Entrepreneurs in most modern countries are seen as the backbone of national economies. Studies show that they provide significant economic growth, participate in the introduction of innovations, reduce unemployment through the creation of new jobs and ensure social stability (ACS et al., 2018; JANKOVIC, GOLUBOVIC, 2019; ROTAR et al., 2019).

In the countries of the European Union, the share of the business sector reaches 99.8% of all businesses, it accounts for almost 60% of the added value and almost 70% of the total number of people employed in the economy (KRAEMER-EIS et al., 2018). According to the study (Asia SME Finance Monitor 2014, 2015), the average values of the contribution of entrepreneurs to the economy are also very significant in Asian countries.

They accounted for 98% of all legal entities and individual entrepreneurs, 38% of the gross domestic product and 66% of the national labor force. On average, the share of the business sector in exports for Asian countries reached 30% of the total. The importance of entrepreneurs is most significant in developing countries, which have relatively few large corporations.

Therefore, in these countries, entrepreneurship provides social and economic development, reduces unemployment and reduces the number of poor people (NARTEH, 2013). The role of the business sector increases during economic crises, since the record shows that such enterprises are better able to adapt to changing market conditions (SIMON-MOYA et al., 2016). One of the most important goals facing governments in almost all countries is the design and implementation of measures that ensure effective policies for the development of the business sector. That is why in recent years scientific research has been considering sectoral characteristics of entrepreneurship in individual countries. Various types of activities typical for modern entrepreneurs are considered. For example, the articles (ASGARY et al., 2020; VAN AUKEN, 2008) examine the activities of entrepreneurs related to manufacturing in Turkey and Spain. The works (CHRISTIAENSEN, MARTIN, 2018; CERVANTES-GODOY, DEWBRE, 2010) are focused on the specifics of the agricultural activities of entrepreneurs. The economics of the extractive industry are addressed in studies (ERICSSON, LOF, 2019; CARVALHO, 2017). Among recent scientific publications that consider entrepreneurial activity in the service sector the works (WITT, GROSS, 2020; LIAO, 2020; KIM, WOOD, 2020; HOOD et al., 2020; MOSSBERG, 2020) are worthy of note. The article (PINKOVETSKAIA et al., 2019) is devoted to the study of the current choice by entrepreneurs of different types of their specialization.

At the same time, the issues of a comprehensive analysis of the specialization of entrepreneurs in two areas of activity, namely the production of goods and the provision of services in modern national economies, have not received sufficient attention in scientific research.

INTRODUCTION

Entrepreneurs in most modern countries are seen as the backbone of national economies. Studies show that they provide significant economic growth, participate in the introduction of innovations, reduce unemployment through the creation of new jobs and ensure social stability (ACS et al., 2018; JANKOVIC, GOLUBOVIC, 2019; ROTAR et al., 2019).

In the countries of the European Union, the share of the business sector reaches 99.8% of all businesses, it accounts for almost 60% of the added value and almost 70% of the total number of people employed in the economy (KRAEMER-EIS et al., 2018). According to the study (Asia SME Finance Monitor 2014, 2015), the average values of the contribution of entrepreneurs to the economy are also very significant in Asian countries.

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At the same time, the issues of a comprehensive analysis of the specialization of entrepreneurs in two areas of activity, namely the production of goods and the provision of services in modern national economies, have not received sufficient attention in scientific research.
The aim of the study is to assess the current level of specialization of nascent entrepreneurs in the production and service sectors in modern national economies. Our research answers the questions about which spheres of activity nascent entrepreneurs prefer to choose, what is the share of entrepreneurs in manufacturing and service firms from the total number of nascent entrepreneurs, in what countries the maximum and minimum participation of entrepreneurs in the two spheres of activity is noted. The research contributes to the current knowledge of the above issues.

**LITERATURE REVIEW**

The type of products an enterprise produces (goods or services) has the determining influence on the peculiarities of its functioning. The division of products produced in national economies into goods and services is enshrined, in particular, in UN documents (Central Product Classification, 2015; System of National Accounts, 2008). These regulations are used in 150 countries. These documents indicate that the results of production can be used for various purposes: final consumption or investment, as well as resources in the production of other goods and services. The role and importance in national economies of each of the above types of products (goods and services) at different stages of the development of society have changed significantly. CLARK (1940) proposed considering three sectors of the economy. In his opinion, the primary sector can include industries whose activities are associated with obtaining resources from nature that support the lives of people. To these industries he referred agriculture and forestry, fishing and mining. The secondary sector includes the processing of resources into final products. Trade is considered as the tertiary sector, which acts as the least significant sector of the economy.

FOURASTIE (1949) significantly changed the essence of the tertiary sector and attributed a variety of services to it. In addition, he proposed a fundamentally new approach to assessing the importance of each of the sectors in the evolution of national economies. This approach assumes the sequential dominance of the sectors at various stages of the development of society. According to Fourastie, in the post-industrial stage cost saving is replaced by wastefulness, and consumer motivation changes. He pointed to an increase in the use of various services by people, which leads to economy of time due to self-service. Accordingly, the development of the service sector provides people with additional free time. Fourastie emphasized that steady increase of labor efficiency in the primary sector is associated with the transformation of nature, in the secondary sector – with an increase in the level of production, and in the tertiary sector – with human capabilities and knowledge. He suggested that there is an individualization of consumption and growth in the volume of services in the tertiary sector.

BELL (1999) played an important role in the development of the theory of the evolution of the prevailing sectors in national economies. He proposed considering the following three stages of the development of society – preindustrial, industrial and postindustrial. He pointed out that the post-industrial society is based on services. It is not muscular strength or energy that is of primary importance in it, but information. The industrial society is characterized by the number of goods that determine the standard of living, whereas the post-industrial society is determined by the quality of life, which depends on the volume of services provided. The transition from the industrial society to the post-industrial society takes place in several different stages.

First, the development of industry implies an increase in the importance of transport and supporting services as they are related to the movement of goods. In the second stage, in the conditions of mass consumption of goods and population growth, there is an increase in distribution industries (wholesale and retail trade), finance, and real estate transactions. In the third stage, an accelerated growth of personal services is expected. A special role in the third stage belongs to health care and education. The stable dynamics of growth in the share of workers employed in the service sector was confirmed in 1968 in the work FUCHS (1968). It should be noted that the development of theoretical models for structuring the economy was mainly associated with the detailing of the features of the functioning of the tertiary sector, leaving the first two practically unchanged. It should be noted that along with the assumptions about a stable growth in the volume of services in the future, some authors pointed to the factors that limit the development of the service economy. Thus, BAUMOL (1967) considered...
the specific features of production processes in the service sector. He pointed out that in most types of service sector activities, manual labor of workers predominates.

The possibility for its mechanization is significantly less than in the production of goods. Accordingly, labor productivity of workers in this sector is growing more slowly compared to industries where manual labor is replaced by more technological, mechanized and automated labor due to innovations. Using the European Union countries as an example, the study (Study on the relation, 2014) shows that modern entrepreneurship specializes in two main areas (production of goods and provision of services). The analysis of the available empirical data helped to conclude that the growth dynamics of the service sector is significantly higher than that of commodity production. The works (LOVELOCK, WIRTZ, 2011; GALLOUJ et al., 2015) contain a similar conclusion on the prevalence of the service sector in both developed and developing countries in recent years.

Paper (EICHENGREEN, GUPTA, 2013) notes the presence of two waves of growth in the service sector. The first wave mainly refers to traditional services such as trade, transport, and real estate. The second, more recent wave, includes modern services, namely financial, communication, information, legal, advertising and business services, which are based on modern digital technologies. The relationship between a high growth in the volume of services provided in Asian countries and a significant expansion in the production of durable goods is discussed in the work (LEE, MCKIBBIN, 2018). The phenomenon of an increasing role of highly qualified services on the example of entrepreneurship in the United States is analyzed in the paper (BUERA, KABOSKI, 2012). The paper discusses the possibility of creating service firms based on enterprises producing commercial products (OLIVA, KALLENBERG, 2003). Thus, two areas of activity of entrepreneurial structures are distinguished in the scientific literature: the production of goods and the provision of services. An effective regulation of the commodity producing sector and the tertiary sector requires an assessment of the existing difference in these two business sectors at the present stage of development of national economies.

**METHODOLOGY**

As shown above, two main sectors of entrepreneurial activity are now dealt with in scientific research. Hence, the following indicators of the currently established specialization of nascent entrepreneurs in different countries are considered in our paper:

- the share of nascent entrepreneurs setting up manufacturing businesses in the total number of nascent entrepreneurs in each country;
- the share of nascent entrepreneurs creating businesses in the service sector in the total number of nascent entrepreneurs in each country.

Our research used the data from the Global Entrepreneurship Monitor project (2020) as reference information. This project presents, among other things, the values of indicators characterizing the level of specialization of people, both participating in the creation of a new business and those wishing to start this activity in the near future, that is, nascent entrepreneurs. Table 5 of the Global Entrepreneurship Monitor project (GEM) shows the values of the shares of surveyed nascent entrepreneurs, in their total number, for each of the following activities: agricultural production, mining, various types of manufacturing, transportation of goods and passenger transportation, wholesale and retail trade, information and communication technology, financial services, professional services, administrative services, healthcare, education, government and social services, personal services.

It should be noted that the first three types of activity relate to the production of goods, and the rest - to the provision of services or the service sector. The GEM project provides relevant 2019 data on 50 countries. The geographical location of these countries is as follows. The data in the project is presented for twenty-one European countries, two North American countries, eight Latin American countries, fourteen Asian countries, four African countries and Australia. According to the level of income of the population, these countries are subdivided as follows: high incomes were gathered in thirty-three countries, average incomes were noted in twelve countries, low incomes - in five countries.
It should be noted that in the process of implementing the GEM project in each of the countries, a survey of at least two thousand nascent entrepreneurs in each country was conducted. In the course of our research, the following four hypotheses were tested:

- the first hypothesis – the majority of nascent entrepreneurs prefer to start their activities in the service sector;
- the second hypothesis – the values of the indicators characterizing the involvement of nascent entrepreneurs in each of the spheres, that is, the production of goods and the provision of services, differed significantly in the countries under consideration;
- the third hypothesis – the maximum and minimum values of each indicator were not associated with the geographical location of the countries;
- the fourth hypothesis – the maximum and minimum values of each indicator do not correlate with the personal income level in the respective countries.

To test these four hypotheses, economic and mathematical models were developed, which present normal distribution functions. This methodological approach is based on previous research (Pinkovetskaia et al., 2021). In the process of research, a comparison was also made between the values of indicators for Russia and average values for other countries.

**RESULTS**

In the course of the computational experiment, we developed economic and mathematical models (normal distribution density functions) that describe the patterns of country distribution of two indicators characterizing the sectoral specialization of nascent entrepreneurs. These functions \( y_1 \) describing the distribution of the values \( x_1 \) of the specialization of people starting their own business in the countries under analysis are given below:

- the share of nascent entrepreneurs \( x_1 \) creating businesses in the production sector

\[
y_1(x_1) = \frac{357,14}{7,79 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_1-19.51)^2}{2\times7.79\times7.79}}. \tag{1}
\]

- the share of nascent entrepreneurs \( x_2 \) setting up businesses in the service sector

\[
y_2(x_2) = \frac{357,14}{7,79 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_2-80.47)^2}{2\times7.79\times7.79}}. \tag{2}
\]

For the analysis of functions (1)-(2), the Kolmogorov-Smirnov, Pearson and Shapiro-Vilk tests were used to determine the quality of approximation of empirical data. The values of the calculated statistics were compared with the tabular values. The analysis showed the high quality of each of the four functions.

**DISCUSSION**

As mentioned earlier, the developed functions allow to establish the characteristics of financing nascent entrepreneurs that have developed in national economies. They are shown in the table: the averages are in column 2, and the variation ranges of the indicator values for most of the countries are in column 3.
### Table - Indicators describing the share of nascent entrepreneurs specializing in the production of goods and the provision of services, %

| Indicator                                                                 | Average value | Variation range for most economies |
|---------------------------------------------------------------------------|---------------|------------------------------------|
| share of nascent entrepreneurs setting up businesses in the manufacturing sector | 19.51         | 11.72-27.30                        |
| share of nascent entrepreneurs setting up businesses in the service sector | 80.47         | 72.68-88.26                        |

**Source:** The table is compiled on the basis of functions (1)-(2).

As can be seen from the data given in column 2 of the table, the national average of the share of nascent entrepreneurs creating business in manufacturing is 19.5%. That is, almost every fifth nascent entrepreneur in the 50 countries under analysis strives to create an enterprise that produces goods. The maximum values of the indicator exceeding the upper limit of the range indicated in column 3 of the table were recorded in 2019 in Latvia, Egypt, Madagascar, Armenia, and Mexico. These states are located in Europe (1), Asia (1), Latin America (1), and Africa (1). They belong to different groups according to the level of income of the population: to the high (1), medium (2) and low (2) level. The minimum values of the indicator under consideration, that are less than the lower limit of the specified range, were recorded in Switzerland, Qatar, China, Saudi Arabia, United Arab Emirates, and Israel. These countries are located in Europe (1) and Asia (5). They belong to countries with a high (5) and medium (1) standard of living of the population. Accordingly, in the countries with the maximum values of the indicator of specialization in the sphere of production, the minimum values of the share of entrepreneurs involved in the service sector were noted and vice versa.

The average for 50 countries value of the share of nascent entrepreneurs creating businesses in the service sector reached 80.5% over the period under review. Values greater than the indicated average occurred in 27 countries, namely Switzerland, Qatar, China, Israel, United Arab Emirates, Saudi Arabia, Norway, Luxembourg, Canada, Guatemala, Brazil, Oman, Portugal, Japan, North Macedonia, Great Britain, Slovakia, Spain, Ireland, Jordan, Taiwan, Colombia, Cyprus, Ecuador, Morocco, Puerto Rico, Germany. These countries are located in Europe (11), Asia (9), Latin America (5), North America (1), Africa (1). They have high (22), medium (4) and low (1) income levels. Accordingly, in the remaining 23 countries, the share of nascent entrepreneurs who set up businesses in the service sector was less than 80.5%. It should be noted that the number of nascent entrepreneurs in the service sector was 4 times higher in 2019 than the number of those who specialized in the production of goods.

The data in column 3 of the table, as well as the above analysis of the values of the indicators for different countries, allow us to conclude that the four hypotheses put forward earlier have been confirmed. It is of interest to study the data characterizing the values of the considered indicators in Russia:

- the share of nascent entrepreneurs setting up businesses in the manufacturing sector is 24.1%;
- the share of nascent entrepreneurs setting up businesses in the service sector is 75.9%.

Comparison of the data for Russia with the average values of indicators for other countries allows us to conclude that there are no significant differences in them. That is, the values of both the first and the second indicator on the specialization of nascent entrepreneurs in Russia are similar to the average data for the countries under analysis.

**CONCLUSION**

The tasks set in the course of the study were fully achieved. The conclusions of the study, containing scientific novelty and originality, are as follows:

- it has been proposed to use economic and mathematical models to assess the values of indicators characterizing the involvement of nascent entrepreneurs in sectoral specialization;
the average values and variation ranges of indicators describing the specialization of nascent entrepreneurs have been estimated;

it has been proved that in the countries under consideration nascent entrepreneurs are on average 4 times more likely to start activities in the service sector than in the production of goods;

it has been shown that the specialization of nascent entrepreneurs in Russia is similar to their specialization in the foreign countries;

countries with the maximum and minimum values of the considered indicators of specialization of nascent entrepreneurs have been identified;

it has been proven that the values of each of the indicators are significantly differentiated in the 50 countries under analysis;

it has been confirmed that there is no correlation between the maximum and minimum values of each of the two indicators and personal income in different economies or geographic location of the countries.

The results of the research have certain theoretical and applied value. The proposed indicators and models for their calculation can be used to substantiate programs for the development of entrepreneurship by the federal, regional and municipal authorities. The results of the calculations are of interest to nascent entrepreneurs.

New knowledge about entrepreneurial specialization can be used in the activities of educational institutions. The studies were limited by the consideration of indicators for 50 countries. Further research can be aimed at examining the participation of nascent entrepreneurs in the creation of manufacturing and service firms in subsequent years.

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Specialization of entrepreneurs in the production of goods and the provision of services in modern economies

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Specialization of entrepreneurs in the production of goods and the provision of services in modern economies

Especialização de empreendedores na produção de bens e prestação de serviços nas economias modernas

La especialización de los empresarios en la producción de bienes y la prestación de servicios en las economías modernas

Resumo
O estudo das características da indústria da atividade empreendedora nos estágios iniciais é uma das questões atuais da pesquisa moderna. O objetivo do estudo é avaliar o nível existente de especialização de empreendedores iniciantes nas economias nacionais modernas. A fonte de informação para analisar a especialização da indústria de empreendedores iniciantes foram os dados apresentados no projeto Global Entrepreneurship Monitor. A metodologia do estudo envolveu modelagem econômica com uma função de densidade normal. O resultado de um experimento computacional é uma avaliação dos valores dos indicadores que caracterizam o envolvimento de empreendedores iniciantes na produção e no setor de serviços dos economias nacionais. Foi realizada uma análise comparativa dos valores dos indicadores para a Rússia e países estrangeiros. Está provado que os empreendedores iniciantes nos países em questão têm, em média, 4 vezes mais chances de iniciar atividades no setor de serviços do que no setor de produção de bens.

Palavras-chave: Empreendedores iniciantes. Tipos de atividades empresariais. Produção de bens. Prestação de serviços. Especialização da indústria.

Abstract
The study of the sectoral characteristics of early-stage entrepreneurial activity is one of the topical issues in modern research. The aim of the study is to assess the existing level of specialization of nascent entrepreneurs in modern national economies. The source of information for the analysis of the industry specialization of nascent entrepreneurs was the data provided in the Global Entrepreneurship Monitor project. The research methodology involved economics modeling with normal density function. The result of the computational experiment is the assessment of the indicator values characterizing the involvement of nascent entrepreneurs in the production and service sectors of national economies. A comparative analysis of the values of indicators for Russia and the foreign countries was carried out. It has been proved that nascent entrepreneurs in the countries under consideration are on average 4 times more likely to start activities in the service sector than in the commodity producing sector.

Keywords: Nascent entrepreneurs. Types of business activity. Production of goods. Provision of services. Industry specialization.

Resumen
El Estudio de las características de la industria de la actividad empresarial en las primeras etapas es una de las preguntas candentes de la investigación moderna. El objetivo del estudio es evaluar el nivel existente de Especialización de los empresarios emergentes en las economías nacionales modernas. La fuente de información para el análisis de la Especialización de la industria de los empresarios novatos fueron los datos presentados en el proyecto global Entrepreneurship Monitor. La metodología del estudio incluyó modelos económicos con función de densidad normal. El resultado del experimento computacional es la evaluación de los valores de los indicadores que caracterizan la participación de los empresarios novatos en la producción y el sector de servicios de las economías nacionales. Se realizó un análisis comparativo de los valores de los indicadores para Rusia y países extranjeros. Se ha demostrado que los empresarios en ciernes en los países examinados tienen en promedio cuatro veces más probabilidades de iniciar actividades en el sector de los servicios que en el sector de la producción de bienes.

Palabras-clave: Emprendedores principiantes. Tipos de actividad empresarial. Producción de bienes. Prestación de servicios. Especialización de la industria.