

## **SCIENTIFIC AND METHODOLOGICAL FOUNDATIONS FOR EVALUATING THE EFFECTIVENESS OF WOMEN'S ENTREPRENEURSHIP DEVELOPMENT**

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### **Abstract:**

This article explores the scientific and methodological foundations for assessing the effectiveness of women's entrepreneurship development. A systematic analysis of the evolution of the concept of "entrepreneurship," its role in the history of economic thought, and the specific characteristics of women's business is conducted. The article proposes a methodology for using integrated indicators that combine economic, social, institutional, and environmental approaches in evaluating effectiveness. The impact of human capital and management quality on the development of the sector is also assessed.

**Keywords:** women's entrepreneurship, performance assessment, economic growth, social stability, integral index, institutional approach, innovative activity, gender equality.

### **1. Introduction**

In today's era of globalization, supporting women in entrepreneurship within the national economy and encouraging their participation in business activities are crucial factors for economic growth. Women's engagement in entrepreneurship not only enhances economic efficiency but also helps ensure social stability, increase employment rates, and reduce income disparities among the population. Therefore, it is essential to scientifically evaluate the results achieved by women in entrepreneurship, determine the effectiveness of the organizational and economic mechanisms of these business activities, and promote their comprehensive development.

According to the analysis, the process of involving women in business and evaluating the effectiveness of their entrepreneurial development is complex, encompassing economic, social, legal-institutional, environmental, and scientific-technical aspects. A single approach is insufficient for evaluating the effectiveness of this process; instead, it requires the substantiation of complex scientific and methodological approaches.

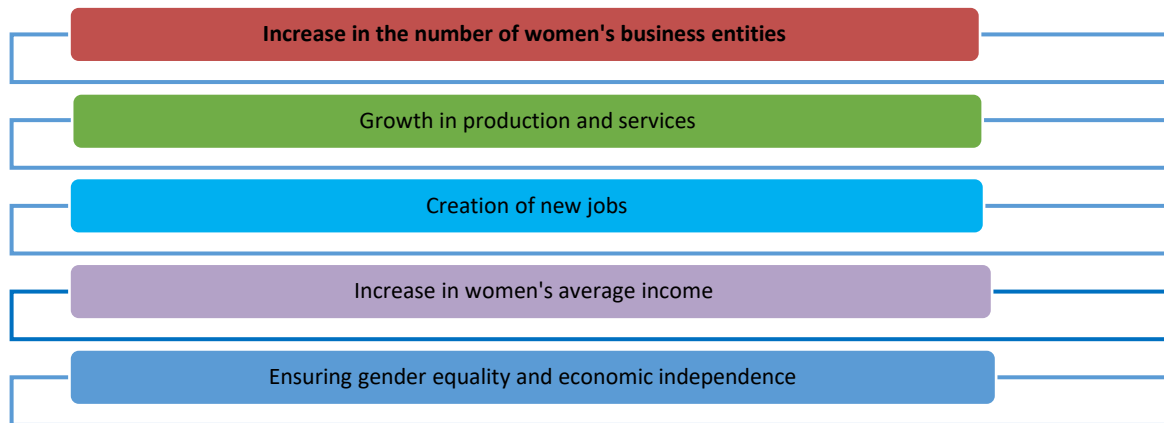
## 2. Materials and Methods

According to analyses, the term "entrepreneurship" in its modern sense was first used in the early 18th century by the English economist Richard Cantillon in his research. In this scholar's view, "an entrepreneur is a person who engages in any activity on the basis of risk-taking"[1]. Later, at the beginning of the 19th century, the French economist J.B. Say recognized that "entrepreneurial activity is the integration of the three factors of production - land, capital, and labor"[2]. According to J.B. Say's main views, "entrepreneurs play a key role in the production of goods, and the income they receive is a reward for their labor, for the effective organization of production, and for selling products at the right time and in the right place"[3]. According to A. Smith, "an entrepreneur is the owner of capital who, in implementing a certain commercial plan, starts a business with risk in order to make a profit; direct investment of funds into any business is always associated with risk" [4]. From this scholar's theoretical views, we can understand that the entrepreneur personally plans and organizes production and is responsible for the profits and losses arising from it. For this reason, A. Smith calls the competition among entrepreneurs in the market the "invisible hand." By the 20th century, the significance and scope of the concept of entrepreneurship had grown. The famous economist Alfred Marshall was the first to add the factor of organization to the three factors of production - land, capital, and labor. From that time, new approaches to the concept of entrepreneurship began to form. Specifically, the American economist J. Schumpeter recognized the "entrepreneur as an innovator, that is, a person who invents something new"[5]. This economist emphasizes that entrepreneurial activity plays a major role in the prosperity of the capitalist economy and in ensuring economic growth. From the ideas above, we can understand that the concept of entrepreneurship, in its initial evolutionary stage, was inextricably linked to the sphere of production. In today's market economy, entrepreneurship has become a driving force of the national economy and is active in almost all economic sectors.

This article examines the publications of economists and researchers on women's entrepreneurship. The methods of systematic analysis and comparative comparison were utilized, based on a consideration of the opinions of specialists in the field.

## 3. Results and Discussion

Before analyzing the methodologies for assessing the effectiveness of developing women's entrepreneurship, we believe it is necessary to focus on the essence of the concept of effectiveness itself. According to economic literature, the concept of "effect" is derived from the Latin word "effectus," which denotes the final result of any action. The concept of "effectiveness," as an economic category, characterizes the relative indicators of achieving set goals. From the perspective of women's entrepreneurship, the concept of effectiveness is not only assessed by the economic and social results achieved but is also considered to have a broader meaning. In the researcher's opinion, the effectiveness of developing women's entrepreneurship is a complex indicator. It encompasses not only the economic results achieved by women in entrepreneurship - resulting from the support and conditions created by relevant government bodies and society - but also reflects their social activism, share of total employment, increased income, and elevated status within the population. The effectiveness of developing women's entrepreneurship is demonstrated by the aspects presented below (Figure 1).



**Figure 1.** Description of aspects considered necessary for evaluating the effectiveness of women's entrepreneurship development [6]

Based on the data in Figure 1, we can say that when evaluating the effectiveness of the results achieved by women in entrepreneurship, it is important to determine the economic and social outcomes in a harmonized manner. In this research, when evaluating the effectiveness of developing women's entrepreneurship, we first implemented an approach aimed at determining the efficiency of the financial, informational, and labor resources involved. This makes it possible to assess the level of effective utilization of loans, grants, and investments allocated during the organization and implementation of women's entrepreneurial activities.

Secondly, a results-based approach was implemented, using the outcomes women achieved in their entrepreneurial activities, based on economic indicators. In this context, profit, profitability, production volume, tax revenues, and several other financial indicators are of significant importance.

Thirdly, an analysis was conducted using a social effectiveness approach, which reflects the impact of women's entrepreneurship on society. Within this framework, indicators such as employment, income growth, and social activity are analyzed. It also becomes possible to analyze the effectiveness of the organizational and economic mechanism aimed at supporting women's entrepreneurship through an institutional approach. This approach assesses laws and by-laws developed by the state, government programs, financial and non-financial institutions, and other infrastructure and systems geared towards the development of women's entrepreneurship. In the process of evaluating the effectiveness of women's entrepreneurship development, implementing all the aforementioned approaches in harmony with one another is considered one of the most optimal methods.

According to the research findings, the group of indicators used to assess the effectiveness of women's entrepreneurship development is methodologically significant, and in this research, they have been divided into five main groups (Table1).

**Table 1.** Grouping of Effectiveness Indicators for Women's Entrepreneurship Development [7]

Type of effectiveness achieved	Indicators describing effectiveness
Economic	<ul style="list-style-type: none"><li>• Increase in income from entrepreneurial activities as a result of the development of women's entrepreneurship</li><li>• Improving the competitiveness of products and services produced within the framework of women's entrepreneurship</li><li>• Increasing the profitability of women's entrepreneurial entities</li></ul>
Social	<ul style="list-style-type: none"><li>• Increasing women's employment and creating new jobs as a result of developing women's entrepreneurship</li><li>• Increasing the average income and improving the living standards of women through the development of women's entrepreneurship</li><li>• Increasing women's economic activity and ensuring their social status and financial independence by developing women's entrepreneurship</li></ul>
Ecological	<ul style="list-style-type: none"><li>• Reducing the volume of waste generated by women's entrepreneurial activities</li><li>• Increasing the number of energy-saving technologies and equipment that reduce toxic emissions in entrepreneurial activities through the development of women's entrepreneurship</li><li>• Improving indicators for toxic gas reduction, product recycling, and compliance with environmental requirements through the development of women's entrepreneurship</li></ul>
Scientific and Technical	<ul style="list-style-type: none"><li>• Increasing the scientific and intellectual potential of women through the development of women's entrepreneurship</li><li>• Increasing the use of innovative environmental solutions and digital tools in the entrepreneurial process as a result of developing women's entrepreneurship</li><li>• Technological improvement of production and service delivery processes in women's entrepreneurship</li></ul>
Organizational and Institutional	<ul style="list-style-type: none"><li>• Enhancing the effectiveness of the legal and regulatory framework, support mechanisms, and relevant institutions developed by the government to promote women's entrepreneurship</li><li>• Increasing access to relevant financial institutions, innovation centers, and various consulting and educational services for organizing and conducting women's entrepreneurial activities</li><li>• Expanding the coverage of programs and projects aimed at developing women's entrepreneurship</li></ul>

Economic efficiency indicators are relatively easy to measure due to their material significance, and they are determined by changes in resource allocation and final outcomes in the organization and implementation of women's entrepreneurship.

Assessing social and environmental efficiency indicators is considered somewhat more complex, as these indicators are of an intangible nature and are determined by changes in qualitative metrics. In this context, social efficiency indicators are expressed not by the ratio of financial profit, but by the benefits of economic activity to society's standard of living, while

environmental efficiency indicators are assessed by the reduction in the volume of toxic fumes released into the atmosphere and the decrease in the amount of waste generated within the scope of entrepreneurial activity.

Indicators of scientific and technical effectiveness are primarily demonstrated by an increase in the number of innovative projects and developments within women's entrepreneurship, and by the growing level of digital technology adoption.

Organizational and institutional effectiveness indicators are mainly reflected in the efficacy of the legal and regulatory framework, programs, and projects developed by the government, as well as the performance of relevant institutions in promoting women's entrepreneurship.

Some studies focused on assessing the effectiveness of women's entrepreneurship development also utilize the following system of indicators:

1. The Financing Coefficient For Women's Entrepreneurship;
2. The Time Expended To Produce One Unit Of Product Or Service In Women's Entrepreneurship;
3. The Effectiveness Of Results Achieved Through Investments And Fixed Capital Directed Toward Entrepreneurial Activities In Women's Entrepreneurship;
4. The Patenting Coefficient For Scientific Developments In Women's Entrepreneurship;
5. The Ratio Between Borrowed And Own Funds Used In Implementing An Innovative Project In Women's Entrepreneurship.

The aforementioned performance indicators are utilized by international organizations to evaluate the effectiveness of women's entrepreneurship development. The process of collecting relevant data for analyzing these indicators is considered relatively straightforward and is also reflected in the annual and quarterly reports on women's entrepreneurship. International research on assessing the effectiveness of women's entrepreneurship development widely employs methods based on the object of assessment, the type of effectiveness achieved, the time factor, and the level of risk (Table 2).

**Table 2.** Methods for Assessing the Effectiveness of Women's Entrepreneurship Development [8]

Assessment Method	Component Indicators of the Assessment Method
By Object of Assessment	Micro-level assessment: the effectiveness of an individual female entrepreneur or enterprise
	Meso-level assessment: the effectiveness of women's entrepreneurship within an industry, region, or cluster
	Macro-level assessment: the effectiveness of national-level programs for women's entrepreneurship development
By Type of Effectiveness Achieved	Economic effectiveness: financial results and production indicators
	Social effectiveness: employment, social engagement
	Environmental effectiveness: reducing environmental damage and conserving energy resources
	Scientific and technical effectiveness: innovative and technological development in production and service provision

	Organizational and institutional effectiveness: the effectiveness of incentive mechanisms and institutional activities
By the Time Factor	Static evaluation: effectiveness at a specific point in time
	Dynamic evaluation: changes in performance indicators over a period of time
	Forecast evaluation: assessment of performance indicators for a future period
By Risk Level	Low-risk evaluation: activity in highly favorable conditions created by the government
	Medium-risk evaluation: activity that is sensitive to market demand but relatively stable
	High-risk evaluation: activity based on innovative and modern technologies

In the context of women's entrepreneurship, "when assessing effectiveness, since the indicators across different areas (economic, financial, employment-related, digital, and innovative) are in various units of measurement, it is advisable to first convert them to a single unit of measurement (normalization), and then combine them into a single integrated indicator using value indicators". From these points, we can understand that the general normalized formula is expressed as follows:

$$I_{fj} = \frac{X_{ij} - X_{j \min}}{X_{j \max} - X_{j \min}} \quad j=1,2,3,4,5 \dots \dots \dots (1)$$

Here:

$I_{fj}$  - economic activity, which is the product profitability value of the norms for net profit or retained earnings to be received as a result of entrepreneurial activity;

$X_{ij}$  - current value indicator

$X_{j \max} - X_{j \min}$  - the minimum and maximum values of the performance indicators.

After the calculations are performed using this formula, it is necessary to calculate the integrated indicator. The following formula is used to perform these calculations:

$$S_d = \theta \left( \sum_{j=1}^5 \omega_j I_{ij} \right) + (1 - \theta) * \left( \prod_{j=1}^5 I_{ij}^{\omega_j} \right) \dots \dots \dots (2)$$

Here:

$\sum_{j=1}^5 \omega_j I_{ij}$  - arithmetic mean;

$\prod_{j=1}^5 I_{ij}^{\omega_j}$  - geometric mean value.

In this case, if the value  $\theta=1$  is recorded, the integrated indicator is determined by the arithmetic mean. However, if the value  $\theta=0$  is recorded, the integrated indicator is calculated by the geometric mean.

When evaluating the effectiveness of results achieved by women in entrepreneurship, the data is typically normalized within a 0-1 range using the min-max method. If the results of the effectiveness evaluation record a value close to 0, it means that the effectiveness indicators are considered low. Conversely, the closer the effectiveness results are to 1, the higher this value is considered. In the practice of multi-criteria evaluation of effectiveness indicators, this assessment method utilizes a 3-4 stage evaluation. According to this method, four main criteria are selected as a basis (Table 3).

**Table 3.** Threshold values for assessing the level of women's entrepreneurship by effectiveness criteria [9]

Level	Range of values
$S_d \geq 1$	High level
$0.75 \leq S_d < 0.99$	Stable level
$0.50 \leq S_d < 0.74$	Medium level
$S_d < 0.49$	Low level

The efficiency levels shown in Table 3 above are based on a normalized assessment, where each level's range represents an evaluation with economic substance. The scientific aspect of this approach is that although the efficiency indicators are in different units of measurement, it is crucial to first make them comparable by evaluating them on a scale from 0 to 1. The practical aspect of the approach helps determine which types of activities women entrepreneurs should direct their plans and decisions toward in order to forecast current, intermediate, and long-term goals.

It should also be noted that when assessing the efficiency of women's entrepreneurship, it is not just the aforementioned indicators, but also indicators such as human capital, qualitative and quantitative management metrics, and the effectiveness of regional integration that are important for evaluating the development of women's entrepreneurship. In this context, the human capital indicator reflects the extent to which the knowledge, entrepreneurial skills, and experience of the female entrepreneur and her team influence the performance outcomes of the business activity [10]. This indicator is one of the main factors that determines stability and competitiveness in the establishment and operation of women's entrepreneurship.

In women-led and managed enterprises, key qualitative indicators of management include the speed and accuracy of decision-making, the level of long-term strategic planning, and the style of employee management. The profit and efficiency achieved as a result of these indicators demonstrate their true content and essence. At the same time, quantitative indicators of management are also a measure of effectiveness in women's entrepreneurship, with this assessment primarily referring to the efficiency of labor resource utilization [11][12]. Specifically, this is evaluated through indicators such as the number of employees, income per employee, labor productivity, and the share of management expenses within the business activity.

The effectiveness of regional integration is determined by the extent to which women's entrepreneurship is impacted by the interconnection of opportunities, available resources, and market conditions created for its development in the regions. This indicator is assessed by the level of equal development of women's entrepreneurship and equal access to opportunities across the region's territories. As we noted above, each indicator used to assess the effectiveness of women's entrepreneurship development is complementary and has a mutually balancing characteristic. These indicators reveal different aspects of each result achieved by women in the field of entrepreneurship. Therefore, when identifying differences in the assessment levels of these indicators, it is advisable to consider practical observations, surveys, and expert evaluations alongside theoretical and methodological approaches. The evaluation of each performance indicator should be based on its economic substance and on theoretical-methodological perspectives. According to analyses, "in women's entrepreneurship, the values of motivation, self-confidence, and formal leadership determine up to 25-30% of

success"[10][13]. This is because leadership ability is crucial in managing employees and making decisions, directly impacting performance indicators such as labor productivity and cost-effectiveness. Likewise, indicators that assess the effectiveness of organizational management in entrepreneurial activity are also important, and "it is generally considered that 20% of success in entrepreneurial activity depends on the management system established during the course of operations" [11][14]. This criterion may be relatively low in women's entrepreneurship. In other words, women in business tend to be more inclined towards an intuitive management system. The level for assessing marketing activity in women's entrepreneurship is 0.25, which means women have the opportunity to grow their businesses by up to 25% through various marketing methods. That is, "in the digital economy, a marketing approach - especially through social networks and online sales - is a growth factor of up to 25% for women's businesses" [12][15]. These differences between the assessment levels for ensuring effectiveness illustrate the relative substance and essence of the interconnected factors that define women's entrepreneurial activity. It should also be noted that although these assessment levels have varying shares in women-led entrepreneurial activities, they all have a positive impact on economic efficiency indicators.

#### **4. Conclusion**

The conditions that enable women to achieve success in entrepreneurship are inseparable from the broader opportunities and conditions aimed at developing entrepreneurship in general. The performance indicators for women in this sector can be further improved if ongoing reforms to support women entrepreneurs are integrated with reforms aimed at developing investment and business skills, particularly within micro, small, and medium-sized enterprises. This will create opportunities for the aforementioned enterprises to improve access to financial resources, enhance the tax system, and develop trade-related ecosystems.

As mentioned above, it is not possible to fully assess the overall state of women's entrepreneurship using only these performance indicators. Therefore, it is necessary to consolidate all the aforementioned assessment groups into a single, harmonized criterion. This process, known as the integral assessment method, is considered scientifically and practically sound. In this method, all performance indicators are normalized, and their respective weighting coefficients are determined. The determination of these weighting coefficients primarily takes into account statistical analysis, expert evaluation methods, and the government's strategic goals and priorities in this area. Through this, a general index for determining the effectiveness of women's entrepreneurship development will be formulated. This index will make it possible to analyze women's entrepreneurial activities across regions, between sectors, and over different time periods. As a result, it will be possible to identify in which regions, sectors, and periods women's entrepreneurship is developing or declining.

Furthermore, in developed countries, indicators related to gender equality are widely used to assess the effectiveness of women's entrepreneurship development. Specifically, this includes indicators such as women's level of access to financial services, their independence in conducting entrepreneurial activities, and their participation in innovation.

According to analyses, increased attention to gender equality in the country has led to a significant rise in women's interest in various professions. Equal opportunities for men and women in the labor market not only expand the nation's talent pool but also serve to improve performance indicators across all economic sectors and stimulate the formation of new ideas. By promoting gender equality in employment, society benefits from greater justice, a stronger economy, and prosperity for all.

Expanding the scientific and methodological foundations for evaluating the outcomes of

women's entrepreneurial activities and the effectiveness of their development enhances the theoretical and practical level of research in the field of women's entrepreneurship. Utilizing the integrated approach mentioned above enables a systematic assessment of the processes and performance indicators related to the development of women's entrepreneurship, the improvement of programs implemented in this area, and the rational use of available tangible and intangible resources. Today, the development of women's entrepreneurship in the country is recognized not only as an economic pursuit but also as an integral component of national innovative development. For this reason, analyzing women's entrepreneurship and all related aspects, identifying existing problems, and finding solutions for them are among the most pressing issues of our time.

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