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Problems Of Development Of Small And Medium-Sized Enterprises **İ**n The Agribusiness Sector **İ**n Azerbaijan

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Abstract. This study explores the challenges associated with the development of small and medium-sized enterprises (SMEs) within Azerbaijan's agribusiness sector. The key issues influencing agribusiness growth have been analyzed and interpreted. Considering contemporary global challenges, the study highlights the role and functions of agribusiness in ensuring food security. Additionally, the obstacles hindering entrepreneurship in the agribusiness sphere have been examined, with an emphasis on the necessity of enhancing the implementation of state support mechanisms. The current state of production in the agribusiness sector has been assessed, and the potential growth prospects for SMEs have been identified. The study also presents the dynamics of economic entities operating in Azerbaijan's agricultural sector and analyzes their evolving trends. A comparative analysis of the key macroeconomic indicators of small enterprises across the country has been conducted. Furthermore, the level of selfsufficiency in domestically produced agricultural products has been evaluated. The role of the agribusiness sector and agro-processing industry in strengthening food security has been systematically reviewed. The study also investigates the multiplier effect of agribusiness in fostering the intensive development of import-substituting industries. The research underscores the positive impact of agribusiness on expanding employment opportunities in rural areas and improving the overall living standards of the population. Additionally, key aspects related to labor market formation, job creation, and the efficient utilization of human resources in the agricultural sector have been explored. The macroeconomic indicators of entrepreneurial entities in Azerbaijan have been analyzed in detail. Using Excel-based regression analysis, the study identifies key factors influencing production output in the entrepreneurial sector and evaluates their elasticity. The findings emphasize the importance of considering both direct and indirect factors in a comprehensive manner when assessing SME development. In conclusion, the study presents key insights into the challenges and prospects for SME development in Azerbaijan's agribusiness sector. Based on the findings, recommendations have been formulated, and policy proposals have been put forward to facilitate sustainable growth

Keywords: Azerbaijan, agrarian sector, agribusiness, small and medium-sized enterprises, food security

INTRODUCTION

In the modern era, one of the key strategic objectives facing Azerbaijan as an independent state is the continuous refinement of its economic development model. Ensuring a smooth transition to a new technological paradigm and prioritizing economic goals in alignment with the requirements of the Fourth Industrial Revolution are of critical importance. A fundamental aspect of this process is the establishment of a favorable investment and business environment, fostering entrepreneurship through healthy competition. Given its strategic significance in ensuring the country's food security, there is an urgent need to expand agribusiness and diversify the activities of entrepreneurial entities in this sector. At the current stage of the country's economic development, the core priority of the government's economic policy is the implementation of structural reforms that stimulate the growth of entrepreneurship, which is one of the key components of a market economy. In this regard, organizing the efficient operation of small and medium-sized enterprises (SMEs) in the agricultural sector—one of the areas requiring state support—has become a critical issue. Changes in global food markets have made

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the sustainable development of SMEs, a key indicator of agricultural progress, an imperative and have necessitated further expansion of competition within the consumer market (Sadygov, Rustamov, Isaeva, 2021). In recent years, disruptive trends in the global economic landscape have further emphasized the need for national economies to intensify their diversification efforts—an issue that is closely linked to the development of SMEs.

In the current economic environment, the diversification and development of the non-oil and gas sector remain a key priority of Azerbaijan's economic policy. In recent years, large-scale state programs implemented by the government have been directly aimed at achieving this goal. However, it must be acknowledged that, compared to developed countries, the added value generated by SMEs within the Azerbaijani economy has not yet reached the desired level. Alongside the country's current economic parameters, global and geopolitical factors also play a role in shaping these and other economic indicators. In countries transitioning to a liberal economic system, SMEs contribute significantly to sustainable GDP growth, the diversification of budget revenue sources, and the reduction of unemployment, thereby accelerating stable integration into the global economy. Furthermore, SMEs have a positive impact on improving living standards and increasing household incomes. Beyond their socio-economic significance, SMEs possess a dynamic mechanism that enhances competitiveness in production sectors, making them a vital component in achieving economic objectives both in local markets and on an international scale.

At present, the agrarian sector in Azerbaijan, along with the economic entities operating within it particularly small and medium-sized enterprises-remains a focal point of state attention. Notably, the promising prospects for agrarian entrepreneurship in post-conflict territories underscore the necessity of government support for SMEs. The development of SMEs in the country is essential for economic diversification, employment growth, meeting domestic demand for consumer goods through local production, reducing import dependency, and achieving sustainable economic growth. Therefore, the role of SMEs should be regarded as a strategic priority within the broader framework of entrepreneurship development (Aliyev, 2012). Azerbaijan's current economic strategy aims to facilitate the growth of SMEs, particularly in the agriculture and trade sectors, which hold significant weight in the non-oil and gas economy, thereby ensuring economic diversification. The rationale behind prioritizing entrepreneurship within economic diversification efforts is multifaceted. First, the volatility of oil and gas prices, influenced by political and economic factors in global markets, continues to impact Azerbaijan's economy significantly. Second, SMEs play a crucial role in ensuring the sustainable development of the non-oil and gas sector by providing optimal alternatives to the oil industry, thereby fostering a more resilient and diversified economic structure (Valiyeva, 2019). We believe that the enhancement of the production potential of enterprises operating within the agricultural sector, which is considered a strategic field, and its integral component, agribusiness, is closely linked to the development of SMEs. (Ismayilov, Shalbuzov, Cabbarli, Safarov, Karimova, 2022). This is particularly significant given that nearly 90% of enterprises in this sector fall into this category. However, SMEs in agribusiness face challenges related to dynamism, technological modernization, and digital transformation (Boland, Cakir, 2018). The processes of developing and implementing innovations, as well as launching projects for the production of innovative goods, remain underdeveloped. A major constraint for SMEs in this regard is the lack of financial resources, along with the limited availability of accessible credit packages. While the state has introduced incentive mechanisms to support these enterprises, the effective utilization of these tools remains a challenge. Additionally, targeted programs, projects, and grant schemes designed to facilitate SME development have yet to fully align with contemporary requirements.

METHODS AND APPROACHES

The development of small and medium-sized enterprises (SMEs) in Azerbaijan's agribusiness sector faces numerous challenges. A fundamental examination of these issues, conducting research, obtaining scientific and practical results, designing appropriate mechanisms, improving state support policies, and

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prioritizing the use of innovative and digital tools are crucial aspects of our study. In this regard, we have formulated a set of hypotheses:

- H1. In response to global challenges, there is a pressing need to implement modern approaches and multifunctional productive mechanisms for the development of SMEs in order to ensure the efficient utilization of raw material resources in various agricultural sectors, align the overall growth of the agrarian sphere with contemporary requirements, and diversify the development of the agribusiness sector.
- H2. It is essential to define the general theoretical foundations of entrepreneurship formation in the agrarian sector and determine the institutional aspects of entrepreneurial development. In particular, identifying the factors that necessitate the growth of SMEs in agribusiness and assessing their impact on the overall development of the agricultural sector can provide valuable insights.
- H3. The role of SMEs in enhancing the competitiveness of the agrarian sector within the socioeconomic development of regions should be determined. Furthermore, by distinguishing the key directions for stimulating entrepreneurship in this field, it is necessary to evaluate the impact of structural changes in agricultural production on its economic efficiency.
- H4. It is essential to assess the current state of production in the agribusiness sector, the development prospects of small and medium-sized enterprises (SMEs), as well as the indicators characterizing SME activities. Additionally, evaluating the level of demand fulfillment for agricultural products and determining the impact of entrepreneurial activities on meeting this demand can be highly effective.
- H5. The necessity of forming logistics systems and innovation infrastructure in agribusiness, as well as the role of clusters in the development of SMEs, is crucial. Furthermore, it is important to assess the impact of SME development on the structure of the labor market and substantiate the need for increasing investment attractiveness.
- H6. Increasing the economic efficiency of SME operations in the agribusiness sector and expanding market access opportunities should be given the highest priority. To achieve this, it is necessary to define the priorities for enhancing export potential of SMEs in agribusiness, strengthening the financial support for small and medium-sized enterprises, and identifying and evaluating the prospects for increasing the share of SMEs in the national economy.
- H7. In order to address the challenges arising from the current global context, there is a need for a comprehensive and systematic approach to intensifying the development of SMEs in Azerbaijan's agribusiness sector. This includes ensuring their access to key export markets and expanding the application of innovative mechanisms in their activities.

RESULTS AND MATERIALS

After Azerbaijan regained its independence, agrarian reforms were at the forefront of the country's economic reforms. To accelerate the transition to a market economy, systematic efforts were made, and state policies were improved. The process of developing appropriate infrastructure in rural areas was expedited, bridges were built, and water systems were created. To support entrepreneurship in the agricultural sector, subsidies were established, discounted machinery was allocated, and organic nitrogen fertilizers were provided. As of now, the number of subsidies in force has reached 30. Unwarranted interventions in agricultural entities were eliminated, and inspections by various state authorities were halted. Only the relevant control measures based on tax authorities' reports are carried out. However, it is noteworthy that agricultural activities in Azerbaijan are largely exempt from taxes. Additionally, targeted state programs were implemented in the country's regions, and logistics centers and warehouse operations were launched.

Under modern conditions, the resource potential in production sectors in Azerbaijan has significantly increased, and the opportunities for producing competitive products have considerably grown compared to previous years. One of the major achievements in the country's economy in recent years has been the restoration of post-conflict territories and the creation of a favorable environment for the development of agriculture, including agribusiness, in these areas, along with strong resources. In this regard, achieving economic diversification has become a priority, and the possibilities of reducing the

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significance of the oil sector in our economy have expanded, particularly in the context of the development of other production sectors. In this aspect, the strategic importance of agribusiness and the expansion of opportunities within the sector has been particularly emphasized. It is no coincidence that, in recent years, the agribusiness sector, along with small and medium-sized enterprises (SMEs) within it, has become a priority in the social-economic policies implemented by the government, furthering the development of the national economy. During this period, an institutional environment was formed to accelerate the development of entrepreneurship, the core attribute of a market economy, in order to reduce dependence on one sector (Huseyn, Shalbuzov, Cafarov, 2024). This, in turn, has paved the way for the modernization of production sectors through the application of advanced technologies, thereby fostering the growth of the non-oil and gas sector. During the relevant period, the process of establishing connections and relationships between newly formed forms of entrepreneurship has expanded, gradually increasing its economic efficiency. These processes have been particularly evident in agribusiness, one of the key sectors of the economy. Agribusiness encompasses many areas involved in the production, sale, and processing of agricultural products (Huseynov, 2023).

The formation of the agrarian industry primarily occurs through the economic integration of agriculture with the industrial sectors that process its products. As this process deepens and improves in quality, it ensures the effective operation of the sectors, enterprises, and organizations involved in the production, processing, and servicing of agricultural raw materials in a systematic manner. The mentioned processes create fertile opportunities for more efficient coordination of enterprises and organizations engaged in the supply, processing, and sale of agricultural products, leading to increased production, reduced losses, enhanced quality, and the gradual production of a wider range (in volume) of organic food products (Aliyev, Mammadova, Hamidova, Dunyamaliyeva, Hurshudov, 2022).

Ultimately, this adds potential to ensure the uninterrupted and reliable supply of essential food products to the country's population. In the current economic environment, to achieve high profitability results in the production sectors of agriculture, favorable economic relationships must be established between supply, processing, and sales organizations that are interconnected with agricultural enterprises. In this context, global practices must be thoroughly studied and actively implemented (Atashov, 2017). The vast majority of existing production entities in the agricultural sector are classified as small and medium-sized enterprises (SMEs). Over the past 25 years, there has been increasing attention to the improvement of the operations of these types of enterprises and their more efficient functioning (see: Table 1).

Table 1-Dynamics of the number of agrarian enterprises in the Republic of Azerbaijan

| 1 400 1 2 7 | | including | | | | | | |
|-------------|-------|---------------------------------|---------------------------------|-------------------------|------------------|---------------------------------------|------------------------------|-------------------|
| | | | including | | | Individual | | |
| Year | Total | Agricultur al enterprises | Governme ntal enterprises | Collect ive farms | Coopera tives | Other private organizati ons | Service organizat ions | entrepren eurs |
| 2000 | 2910 | 2653 | 408 | 2 | 250 | 1993 | 257 | 3248 |
| 2005 | 2506 | 2182 | 303 | 2 | 164 | 1713 | 324 | 2681 |
| 2010 | 2336 | 1825 | 217 | 2 | 73 | 1533 | 511 | 2618 |
| 2015 | 1875 | 1695 | 180 | 2 | 49 | 1464 | 231 | 1534 |
| 2016 | 1903 | 1716 | 187 | 2 | 55 | 1472 | 244 | 1468 |
| 2017 | 1916 | 1727 | 189 | 2 | 55 | 1481 | 246 | 955 |
| 2018 | 1751 | 1765 | 168 | 2 | 45 | 1550 | 215 | 907 |
| 2019 | 1648 | 1666 | 176 | 2 | 38 | 1450 | 216 | 910 |
| 2020 | 1 085 | 1 096 | 113 | 2 | 33 | 955 | 218 | 804 |
| 2021 | 2333 | 1174 | 113 | 2 | 33 | 1030 | 219 | 910 |
| 2022 | 2422 | 1259 | 113 | 2 | 33 | 1071 | 219 | 819 |

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|-----------------------------------|-------|-------|-------|-------|-------|-------|------|
| % change in 2022 compared to 2010 | 68,9 | 52,2 | 100,0 | 45,2 | 69,8 | 42,8 | 34,7 |
| % change in 2022 compared to 2021 | 107,2 | 100,0 | 100,0 | 100,0 | 103,9 | 100,0 | 90,0 |

Source: SSCRA, www.stat.gov.az. Compiled by the author.

Notably, following the transition to a market economy, only two collective farms characteristic of the administrative-command system have continued to operate in Azerbaijan to this day. Currently, the number of agricultural enterprises stands at 1,174. Compared to the year 2000, this figure had declined by 66.0% as of 2021, while the decrease was 36% relative to 2010 and 31.0% relative to 2015. Similarly, the number of individual farms has also experienced a significant reduction, declining by 72% compared to 2000, reaching 910. This represents a 41.0% decrease compared to 2015. In recent years, the promotion of cooperatives as the most optimal form of agricultural enterprise has been widely discussed. However, a sharp decline in the number of such enterprises has also been observed. Specifically, while 250 cooperatives operated in Azerbaijan's agricultural sector in 2000, by 2019, their number had decreased 6.5 times, reaching only 38. This represents a 23.0% decline compared to 2015. In 2022, however, an increase was recorded across most types of enterprises—agricultural enterprises, state-owned enterprises, cooperatives, and other private organizations-compared to 2020. In 2010, the number of small business entities across all sectors of the economy in Azerbaijan stood at 186,898. By 2014, the number of small business entities had increased by 21,521 compared to 2013. However, this figure represented a 9.8% decline compared to 2010 data. In 2022, the average monthly nominal wage of small business entities increased by 89.6% compared to 2010. Additionally, the value added generated had risen by 90.2%, while investments in production and fixed capital had grown by 96.3%. During the same period, the social efficiency of small business entities also showed a significant increase (see: Table 2).

Table 2-Key macroeconomic indicators of small business entities in the Republic of Azerbaijan

| Table 2-Rey macrocconomic indicators of small business effectes in the Republic of Azerbaijan | | | | | | | | |
|---|---------|--------|---------|--------|---------|-------------|--|--|
| | Years | | | | | | | |
| | | 2019 | 2020 | 2021 | 2022 | % change in | | |
| Indicators | 2010 | | | | | 2022 | | |
| | 2010 | 2017 | | | | compared to | | |
| | | | | | | 2010 | | |
| Value added (million manats) | 1 466,2 | 1423,2 | 1 617,9 | 2384,3 | 2.796,1 | 190,2 | | |
| Average annual number of employees | 109,0 | 85,1 | 92,1 | 102,2 | 104,8 | 96,1 | | |
| (thousand people) | 109,0 | 05,1 | 72,1 | 102,2 | 104,6 | 70,1 | | |
| Average monthly nominal wage | 303,5 | 437,0 | 533,8 | 528,2 | 575,6 | 189,6 | | |
| (manat) | 303,3 | 437,0 | 333,0 | 320,2 | 373,0 | 109,0 | | |
| Investments in fixed capital (million | 186.5 | 494,2 | 380,4 | 892,7 | 955,1 | 196,3 | | |
| manats) | 486,5 | 494,2 | 300,4 | 092,1 | 955,1 | 170,3 | | |

Source: SSCRA, www.stat.gov.az. Compiled by the author.

Currently, one of the key priorities of Azerbaijan's economic policy is to increase the number and ensure the quality of small and medium-sized enterprises (SMEs) in production sectors with high scientific and innovation potential. When analyzing SME-related data, information on small enterprises is more prominently reflected, primarily due to the insufficient statistical coverage of medium-sized businesses. This lack of comprehensive data complicates in-depth analysis of SMEs, a challenge that is particularly evident in the agricultural sector. Approximately 90% of enterprises in this sector fall under the small business category, whereas the number of medium-sized enterprises remains relatively low

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(Bainov, 2018). Nevertheless, regardless of industry, the economic trends observed in small businesses can, to a significant extent, be considered applicable to medium-sized enterprises as well (Siropolis, 2014).

At present, ensuring sustainable development in Azerbaijan's non-oil and gas sector has been identified as a key objective, with economic diversification set as a major target. In implementing diversification policies, identifying leading sectors for the national economy is recognized as a priority. In our view, the key sectors where SMEs in Azerbaijan can operate effectively—based on labor intensity—include agriculture, tourism, and construction. However, under current conditions, state resources alone are insufficient for the comprehensive development of these sectors. Therefore, increasing foreign direct investment from transnational corporations (TNCs) has become an essential necessity. The activities of TNCs in Azerbaijan are creating new opportunities for the development of SMEs. In particular, SMEs achieve more effective growth through integration with large enterprises and transnational corporations, strengthening their role as key suppliers within these networks.

We believe that, compared to leading global economies where small businesses serve as the primary driving force of economic growth, their representation in Azerbaijan's economy remains relatively modest. Over the past five years, the share of small enterprises in the country's GDP has consistently hovered around 10%. Although investments in fixed capital by small businesses increased by 260 million AZN (153 million USD) between 2013 and 2022, their contribution to the total economic indicator amounted to only 4.2%. During the research period, the dynamics of wage employment in small enterprises largely mirrored other economic trends. Specifically, in 2010, the number of employees in small enterprises stood at 93,200, accounting for 2.7% of the total wage-employed workforce in the country. By 2022, this figure had risen to 104,000, representing 4.9% of total employment

Despite certain positive development trends, several factors continue to influence the economic activity of small businesses in Azerbaijan. A general assessment of the country's economic landscape suggests that a significant portion of aspiring entrepreneurs prefer to operate as sole proprietors rather than as legal entities. It is important to note that, while not formally regulated by legal provisions, individual entrepreneurs face certain limitations compared to registered legal entities in terms of overall economic positioning. Businesses registered as legal entities tend to be perceived as more reliable by banks and corporate partners (Amrahov, 2014). Recognizing this, the government has implemented various measures aimed at encouraging an increase in the number of registered legal entities, thereby fostering a more structured and sustainable entrepreneurial environment.

Assessment of the level of demand satisfaction for agricultural products in Azerbaijan. At the current stage of economic development in the country, the growth of SMEs contributes positively to the abundance of products in the domestic consumer market and the increase in self-sufficiency in food production. It can be unequivocally stated that the improvement of food security in Azerbaijan is directly dependent on the development of SMEs in the agricultural sector (Guliyev, 2020). In recent years, the government has implemented numerous successful measures to support the development of business entities. As mentioned earlier, significant state programs have been adopted to promote a favorable business environment and encourage entrepreneurial activity in the country. The primary objective of these programs has been to ensure the sustainability of entrepreneurial activity across various economic sectors and to direct businesses' interest toward strategically important industries.

In the modern era, one of the sectors with the greatest potential within the non-oil and gas industry is the agrarian sector. The systematic measures implemented in this field mainly focus on ensuring the economic activity of SMEs. However, deficiencies in the market and production infrastructure in the agricultural sector create significant obstacles to its development (Gold, 2024). Currently, the supply, storage, packaging, and sale of potatoes, fruits, and vegetables produced in Azerbaijan are not organized at an adequate level. According to research, due to shortcomings in production, harvesting, and supply, approximately 5-15% of the fruits and vegetables produced annually are lost. On the other hand, Professor I.H.Ibrahimov believes that since the private initiative of entrepreneurs alone is insufficient to resolve the infrastructure issues in Azerbaijan's agricultural sector, it is necessary for the government to

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implement targeted measures. In this context, regulating economic development in the agricultural sector should aim to enhance the competitiveness of entrepreneurial activity (İbrahimov, 2010). It should be noted that, in the context of market relations, entrepreneurs must align their personal profit with the interests of society and the state. This can only be achieved through their own initiative, in addition to the socio-economic support provided by the government (Shalbuzov, Fikretzade, Huseyn, 2020). Furthermore, one of the main advantages of agriculture is that the food products produced and other beneficial consumption goods for society not only ensure the population's needs but can also contribute to the development of the industrial sector. The supply of raw materials for the light and food industries, which are among the priority sectors of the industrial sector, is almost entirely dependent on agricultural production (Huseyn, Huseynov, Museyibov, 2020). We also believe that the elimination of existing deficiencies in these areas requires the use of modern technologies and robust operational mechanisms. In particular, increasing the use of digital technologies, the Internet of Things, and artificial intelligence tools in line with global practices in the agro-business sector and boosting the activity and efficiency of small and medium-sized enterprises are required (Klapper, 2017). These demands stem from global challenges, and it would be unwise to ignore analogous trends.

Looking at global experience, especially in developing countries, the recovery of the agricultural sector from crisis and ensuring the sustainable operation of other sectors, alongside increasing the competitiveness of local food products, also leads to an intensification of innovation processes. Analysis over the past 20 years shows that in the agricultural sector, financial constraints and inefficient technologies, outdated production infrastructure, as well as production and management methods that do not align with current conditions are still in use. Mechanisms that have been tested in practice, along with advanced scientific and technical information systems, are not at a satisfactory level in organizing efficient activity within a market economy. The insufficient use of innovations in production sectors is directly linked to the imperfection of the mechanisms that form the application of these innovations (Bigliardi, Ferraro, Filippelli, Galati, 2020). These factors deepen the degradation of entrepreneurial entities in agriculture, leading to an increase in costs and a reduction in competitiveness. This process disrupts the socio-economic balance in production sectors, negatively impacting the socio-economic and cultural development of rural areas.

One of the key tasks of agribusiness is to create additional opportunities for the country's food supply, and the role of small and medium-sized enterprises (SMEs) in these processes is of strategic importance. In this regard, one of the critical factors in improving food security is the development of the agribusiness processing industry. The role of the agribusiness processing industry in ensuring the sustainability of agriculture can be evaluated as follows: 1) processing agricultural raw materials in industrial enterprises facilitates the expansion of agricultural products in markets; 2) processing agricultural products and offering them in the market helps to reduce seasonal price fluctuations to some extent; 3) the development of industries based on agricultural raw materials significantly influences the types of agricultural products. As demand increases, the variety of processed agricultural products will diversify, leading to an increase in the types of products offered in the market. For example, various products such as tomato paste, tomato juice, tomato soup, milk, milk powder, pasteurized milk, sterilized milk, and others made from the same raw material will be offered to the market; 4) the increased demand for agricultural products in the industrial sector enhances the opportunities for cooperation and integration among agricultural producers; 5) with economic development and the rise in income levels, more efficient use of time leads to structural changes in the labor market, particularly benefiting women. For example, the development of the food industry increases demand for packaged and ready-to-eat food products. A similar situation is true for other agricultural products as well; 6) the processing of agricultural products leads to an increased demand for services such as transportation, marketing, advertising, insurance, etc., facilitating the development of the sector.

The allocation of limited production resources among alternative users does not always align with both individual and social benefits. When businesses direct their profits to areas with the highest potential for returns, the desire for personal profit does not necessarily coincide with the societal expectations for

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social benefit. Moreover, as businesses focus on regions that offer higher short-term profits, their investments aimed at improving infrastructure are made within the scope of their interests in this regard. In Azerbaijan, the level of consumption of food-originated agricultural products, particularly livestock products, is slightly below the relevant standards of the World Health Organization. In some agricultural products, the level of consumption is somewhat higher than WHO standards. Specifically, in 2022, the population group that followed medical consumption standards in Azerbaijan consumed 29.1 kg less meat than the 70.1 kg per capita annual intake recommended by the WHO, representing a 41.6% decrease. Compared to WHO standards, Azerbaijan's per capita consumption of eggs is 28.0% lower (68 eggs), while the consumption of milk and dairy products is 28.4% lower (101.9 liters). However, the consumption of bread and bakery products, considered essential for the population, exceeds the WHO's per capita consumption standard by 5 kg. Vegetables and fruits are consumed 32.0 kg more than the WHO standard.

In our opinion, at the current stage of development of the national economy, small and medium-sized enterprises (SMEs) must be in search of necessary innovations and look to successful practices in the global economy. In the strategic sector of agribusiness, implementing innovative changes is considered one of the key factors accelerating the development of SMEs. (Boland, 2019). In the current period, when the process of diversification in the national economy is accelerating, the government's adoption of the important economic development document, the Strategic Roadmap, has moved into an intensive phase, with measures aimed at enhancing the transparency of the business environment and promoting the development of entrepreneurial activity in all sectors of the economy. Regarding the development of agribusiness, the main goals and objectives include the following areas of focus:

- 1. The regional and sectorial development of agricultural production with a competitive advantage In Azerbaijan's agricultural sector, there are several areas where the competitive opportunities are broader compared to others. Currently, 4% of the world's hazelnuts are produced in Azerbaijan. The total area of hazelnut orchards in the country is 74 thousand hectares. In 2019, Azerbaijan produced 45.5 thousand tons of hazelnuts, which ranks third in the world. Larger achievements in this field are expected in the near future. Generally, during periods of economic stagnation, which are currently observed as crisis trends, several issues should be prioritized in the agricultural sector, which holds particular significance for society, in order to increase competitive opportunities:
- The production factor, such as land and its usage, along with the climate conditions, plays a crucial role in determining productivity. Specifically, rainfall, climatic conditions, and other natural phenomena play an active role in the production process. In this aspect, it is essential to form and apply progressive technologies to minimize the impact of natural disasters in production areas. The application of technological innovations in agriculture is a prerequisite for improving the structure of production and forming a workforce that meets the demands of the time.
- Qualified personnel and a competitive workforce. In the modern era, where scientific and technological achievements are integrated into production areas, it is impossible to use these technologies without qualified personnel. Innovative technologies and skilled workers play a significant role in increasing labor productivity. In this regard, the additional value created per worker in the agricultural sector can be a key indicator of efficiency. If we focus on the information from international economic organizations and the World Bank, we see that countries with advanced competitive environments, high-performance mechanisms, and technological innovations are considered leaders in this field, based on labor productivity and the level of innovation usage.
- Financial resources. In addition to the effects of the pandemic, the agricultural sector, characterized by a long reproductive cycle, is one of the areas where financial shortages are constantly felt. In this context, providing low-interest loans and increasing the share of business loans in the overall loan portfolio should be among the top priorities. The formulation of mechanisms to increase capital investment and the attractiveness of investments in agriculture also plays a significant role in this aspect.
- Strategic approach and competition. The organizational structure of agricultural enterprises requires the optimization of their activities, reduction of production costs, agility in decision-making, and increasing efficiency. Healthy competition conditions, the improvement of product quality, the

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application of innovations, and the introduction of new products to the consumer market for agricultural enterprises and entrepreneurs.

- The level of demand. Having a large market share of business entities in the agricultural sector provides a significant competitive advantage for enterprises. High demand for agricultural products from end consumers stimulates food processing industry enterprises, sales channels, and other wholesale buyers to intensify the reproduction process. The state significantly influences the level of demand in the agricultural market. In many countries, agricultural production entities are subsidized, and broad opportunities are created to ensure their sustainability.
- 2. Increasing the share of essential food products that replace imports in the domestic market although the number of farms engaged in agriculture has decreased over the past twenty years, the volume of production during the same period has increased significantly. Various factors have influenced this achievement. One of the main factors in this direction is the increase in the level of application of innovative technologies in the production process by producers, the use of the most productive seed varieties suited to the geographical conditions, and, of course, the government's assistance and support in obtaining them. It is no coincidence that it is the result of these positive trends that, compared to 2000, the production of grain legumes in 2020 increased 2.3 times, reaching 3,538.5 thousand tons. This indicator is very positive in terms of ensuring food security. It is worth noting that, during the same period, potato production increased 2.1 times, and vegetable production increased 2.2 times. One of the most important aspects is that, during the same period, the production of sugar beet, a key product for the food industry, increased 2.6 times, and sunflower production for grain increased uniquely by 8.4 times. During this period, high growth was recorded in the production of most products, except for tobacco. In 2022, these indicators further increased.
- 3. Increasing decent employment opportunities in rural areas and improving the standard of living Currently, a large portion of the economically active population in the labor market is engaged in agriculture. Since the independence period, there has been no change in this indicator. It is noteworthy that, in 2019, 36.3% of the employed population worked in agriculture. However, the level of labor productivity in this sector is not very high. When analyzing labor productivity in agriculture, attention should be paid to the factors that influence it. These factors are characterized as economic-social, technical-technological, and natural factors. The formation of the labor market in the agricultural sector, creation of new jobs, preservation of previous jobs, training and retraining of personnel, and regulation of unemployment processes are all reflected in this context.

To achieve these goals, the following measures implemented by the government can be outlined:

- Foreign economic relations regulation policy. This policy primarily includes migration policy, which involves assisting immigrants in adapting to these processes.
- Socio-economic policy. This policy encompasses increasing employment of the population, developing local infrastructure, protecting the environment, and improving working conditions.
- Educational policy. This policy mainly focuses on training and upgrading the skills of personnel according to the demands of the labor market.
- Fiscal policy. This economic policy includes measures aimed at increasing the sources of funding for the state budget, organizing tax and customs collections, and ensuring fair income distribution.
- Income policy. This policy primarily addresses issues related to social insurance and the minimum wage.

In our opinion, the agricultural sector has sufficient potential to produce high-quality raw materials. However, in some sectors, the quality indicators of the produced raw materials do not meet the international standards for processed industrial products. It should be noted, however, that in recent years, tobacco, tea leaves, and vegetable oils produced in our republic are quite competitive in the domestic consumption market. The fact that the quality indicators are far from the accepted standards becomes an obstacle to the efficient use of agricultural-resources potential, increasing employment of the economically active population in agricultural regions, and improving social conditions.

4. Environmental protection, and the preservation of land and water resources. In general, when developing technological processes in agriculture and the processing industry, biological processes,

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including important features of the agricultural production process and land-climate characteristics, are significantly considered, and so.

Considering the above, we can examine the correlation dependency between the factors affecting the development of entrepreneurial entities based on the main macroeconomic indicators (Humbatova, Hajiev, 2024). In accordance with the indicators of entrepreneurial entities in Azerbaijan, we can accept output production as the result, the number of employees, and investments in fixed capital as the influencing factors. In this case, the following formula is used in practice for analyzing the parameters of the multivariate regression equation (see: Table 3):

Table 3 Key macroeconomic indicators of entrepreneurial entities in the Republic of Azerbaijan

| Year | Number of employees, thousand people - x1 | Investments in fixed capital, million manats - x2 | Output production, million manats - y |
|------|---|---|---------------------------------------|
| 2016 | 281 | 2830,2 | 5831,2 |
| 2017 | 290,1 | 3298,6 | 6269,6 |
| 2018 | 283,4 | 6953 | 17401,6 |
| 2019 | 332,2 | 3 422,20 | 19 579,40 |
| 2020 | 348,7 | 2 674,10 | 19725, 7 |
| 2021 | 357,8 | 3387,7 | 24747,4 |
| 2022 | 370,1 | 2827,1 | 29003,4 |

Source: SSCRA. www.stat.gov.az. - compiled by the author based on the source.

The results of the regression analysis based on the data are presented in Table 4, using the Excel analysis package.

Table 4 - Regression model results

| Table 4 - Neg | ression model res | suits | | | | |
|------------------|-------------------|-------------|--------------|----------|------------|-------------|
| Summary of resu | ılts | | | | | |
| Multiple R | 0.989303607 | | | | | |
| R-squared | 0.978721626 | | | | | |
| Standardized | | | | | | |
| R-squared | 0.964536044 | | | | | |
| Standard error | 1464.202765 | | | | | |
| Tracking | 6 | | | | | |
| Destructive anal | ysis | | | | | |
| | df | SS | MS | F | Known F | |
| | | | | 68.99410 | | |
| Regression | 2 | 295831523.6 | 147915761.8 | 884 | 0.0031039 | |
| Residue | 3 | 6431669.207 | 2143889,789 | | | |
| Conclusion | 5 | 302263192.8 | | | | |
| | | Standard | | | | |
| | Ratio | error | t-statistics | p- | Over 95% | Less 95% |
| | | 7 450 674 | | 0.002396 | 95261.5106 | -4 783 877 |
| Y intersections | -71550.1®56 | 041 | ·9.603176863 | 223 | 3 | 049 |
| | 2 406 552 | 2 075 987 | | 0.001378 | 1 745 880 | 306. |
| Variable x1 | 357 | 383 | 11.5923265 | 622 | 519 | 7224194 |
| | 2 980 051 | 0 452 509 | | 0.007124 | I.53996365 | |
| Variable x2 | 715 | 778 | 6.585607364 | 584 | 5 | 4.4201397'5 |

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 $Y = b0 + b1 \times 1 + b2 \times 2 + \dots + bnxn.$

The regression equation based on the indicators can be described as follows:

 $Y = -71550.14056 + 240.6552357X_1 + 2.980051725X_2$

The meaning of the obtained regression coefficients is that a change of 1 unit in the X_1 factor will result in a change of 240.6552357 units in the Y factor, while a change of 1 unit in the X_2 factor will cause an increase of 2.980051725 units in the Y factor. To determine the adequacy of this result, the statistical significance of the given coefficients should be checked. For this, the following hypothesis needs to be tested:

$$\begin{cases} H_0: \beta_1 = 0 \\ H_0: \beta_1 \neq 0 \end{cases}$$

The above hypothesis is tested based on t-statistics: t_1 =11.5923268, t_2 =6.58560736. The critical value of Student's t-distribution (t-distribution) is: (α =0.0005) $t_{0,0005;2}$ =31.599. Based on the calculations, the results show that 11.5923268<31.599, 6.58560736<31.599, indicating that the coefficients of the X_1 and X_2 variables are statistically significant.

In order to determine the real role of the factors affecting the volume of product output in business entities, it is necessary to use relative indicators in addition to absolute indicators. The elasticity coefficient is considered one of the absolute conditions for determining this dependency. If the elasticity coefficient is less than 1, the impact of the emerging factor is not considered high. Based on the linear regression equation, the elasticity coefficient, which expresses the percentage change in the dependent variable resulting from a 1% change in the independent variable, can be calculated using the following formula:

$$E = \frac{\bar{x}_{\times \overline{X}}}{\overline{y}}$$

Table 5

The elasticity of factors affecting the volume of product output in business activities

| Product | output, | million | Number of employees, thousand | Investment | in | fixed | capital, |
|---------|---------|---------|-------------------------------|--------------|-----|-------|----------|
| manats | | | people | million mana | ats | | |
| 1% | | | 4.87% | 4.31% | | | |

Source: Calculated by the author using MS Office Excel.

According to the results in Table 5, we can state that a 1% increase in the number of employees and the volume of investment in fixed capital will lead to an increase of 4.87% and 4.31%, respectively.

The correlation coefficient between the indicators for the period under study is $r = \sqrt{R^2} = 0.9820$, which indicates a very high correlation between the number of employees and the volume of investment in fixed capital with the production volume, as per the Cheddock scale, where r = 0.9-0.99. The determination coefficient $R^2 = 0.9787$ shows that the approximation is quite high - the corresponding regression equation explains 97.9% of the variance in the result, while 2.1% is explained by other factors. The high value of the determination coefficient indicates that the regression equation better expresses the initial data and that the result factor is explained by the variables included in the model by 97.9%.

Since the Significance F is ~0.0031039, based on the condition p < 0.05, the regression model is significant.

The statistical significance of the regression equation obtained in the EXCEL using the F-Fisher criterion is determined by comparing the F-Fisher statistic with the F_{table} (a; m; n-m-1) value. As shown in Table 5.5.3, the F-statistic (Fisher criterion) = 68.9941. In this case, with a 95% confidence interval and a significance level α = 0.05, we get the following result using F_{table} (a; m; n - m - 1) = Disagreement formula.

$$F_{\text{table}}$$
 (a; m; n - m - 1) = Disagreement (0,05;6;8) = 19.0

When the F-Fisher criterion is compared with the F_{table} value (F-Fisher criterion > F_{table} value, 68.9941 > 19.0), it indicates that the regression equation is statistically significant as a whole. This means that the constructed model is adequate.

The points indicate that, in determining measures to develop entrepreneurial activities, both direct and indirect factors affecting them must be considered in a complex manner. Based on that, it can be said that the efficient use of production resources encompasses many factors, including the effective use of biological resources, the improvement of soil fertility, the reproduction of land resources in terms of entrepreneurship development, and the consideration of ecological characteristics. In this regard, attention to the production of ecologically clean

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products is particularly increasing worldwide. Currently, in the development of the agricultural sector, great importance is being attached to ecological factors, including the intensification of production technologies in the agro-industrial complex (Aliyev, Babayev, Gafarli, Galandarova, Balajayeva, 2023). We would like to emphasize one particular issue. The ecological nature of agro-technologies has recently played an important role in the production of ecologically clean products. Specifically, the level of demand for the quality of agricultural products and the role of agroecological parameters, including soil fertility, are of significant importance. The application of the adaptive landscape system in agriculture primarily focuses on optimizing the structure of cultivated areas and arable land suitable for agriculture. In this process, the implementation of crop rotation systems, as well as the melioration of soils and ensuring the ecological sustainability of agro-landscapes, are key factors (Aliyev, 2014).

Recently, the transfer of trade relations to new platforms in Azerbaijan has stimulated the creation of an important innovative project, the "electronic commerce" portal, which has attracted the interest of agribusiness entities to a certain extent (Abbasov, 2013). First, it can be discussed how important this innovation is for agribusiness entities. However, it can be confidently stated that in the current period, when the transition to a digital economy is accelerating, the future of trade relations will be entirely linked to the virtual environment (Abbasov, 2012). It should be noted that, although the transition to this trade platform by agribusiness entities is somewhat slow, it is undeniable that there is an increasing interest among entrepreneurs in this direction (Garayev, 2015).

It is well known that during the Covid-19 pandemic, the significance of online trade was vividly demonstrated. The advantages of electronic commerce include the ability to carry out trade operations quickly and securely. It can be stated unequivocally that online commerce offers far more opportunities than traditional commerce. Despite the significant advantages of online commerce, certain principles must be followed in its implementation: 1) consumer rights must be protected in accordance with the requirements of the legislation; 2) taxes must be paid fully and promptly; 3) public behavior norms must be adhered to; and 4) the safety, health, and ethical principles of the population must be observed. This method of business operation is more convenient for small business entities. Small enterprises gain the opportunity to promote their business to a wider audience with limited resources through electronic commerce. Additionally, small business entities save certain costs by using online stores.

In the modern era, one of the main tools for the development of SMEs is business incubators. Currently, business incubation centers play an important bridge function for potential SME entities (Malorgio, Marangon, 2021). In the present context, the process of business incubation is considered a crucial organizational form for the development of small business entities. Business incubation centers ensure the interests of small businesses, industry, research and educational institutions, and the state. Statistical data analysis shows that the creation and development of small enterprises within this structure is approximately 7-22 times faster. Additionally, the survival rate of small enterprises created through business incubators is evaluated to be 85-95%. The business incubation process can generally address two issues jointly: I - the establishment of the necessary conditions for the development of new small businesses and II - the restructuring of small business enterprises that already exist but have inefficient operating structures. It is believed that the active use of business incubators and other progressive international experiences can provide a significant boost to solving the development problems of small and medium-sized enterprises in the agribusiness sector in Azerbaijan.

CONCLUSION

Currently, national priorities have been defined for the period up to 2030 in Azerbaijan, and in order to implement these priorities, an Action Strategy covering the years 2022-2026 is being executed. Considering the reintegration of post-conflict areas, one of the main goals is to align the development of the agricultural sector in Azerbaijan with global practices, create a solid foundation for the development of organic farming, and increase the role of agribusiness in this process. Increasing the role of small and medium-sized enterprises (SMEs) in the development of the agribusiness sector can enable the realization of these priorities.

In the current economic context, agribusiness has become one of the strategic sectors for Azerbaijan. Although significant measures have been taken by the government to develop SMEs in agribusiness, we believe that certain issues remain unresolved in some areas. To address these problems and ensure a more effective

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performance of small and medium-sized businesses in the development of the agribusiness sector, several factors must be considered, and more effective measures should be taken:

- There is a need for comprehensive and systematic measures to be taken for the development of agribusiness, which plays a role in ensuring the country's food security and stability in the domestic market in the context of global issues.
- Following the adoption of the Competition Code in Azerbaijan, the activities of economic entities should be further improved to facilitate the development of SMEs, and a competitive market environment must be fostered.
- In order to ensure the high profitability of SMEs in agribusiness, measures should be taken to increase production efficiency and apply the latest advancements in scientific and technological progress, especially the use of digital technologies, the Internet of Things (IoT), and artificial intelligence tools.
- To intensify the development of SMEs, the development of wholesale food markets, which are important elements of agribusiness, should be encouraged. Expanding competitive production to increase export potential is also a key factor for improving the efficiency of agribusiness.
- To ensure productive activity of agribusiness structures, state support in this field should be increased, and measures to eliminate negative impacts hindering the development of entrepreneurship should be expanded.
- Investments in the development of processing enterprises, which are key partners of agribusiness, should be encouraged, and optimal integration relations between raw material producers and processing enterprises should be ensured.
- Expanding the market access opportunities for agricultural commodity producers, creating favorable conditions for farmers to earn more income, regulating the activities of commercial intermediaries, and especially minimizing monopolistic tendencies, as well as preventing price disparities, requires more effective operational mechanisms.
- Measures to protect the environment and produce eco-friendly products in agriculture must be implemented, and expanding scientific research in this area should be accepted as an essential condition.
- To improve the financial security of agribusiness entities, risk factors should be assessed, credit conditions for entrepreneurs based on the intensity of the production-sales phase should be improved, and differential credit rates tailored to regional potential should be implemented.
- One of the main shortcomings affecting the development of SMEs in agribusiness is the weak functioning of insurance mechanisms. Measures should be taken to increase the role of insurance companies in insuring small and medium enterprises.
- Modern methodological approaches to the multi-dimensional assessment of entrepreneurial efficiency in material production areas should be ensured. It is important to systematically examine factors affecting the intensity and efficiency of SMEs and accompanying risks and take adequate measures.
- There is a need to implement social-oriented market mechanisms to increase the social efficiency of entrepreneurship. The state should take on the role of regulator and organizer of these mechanisms.
- More effective mechanisms for regulating entrepreneurship through tax, tariff, financial-credit, and investment policies, which aim to stimulate the development of entrepreneurship and identify cases that limit entrepreneurial activities, should be developed and applied.

We believe that these generalizations, thoughts, and recommendations will provide an opportunity for further discussions on improving the functioning of the agribusiness sector in Azerbaijan, which is taking consistent steps towards strengthening as an independent state. These, in turn, could be useful for more efficient planning and forecasting of Azerbaijan's agribusiness sector, as well as for the development and implementation of activity mechanisms that meet the demands of the time, based on international experience. Ultimately, they can contribute to ensuring the productive performance of small and medium-sized business entities in these processes.

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