European Proceedings of
Social and Behavioural Sciences
EpSBS

www.europeanproceedings.com

e-ISSN: 2357-1330

DOI: 10.15405/epsbs.2021.04.02.81

GCPMED 2020
Global Challenges and Prospects of the Modern Economic Development

GENDER ASPECTS OF EXTERNAL FINANCING OF ENTREPRENEURSHIP IN DIFFERENT COUNTRIES

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Abstract

The purpose of the article is to assess indicators describing the participation of men and women in external financing for the creation of new small and medium-sized businesses in different countries. As such indicators, we consider the proportions of men and women participating in external financing in the total number of male and female adult population, respectively, by country; ratio of values of indicators of participation in external financing of new businesses by women and by men; average values of the financial contribution of men and women living in different countries; the ratio of the average values of the contributions of women and men to new small and medium-sized firms. As the initial information in our study, we used the data obtained from the implementation of the Women's Entrepreneurship Report project. The assessment of the values of each of the indicators was based on economic and mathematical modeling of empirical data. The study proved that the proportion of men involved in external financing is higher compared to the same indicator for women. So there is a gender gap. The results obtained are of theoretical and practical significance for governments and entrepreneurs. The methodological approach to assessing external financing of new businesses presented in the article can be used in further research.

Keywords: External financing, gender gap, investment in entrepreneurship, new entrepreneurship, participation of women and men in financing

https://doi.org/10.15405/epsbs.2021.04.02.81
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Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

1. Introduction

One of the most challenging issues holding back the creation of new small and medium-sized enterprises (SMEs) is the lack of sufficient financial resources for aspiring entrepreneurs setting up these businesses (Caggese, 2019; Godke Veiga & McCahery, 2019; Kumar & Rao, 2015). Moreover, it is difficult for start-up entrepreneurs to get credit funds. This is indicated by the authors of a number of articles (Campello & Larrain, 2016; Cole & Sokolyk, 2016). They draw attention to the fact that such entrepreneurs do not have real estate and other assets necessary for bank lending on collateral. In addition, the crisis phenomena, typical of recent times, increase the requirements for issuing loans. Given the above, raising funds from individuals has been essential in financing new SMEs in most countries in recent years. This phenomenon is called external financing of entrepreneurs.

2. Problem Statement

The relevance of studying the problem of investment in new SMEs is emphasized in many scientific studies carried out in recent years. In particular, much attention is paid to calls for a more systematic consideration of such an issue as external financing of start-up entrepreneurs based on informal investments. Of greatest interest are the works published in recent years that analyze different aspects of investments in small and medium-sized businesses (Acs et al., 2018; Ferrando & Ruggieri, 2018; Block et al., 2018; Zubair et al., 2020). It is interesting to analyze the gender aspects of such funding. That is to study the features of external financing of new SMEs by women and men. In addition, it is logical, in our opinion, to determine the difference between the behavior of women and men involved in SMEs investment process. We should mention that the study of the gender characteristics of external financing of SMEs has not received sufficient attention in publications to date.

3. Research Questions

In our research, we answer the following questions:

1. What percentage of the total number of women living in different countries is participating in the external financing of newly established SMEs?
2. What percentage of the total number of men living in different countries is participating in the external financing of newly established SMEs?
3. Is there a gender gap in the informal financing of new entrepreneurs across countries?
4. To what extent is external funding of new SMEs carried by women?
5. To what extent is external funding of new SMEs carried by men?
6. Is there a gender gap in external financing of new SMEs?
7. Are there significant differences in funding of new SMEs across countries?

4. Purpose of the Study

The aim of the article is to assess indicators describing the external financing of new SMEs by men and women. We also have solved the following tasks. At the first stage, an array of empirical data describing

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the participation of women and men in various countries in the processes of providing investment to entrepreneurs starting their own businesses was formed. At the second stage, the proportions of men and women participating in external financing of new entrepreneurs in the total number of these gender groups were determined by countries. At the third stage, the average values of contributions of men and women to investment in SMEs were determined. In addition, countries with high and low levels of external SMEs financing were identified. At the same time, both the geographical location of such countries and the average income of their population were taken into account.

5. Research Methods

External investment in SMEs is carried out by citizens of different countries at their own will and with the trust in the entrepreneurs who are the owners of these SMEs. The main investors, as indicated in a number of studies (Lopes & Costa, 2017; Moritz et al., 2016), are family members, friends, acquaintances. In addition, there may be other people interested in creating and developing a specific new business. This often involves crowdfunding (Ahlers et al., 2015; Block et al., 2018; Kgoroeadira et al., 2019). In the case of crowdfunding, external investors focus on the personality of the entrepreneur, his knowledge and competence.

Our study examined the assessment of six indicators that characterize the gender aspects of external investment in SMEs in 59 countries in 2018-2019:

- the proportion of women participating in external financing of new SMEs in the total female adult population of the country;
- the proportion of men participating in external financing of new SMEs in the total male adult population of the country;
- the ratio of indicators of participation in external financing of new SMEs by women and by men;
- average value of financial contribution to new SMEs by women in different countries;
- average value of financial contribution to new SMEs by men in different countries;
- the ratio of average contributions to new SMEs by women and men.

As the initial information in our study, we used data obtained from the implementation of the project Global Entrepreneurship Monitor 2018/2019 Women's Entrepreneurship Report (Global Entrepreneurship Monitor, 2019).

Our study included testing the following three hypotheses:

- hypothesis 1 - the values of the six indicators under consideration are significantly differentiated across countries;
- hypothesis 2 - the geographical location of countries does not significantly affect the values of considered indicators;
- hypothesis 3 - the population level of income in the countries under consideration does not have a significant effect.

The assessment of the values of the six indicators under consideration was based on economic and mathematical modeling of the initial empirical data. The density functions of normal distribution were used as models. The development method of these functions for assessing the values of indicators is given in the article (Pinkovetskaia et al., 2018). The obtained functions allow us to determine the average values of each

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of the six indicators for the countries under consideration, and the ranges of their variation that are typical for most countries. In addition, the study identified countries where the considered indicators exceed the limits of the ranges. The limits of indicator ranges for 68% of countries were determined on the basis of the indicators average values and their corresponding standard deviations. The interval lower limit is equal to the difference between the average and standard deviation, and the upper limit is their sum.

6. Findings

In the course of the computational experiment, economic and mathematical modeling was carried out based on empirical data. Models that describe the distributions of the six indicators across all 59 countries are shown below:

- the share of women participating in financing new SMEs in the total female adult population of the country,%

$$y_1(x_1) = \frac{77.33}{1.97 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_1-3.23)^2}{2\times 1.97\times 1.97}}; \quad (1)$$

- the share of men participating in financing new SMEs in the total male adult population of the country,%

$$y_2(x_2) = \frac{94.25}{2.55 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_2-4.86)^2}{2\times 2.55\times 2.55}}; \quad (2)$$

- the ratio of values of indicators of participation in financing SMEs for women and men

$$y_3(x_3) = \frac{6,44}{0.20 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_3-0.63)^2}{2\times 0.2\times 0.20}}; \quad (3)$$

- the average value of the financial contribution to SMEs for women, thousand dollars

$$y_4(x_4) = \frac{281.71}{3.14 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_4-4.46)^2}{2\times 3.14\times 3.14}}; \quad (4)$$

- the average value of the financial contribution to SMEs for men, thousand dollars

$$y_5(x_5) = \frac{215.43}{5.28 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_5-5.90)^2}{2\times 5.28\times 5.28}}; \quad (5)$$

-the ratio of the average values of the financial contribution to SMEs for women and men

$$y_6(x_6) = \frac{14.91}{4.10 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_6-0.72)^2}{2\times 0.28\times 0.28}}. \quad (6)$$

The developed models quality was assessed using three tests: Kolmogorov-Smirnov, Pearson, Shapiro-Vilka. A computational experiment has shown that all the developed functions are of high quality. The normal distribution density functions (1) - (6) make it possible to identify a number of significant regularities that characterize the existing financing of early entrepreneurs in the countries under consideration. Column 2 of Table 1 shows the indicators average values. Column 3 demonstrates the change intervals in the values of indicators for most countries.

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Table 1. Indicators characterizing the financing of early entrepreneurs

Indicators	Average values	Values typical for most countries
1	2	3
The share of women participating in financing new SMEs in the total female adult population of the country,%	3.23	1.26-5.20
The share of men participating in financing new SMEs in the total male adult population of the country,%	4.86	2.31-7.41
The ratio of values of indicators of participation in financing SMEs for women and men	0.63	0.43-0.83
The average value of the financial contribution to SMEs for women, thousand dollars	4.46	1.32-7.60
The average value of the financial contribution to SMEs for men, thousand dollars	5.90	0.62-11.18
The ratio of the average values of the financial contribution to SMEs for women and men	0.72	0.56-1.00

Source: authors.

The data in Table 1 (column 2) show that, in general, a small number of people are involved in external financing of new SMEs. So only one in thirty women and one in twenty men are involved in such investment activities. The average value of the share of women participating in financing new SMEs in the total female adult population of the country, as shown in Table 1, is 1.63% less than the corresponding indicator for men. The conclusion that men are more active in external financing of SMEs than women is also confirmed by the average ratio of these indicators, which is 0.63. However, in countries such as Cyprus, Republic of Korea and Russian Federation, the participation of women and men in external financing of SMEs is at the same level. In four countries (Madagascar, United Arab Emirates, Kazakhstan, Saudi Arabia) women are more active than men.

The average value of the financial contribution to SMEs for men is higher than that for women. Column 2 of the Table 1 shows that the average value of the financial contribution for men is $ 1,440 more than for women. At the same time, the average investment values even for men do not exceed six thousand dollars. The ratio of average values of the financial contribution to SMEs for women and men is 0.72. However, in countries such as Colombia, Italy, Poland, Slovenia, Thailand, Turkey, the values of external contributions to SMEs for women and men are practically equal. In Madagascar, Australia, Cyprus, Greece, Russian Federation, Indonesia, the average values of such deposits for women are higher than for men. To test hypothesis 1, an analysis of the data presented in column 3 of Table 1 was carried out. The analysis showed significant differentiation for the countries under consideration in the values of each of the six indicators. Consequently, hypothesis 1 was confirmed. At the next stage, the countries with the highest and lowest values of indicators were identified. The maximum values are those that exceed the upper limits of the ranges specified in column 3 of Table 1, and the minimum values are those that exceed the lower limits of these ranges. The analysis results are given in Table 2. Along with the lists of countries, this table also presents a subdivision of the identified countries by their geographic location and population income level.

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Table 2. Countries with high and low values of indicators characterizing the financing of early entrepreneurs

Indicators	Countries with high values of indicators	Countries with low values of indicators
The share of women participating in financing new SMEs in the total female adult population of the country,%	United Arab Emirates, Kazakhstan, Malaysia, Taiwan, China, Angola, Guatemala, Saudi Arabia, Chile, Sudan. Location: Europe (2), Asia (2), Africa (1). Population income level: high (2), medium (2), low (2).	Puerto Rico, Bosnia and Herzegovina, India, Japan, Qatar, Mexico, Brazil, Bulgaria, Egypt, Russian Federation. Location: Europe (2), Asia (5), Latin America (2). Population income level: high (7), medium (2).
The share of men participating in financing new SMEs in the total male adult population of the country,%	Colombia, Saudi Arabia, Malaysia, United States, Austria, Iran, Estonia, Angola, Chile, Guatemala, Sudan. Location: Europe (2), Latin America (3), Asia (3), Africa (2), North America (1). Population income level: high (5), medium (3), low (3).	Bosnia & Herzegovina, Russian Federation, Madagascar, Puerto Rico, Indonesia, Qatar, Mexico, South Africa, Cyprus, Brazil, India. Location: Europe (3), Asia (3), Africa (2), Latin America (3). Population income level: high (4), medium (4), low (3).
The ratio of values of indicators of participation in financing SMEs for women and men	China, Greece, Netherlands, Taiwan, Cyprus, Russian Federation, Madagascar, United Arab Emirates, Kazakhstan, Saudi Arabia. Location: Europe (4), Asia (5), Africa (1). Population income level: high (5), medium (4), low (1).	Puerto Rico, Egypt, India, Italy, Japan, Argentina, Austria, Bulgaria, Ireland, Sweden. Location: Europe (5), Asia (2), Latin America (2), and Africa (1). Population income level: high (6), medium (2), low (2).
The average value of the financial contribution to SMEs for women, thousand dollars	Slovak Republic, Japan, Slovenia, Italy, Cyprus, Switzerland, Greece, Republic Korea. Location: Europe (6), Asia (2). Population income level: high in all countries.	Uruguay, Madagascar, Sudan, Angola, India, South Africa, Panama, Guatemala, Ecuador, Mexico. Location: Asia (1), Africa (4), and Latin America (5). Population income level: high (2), medium (4), low (4).
The average value of the financial contribution to SMEs for men, thousand dollars	Cyprus, France, Greece, Slovak Republic, Italy, China, Luxembourg, Japan, Switzerland, Qatar, Republic Korea. Location: Europe (7), Asia (4). Population income level: high in all countries.	Madagascar, Uruguay, South Africa, Indonesia, Angola, Panama, Guatemala, Sudan. Location: Latin America (3), Asia (1), and Africa (4). Population income level: high (2), medium (2), low (4).
The ratio of the average values of the financial contribution to SMEs for women and men	Bulgaria, Madagascar, Australia, Cyprus, Greece, Russian Federation, Indonesia. Location: Europe (4), Asia (1), Africa (1), Australia (1). Population income level: high (3), medium (2), low (2).	Bosnia & Herzegovina, Qatar, France, Luxembourg, India, Netherlands, Sudan, United States, Angola, Ecuador, Egypt. Location: Europe (4), Asia (2), Africa (3), Latin America (1), North America (1). Population income level: high (5), medium (2), low (4).

Source: authors.

Table 2 provides information on the geographical location of countries with high (column 2) and low (column 3) values for each of the six indicators evaluated in our study. The data prove that there are no links between the indicators values and the geographical location of the countries, that is, both high and

low values of indicators can be observed in different parts of the world. It confirms hypothesis 2 of our study. Based on the data given in column 2 of Table 2, we can conclude that high-income countries demonstrate high values of the financial contribution to SMEs by both sexes, which is logical. For countries with low values of the financial contribution to SMEs for women and men (column 3), there is no link between the indicators and the income levels of the population in the countries. The analysis also showed no relationship between the income levels and the values of the following four indicators: the proportions of women and men participating in financing new SMEs, the ratio of the indicators of participation in SMEs financing, and the ratio of the average values of the financial contribution to SMEs. Thus, hypothesis 3 received partial confirmation, since it is not fulfilled for countries where the values of the financial contribution to SMEs for women and men are greater than the upper bounds of the intervals indicated in column 3 of Table 1.

7. Conclusion

The key findings of the evaluation:

- the assessment of indicators characterizing external investment in SMEs by men and women in various countries is carried out;

- the distribution of six indicators describing external investment for start-up entrepreneurs is modeled;

- it is proved that the proportion of men involved in external financing of SMEs is higher compared to the same indicator for women. So, there is a gender gap in external funding;

- the average amounts of the deposits into investments for aspiring entrepreneurs are established;

- the presence of significant differences in the values of the six indicators under consideration by countries is shown;

- countries with high and low values for each of the six indicators are represented.

During the study, there were limitations on empirical data due to the fact that only 59 countries were considered. Further research might be aimed at detailing the structure of recipients of external financing among entrepreneurs. The obtained results has a definite theoretical and practical importance for governments and entrepreneurs. The methodological approach presented in the article to assessing external financing of new SMEs can be applied in further research. The new knowledge gained is of interest and can be used in the educational process at universities.

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