviation is added and subtracted to the average value of the indicator respectively. The mean values and intervals of change of indicators in the specified tables correspond to the functions of the density of normal distribution (1) - (5).

Table 3. Sectoral Structure of Early Female Entrepreneurship, %

Sectors	Value	Interval of Change
1	2	3
Agriculture and mining	8.04	2.56-13.52
Industry and transport	9.24	3.66-14.82
Wholesale and retail trade	46.54	26.37-66.71
Health care, education and social services	19.22	9.25-29.19

Management and personal services	15.70	6.17-25.23
----------------------------------	-------	------------

The table was compiled by the authors on the basis of functions (1) - (5).

The data in Table 3 demonstrate that trade among women entrepreneurs is most popular, the average for the countries whose share covers just under half of all those associated with early entrepreneurial activity. Almost 19% of early entrepreneurs link their business with health care, education or social services. Slightly fewer women entrepreneurs specialize in other types of services, namely, managerial and domestic ones. In general, 81.46% of female entrepreneurs are focused on service activities. For the other two sectors, the average values are 9.24% and 8.04%. We are to take into consideration the fact that only 1.26% fall on the early entrepreneurial activity of women in industries not considered in the research process.

From the data in column 3 of Table 3 one can see a significant differentiation of the values of entrepreneurial activity across the countries, the mentioned differentiation is characteristic of all the considered sectors. It means that the hypothesis put forward in the research process was confirmed.

It is the whole sale and retail trade that is the sector where the early entrepreneurial activity of women is mostly widespread on average in all the countries studied in the process of global monitoring. This seems logical especially for developing countries and countries with low levels of economic development. As can be seen from Table 3 the average value of TEA in the trade sector in all the countries reaches more than 46%. For most (68%) countries the range of variation of this indicator is from 26% to 67%. Trade attracts women entrepreneurs to the greatest extent in Guatemala, Indonesia, the Philippines and El Salvador where the share of this type of activity in the early entrepreneurial activity of women exceeds 80%. Over 70% of women entrepreneurs are found in Senegal, Vietnam, Ecuador, Jamaica, and Thailand. This type of activity attracts the least interest in Switzerland (11.8%). Slightly higher are the values of this indicator (from 15% to 23%) in Australia, as well as in European countries such as Austria, Belgium, Russia, Estonia, Romania, Norway, Slovenia, and France.

Almost twice less interest for the early entrepreneurial activity of women is the creation of their own businesses in health care, education or the provision of social services. The average for all the countries of this indicator is a little over 19%. At the same time, the highest level of the female TEA in these sectors is characteristic of the UK (47.8%) and Switzerland (44.7%). The values of this indicator vary from 30% to 40% in such countries as Saudi Arabia, Sweden, Spain, Turkey, Slovenia, Slovakia, Portugal, Jordan, and Brazil. Less than 7% of this figure is in Ecuador, Indonesia, Senegal, Vietnam, Burkina Faso, Peru, El Salvador, Jamaica and the Philippines, which are the countries with low incomes.

Organizations providing management and personal services in the early entrepreneurial activity of women make up 15.70%. But such services are practically absent in the countries like Jamaica, Jordan, Burkina Faso, and Guatemala. Minimum values (less than 3%) are observed in Vietnam, El Salvador, the Philippines, Indonesia, Malaysia, and Cameroon. The maximum values of the TEA level for these services are in Austria (41.9), Estonia (39.7) and France (39.3). In addition, the share of management and personal services for more than 30% in the sectoral structure is typical for such countries as Russia, Israel, Greece, Slovenia, Italy, and Switzerland.

To some extent, high values of early entrepreneurial activity of women in industries and transport look phenomenal: Iran (28.1%), Morocco (24.9%) and South Africa (24.4%). Significantly lower is the value of this indicator (from 19% to 15%) in the following countries, such as Romania, Latvia, Austria, Brazil, Barbados, and Georgia. In four countries the values of early entrepreneurial activity in industry and transport are less than 2%: Qatar, the United Arab Emirates, Jamaica, and the United Kingdom. This figure is slightly higher (from 2% to 3%) in four countries: Indonesia, China, the Philippines, and Germany.

About 8% of the average level of early entrepreneurial activity of women for the countries under consideration is noted in such sectors as agriculture and mining. At the same time in three countries such as Belgium, Georgia, and Tunisia this figure is quite high and amounts to nearly 30%. One and a half times less (about 20%) the level of the indicator is noted in seven countries: Cameroon, Latvia, Romania, Kazakhstan, Croatia, Jamaica, and Burkina Faso. Its relatively low values (less than 2%) are observed in the following countries - Saudi Arabia, Israel, India, South Korea, Bulgaria, El Salvador, Argentina, Lebanon, and South Africa.

As for the early entrepreneurial activity of women in Russia, the values of the indicators are the following:

- Agriculture and mining - 13.0%;
- Industry and transport - 4.7%;
- Wholesale and retail trade - 17.2%;
- Health care, education, and social services - 28.1%;
- Management and personal services - 35.9%.

Thus, in Russia, as well as in the countries of Europe, women entrepreneurs are more specialized in providing a variety of services. That is, they work in those types of economic activity which, according to the opinion of European researchers (Women's Entrepreneurship, 2015), are considered to be less profitable compared to the production of goods.

6. Conclusion

The results of the research containing scientific novelty include the following:

- It is shown that the prevailing values of early female entrepreneurship vary in the range from 36.8% to 3.1%. The highest levels of early entrepreneurial activity among women are found in developing countries such as Senegal, Burkina Faso, Botswana and Cameroon, Ecuador, Belize, Colombia, and Peru;
- The formulas that allow evaluating the established sectoral structure of female entrepreneurship in the early stages of its development are proposed;
- The possibility of using the density functions of a normal distribution to assess the existing sectoral structure of female entrepreneurship in different countries is demonstrated;
- It is proved that the most widespread female entrepreneurial activity in trade is significantly lower than the corresponding indicators in such activities as health care, education and social services, as well as managerial and personal services. In general, about 81% of female entrepreneurs prefer service activities;
- A significant differentiation of the values of entrepreneurial activity across countries characteristic of all industries is shown;
- In Russia female entrepreneurship has received a significant development in recent years. The value of the indicator of early entrepreneurial activity is 5.7%, and it is at the average European level. In this country, such economic activities as management and personal services - 35.9% as well as health care, education and social services - 28.1% dominate in the sectoral structure of women's entrepreneurship.

The research practical significance can be implemented in the activities of state and municipal authorities, in the entrepreneurial sector of the national economy as well as in educational process in different areas.

The study provides information for the government, regional authorities and other administrative structures on the achieved level of women's entrepreneurship development and possible ways of its advancement. The developed functions are effective management tools that allow to carry out an assessment of the sectoral structure of women's entrepreneurial activity in the regions of Russia. The results of the research can be used in the current activities of state, municipal and public organizations related to regulation and support of small and medium female business as well as plans and programs

formation for their further development. The results of the study can be used in the implementation of the Federal strategy for the development of small and medium-sized enterprises (SMEs) for the period up to 2030 (The strategy of development, 2016).

The methodical approach proposed in the article and the tools for assessing the sectoral structure of women's entrepreneurship can be used in research on entrepreneurship, as well as the rationale for development programs for this sector of the economy at the federal and regional levels. The new knowledge obtained can be used in the educational process in training bachelors and masters as well as specialists associated with small and medium-sized businesses.

Further research is related to the study of women entrepreneurs' motivation and the gender gap assessment determined by differences in the existing levels of female and male entrepreneurship.

References

Achtenhagen, L. & Welter, F. (2003). Female Entrepreneurship in Germany: Context, Development and Its Reflection in German Media, in J. Butler (ed.), *New Perspectives on Women Entrepreneurs*. Greenwich, CT: Information Age Publishing, 77–100.

Aidis R. & Weeks J. (2016). Mapping the Gendered Ecosystem: The Evolution of Measurement Tools for Comparative High-Impact Female Entrepreneur Development. *International Journal of Gender and Entrepreneurship*. 8 (4): 330–352.

Bolshev L. N. & Smirnov N. V. (1983). *Tables of mathematical statistics*. Moscow. The science. Home edition of physical and mathematical literature.

Cuberes, D. & Teignier, M. (2015). Aggregate Effects of Gender Gaps in the Labor Market: A Quantitative Estimate. *Economics Working Paper E14/308*, University of Barcelona, Barcelona. http://www.marcteignier.com/research_files/GGLMAP_CT.pdf.

Demirguc-Kunt, A.; Klapper, L.; Singer, D.; Van Oudheusden, P. (2015). *The Global Findex Database 2014: Measuring Financial Inclusion around the World*. Policy Research Working Paper 7255, World Bank, Washington, DC.

Dolgorukova I. V. & Kolesnikov, A. N. (2004). Az . . . Buki... Lady . . . The possibility of self-expression of women in small business// *Russian entrepreneurship*. Vol. 3: 3-8.

Fetsch, E.; Jackson, C. & Wiens, J. (2015). *Women Entrepreneurs are Key to Accelerating Growth*. Kauffman Foundation. July 20. <http://www.kauffman.org/what-we-do/resources/entrepreneurship-policy-digest/women-entrepreneurs-are-key-to-accelerating-growth>

Gilmanova, G. H. (2007). Regional peculiarities of the women's entrepreneurship development in Russian society//*Herald of the Orenburg State University*. Vol. 9 (73): 31-36.

Global Entrepreneurship Monitor 2016-2017 (2017). Global Entrepreneurship Research Association (GERA). Babson College, Babson Park, MA, 180 p.

Global Entrepreneurship Research Association (2017). The 2015/2016 Global Entrepreneurship Monitor. London: Global Entrepreneurship Research Association. <http://www.gemconsortium.org/report>

Golla, A. M.; Malhotra, A.; Nanda, P. & Mehra R. (2011). Understanding and Measuring Women's Economic Empowerment: Definition, Framework and Indicators. Washington, DC: International Center for Research on Women.

Gupta, V. K.; Turban, D. B.; Wasti, S. A. & Sikdar, A. (2009). The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur. *Entrepreneurship Theory and Practice*, 33(2), 397-417.

Gustafsson, S. & Wetzels, C. (1997). Family Policies and Women's Labour Force Transitions in Connection with Childbirth. *Vierteljahrshefte zur Wirtschaftsforschung*, (1): 118- 124.

Hamilton, E. (2013). *Entrepreneurship across generations: narrative, gender and learning in family business*, Cheltenham: Edward Elgar Publishing.

Heinhold I. & Gaede K. W. (1964). *Ingenieur statistic*. München, Wien, Springer Verlag. 352 p.

Hollender M. & Wulf D. (1999). *Nonparametric methods of statistic*. New York. John Wiley & Sons, 816 p.

Holst, E. (2001). Institutionelle Determinanten der Erwerbsarbeit: Zur Notwendigkeit einer Gender-Perspektive in den Wirtschaftswissenschaften. *DIW Diskussionspapier*. Berlin: DIW.

Indicators of education 2017: a statistical collection. Moscow: Higher school of economics. 2017. 320 p.

Jennings, J. E. & Brush, C. G. (2013). Research on women entrepreneurs: challenges to (and from) the broader entrepreneurship literature? *The Academy of Management Annals*, 7(1), 663-715.

Kipervar, E. A. & Sevelova, M. A. (2009). Women's entrepreneurship: characteristics and prospects of development in the regions (for example, Omsk region)// *The Omsk scientific bulletin*. Vol. 2 (76): 96-99.

Klapper, L. F. & Parker, S. C. (2011). Gender and the Business Environment for New Firm Creation. *The World Bank Research Observer* 26 (2): 237–257.

Lewis, K. V.; Henry, C.; Gatewood, E. J. & Watson, J. (2014). *Women's Entrepreneurship in the 21st Century: An International Multi-Level Research Analysis*. Cheltenham: Edward Elgar Publishing.

Morozov, V. A. (2003). With hope for women. Women's entrepreneurship as the basis for the development of small business// *Russian entrepreneurship*. Vol. 3: 3-10.

Nielsen, S.; Klyver, K. & Evald, M. (2010). Denmark, in: Fielden, S. and M. Davidson (eds.), *International Research Handbook on Successful Women Entrepreneurs*. Edward Elgar, Cheltenham.

Ogbor, J. (2000). Mythicizing and Reification in Entrepreneurial Discourse: Ideology Critique of Entrepreneurial Studies, *Journal of Management Studies*, Vol. 37(5), pp. 605-635.

Pearson, E. S.; D'Agostino, R. B. & Bowmann, K. O. (1977). Test for departure from normality: Comparison of powers, *Biometrika*, no. 64, pp. 231-246.

Pinkovetskaia, I. S. (2017). Evaluation of patterns and trends of the current levels of entrepreneurial risk. *Herald of Omsk University. Series Economics*, 2017, no. 2 (58), pp. 70-81.

Polutova, M. A. (2015). Specificity of female entrepreneurship genesis in the postindustrial period. *Fundamental and applied research in the modern world*. 2015. Vol 12-4: 53-55.

Shapiro, S. S. & Francia, R. S. (1972). An approximate analysis of variance test for normality. *Journal of the American Statistical Association*. vol. 67, pp. 215-216.

Starova, L. N. (2002). Women's network. *Women and business in the twenty-first century. Russian entrepreneurship*. Vol. 3: 73-78.

Wang, Q. (2015). Child care, work-family policy and female entrepreneurship. *Social Science Research Network*. Available at <http://dx.doi.org/10.2139/ssrn.2669282>.

Welter, F.; Smallbone, D.; Aculai, E.; Isakova, N. & Schakirova N. (2003). Female Entrepreneurship in Post-Soviet Countries, in J. Butler (ed.), *New Perspectives on Women Entrepreneurs*. Greenwich, CT: Information Age Publishing, 243–269.

Woetzel, J.; Madgavkar, A.; Ellingrud, K.; Labaye, E.; Devillard, S.; Kutcher, E.; Manyika, J.; Dobbs, R. & Krishnan M. (2015). *The Power of Parity: How Advancing Women's Equality Can Add \$12 Trillion to Global Growth*. Washington, DC: McKinsey & Co.

Woldie, A. & Adersua, A. (2004). Female Entrepreneurs in a Transitional Economy: Businesswomen in Nigeria, *International Journal of Social Economics* 31(1/2): 78–93.

Women's Entrepreneurship (2015): closing the gender gap in access to financial and other services and in social entrepreneurship. European Parliament, Brussels.

The strategy of development of small and average business in the Russian Federation until 2030 (2016). Order of the Government of June 2, 2016. no. 1083-r/Russian Federation Code, 2016, No. 24, Art. 3549.