

# Ways to Increase the Efficiency of the Participation of Small Business Subjects in Foreign Trade Activities in the Development of the Digital Economy

Ubaydullo Gafurov

Professor, head of department "Business administration" at Tashkent State University of Economics  
Tashkent, Uzbekistan  
gofurov\_u@mail.ru

Bobir O. Tursunov

Professor, head of department "Economic and financial security" at Tashkent State University of Economics  
Tashkent, Uzbekistan  
b.tursunov@tsue.uz

Sanginov Zafar Abduganievich

PhD, Researcher at Tashkent State University of Economics  
Tashkent, Uzbekistan  
s.ahmedjanov@gmail.com

**Abstract:** The rapid development of the digital economy is fundamentally transforming international trade mechanisms and creating new opportunities for small business subjects to integrate into global markets. However, despite the growing availability of digital platforms and cross-border e-commerce tools, the efficiency of small businesses' participation in foreign trade remains constrained by institutional barriers, limited digital capabilities, high transaction costs, and insufficient access to market information and finance. This paper aims to identify and systematize effective ways to increase the efficiency of small business participation in foreign trade activities under conditions of digital economic development. The research is based on a comprehensive analysis of modern theoretical approaches to digital trade, small business internationalization, and trade facilitation, combined with a synthesis of international best practices and analytical reports of leading international organizations. Particular attention is paid to the role of digital platforms, electronic trade documentation, digital customs procedures, and data-driven decision-making in reducing trade costs and expanding export opportunities for small enterprises. The study also highlights the importance of institutional reforms, targeted digital infrastructure development, and capacity-building programs aimed at improving digital literacy and managerial competencies of small business entities. The findings indicate that a systemic combination of digitalization, supportive trade policies, and business-oriented institutional mechanisms significantly enhances export efficiency, competitiveness, and sustainability of small businesses in international markets. The results of the study may be useful for policymakers, researchers, and practitioners involved in the development of small business support strategies in the digital economy.

**Keywords:** Digital economy, small business, foreign trade, efficiency, innovative technologies, competitiveness.

## 1. INTRODUCTION

Effective use of the potential of the national economy in the context of global competition in the world economy is increasing attention to the development of small business entities in many ways. As a result, in recent years, the participation of small businesses in foreign trade activities has become more active in developed countries. According to experts, the share of small and medium enterprises in industrial exports is about 40% in Germany and the Netherlands, about 22-24% in Italy, 14-16% in the USA and Japan. If we take into account their participation in the assembly of finished products exported by large companies, then their share will increase to 65% in Italy, 55% in France, and 45% in Japan." In the conditions of increasing global competition, increasing the efficiency of participation of small business entities in foreign trade activities is considered as one of the urgent problems [1,2,3]

In the world, in the conditions of globalization and international competition, scientific research is being conducted to expand the participation of small business entities in foreign trade activities. To ensure national competitiveness, to develop innovative approaches to expand the participation of small businesses in foreign trade activities, to create an effective system of foreign trade infrastructure and a favorable environment that encourages specialization in foreign trade activities, to transfer foreign trade operations to digital platforms, to facilitate the foreign trade of small business entities. establishment of economic mechanisms stimulating trade activities, creation of effective mechanisms of state

support for the participation of small enterprises in foreign trade activities are among the priorities of the researches being carried out in this regard.

We will at least double the export of textiles, electrical equipment, leather-shoes and other finished products to the European markets. The current 9-step customs clearance for the export of products will be reduced by 3 times. "We will complete the main negotiations on membership in the World Trade Organization, and accelerate the work of harmonizing domestic legislation and introducing new standards." In the effective implementation of these tasks improving the method of evaluating the efficiency of participation of small business entities in foreign trade activities, presenting export opportunities to small business entities in the form of an electronic map, establishing the practice of organizing the export process by the state based on the importance and complexity of goods and services, improving the quality, cost and other competitiveness of products or services to deliver the results of regular analysis in terms of indicators to local manufacturers and establish a service for determining measures to increase the efficiency of foreign trade activities, to research the issues of developing long-term forecast indicators of the dynamics of export volume of small business entities in Uzbekistan shows the relevance of directed scientific research [4,5,6].

## 2. LITERATURE REVIEW

Various aspects of small business activity are studied by many scientists of foreign countries, including Researched by Anikina V.V., Khait M.M. and others. Peculiarities of participation of small business in foreign economic activities, including foreign trade activities Alyokhina O.V., Mikhalkova I.G. , Kuchukov R.R., Nureev R.M., Popkova E.[12] Scherbakova N.A. and a number of other foreign economists and specialists have been researched in scientific works.[15]

Issues of foreign economic activity in Uzbekistan, including development of foreign trade Abdullaev AM, Askarov NI, Azam SE, Zufarova NA, Isadjanov AA, Karrieva Ya.K., Mamadzhanova TA, Mingishov LO', Nazarova RR, Otajonov NM , Sirajiddinov N., Kadirov HT and other scientists. The development of the small business sector and its participation in foreign economic activity were studied in the scientific researches of Bakieva I.A., Zakirov F.Sh., Ibragimov F.A., Gafurov U.V. and others.

## 3. METHODOLOGY

When evaluating the effectiveness of export activity of small business entities, it should be noted that it can be implemented at several levels. In particular, Ibragimov FA put forward a proposal to divide the indicators of small business export efficiency assessment according to the levels of enterprise (firm), sector (type of economic activity), region and country (national economy) (Table 1) [7,8].

Table 1: Indicators of different levels of evaluation of efficiency of export activity of small business entities

| Grade level   | Calculation method            | Conditional signs  |
|---|-------------------------------|--|
| Efficiency of export activity at the enterprise (firm) level  | $ES_K = \frac{ENK_K}{EX_K}$ , | $ES_K$ - general indicator of efficiency of export activity at the level of a small business enterprise (firm);<br>$ENK_K$ - the overall result of the export activity of a small business enterprise (firm);<br>$EX_K$ - general costs of small business enterprise (firm) export activity.   |
| Efficiency of export activities of small business entities at the network (type of economic activity) level | $ES_T = \frac{ENK_T}{EX_T}$ , | $ES_K$ - the general indicator of the efficiency of export activity of small business entities in a specific sector (economic activity);<br>$ENK_K$ - the overall result of the export activity of small business entities in a specific sector (economic activity);<br>$EX_K$ - total costs of export activities of small business entities in a specific sector (economic activity). |
| Efficiency of export activities of small business entities at the regional level                            | $ES_H = \frac{ENK_H}{EX_H}$   | $ES_K$ - a general indicator of the efficiency of export activity of small business entities at the level of a specific region;<br>$ENK_K$ - the general result of the export activity of small business entities in a certain area;<br>$EX_K$ - total costs of export activities of small business entities in a certain area.  |
| Efficiency of export activities of small business entities at the level of the country (national economy).  | $ES_M = \frac{ENK_M}{EX_M}$   | $ES_K$ - the general indicator of the efficiency of export activity of small business entities at the level of the country (national economy);<br>$ENK_K$ - the overall result of the export activity of small business entities of the country (national economy);  |

|  |  |   |
|--|--|---|
|  |  | $EX_K$ - total costs of export activities of small business entities of the country (national economy). |
|--|--|---|

Also, Ibragimov FA puts forward a proposal to evaluate the effectiveness of small business enterprises in terms of export activity processes.

The participation of small business in Uzbekistan's foreign trade activities has an important place. Analyzing the effectiveness of the participation of small business entities in foreign trade activities in our country requires first of all to consider the organizational and economic foundations that create a favorable basis for the effective implementation of this activity. [12]

"The current stage of the country's foreign economic relations development is characterized by a number of features that are not favorable for the active participation of small and medium-sized enterprises in international cooperation. Today, many small enterprises in Uzbekistan are usually not ready to operate in foreign markets, they do not have the necessary skills, they do not have a good understanding of the conditions in certain commodity markets, and they do not have experience in contract work. [15]

The products of many small enterprises are not competitive in foreign markets. In these conditions, it is very necessary to systematically support the foreign trade activities of small businesses by the state both inside the country and abroad. In this case, we are talking about support with material resources in order to master new technological processes and increase the competitiveness of manufactured products, as well as opportunities for entrepreneurs to establish market conditions, foreign partners and stable relations. It's about information and organizational support that allows you to get direct information. The resolution of these issues is related to the establishment of strong programmatic interaction between small business, the system of the UzR SSP, agencies regulating foreign economic activity, their foreign apparatuses and local structures.

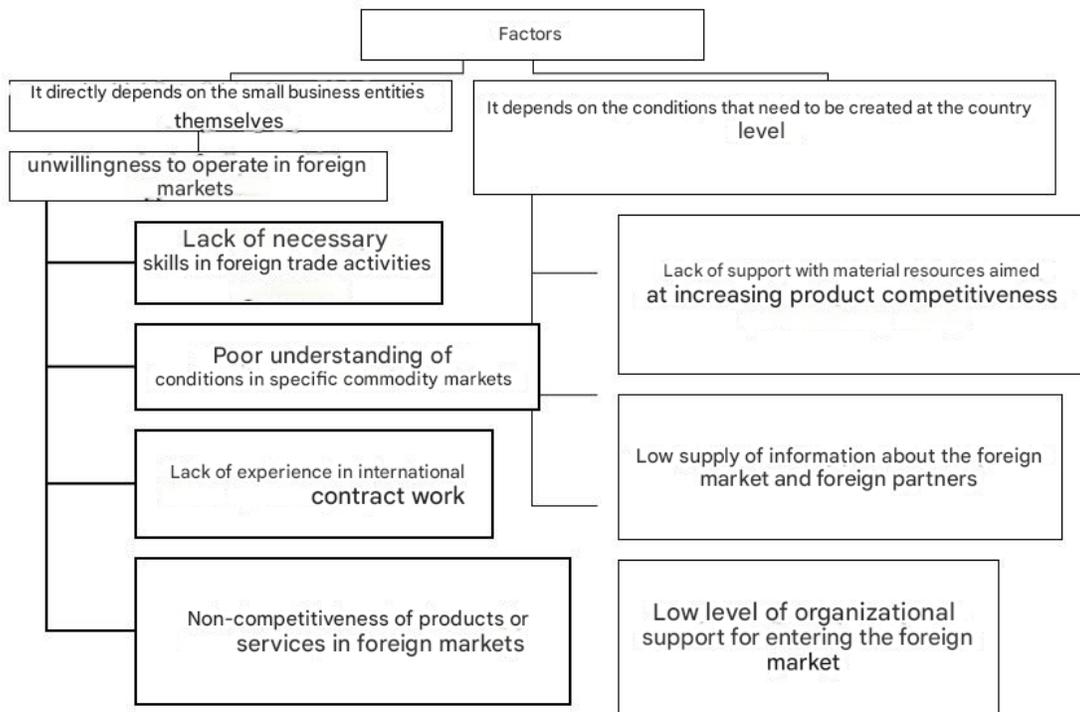


Figure 1. Factors hindering the effectiveness of participation of small business entities in foreign trade activities in Uzbekistan

It can be seen that the factors that hinder the effectiveness of the participation of small business entities in foreign trade activities in Uzbekistan are divided into two groups - directly related to the small business entities themselves and related to the conditions that need to be created at the national level. can be divided into factors (Fig. 1) [9,10].

#### 4. ANALYSIS AND RESULTS

In improving the organizational and economic basis of foreign trade activities of small business entities in

Uzbekistan, a number of the following offices and organizations that regulate the foreign economic activities of our country can be noted:

- Ministry of Investments, Industry and Trade of the Republic of Uzbekistan;
- State Customs Committee;
- State veterinary service;
- "Uzboshdavkarantin" state inspection on plant quarantine;
- Standardization, metrology and certification agency of Uzbekistan ("Uzstandart" agency);
- State sanitary-epidemiological control bodies;
- JSC "Uzbekexpertiza" and others.

As a result of the favorable conditions created for the activity of small business entities by the President of Uzbekistan, the government and its leading ministries and organizations, including the above-mentioned offices and organizations, this sector is rapidly developing in our country from year to year. In particular, the role and importance of small business in the economy can be evaluated by the share of the main activity indicators in the economy (Table 2) [11].

Table 2: In Uzbekistan, the share of the main activity indicators of small business entities in the economy, in percent

| Indicators   | 2018 | 2019 | 2020 | 2021 | 2022 |
|--------------|------|------|------|------|------|
| GDP          | 62.4 | 56.0 | 55.7 | 54.9 | 51.8 |
| Industry     | 37.4 | 25.8 | 27.9 | 27.0 | 25.9 |
| Construction | 73.2 | 75.8 | 72.5 | 72.4 | 71.6 |
| Employment   | 76.3 | 76.2 | 74.5 | 74.4 | 74.4 |
| Export       | 27.2 | 27.0 | 20.5 | 22.3 | 29.5 |
| Import       | 56.2 | 61.6 | 51.7 | 48.7 | 49.4 |

From the data in the table, it can be seen that the share of the main activity indicators of small business entities in the economy in Uzbekistan is changing in different directions during the period of analysis (2018-2022). In particular, the volume of products produced and services provided in the sector has consistently decreased from 62.4 percent in 2018 to 51.8 percent in 2022. The decrease in this and subsequent cases is not absolutely significant, but is explained by the relatively rapid and significant growth of indicators in a large sector of the economy. This situation was also observed in industrial production. The export volume was stable in 2018-2019, and sharply decreased in 2020-2021. This situation can be explained by the negative impact of the global covid pandemic. This indicator in 2022 was even higher than its pre-pandemic indicator - 29.5 percent. The impact of the pandemic on imports was somewhat "softer": in 2018, the share of imports by small business entities was 56.2 percent of total imports, and in 2022, this figure was 49.4 percent.

In order to more clearly imagine the role and importance of small business in the economy, it is important to provide absolute indicators of the main activity (Table 3).

Table 3: The size of small business and private entrepreneurship in the main indicators of economic sectors

| Indicators  | 2018     | 2019     | 2020     | 2021     | 2022     |
|---|----------|----------|----------|----------|----------|
| Industry (billion soums)                            | 87962.0  | 83344.2  | 103020.8 | 121719.2 | 142611.7 |
| Construction (billion soums)                        | 37451.7  | 53960.9  | 63866.6  | 77762.0  | 93620.8  |
| Employment (thousand people)                        | 10128.8  | 10318.9  | 9865.7   | 10070.7  | 10222.9  |
| Export (million USD)                                | 3810.8   | 4714.8   | 3100.9   | 3711.2   | 5696.2   |
| Import (million USD)                                | 10916.2  | 14972.2  | 10943.3  | 12389.0  | 15154.1  |
| Trade (billion soums)                               | 114896.4 | 138920.7 | 164106.1 | 204787.4 | 253573.4 |
| Agriculture, forestry and fisheries (billion soums) | 191759.2 | 219466.9 | 253238.2 | 307280.2 | 347222.0 |
| Services (billion soums)                            | 84433.4  | 103106.6 | 114052.7 | 144812.7 | 173157.7 |

|  |          |          |          |          |          |
|--|----------|----------|----------|----------|----------|
| Shipping (million tons)                | 611.7    | 641.0    | 638.9    | 678.9    | 588.1    |
| Freight turnover (mln. ton-km)         | 11657.7  | 12152.3  | 12304.6  | 13108.1  | 14394.9  |
| Passenger traffic (million passengers) | 5242.6   | 5345.0   | 4904.8   | 5237.6   | 5606.0   |
| Passenger turnover (mln.pass.km)       | 115335.2 | 117412.7 | 107766.7 | 114681.5 | 123882.5 |

It can be seen from the data of the table that, as evidence of the above opinion, the volume of small business and private entrepreneurship in the main indicators of the economic sectors increased in the following order compared to the analysis period: industry - 1.6 times, construction - 2.5 times, export - 1.5, import - 1.4, trade - 2.2, agriculture, forestry and fisheries - 1.8, services - 2.1, freight turnover - 1.2, passenger transport - 1,1, passenger turnover – 1.1 times. Only employment and freight volumes remained almost unchanged [16].

The participation of small business entities in the foreign trade activities of Uzbekistan is evaluated, first of all, by the export volume of small business entities in the country. This can be seen from the diagram below (Figure 2).

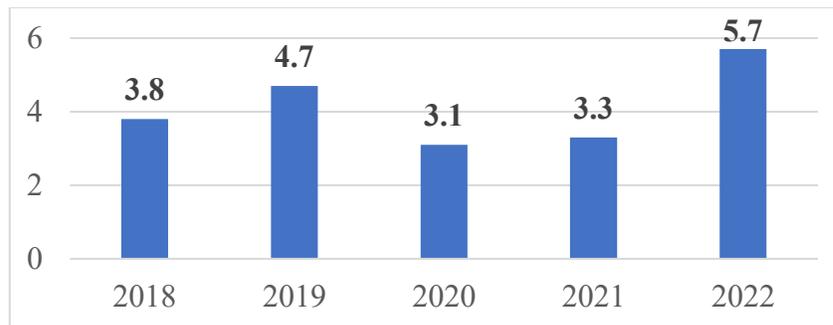


Figure 2. Export volume of small business entities in Uzbekistan, bln. US dollars.

The diagram shows that the export volume of small business entities in 2018 was 3.8 billion. amounted to \$5.7 billion by 2022. doll., i.e. increased by 1.5 times. However, due to the covid pandemic that started in 2019, in 2020-2021, respectively, 3.1 - 3.3 billion. dollar reduced to size. This shows that the foreign trade activity of small business entities is extremely sensitive to various factors [17].

These situations can be observed through the share of export volume of small business entities (Figure 3).

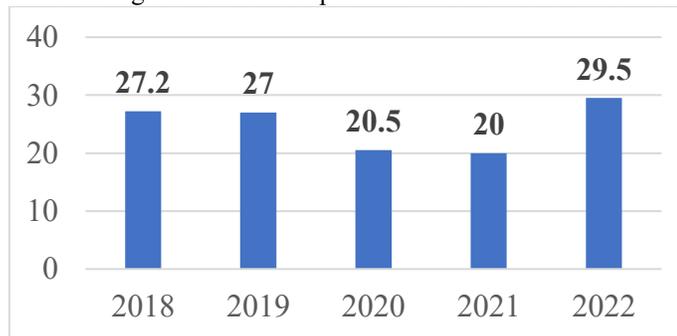


Figure 3. Share of export volume of small business entities in Uzbekistan, in percent

The diagram shows that in 2018, the export volume of small business entities made up 27.2% of the country's total export volume, but it consistently decreased over the next three years (27% in 2019, 20.5% in 2020 percent, 20 percent in 2021). Only by 2022, this indicator has significantly increased to 29.5 percent. This means that effective measures have been taken to increase the export of small business entities in the country in recent years.

It can be seen from the data of the diagram that there are sharp fluctuations in the dynamics of the volume of imports of small business entities in Uzbekistan (Figure 3). If this figure is 10.9 billion in 2018. 15 billion dollars in 2019. increased sharply to USD 10.9 and 11.5 billion in 2020 and 2021, respectively. will decrease to USD 15.2 billion in 2022. grown to doll. On the one hand, this is related to changes in the volume of imports in the sector, and on the other hand, it was caused by changes in the volume of total imports due to changes in economic activity in the country.

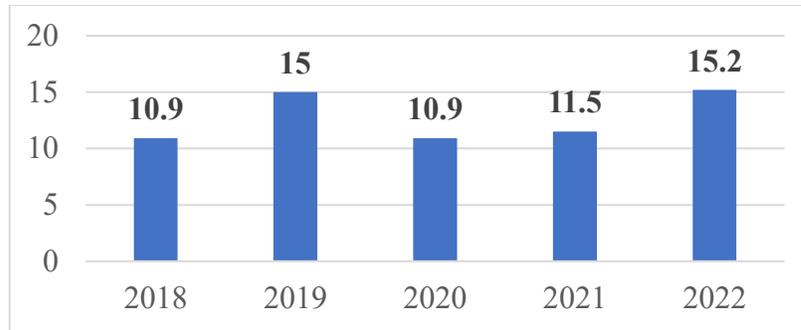


Figure 4. Import volume of small business entities in Uzbekistan, bln. US dollars.

However, the share of this indicator in the total import of the country was relatively stable (Figure 4).

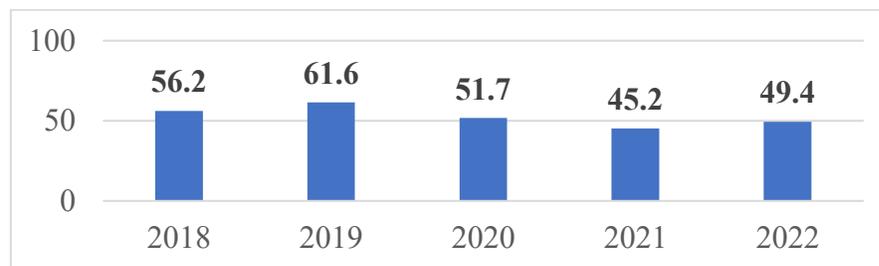


Figure 5. Import volume share of small business entities in Uzbekistan, in percent

It can be seen from the data of the diagram that the share of small business entities in the total import volume of Uzbekistan was more than 50 percent in 2018-2020, and in 2021 and 2022 it was 45.2 and 49.4 percent, respectively. This, as noted above, is the effect of changes in economic activity in the country, general and sector import volume.

It can be seen from the data of the table that in the period under analysis, a low level of stability of the indicators of the foreign trade efficiency coefficient of small business entities by region is observed. This means the need to implement systematic measures to increase the effectiveness of the participation of small business entities in foreign trade activities in Uzbekistan.

First of all, the absolute value (MQRD) of indicators describing the level of development of small business entities in the region for 2018-2022 is determined. For this, it is recommended to use the following indicators describing the level of development of small business entities in the statistical data posted on the statistics portal of the Republic of Uzbekistan:

- 1) the volume of investments in fixed capital of small business entities (KI);
- 2) volume of retail trade turnover of small business entities (ChS);
- 3) volume of manufactured industrial products (services) of small business entities (SM);
- 4) volume of services rendered by small business entities (XH);
- 5) volume of construction works of small business entities (QI);
- 6) volume of passenger turnover of small business entities (YA);
- 7) volume of passenger transportation of small business entities (YT);
- 8) volume of cargo turnover of small business entities (YuA);
- 9) volume of cargo transportation of small business entities (UT);
- 10) production volume of agricultural, forestry and fishery products (services) of small business entities (QX).

Due to the large number of indicators mentioned above and the variety of their changes over the years, the average annual value of the level of development of small business entities in the region for each specific indicator for the period of analysis ( O'YQRD) is determined. The following formula is used for this:

$$O'YQRD = \frac{\sum_{i=1}^n K_i}{n},$$

here:

K - a specific indicator representing the level of development of small business entities;

i -the year in which the level of development of small business entities is being analyzed;  
n is the number of years in the analysis period.

At the next stage, based on the average annual values of each indicator, the private index values of the level of development of small business entities (XIQRD) are determined based on the comparative weight of the regions in the republic indicator. The following formula is used for this:

$$XIQ_{RD} = \frac{O'YQ_{RDh}}{O'YQ_{RDr}}$$

here:

O'YQ<sub>RD<sub>r</sub></sub>-the average annual value of the level of development of small business entities in the republic;

O'YQ<sub>RD<sub>h</sub></sub>-average annual value of the level of development of small business entities by region.

The average annual value of indicators representing the level of development of small business entities in the regions of Uzbekistan for 2018-2022 (OYQRD) is presented in the table below.

Table 4: The average annual value of indicators representing the level of development of small business entities in the regions of Uzbekistan for 2018-2022 (OYQRD)

| Territory           | KI       | ChS       | SM       | XH       | QI       | Yes      | YT      | YuA      | YuT    | QX       |
|---------------------|----------|-----------|----------|----------|----------|----------|---------|----------|--------|----------|
| Uzbekistan Resp.    | 93686.58 | 175793.14 | 108369.3 | 124362.4 | 65361.42 | 117072.4 | 5316.72 | 12862.54 | 605.96 | 263227.7 |
| Karakalpakstan      | 2534.12  | 6647.32   | 3122.84  | 3735.92  | 3410.2   | 3726.06  | 128.08  | 665.48   | 28,16  | 10207.96 |
| Republic            | 5593.16  | 13722.04  | 8265.34  | 8314.42  | 4449.9   | 11763.1  | 677.58  | 628.46   | 39.68  | 27470.84 |
| Andijan region      | 5889.48  | 10915.56  | 6360.88  | 7050.34  | 4704     | 9530.92  | 276.54  | 1575.26  | 61,42  | 24466.74 |
| Bukhara region      | 6165.74  | 6599.2    | 3763.38  | 3366.44  | 2543.52  | 2471.12  | 87.34   | 936.7    | 33.84  | 17440.14 |
| Jizzakh region      | 4426.02  | 12510.08  | 4563.86  | 7658.04  | 4306.6   | 8954.28  | 273     | 1030.48  | 37,26  | 24765.16 |
| Kashkadarya region  | 4687.1   | 7243.94   | 4607     | 3758.5   | 3119.22  | 3582.84  | 143.08  | 754.2    | 31.8   | 12112.44 |
| Navoi region        | 7171.96  | 11858.78  | 6179.06  | 6583.28  | 4180.08  | 8228.88  | 431.24  | 563.9    | 26.1   | 19512.18 |
| Namangan region     | 7781.98  | 15031.64  | 8744.26  | 10845.32 | 5072.3   | 13782.06 | 419.5   | 1107.84  | 48.66  | 33033.48 |
| Samarkand region    | 5463.22  | 12307     | 2443.12  | 6026.16  | 4136.42  | 5641.9   | 239.26  | 864.36   | 52.96  | 20526.12 |
| Surkhandarya region | 4375.88  | 3270.7    | 3186.32  | 1928.74  | 1965.04  | 2368.16  | 77.58   | 254.32   | 17.04  | 8712.12  |
| Syrdarya region     | 9610.58  | 17942.04  | 14072.78 | 12652.7  | 5700.02  | 16773.08 | 619.38  | 989.3    | 56.98  | 24257.94 |
| Tashkent region     | 6549.34  | 15853.52  | 9733.4   | 10285.32 | 4896.8   | 13810.22 | 612.5   | 1475     | 55,26  | 23279.72 |
| Fergana region      | 3443.46  | 7397.32   | 2774.48  | 4569.46  | 2924.04  | 7389.2   | 383.84  | 734.6    | 34.82  | 17442.84 |
| Khorezm region      | 19994.5  | 34494.06  | 30552.48 | 37587.76 | 13953.28 | 9050.54  | 947.84  | 1282.68  | 82.02  | 0        |

At the next stage, the overall (integral) index value of the level of development of small business entities (UIQRD) will be determined in the cross-section of regions. The following formula is used for this:

$$UIQ_{RD} = XIQ_{RD1} \times XIQ_{RD2} \times \dots \times XIQ_{RDn} = \sqrt[n]{\prod_{i=1}^n XIQ_{RDi}}$$

Private index values of the level of development of small business entities in the regions of Uzbekistan are given in Table 5.

Table 5: Private index values of the level of development of small business entities in the regions of Uzbekistan (XIQRD)

| Territory              | KI    | ChS   | SM    | XH    | QI    | Yes   | YT    | YuA   | YuT   | QX    |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Republic of Uzbekistan | 0.027 | 0.038 | 0.029 | 0.030 | 0.052 | 0.032 | 0.024 | 0.052 | 0.046 | 0.039 |

|                            |       |       |       |       |       |       |       |       |       |       |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Republic of Karakalpakstan | 0.060 | 0.078 | 0.076 | 0.067 | 0.068 | 0.100 | 0.127 | 0.049 | 0.065 | 0.104 |
| Andijan region             | 0.063 | 0.062 | 0.059 | 0.057 | 0.072 | 0.081 | 0.052 | 0.122 | 0.101 | 0.093 |
| Bukhara region             | 0.066 | 0.038 | 0.035 | 0.027 | 0.039 | 0.021 | 0.016 | 0.073 | 0.056 | 0.066 |
| Jizzakh region             | 0.047 | 0.071 | 0.042 | 0.062 | 0.066 | 0.076 | 0.051 | 0.080 | 0.061 | 0.094 |
| Kashkadarya region         | 0.050 | 0.041 | 0.043 | 0.030 | 0.048 | 0.031 | 0.027 | 0.059 | 0.052 | 0.046 |
| Navoi region               | 0.077 | 0.067 | 0.057 | 0.053 | 0.064 | 0.070 | 0.081 | 0.044 | 0.043 | 0.074 |
| Namangan region            | 0.083 | 0.086 | 0.081 | 0.087 | 0.078 | 0.118 | 0.079 | 0.086 | 0.080 | 0.125 |
| Samarkand region           | 0.058 | 0.070 | 0.023 | 0.048 | 0.063 | 0.048 | 0.045 | 0.067 | 0.087 | 0.078 |
| Surkhandarya region        | 0.047 | 0.019 | 0.029 | 0.016 | 0.030 | 0.020 | 0.015 | 0.020 | 0.028 | 0.033 |
| Syrdarya region            | 0.103 | 0.102 | 0.130 | 0.102 | 0.087 | 0.143 | 0.116 | 0.077 | 0.094 | 0.092 |
| Tashkent region            | 0.070 | 0.090 | 0.090 | 0.083 | 0.075 | 0.118 | 0.115 | 0.115 | 0.091 | 0.088 |
| Fergana region             | 0.037 | 0.042 | 0.026 | 0.037 | 0.045 | 0.063 | 0.072 | 0.057 | 0.057 | 0.066 |
| Khorezm region             | 0.213 | 0.196 | 0.282 | 0.302 | 0.213 | 0.077 | 0.178 | 0.100 | 0.135 | 0.000 |

The general index values of the level of development of small business entities in the regions of Uzbekistan can be seen in the table below (Table 8).

In the second part of the evaluation method, to determine the absolute value (MQTS) of indicators describing the level of participation of small business entities in foreign trade activities in the cross-section of regions for the period of 2018-2022, use the following indicators from the statistical data posted on the statistics portal of the Republic of Uzbekistan recommended:

- 1) volume of export of products (works, services) of small business entities (EH);
- 2) volume of import of products (works, services) of small business entities (IH).

Table 6: General index values of the level of development of small business entities in the regions of Uzbekistan (UIQRD)

| <b>Territory</b>        | <b>UIQRD</b> |
|-------------------------|--------------|
| Uzbeksiton Resp.        | 0.036        |
| Karakalpakstan Republic | 0.077        |
| Andijan region          | 0.073        |
| Bukhara region          | 0.039        |
| Jizzakh region          | 0.063        |
| Kashkadarya region      | 0.041        |
| Navoi region            | 0.062        |
| Namangan region         | 0.089        |
| Samarkand region        | 0.056        |
| Surkhandarya region     | 0.024        |
| Syrdarya region         | 0.103        |
| Tashkent region         | 0.092        |
| Fergana region          | 0.048        |
| Khorezm region          | 0.173        |

First of all, the indicators representing the participation of small business entities in foreign trade (volume of exports and imports) during the period of analysis (MQTS) are determined. Then, the average annual value of the participation of small business entities in the region in foreign trade activities (YQTS) is determined. The following formula is used for this:

$$O'YQ_{TS} = \frac{\sum_{i=1}^n K_i}{n};$$

here:

- K - a specific indicator representing the foreign trade activity of small business entities;
- i - the year in which the foreign trade activity of small business entities is analyzed;
- n is the number of years in the analysis period.

First, you can see the table showing the average annual value of the export volume of products (works, services) of

small business entities in the regions of Uzbekistan in 2018-2022 (Table 7).

Table 7: Small business entities in the regions of Uzbekistan in 2018-2022 average annual value of export volume of products (works, services), mln. US dollars

| Territory               | 2018   | 2019   | 2020   | 2021   | 2022   | Average annual value |
|-------------------------|--------|--------|--------|--------|--------|----------------------|
| Uzbekiston Resp.        | 3810.8 | 4714.8 | 3100.9 | 3335.2 | 5696.2 | 4131.58              |
| Karakalpakstan Republic | 46.8   | 88.4   | 78.2   | 84.6   | 69     | 73.4                 |
| Andijan region          | 268.7  | 288.7  | 252.5  | 357.6  | 472.9  | 328.08               |
| Bukhara region          | 96.7   | 182.2  | 101    | 120.8  | 166.4  | 133.42               |
| Jizzakh region          | 68.8   | 80.7   | 76.5   | 90.6   | 98.3   | 82.98                |
| Kashkadarya region      | 103    | 145.3  | 110.7  | 139.1  | 118.3  | 123.28               |
| Navoi region            | 103.4  | 95.2   | 50.3   | 59.2   | 53.3   | 72.28                |
| Namangan region         | 209    | 291.2  | 197.8  | 246.8  | 256.4  | 240.24               |
| Samarkand region        | 251.1  | 305.5  | 191.8  | 243    | 318.8  | 262.04               |
| Surkhandarya region     | 168.5  | 176.9  | 134.8  | 141    | 145.6  | 153.36               |
| Syrdarya region         | 96.4   | 105    | 143.6  | 178.5  | 226.9  | 150.08               |
| Tashkent region         | 405.6  | 530.1  | 501.9  | 469.8  | 617.8  | 505.04               |
| Fergana region          | 221.5  | 306.5  | 319    | 393    | 426.5  | 333.3                |
| Khorezm region          | 76.9   | 131.1  | 119    | 119.7  | 142.4  | 117.82               |
| Tashkent city           | 725.1  | 734.2  | 578.1  | 685.5  | 966.6  | 737.9                |

You can also see the table showing the average annual value of the volume of imports of products (works, services) by small business entities in the regions of Uzbekistan in 2018-2022 (Table 8).

In recent years, the trend of growth has been observed in almost all regions. There was a decrease in 2022 compared to 2021 only in the regions of the Republic of Karakalpakstan, Khorezm, Kashkadarya and Surkhandarya.

Table 8: Small business entities in the regions of Uzbekistan in 2018-2022 average annual value of import of products (works, services), mln. US dollars

| Territory               | 2018    | 2019    | 2020    | 2021    | 2022    | Average annual value |
|-------------------------|---------|---------|---------|---------|---------|----------------------|
| Uzbekiston Resp.        | 10916.2 | 14972.2 | 10943.3 | 11533.5 | 15154.1 | 12703.86             |
| Karakalpakstan Republic | 172.8   | 190.1   | 125.2   | 134.3   | 108.8   | 146.24               |
| Andijan region          | 303.3   | 308.4   | 285.7   | 286.7   | 334.3   | 303.68               |
| Bukhara region          | 289.8   | 505.6   | 280.4   | 498.1   | 442.9   | 403.36               |
| Jizzakh region          | 242.7   | 376.4   | 647.1   | 283.3   | 427.4   | 395.38               |
| Kashkadarya region      | 121.6   | 314.9   | 180.4   | 173.2   | 122.6   | 182.54               |
| Navoi region            | 196.1   | 958.7   | 311.2   | 171.5   | 223.9   | 372.28               |
| Namangan region         | 446.9   | 529     | 376.4   | 467.7   | 499.6   | 463.92               |
| Samarkand region        | 909.1   | 942.3   | 530.9   | 527.1   | 643.2   | 710.52               |
| Surkhandarya region     | 361.4   | 241.3   | 189     | 185.7   | 105.4   | 216.56               |
| Syrdarya region         | 160.8   | 333.5   | 299     | 288.2   | 350.3   | 286.36               |
| Tashkent region         | 1006.2  | 1424.9  | 1291.9  | 1264.6  | 1714.3  | 1340.38              |
| Fergana region          | 476     | 652.8   | 669.6   | 750.6   | 894.5   | 688.7                |
| Khorezm region          | 163.1   | 287.9   | 213     | 213.5   | 189.1   | 213.32               |
| Tashkent city           | 4587.1  | 6233.5  | 5098.3  | 6225.5  | 7262.6  | 5881.4               |

At the next stage, based on the average annual values of each indicator, the private index values of the level of

participation of small business entities in foreign trade activities are determined (Table 9). The following formula is used for this:

$$XIQ_{TS} = \frac{O'YQ_{TS^h}}{O'YQ_{TS^r}},$$

here:

$O'YQ_{TS^r}$ -the average annual value of the level of participation of small business entities in foreign trade activities in the republic;

$O'YQ_{TS^h}$ -the average annual value of the level of participation of small business entities in foreign trade activities by region.

Table 10: Private index values of the level of participation of small business entities in foreign trade activities in the regions of Uzbekistan (XIQTS)

| Territory               | EH    | IH    |
|-------------------------|-------|-------|
| Karakalpakstan Republic | 0.018 | 0.012 |
| Andijan region          | 0.079 | 0.024 |
| Bukhara region          | 0.032 | 0.032 |
| Jizzakh region          | 0.020 | 0.031 |
| Kashkadarya region      | 0.030 | 0.014 |
| Navoi region            | 0.017 | 0.029 |
| Namangan region         | 0.058 | 0.037 |
| Samarkand region        | 0.063 | 0.056 |
| Surkhandarya region     | 0.037 | 0.017 |
| Syrdarya region         | 0.036 | 0.023 |
| Tashkent region         | 0.122 | 0.106 |
| Fergana region          | 0.081 | 0.054 |
| Khorezm region          | 0.029 | 0.017 |
| Tashkent city           | 0.179 | 0.463 |

At the next stage, the total (integral) index value (UIQTS) of the level of participation of small business entities in foreign trade activities will be determined in the cross-section of regions. The following formula is used for this:

$$UIQ_{TS} = XIQ_{TS1} \times XIQ_{TS2} \times \dots \times XIQ_{TSn} = \sqrt[n]{\prod_{i=1}^n XIQ_{TSi}}.$$

The general index values of the level of participation of small business entities in foreign trade activities in the regions of Uzbekistan can be seen in the table below (Table 11).

Table 11: General index values of the level of development of small business entities in the regions of Uzbekistan (UIQRD)

| Territory               | UIQTS |
|-------------------------|-------|
| Karakalpakstan Republic | 0.014 |
| Andijan region          | 0.044 |
| Bukhara region          | 0.032 |
| Jizzakh region          | 0.025 |
| Kashkadarya region      | 0.021 |
| Navoi region            | 0.023 |
| Namangan region         | 0.046 |
| Samarkand region        | 0.060 |
| Surkhandarya region     | 0.025 |
| Syrdarya region         | 0.029 |
| Tashkent region         | 0.114 |
| Fergana region          | 0.066 |
| Khorezm region          | 0.022 |
| Tashkent city           | 0.288 |

In the third part of this methodology, the level of mutual compatibility of the total (integral) index value of the level of development of small business entities (UIQRD) and the total (integral) index value of participation in foreign trade activities (UIQTS) in the cross-section of the regions of Uzbekistan (O'MDTS/ RD) assessment is performed. The results of this evaluation can be done using the following formula:

$$O'MD_{TS/RD} = \frac{UIQ_{TS}}{UIQ_{RD}}$$

Using the above formula, the results of calculations based on the data of 2018-2022 can be expressed in the following table (Table 12).

Table 12: The level of mutual compatibility of the general (integral) index values of the level of development of small business entities and participation in foreign trade activities in the regions of Uzbekistan

| Territory               | UIQRD | UIQTS | O'MDTS/RD |
|-------------------------|-------|-------|-----------|
| Karakalpakstan Republic | 0.036 | 0.014 | 0.40      |
| Andijan region          | 0.077 | 0.044 | 0.57      |
| Bukhara region          | 0.073 | 0.032 | 0.44      |
| Jizzakh region          | 0.039 | 0.025 | 0.64      |
| Kashkadarya region      | 0.063 | 0.021 | 0.33      |
| Navoi region            | 0.041 | 0.023 | 0.55      |
| Namangan region         | 0.062 | 0.046 | 0.75      |
| Samarkand region        | 0.089 | 0.060 | 0.67      |
| Surkhandarya region     | 0.056 | 0.025 | 0.45      |
| Syrdarya region         | 0.024 | 0.029 | 1.19      |
| Tashkent region         | 0.103 | 0.114 | 1.10      |
| Fergana region          | 0.092 | 0.066 | 0.72      |
| Khorezm region          | 0.048 | 0.022 | 0.46      |
| Tashkent city           | 0.173 | 0.288 | 1.66      |

It can be seen from the table that during the period of analysis, the level of development of small business entities and their participation in foreign trade activities, the level of mutual compatibility of the total (integral) index values of Tashkent city (1.66), Syrdaryo region (1.19), Tashkent region (1,1) has a value higher than 1, while the rest of the regions have a value lower than 1.

In order to create a clearer and clearer picture of the results of the assessment of this compatibility, it is appropriate to make a grouping representing the levels of influence of this indicator in the regions (Table 13).

Table 13: The level of development of small business entities and their participation in foreign trade activity, groups by regions of the level of mutual compatibility of the general (integral) index values

| Degree | Quantitative limit               | Area group  |
|--------|----------------------------------|---|
| High   | $1 \leq O'MD_{TS/RD}$            | Tashkent city (1.66), Syrdarya region (1.19), Tashkent region (1.1)   |
| Medium | $0.5 \leq O'MD_{TS/RD} \leq 1$   | Namangan region (0.75), Fergana region (0.72), Samarkand region (0.67), Jizzakh region (0.64), Andijan region (0.57), Navoi region (0.55) |
| Low    | $0.1 \leq O'MD_{TS/RD} \leq 0.5$ | Khorezm region (0.46), Surkhandarya region (0.45), Bukhara region (0.44), Republic of Karakalpakstan (0.4), Kashkadarya region (0.33)     |

It can be seen from the table that it is appropriate to develop measures to expand the participation of small business entities in the foreign trade of Khorezm, Surkhandarya, Bukhara, Kashkadarya regions and the Republic of Karakalpakstan.

## 5. CONCLUSION

It is proven that the participation of small business entities in foreign trade can be significantly increased in the development of the digital economy. The results of the study show that digital technologies facilitate the participation of small businesses in international trade processes, as well as provide opportunities for them to find new markets and

customers. By using innovative approaches and digital services, small businesses can increase their competitiveness and strengthen their position in the international market. At the same time, state support measures and the development of modern infrastructures also play an important role in increasing the participation of small business entities in foreign trade.

Based on the analysis, the factors hindering the effectiveness of the participation of small business entities in foreign trade activities can be divided into two groups - directly related to the small business entities themselves and factors related to the conditions that need to be created at the national level.

The grouping of the degree of mutual compatibility of the general (integral) index values of the level of development of small business entities and participation in foreign trade activities by regions shows that Khorezm, Surkhandarya, Bukhara, Kashkadarya regions and the Republic of Karakalpakstan are small business entities. It is considered appropriate to develop measures to expand the participation of foreign trade.

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