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SME Exports in Novosibirsk Region: Sustainable Development Trends

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ABSTRACT

The study aims at identifying stable trends in the development of export flows by small and medium enterprises at the regional level as exemplified by the Novosibirsk Region (Russia). Studying the sustainability of trends in SME exports at the regional level provides valuable insights into the potential for regional economic growth, diversification, and environmental sustainability, and inform policy decisions to support these goals. Standard statistical analysis methods to reveal trends in export flows in absolute and relative terms, determine the relationship between them and identify their specifics were used. The authors assessed the stability of trends and the volatility of exports by regional small and medium enterprises through the method of dynamic norms. According to the study results, more than half of exports by small and medium enterprises in the Novosibirsk Region are formed by non-resource goods. However, its share in the overall Russian export structure is extremely insignificant, especially considering the region's developed manufacturing sector. This study's methodology and insights offer a significant contribution to the field of regional economic development, making it a valuable resource for policymakers and researchers alike.

1. INTRODUCTION

The sustainable development of the economy depends on many factors. The most important are the development of small and medium-sized business entities. Being an independent and indispensable element of the market economy, small and medium enterprises contribute to the economic restructuring, strengthen the economic base of regions, increase the overall volume of production and retail trade, create a favorable environment for competition, provide employment for a significant part of the population, and stimulate scientific and technological progress [1, 2]. Such enterprises have low operating costs, create rational organization and management, and conduct a constant search for innovative solutions and new activities, which are characterized by a sense of initiative and entrepreneurship [3]. The effective functioning of small and medium enterprises creates favorable conditions for the recovery of the economy: competition develops, additional jobs are created, export potential is increased, and local raw materials are used more often [4].

In developed market economies, small business creates from 50% to 75% of the gross domestic product (GDP) and about the same number of jobs for the economically active population [5]. The development of small and medium enterprises is the most important factor in the development of competitive relations in the national economy of any state [6, 7]. However, the development of small and medium enterprises implies the implementation of a systemic policy aimed at creating favorable conditions for their successful functioning. According to the report "Doing Business-2020", Russia is ranked 28th in terms of favorable conditions for entrepreneurial activity [8]. This largely explains the share of small and medium enterprises in the economy at the level of 20-23%. For comparison, this figure is about 50% in the USA and 75% in the EU. Contrary to popular belief, the foundation of the Chinese economy is also formed by small and medium enterprises, which account for more than 90% of all companies in the country and form about 80% of the population's employment [9].

In Russia, this segment includes more than 6 million enterprises. Their provision trends are quite positive but regional development of such companies becomes more and more evident. Thus, more than 30% of these enterprises are located in the Central Federal District and the Volga Federal District. The latter is almost two times behind the leader [10].

Due to the obvious need to reduce regional unevenness in the development of small and medium enterprises, the existing strategic documents aim at solving the problems of their functioning in the context of meeting domestic demand. However, their possibilities as potential points for the development of regional exports are practically not considered.

This article aims at determining the sustainability of trends in the development of export flows by small and medium enterprises at the regional level as exemplified by the Novosibirsk Region. To attain this end, a two-stage study algorithm is proposed. Firstly, it involves an analysis of the total worth and physical quantity of exports that determine their specifics. Secondly, we assessed the trend stability and the change rate in export flows.

The article is structured as follows: The literature review

provides an overview of the theoretical framework of the current study. The methodology section presents the review of the research object and the methodological instruments used. The results section contains the data received and presented in tables and diagrams, which are interpreted in the discussion. The conclusion draws attention to the main results and recommendations, which should be taken into account based on the study's results.

2. LITERATURE REVIEW

In both the long and short term, the positive impact of small- and medium-sized enterprises on the sustainable development of the national economy is characterized by an extensive evidence base of empirical research. For example, Manzoor et al. [11] claimed that such business entities were the main driving force of economic growth. Consequently, the production activity, human development index, and export level are specific drivers. While highlighting the role of small and medium enterprises in economic growth, Erdin and Ozkaya [12] established that the unevenness of regional development depended, among other things, on the level of investment activity and production capacities. The development of such companies ensures sustainable economic growth and stimulates developing economies. The latter proves the hypotheses of Obi et al. [13] about small and medium enterprises creating new jobs and providing employment and the positive relationship between this sector and the fight against poverty (which is logically connected with an increase in living standards).

Therefore, the development of small and medium enterprises is among the key strategic tasks, whose specific solutions should be reflected in the relevant policies. For instance, there is the Strategy for the Development of Small and Medium Entrepreneurship in the Russian Federation for the period up to 2030 that contains target indicators and activities that should guarantee their achievement. In addition to the fair point expressed by Ndiaye et al. [14] regarding the need to differentiate support measures depending on the size of enterprises (small, medium, micro), one should also consider regional differences in the initial conditions and opportunities for their development, including not only economic but also social factors [15]. For example, a region with a high level of education and strong social networks may have better conditions for developing knowledge-based SMEs compared to a region with lower education levels and weaker social networks.

Regional trends in the development of small and medium enterprises are studied in various aspects. For example, Fritsch and Storey [16] focused on the historical prerequisites for the development of this sector. Bosma and Schutjens [17] identified different perceptions of small and medium enterprises, as well as attitudes towards such enterprises and employment. Through surveying respondents from more than 60 companies, Sternberg [18] revealed that their operation had a significant impact on regional economic growth. Methodological difficulties associated with various institutional conditions for the development of entrepreneurship in the Russian regions explain the lack of regional studies of small and medium enterprises [19, 20]. In particular, development trends are analyzed according to such indicators as the number of small enterprises in absolute terms and per capita, the average number of employees, their turnover, and the volume of investments in fixed assets aggregated into an integral indicator that allows classifying regions [21]. Zemtsov and Baburin [20] and Barinova et al. [22] evaluated the entrepreneurial activity and employment generated by small and medium enterprises, thereby determining the regional system.

Due to thematic limitations, the existing studies of regional small and medium enterprises do not consider their export activities. However, the role of such exports as one of the drivers of economic development has been empirically proven. On a global scale, the sustainability of their export activity varies. In absolute terms, the export volumes of these enterprises are still insignificant. However, as economic activity is being digitalized, there is increasing involvement of small and medium enterprises in export flows since the use of e-commerce platforms allows reducing fixed export costs. Proving this hypothesis, Sun [23] stated that the share of large enterprises in total exports decreased alongside the development of Internet resources. This means that the number of small and medium enterprises increases. In this context, Wood et al. [24] concluded that effective export promotion was determined not only by subsidies and financial support but also by managerial motives. The latter initiate the export activity of enterprises and maintain its viability.

According to Kumlu [25], entry into the global market opens up new opportunities for small and medium enterprises and allows them to increase their competitiveness, which in a hierarchical chain stipulates the competitiveness and sustainable development of industries, territories, and the national economy as a whole.

3. MATERIALS AND METHODS

At the first stage, we determined trends in the development of exports by small and medium enterprises between 2018 and 2021, including non-resource non-energy exports, based on the data of the Federal State Statistics Service [26] and using standard methods of statistical analysis (time series [27], correlation analysis [28]). The second stage is concerned with assessing stable trends and changes in export flows. In the first case, stability was evaluated in terms of the absolute time series of exports. In the second case, we deal with relative time series, i.e., in terms of growth indicators.

3.1 Research object

The Novosibirsk Region is among the largest industrial regions of the Siberian Federal District with a developed transport, scientific, educational, and cultural infrastructure. Its high production potential is confirmed by the share of industrial production in the Gross Regional Product (GRP) at the level of about 20% [26]. The region creates conditions for business development, as evidenced by its minimum investment risk according to the regional investment rating [26].

The Novosibirsk Region is implementing a state program for the development of small and medium enterprises. Its objective is to create favorable conditions for the development of such enterprises, which contributes to innovative development and improvement of economic sectors, as well as social development and high level of employment. However, the export activity of this category is not a priority despite the fact that small and medium enterprises traditionally provide

over 70% of employment in the Novosibirsk Region, and the number of such enterprises reaches 146,000. Small and medium enterprises in the region generate almost 37% of its GRP (Table 1). In general, it is a fairly good indicator since this sector directly contributes to tax revenues, promotes innovation, and increases labor productivity.

Table 1. The share of small and medium enterprises in the GRP of the Novosibirsk Region [26]

Indicator	2019	2020
Gross Regional Product (at current basic prices), billion rubles	1,332.9	1,356.8
Gross Regional Product of small and medium enterprises, billion rubles	491.8	496.6
Share of small and medium enterprises in the GRP, %	36.9	36.6

Small and medium enterprises fall short of the target indicators for export activities, which aim for these companies to form more than 20% of exports. At the same time, we need to keep in mind that the Novosibirsk Region has great potential for participating in foreign trade, which is proved by such operations conducted with more than 130 countries. In 2021, their turnover exceeded $7.5 billion. Export and import operations were executed by about 2,900 importers and exporters registered in the Novosibirsk Region. Its main partners are China, France, Kazakhstan, Germany, the USA, Japan, Belarus, India, Bulgaria, and Vietnam [26]. Consequently, the exports of small and medium enterprises can grow thanks to state and regional programs, whose development and implementation should be based on the latest trends in the development of export activities. This allows setting targets and determining the support measures necessary to achieve them.

3.2 Data analysis

These calculations are based on the method of dynamic norms [29], according to which the indicators are ordered based on the best mode of functioning of the economic system. Since the stability of absolute and relative time series was calculated, the reference order reflects the excess of each next value over the previous one (the export indicator and growth indicator):

$$S = 2 \times \frac{\sum_{i=1}^{n} a_i}{n \times (n-1)} \quad (1)$$

where, S is the coefficient of stability of the absolute/relative time series in terms of exports; a_i is the number of performed normative ratios in the actual time series; n is the number of standard indicators.

In accordance with the calculation logic, the coefficient can range from 0 to 1. In this connection, we propose the following qualitative characteristics: instability (less than 0.2); insufficient stability (from 0.2 to 0.4); average stability (from 0.4 to 0.6); high stability (from 0.6 and higher).

4. RESULTS

After analyzing the dynamics of exports by small and medium enterprises in the Novosibirsk Region (Figure 1), we revealed that it increased by 47.1% from 2018 to 2021, amounting to $3,837.6 million. Over the same period, the physical quantity of exports increased by 86.5%. It is logical that the correlation between value and physical indicators is quite high (0.86 with a maximum of 1.0). However, if we compare growth rates, a more complete picture is formed (Table 2). In 2018, the physical export indicator was exceeded by more than 20.0% (142.7% versus 122.6% in 2019). In 2020, while maintaining positive dynamics, although, with a slowdown (113.3%), the physical value of exports decreased by 8.4%. At the end of 2021, a positive trend was recorded in both the physical quantity and total worth of exports, while the growth rate of values significantly exceeded the growth rate of exports in natural terms (120.9% versus 115.3%). All this testifies to a serious dependence on prices in commodity markets since its value not only shows a slowdown but also a reduction even with the preservation and increase in natural volumes of exports. This conclusion is confirmed by the fact that the Novosibirsk Region has been occupying about 0.8-0.9% of the cost structure of exports by small and medium enterprises in Russia in recent years. In the structure of physical quantity, the share of small and medium enterprises in the region is 2.1-2.4%.

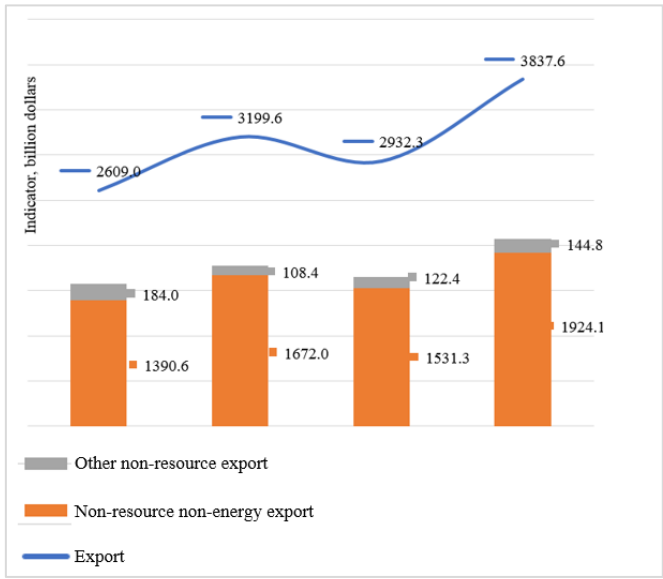

Figure 1. Changes in the export value of small and medium enterprises in the Novosibirsk Region [26]

Table 2. Growth rates of exports of small and medium enterprises of the Novosibirsk Region [26]

Indicator	2019	2020	2021
Total export			
Physical quantity	142.7	113.3	115.3
Total worth	122.6	91.6	130.9
Non-resource export			
Physical quantity	104.4	125.4	118.0
Total worth	113.1	92.9	125.1
Non-resource non-energy export			
Physical quantity	122.1	126.4	117.3
Total worth	120.2	91.6	125.7

Within the non-resource export of Russian small and medium enterprises, the share of the Novosibirsk Region is no more than 0.5% in physical terms, which amounts to about 0.8-0.9% in value terms. Between 2018 and 2021, the value of non-resource exports increased by 31.4% and reached

$2,069.0 million (Figure 1). In kind, non-resource exports increased by more than 50.0%. This indicator showed stable positive dynamics but with some fluctuations in the rate of change (Table 2). In 2020, the growth was 25.4% compared to 4.4% in 2019. At the end of 2021, it slowed down to 18.0%. In this context, an increase in the value of non-resource exports was noticeably higher in 2019, amounting to 13.1%. In 2020, the value of exports decreased by 8.1%. It is worth mentioning that this year was marked by the maximum increase in deliveries (in physical terms). If we consider the growing value of exports (by 25.1%) in 2021, which is the maximum for the period, and a slight slowdown in physical terms, we can assume that deliveries were made with deferred payments and/or at reduced prices in 2020 due to the crisis caused by the COVID-19 pandemic.

Since at least 90.0% of the non-resource exports of small and medium enterprises in the Novosibirsk Region belong to non-resource non-energy exports, the above-mentioned situation has developed precisely due to their supplies. This conclusion is confirmed by comparing the growth rates of supply volumes in physical and value terms (Table 2). In 2018, these indicators were 122.1 and 120.2%, respectively. Then export volumes increased by 26.4% in physical terms and decreased by 8.4% in value terms. At the end of 2021, exports in physical terms shrunk to 17.3%, which was accompanied by an increase in incomes by 25.7%. Over the period, the volume of exports increased by 38.4% and amounted to $1,924.1 million (Figure 1). The increase in supplies amounted to 81.0% in physical terms. The share of the Novosibirsk Region in the non-resource non-energy exports of Russian small and medium enterprises is 0.6-0.7%, while their value forms about 1.0% in the corresponding structure.

In relation to the results of assessing the stability of trends and the speed of export flows of small and medium enterprises in the Novosibirsk Region (Table 3), the stability of the absolute indicators, including non-resource and non-resource non-energy exports, is characterized as high with the corresponding coefficient of 0.83. The relative series of export value indicators are also quite stable but the coefficient is much lower (0.67). With a high degree of stability, each absolute indicator of exports is higher than the previous one. Despite possible fluctuations and even fragmentation reductions, it can be argued that the total worth of export deliveries is increasing.

Table 3. The stable development of export flows by small and medium enterprises in the Novosibirsk Region

Indicator	Stability of absolute time series	Stability of relative time series
	Total export	
Physical quantity	Absolute (1.00)	Weak (0.33)
Total worth	High (0.83)	High (0.67)
	Non-resource export	
Physical quantity	Absolute (1.00)	High (0.67)
Total worth	High (0.83)	High (0.67)
	Non-resource non-energy export	
Physical quantity	Absolute (1.00)	Weak (0.33)
Total worth	High (0.83)	High (0.67)

The coefficient of stability in relation to the absolute time series of the physical quantity of exports by small and medium enterprises of the Novosibirsk Region, including all the types under consideration, is 1.0. Throughout the entire study, each export indicator, including non-resource exports and non-resource non-energy exports, was higher than the previous value. However, the stability of relative time series is not characterized by such synchronous results. In physical terms, the stability of changes in exports of total and non-resource non-energy exports is weak (coefficient of 0.33). Despite possible fluctuations, the rate of change in the physical quantity of non-resource exports is quite stable (coefficient 0.67).

5. DISCUSSION

It is relevant and crucial to assess the sustainability of exports by small and medium enterprises at the regional level as exemplified by the Novosibirsk Region. First of all, we established how the COVID-19 pandemic affected this business sector. There is no doubt that the pandemic has been a blow to business entities around the world. When considering reasons for the vulnerability of small and medium enterprises, Caballero-Morales [30] and Shafi et al. [31] indicated limited resources, imperfect supply chains, and relationships with contractors and customers. In addition, Dai et al. [32] emphasized the logistical problems that had the greatest impact on export enterprises even after the lockdown restrictions (limiting their functioning capacity) were lifted. Considering these theses and the analysis of exports by small and medium enterprises in the Novosibirsk Region, it was concluded that at the peak of the COVID-19 pandemic the deliveries were characterized by reduced prices and payment deferrals. Thus, enterprises rebuilt their sales management system in order to maintain export ties.

The sustainability of these export links should be assessed in the context of categorizing regions by the level of development of their small and medium business. We should refer to the studies of Zemtsov and Baburin [20, 22] who, based on employment in small and medium enterprises, determined the orientation of the Russian regions. The Novosibirsk Region has one of the highest shares of trade and repair in the employment structure. However, the region's share in non-resource and non-resource non-energy exports of the Russian small and medium business sector does not exceed 1%, with more than half of all exports of the Novosibirsk Region belonging to non-commodity exports. On the contrary, the stable trend and speed of non-resource export flows of small and medium enterprises in the Novosibirsk Region (except for a slight increase in the natural volumes of non-resource non-energy exports) show future tasks of the regional export standard.

Based on Zemtsov and Baburin's [20] classification of business ecosystems in the Novosibirsk Region characterized by a well-developed manufacturing sector and medium-high business activity, the results of this assessment can be regarded as a basis for understanding possible scenarios for the development of export flows and the role of small and medium enterprises in the sustainability of their development.

6. CONCLUSIONS

Thus, small and medium enterprises are among the most effective factors in the sustainable development of the national economy, while their role should not be limited to the most

common sphere of providing services to domestic consumers. Such enterprises are full-fledged parties to foreign economic activities. Due to the flexibility of management policies and organizational mechanisms, they can contribute to solving the export tasks of regions, namely, increasing non-resource and non-energy exports. According to this study, small and medium businesses in the Novosibirsk Region are poorly oriented toward the fulfillment of this task by all-Russian standards. The assessment of the sustainability of export flows from small- and medium-sized enterprises demonstrates that, in general, the business sector has the potential to increase exports, including non-resource and non-resource non-energy exports. Given the development of its manufacturing sector, the business system requires additional support measures aimed at creating conditions within which small and medium enterprises can develop sustainably. Since the study assessed both the stability of this trend and the dynamics of changes in the export flows of the Novosibirsk Region, this (together with market analysis) can become the basis for understanding possible scenarios for the development of regional exports. As a result, it will determine areas for supporting regional business in order to ensure its sustainable development.

Since this study focused solely on the Novosibirsk Region, its findings may not be generalizable to other regions or countries with different economic and social conditions.

Future research could investigate the barriers to SMEs' participation in foreign economic activities and identify strategies to overcome them. Future research could build on these findings by examining the effectiveness of different support measures in promoting SMEs' participation in foreign economic activities and increasing non-resource and non-energy exports. Moreover, comparative studies across regions or countries could provide a more comprehensive understanding of the factors that affect SMEs' participation in international trade and inform policy decisions to support SMEs' sustainable development.

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