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# ECONOMIC ASSESSMENT OF THE STATE OF LIVESTOCK INDUSTRY IN KAZAKHSTAN: PREREQUISITES FOR THE CREATION OF A MEAT HUB

***Purpose.*** *The purpose of the study was to economically evaluate the condition of animal husbandry in the Republic of Kazakhstan and also to determine the necessity and possibility of the creation of an effective meat hub.*

***Methodology / approach.*** *The following methods were used: economic analysis and synthesis, comparison and analogy, systematization and generalization, factor analysis, institutional analysis, and modelling that helped identify problems of the livestock industry, and ways for its development.*

***Results.*** *The paper presents the results of the analysis of world and regional production and consumption of livestock and poultry; import and export of meat products in Asian countries, including Kazakhstan; the dynamics and structure of livestock in farms of different categories; the dynamics of gross income of livestock production of the republic; SWOT-analysis of efficiency of agricultural enterprises. Studying the meat market trends in the world and in the Republic of Kazakhstan, and also the dynamics of production and consumption of meat and meat products is a basis for argumentation when choosing strategically important measures on application of forms and ways of control, creation of the economic forecast, definition of the basic vectors of effective development of this industry in the long term taking into account influence of factors of various nature.*

***Originality / scientific novelty.*** *The study makes an original contribution by providing a comprehensive, evidence-based analysis of the current state and future prospects of Kazakhstan's livestock sector, while proposing innovative structural solutions through a specialised meat hub to improve productivity, quality and competitiveness.*

***Practical value / implications.*** *The study suggests the need to enhance meat production to meet domestic demand and boost exports. Achieving this involves innovating meat processing and sales, improving animal productivity through genetic advancements, enhancing infrastructure, and establishing livestock centres. Ongoing monitoring of the meat market is essential for crafting strategies to improve the livestock sector. Besides, creating a "meat hub" model will reduce investment and operational expenses for production units, streamline production based on set standards and consumer demand, enhance product liquidity, and augment income for small entrepreneurial forms.*

***Key words:*** *agrarian sector, livestock and poultry, meat market, effective management, market modelling.*

## 1. INTRODUCTION

The meat sector in Kazakhstan faces many challenges, including inadequate production systems, fragmented value chains and poor market linkages. These problems result in low production, uneven quality and high costs, and prevent producers from

capitalising on growing consumer demand. There is a need to examine the factors influencing current constraints in the sector and to propose tailored strategies to increase productivity, raise rural incomes, improve food security and enhance export readiness. According to D. Moore et al. [1], the world demand for meat is projected to increase by 35 % over the next two decades. The tendency to increase production of meat products is also typical for Kazakhstan. Recently, the country has paid special attention to the development of the livestock sector of agriculture, which is one of the most important directions of development of the agro-industrial complex of the country. This is mentioned in modern studies of Kazakh scientists G. M. Zhurynov et al. [2].

The purpose of the article is to economically evaluate the state of livestock production in Kazakhstan, as well as to find ways to address issues related to increasing the income level of the rural population and the regional economy. The objectives of the study included: studying the fundamental processes that influence the formation of markets for meat and meat products; analysis of market conditions and infrastructure; search for effective tools to control this market; identification of specific characteristics of the livestock industry that affect the markets for meat and meat products; factor-criteria assessment of markets for animal products; analysis of the volume of trade and consumer demand for these products; studying the possibilities and resources of the country to increase the export of meat products; SWOT-analysis (Strengths, Weaknesses, Opportunities, Threats) of livestock activities of agricultural enterprises.

The study makes an original contribution by providing a comprehensive, evidence-based analysis of the current state and future prospects of Kazakhstan's livestock sector, while proposing innovative structural solutions through a specialised meat hub to improve productivity, quality and competitiveness. The research identifies key influences shaping the industry and informs strategic decisions for sustainable growth.

## 2. LITERATURE REVIEW

According to M. Z. Konyrbekov [3], recently the most common and developed areas of livestock breeding in Kazakhstan are sheep, cattle, horses, and birds. M. Herrero et al. [4] review the changes in demand for livestock products and the socio-economic roles of livestock globally, indicating similar trends in Kazakhstan. A. Orihuela [5] discusses the use of applied ethology in solving animal welfare and sustainability issues in animal production, a relevant aspect for improving Kazakhstan's livestock sector.

The research of C. M. Godde et al. [6] highlights that the impact of climate change on animal product prices is mainly felt through changes in the cost and availability of feed, which is an important factor for Kazakhstan's livestock industry. P. Dinah de Araújo et al. [7] identify key factors influencing consumer attitudes towards meat, including nutritional quality, chemical and biological hazards, animal welfare, beliefs about fraud, sensory attributes, environmental impact, chemical additives, media information, negative stigmatization, and unfounded beliefs. These factors are crucial for Kazakhstan to consider in improving consumer acceptance and satisfaction with meat products. M. Noble [8] emphasizes that meat hubs can support sustainable

agriculture in a number of ways. By connecting producers with processors, distributors, institutional buyers, chefs and consumers, meat hubs can help build efficient, cost-effective, regional and local supply chains, leading to a more sustainable production system. In addition, the use of technology in meat hubs can allow processing times to be planned, resources to be shared between small producers and more capacity to be created, all of which can contribute to a more sustainable and efficient meat production system. Besides, the global economic crises, the COVID-19 pandemic, and Russia's war against Ukraine have affected livestock production, delivery logistics, and meat prices, which have caused a profound social and economic crisis both worldwide and in Kazakhstan, so the study of the livestock production state is a relevant issue for the economy of the Republic [9–12].

Understanding how external factors impact Kazakhstan's livestock sector, including disruptions caused by climate, global crises, and geopolitical events is a gap that aims to be filled. The study aims to propose strategies to enhance the competitiveness of livestock products, improve rural income, analyse market dynamics, assess export potential, and perform a SWOT-analysis of livestock activities within agricultural enterprises. The adoption of innovative approaches and the creation of effective infrastructure, like a meat hub, can accelerate the development of Kazakhstan's livestock industry.

## 3. METHODOLOGY

The study of the state of the livestock sector of agriculture in the Republic of Kazakhstan was carried out on the basis of official sources of economic statistics for the period from 2016 to 2021 and partially to 2022. It should be noted that the time period for studying various economic indicators varied depending on the availability of actual, up-to-date information, as well as the tasks set. When conducting the study, reliable sources of open statistical information were used by the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan [13], international economic and agricultural organizations, as well as scientific works of researchers and economists from Kazakhstan and other countries. The use of empirical and theoretical methods of economic research made it possible to establish a more complete picture of the current state of animal husbandry in the Republic of Kazakhstan, as well as to identify problematic and promising areas for the development of this agricultural sector. With the help of the main empirical method (economic observation), the collection of primary information was carried out on the number of livestock and poultry in farms of different categories of the Republic of Kazakhstan, on the volume of production and sale of meat products, on consumer demand and supply in markets of various orientations, on gross livestock production and etc.

The study of the meat products market in the context of globalization and climate change integrated a range of general and specific approaches from theoretical economics. The research used economic analysis and synthesis to study the theoretical and methodological foundations of animal husbandry. Comparison and analogy methods are also used to analyse and evaluate the economic indicators of the agro-industrial

complex at the global, national, and regional levels. When formulating the conclusions and results of the study, systematization and generalization were applied.

Additionally, factor analysis was used to identify the economic and social factors influencing the development of Kazakhstan's livestock industry. Institutional analysis helped to identify modern and innovative ways to impact these factors, while problem analysis focused on identifying and resolving key issues in livestock breeding. The study used modelling of socio-economic systems, using a systematic approach to create a model of a food (meat) hub. This model included elements like small farms, breeding complexes, slaughterhouses, educational centres, and transportation companies, representing an open system within Kazakhstan's national economy with potential interactions with the global economy. These diverse methods collectively facilitated a comprehensive assessment of the current state and future prospects of Kazakhstan's livestock industry.

## 4. RESULTS

A livestock/meat hub is an integrated system that brings together several parts of the meat value chain, including input supply, production, processing and marketing, with the aim of increasing productivity, quality and profitability. In this context, input supply includes the provision of feed, veterinary health services and breeding and extension activities. Production activities focus on cattle, poultry and small ruminants, with strict adherence to the most effective methods of animal care and management. The processing and value-adding phase includes slaughtering, cutting, packaging, chilling or cold storage and transportation. The marketing and distribution channels include domestic retail, export and food service, which includes hotels and restaurants. The integration of these components into a centralised meat hub brings significant benefits such as improved quality and safety, higher production levels, efficient logistics with minimised waste, improved access to services and technology for farmers, and the creation of additional employment and entrepreneurship opportunities in rural areas. Literature data indicate an increase in global demand for livestock products, including livestock and poultry meat [12; 14]. An analysis of world meat consumption showed a trend towards an increase in the diet of the population of many countries of poultry meat, which is associated with its lower price, faster and less costly production, and greater health benefits compared to other types of meat. A similar trend is observed in Kazakhstan. The highest meat consumption per capita is observed in North America, Oceania, Europe, Latin America, and the Caribbean (Figure 1). The smallest is observed in African countries with low paying capacity of the population.

According to the World Food and Agriculture – Statistical Yearbook 2021 [14], global meat production exceeds 337 million tons. The leading countries are China and the United States. Only China produces about 40 % of global pork meat, and the United States produces from 17 to 18 % of global chicken and cattle meat. The difference between the two countries is that China's meat production meets the needs of the domestic market, while a significant portion of U.S. meat production is exported. Meat production in Kazakhstan, like in China, is focused on the domestic consumer, while a small part is exported.

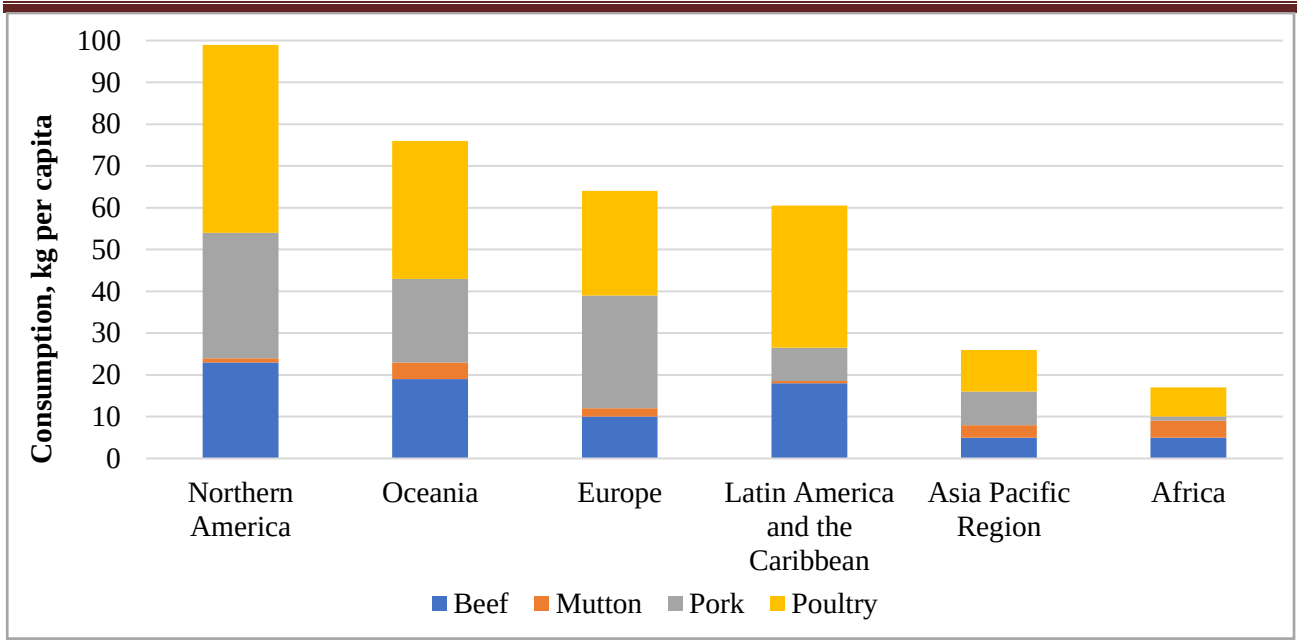


**Figure 1. Meat consumption per capita worldwide, 2019–2021**

*Source:* compiled by the authors based on the data [12].

There is also an increase in world milk production – more than 883 million tons, and Asia has been the leader in production recently. According to international organizations, the Republic of Kazakhstan has recently taken 13th place in meat production and gives only 0.8 % of all meat in Asia (Table 1). It should be noted that imports of meat in the country prevail over exports, although the necessary conditions for this have been created.

*Table 1*

**Meat production and trade in Asian countries, 2019–2021**

| No. | Country | Production | | Import | | Export | |
|---|---|---|---|---|---|---|---|
| | | Thousand metric tons carcass weight equivalent | % | Thousand metric tons carcass weight equivalent | % | Thousand metric tons carcass weight equivalent | % |
| 1 | China | 75416 | 62.6 | 8237 | 50.7 | 708 | 15.1 |
| 2 | India | 7475 | 6.2 | 2 | 0.0 | 1347 | 28.8 |
| 3 | Vietnam | 5435 | 4.5 | 770 | 4.7 | 35 | 0.7 |
| 4 | Pakistan | 4723 | 3.9 | 2 | 0.0 | 81 | 1.7 |
| 5 | Indonesia | 4675 | 3.9 | 250 | 1.5 | 3 | 0.1 |
| 6 | Japan | 3445 | 2.9 | 3105 | 19.1 | 19 | 0.4 |
| 7 | Turkey | 3400 | 2.8 | 74 | 0.5 | 716 | 15.3 |
| 8 | Philippines | 3075 | 2.6 | 713 | 4.4 | 7 | 0.1 |
| 9 | Thailand | 3128 | 2.6 | 30 | 0.2 | 1313 | 28.1 |
| 10 | Iran | 3033 | 2.5 | 135 | 0.8 | 75 | 1.6 |
| 11 | The Republic of Korea | 2680 | 2.2 | 1419 | 8.7 | 62 | 1.3 |
| 12 | Malaysia | 2015 | 1.7 | 340 | 2.1 | 221 | 4.7 |
| 13 | Kazakhstan | 1010 | 0.8 | 321 | 2.0 | 28 | 0.6 |
| 14 | Saudi Arabia | 915 | 0.8 | 841 | 5.2 | 61 | 1.3 |

*Source:* compiled by the authors based on the data [12].

The lack of meat on the domestic market can be explained by the fact that most livestock products are made by private household farms, which have lower efficiency compared to agricultural enterprises. Thus, according to the data of the National Statistics Bureau of the Republic of Kazakhstan, 56 % of livestock and poultry are concentrated in household farms, which account for 48.4 % of the gross added value of agricultural production. Agricultural enterprises are also more productive than peasant or private farms. For example, the gross income of agricultural enterprises in the Akmola region in 2021 amounted to 97.4 billion tenge or 3.9 times more as compared to peasant or farmer households – 24.8 billion tenge. Agrarian enterprises in the Akkol region had the highest livestock product sales profitability – 36 %, and Ereymentau and Sandyktau regions – 35.6 % [13]. The dynamics of the number of agricultural livestock enterprises, peasant (farmer), and homestead farms in Kazakhstan in 2017–2021 indicates a progressive growth of livestock and poultry and only the number of pigs fluctuates from year to year due to outbreaks of diseases: African swine fever, foot and mouth disease and others (Table 2).

*Table 2*

**Dynamics of the number of livestock and poultry in the Republic of Kazakhstan, 2017–2021**

| Name of livestock unit | Number of livestock and poultry at the end of the year, thousand heads | | | | | Changes: 2021 to 2017, % |
|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2021 | |
| Cattle | 6764.2 | 7150.9 | 7436.4 | 7850.0 | 8192.4 | 121.1 |
| Sheep and goats | 18329.0 | 18699.1 | 19155.7 | 20057.6 | 20876.8 | 113.9 |
| Pigs | 815.1 | 798.7 | 813.3 | 816.7 | 776.1 | 95.2 |
| Horses | 2415.7 | 2646.5 | 2852.3 | 3139.8 | 3489.8 | 144.5 |
| Camels | 193.1 | 207.6 | 216.4 | 227.7 | 243.4 | 126.0 |
| Bird | 39900.0 | 44300.0 | 45041.4 | 43335.0 | 47884.7 | 120.0 |
| Total | 70434.1 | 75820.8 | 77534.5 | 77446.8 | 83484.2 | 118.5 |

*Source:* compiled by the authors based on the data [13].

Thus, the number of cattle in 2021 increased as compared with 2017 by 21.1 %, and the number of small cattle – by 13.9 %, the number of horses increased by 44.5 %, camels – by 26 % and poultry – by 20 %. Karaganda, Turkestan, and Kyzylorda oblasts were the leaders in cattle population increase, and East-Kazakhstan and Almaty oblasts – were leaders in losses. Recent data from the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan [13] on the share of livestock in farms of different categories show that the greatest share of agricultural enterprises is engaged in breeding camels and poultry, farms and peasant farms – in breeding small ruminants, pigs, cattle and horses, and homestead farms – in breeding cattle, horses, goats and sheep (Figure 2).

Regarding meat production in the country, it should be noted that its stable growth is observed (Figure 3). Thus, in 2020, 1,168.6 thousand tons of meat was produced, which is 21.6 % more than in 2016 [15]. Analysis of gross profit and the index of gross livestock production volume made by the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan [13] also showed

an annual increase.

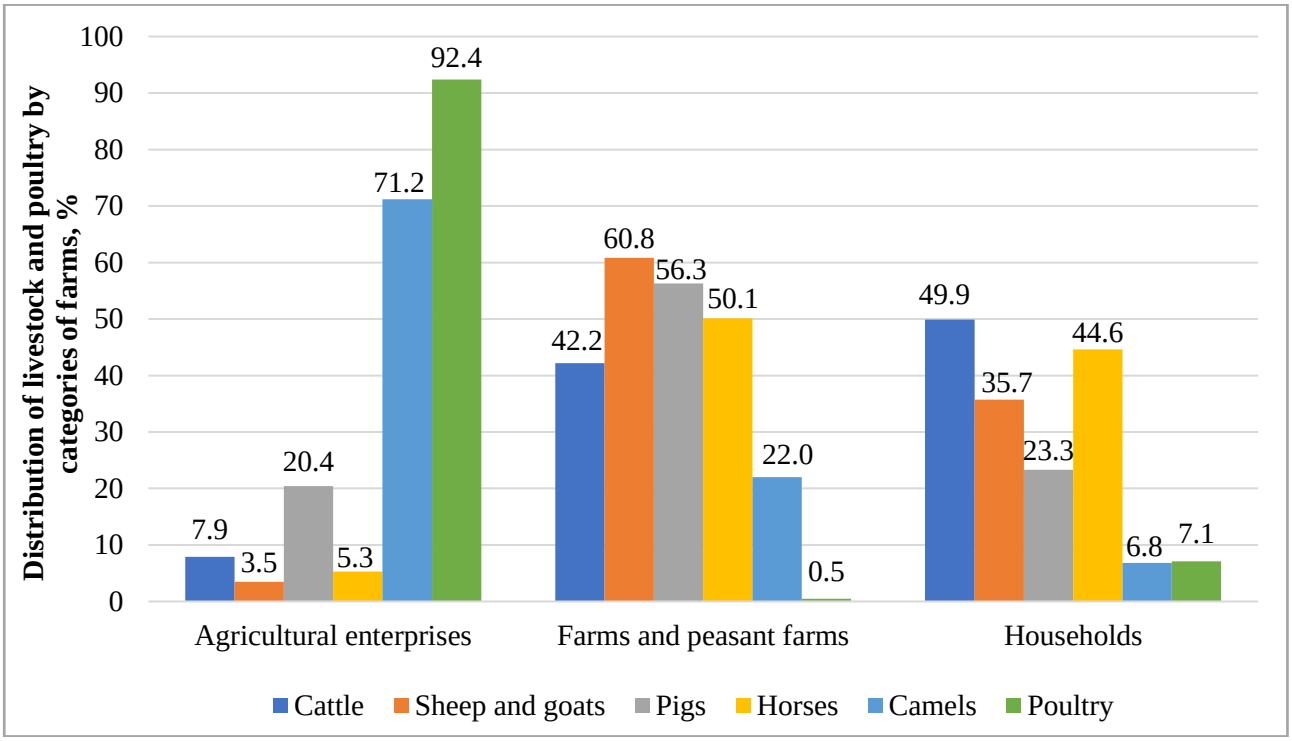


**Figure 2. The distribution of livestock and poultry in the farms of the Republic of Kazakhstan by different categories as of September 1, 2022, %**

*Source:* compiled by the authors based on the data [13].

Thus, the growth of gross value added over the past five years was 72.1 %, while the turnover of these products decreased by 0.3 % (Table 3).

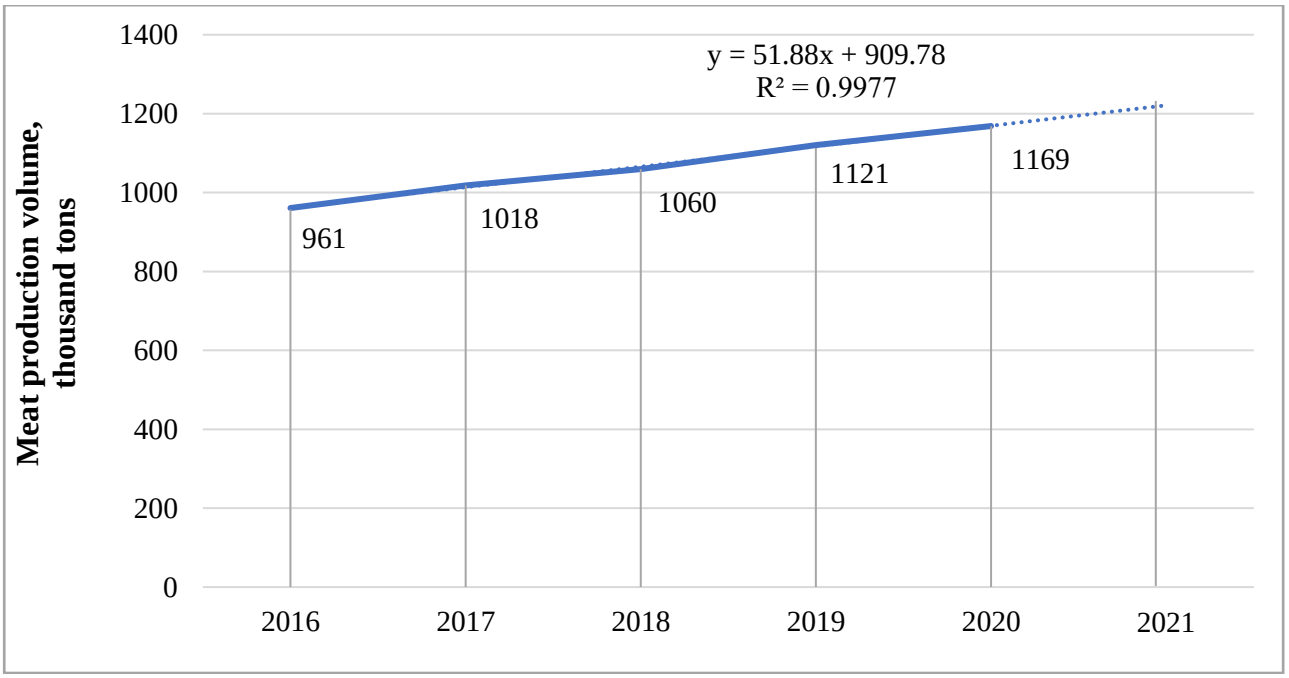


**Figure 3. The volume of meat production of the Republic of Kazakhstan in slaughter weight, 2016–2021**

*Source:* compiled by the authors based on the data [13].

*Table 3*

**Dynamics of gross income and physical volume of livestock products of the Republic of Kazakhstan, 2017–2021**

| Index | Year of study | | | | | Changes: 2021 to 2017, % |
|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2021 | |
| Gross livestock production, billion tenge | 1810.9 | 2050.5 | 2319.5 | 2637.5 | 3117.0 | 172.1 |
| Index of physical volume of gross livestock production, % | 103.9 | 103.9 | 104.0 | 103.1 | 103.6 | 99.7 |

*Source:* compiled by the authors based on the data [13].

To identify the existing problems in livestock production, as well as ways to solve them, a SWOT-analysis of the livestock activities of agricultural enterprises in the country was carried out (Table 4).

*Table 4*

**SWOT-analysis of the effectiveness of livestock enterprises in the Republic of Kazakhstan**

| Strengths | Weaknesses |
|---|---|
| – availability of large areas of farmlands and land resources for the development of beef cattle breeding [16];<br>– availability of a sufficient number of cattle and other animals for reproduction and increasing meat production;<br>– availability of breeding stock to create improved breeds with increased productive characteristics;<br>– low cost of land and labor resources for meat production;<br>– availability of high internal and external demand for beef, poultry, and other meat;<br>– state subsidization of the beef cattle breeding industry | – insufficiently developed infrastructure and logistics for livestock production;<br>– the use of outdated technologies and equipment in production;<br>– low livestock productivity;<br>– lack of qualified workers in this industry;<br>– underdeveloped social sector in rural areas;<br>– lack of modern equipment for the preparation and production of feed;<br>– remoteness of sales markets for rural producers [17];<br>– long-term payback period |
| **Opportunities** | **Threats** |
| – a large demand for cattle and chicken meat in China and other Asian countries provides good prerequisites for increasing meat exports to these countries [18];<br>– development of infrastructure for distant-pasture animal husbandry through the development and watering of unused pastures;<br>– increasing the productivity of farm animals through selection and breeding work using imported material | – low competitiveness compared to the main meat exporting countries (Argentina, Brazil, Australia, New Zealand), which offer lower prices for frozen products;<br>– unfavourable epizootic situation, disease outbreaks (foot-and-mouth disease, African swine fever) [17];<br>– migration of labor resources from rural areas to cities;<br>– degradation of agricultural lands and shortage of fodder;<br>– reduction in the number of imported breeding stock |

*Source:* compiled by the authors based on the data [16–18].

The livestock sector in Kazakhstan presents a complex but promising landscape. On the one hand, the sector has significant strengths, such as extensive farmland and a rich livestock population that supports breeding capacity. These natural advantages are complemented by low operating costs, robust domestic and international demand for livestock products, and supportive government policies. In addition, certain companies have established market dominance, evidenced by patents and intellectual property rights, certified management processes and technology integration, all of which contribute to an overall excess of production capacity. However, the sector has its challenges. Key among these is the underdevelopment of essential infrastructure, coupled with a reliance on outdated technologies, resulting in low overall productivity. The sector also faces a shortage of skilled labour, exacerbated by weak rural social infrastructure. Insufficient feed production capacity and difficult market access conditions add to the sector's problems. Financial constraints, characterised by long payback periods, limited reserves and rigid business models, pose significant obstacles, as does the sector's vulnerability to external disruptions such as extreme weather and power outages. There are many opportunities for growth and development. The sector has the potential to capitalise on growing export demand, particularly in rapidly expanding Asian markets. In addition, large unused grasslands offer scope for development and there are opportunities to increase productivity through advanced breeding techniques. Collaboration with agri-tech start-ups and the exploration of new distribution channels, such as e-commerce, respond to changing consumer preferences and offer modern solutions to traditional challenges. In addition, partnerships with organised retail chains could open up new avenues for growth. Conversely, the sector faces several threats that could hinder its progress. Low-cost imports from major competing countries create fierce competition, while the risk of disease epidemics such as hand-foot-and-mouth disease (HFMD) threatens to disrupt supply chains. Other challenges include rural labour migration, pasture degradation, declining imports of breeding stock and the emergence of new competitors in key export destinations. The potential loss of skilled workers, stricter food safety regulations and demographic shifts in the domestic market exacerbate these risks.

Thus, taking into account the positive and negative aspects of beef cattle breeding in the country, it is possible to offer an effective solution to increase the economic benefits for meat producers and consumers – the creation of a food hub. This tool will increase the competition for agricultural products in the domestic market, taking into account innovative, scientific, economic, and socio-demographic factors. At the regional level, the meat hub is an important element that contributes to the development of small businesses in rural areas, providing farmers with a reduction in the costs for selling products, the introduction of internal standards, the use of modern scientific developments, and global databases. Currently, various product clusters operate in the country, but there is a need to improve them, taking into account modern economic and social conditions. Thus, Figure 4 proposes a livestock hub model that can increase its efficiency.

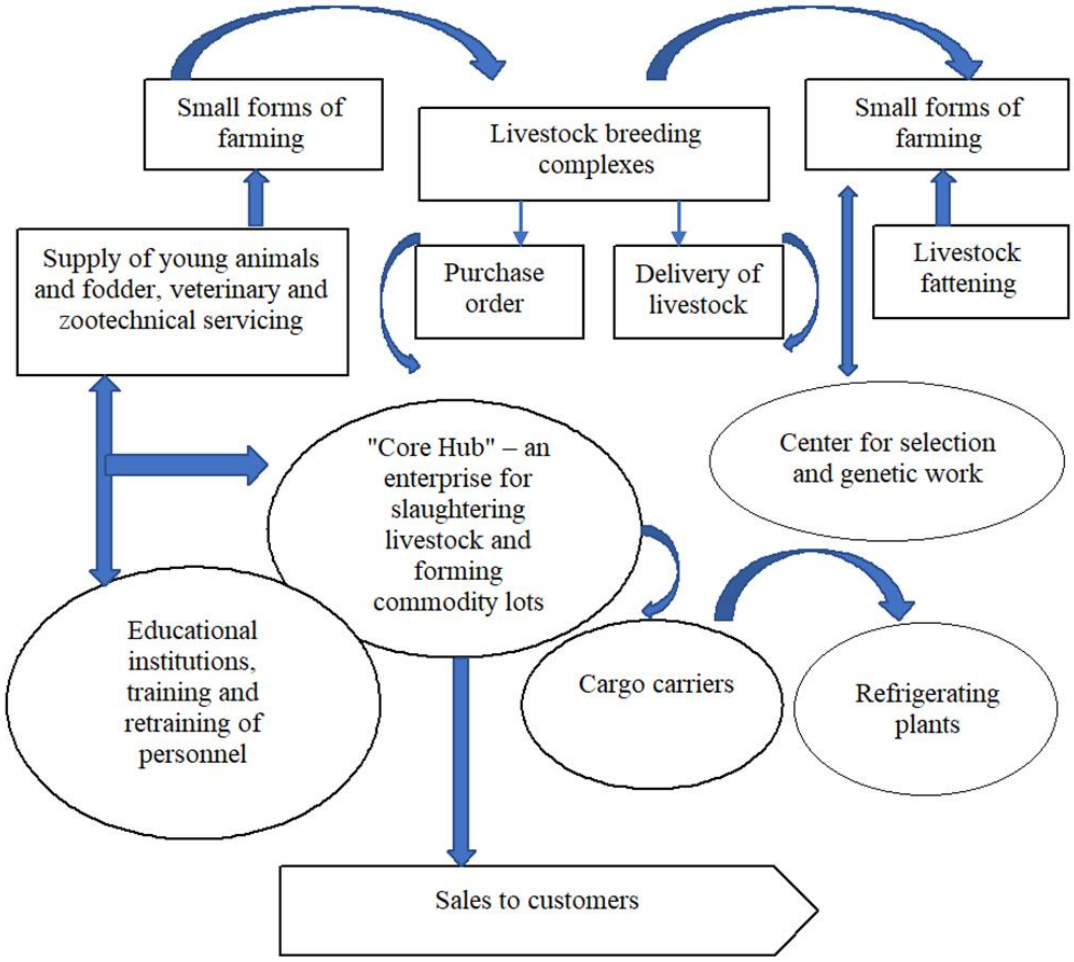


**Figure 4. Model of a livestock (meat) hub**

*Source:* built by the authors.

This model of a meat hub is aimed at the cooperation of all categories of livestock farms. Large agricultural enterprises are engaged in the supply of young animals for fattening, the supply of necessary feed, veterinary and zootechnical services, as well as the control of processing in accordance with the requirements. In small forms of management, animals are kept and cared for using appropriate technologies. The proposed meat hub model will reduce investment and current costs for the production and sale of a production unit; regulate the production of goods, taking into account established requirements and consumer demand; increase the liquidity of products and increase the income of production by small forms of entrepreneurship. It is also necessary to take into account the need for the participation of the state and local authorities in the initial period of formation and further functioning of such a hub.

The establishment of an integrated livestock hub in Kazakhstan, with a capital investment of 31 million USD, presents a promising financial and socio-economic prospect. The initial costs cover land development, construction of facilities including a collection centre and slaughterhouse, and working capital for the first two years. Financially, the hub is projected to yield significant benefits, including a 30 % increase in productivity and 50 % higher prices due to value addition, resulting in an additional 2 million USD in revenue annually, and 1.5 million USD yearly savings from a 25 %

reduction in input costs. Furthermore, export earnings are expected to reach 4 million USD by the third year, with the hub also contributing 0.8 million USD per year to the income of 200 farm families through direct and indirect employment, setting a payback period of six years. Beyond these monetary gains, the hub promises additional advantages such as technology and skill transfer, youth employment, women entrepreneurship, and a boost to the rural economy, positioning it as a substantial driver for competitiveness and rural prosperity in Kazakhstan [19–21].

## 5. DISCUSSION

A number of analysts predict an increase in poultry meat production and consumption due to its lower price, versatility in use, and higher protein and lower fat content in accordance with the healthy diet trend [10; 22–24]. In the Asia-Pacific economic region only, cattle meat consumption is expected to increase over the projection period of 2022–2031. The obtained data also show a similar trend. P. K. Thornton [25] reports that the demand for livestock products in the future, especially in developed countries, can be strongly influenced by social and economic factors, which include public health problems and changing socio-cultural values. For example, there is an environmental movement in today's world that argues that livestock production has a negative impact on the environment, human health, and the animals themselves, which are kept in poor conditions. According to the researcher, the share of livestock in the world's agricultural GDP already exceeds 33 % and is projected to grow steadily in the future. This is due to the rapid growth of consumer demand for animal products as a result of population growth, urbanization, and increasing incomes in developing countries.

Some researchers have promoted the idea of switching from animal to plant protein, arguing for a reduction of industrial animal production worldwide and a switch to alternative food sources [26; 27]. However, this movement is not widespread in poor and developing countries, which negates its impact on the livestock industry as a whole. As a result of the work carried out, no significant influence of such an organization on the country's livestock industry was found either. Recently, according to S. Robinson [28], there has been a growth of cattle in Central Asian countries, its share ranges from 58 % in Turkmenistan to 84 % in Uzbekistan, and in total about 60 % in Kyrgyzstan and Kazakhstan. According to the World Bank, in Kazakhstan, the relative contribution of the livestock sector to the national economy varies greatly from year to year and depends on the harvest of grain and other fodder [29]. In value terms, milk and beef dominate, accounting for 64 % of the production value in this sector, while in Turkmenistan cattle account for only one-third of the total value of livestock production. Beef production in Kazakhstan is steadily increasing and already covers domestic demand, lamb and horse meat production is growing even faster, and milk production has exceeded the level of 1991. Despite this progress, Kazakhstan still imports 25 % of dairy products, mostly in the form of milk powder, as well as many processed meat and animal fat products. It was also found that imports of meat products for 2019–2021 amounted to more than 320 thousand tons.

It should not be forgotten that only the development and implementation of international standards regarding the quality and safety of livestock products, as well as the health and proper maintenance of animals, will allow accessing the world market. Standards that meet global requirements play a crucial role in the sale of goods, providing a sufficient number of consumers with products that are safe for health and the environment [30]. D. Kulanova et al. [31] report on the need to introduce innovative technologies for the processing of agricultural products of animal origin, which is a precondition for the emergence of a corresponding export service – the processing of such raw materials brought from other countries and regions. The creation of livestock products with added value and the development of a food hub can guarantee a boost to the country's economy.

According to the OECD-FAO Agricultural Outlook 2022–2031 [12], Kazakhstan has an extensive subsidy program, the latest iteration of which allocated 35.9 billion tenges (92 million USD) for subsidies and investments in livestock in 2017–2021. This includes 50 % payments for breeding stock, support for feedlots, donations for the production and processing of raw materials, and a number of credit lines with subsidized interest rates. According to S. Tarawali [32], livestock production will undoubtedly be a major part of protein production in the coming decades. New and innovative partnerships involving large and small private enterprises, a variety of business opportunities, and close interaction with the public sector based on scientific solutions will enable the effective development of this industry.

B. B. R. Jablonski et al. [33] studied the operation of a food hub and concluded that efficient organization and expansion of the hub lead to an increase in production and employment by 9 and 32 %, respectively when alternative costs are included, or 13 and 42 %, respectively, without them. The results of the hub customer survey showed that the expansion of food clusters is facilitated by efficient logistics (smaller batches of minimum orders and more frequent deliveries of goods) and increased product assortment. According to the study, the policy of increasing the final demand for food hub products generally has a positive economic impact on society and the domestic economy. Researchers from Great Britain J. R. Franks and R. Peden [34] studied and analysed the role of abattoirs in the local economy. They found that a network of small abattoirs provides the infrastructure necessary for livestock farmers to increase market income. Their experience can be helpful in the development of livestock infrastructure in Kazakhstan, especially in the creation of a meat hub. The analysis and modelling of the food (meat) hub showed that this cluster provides an opportunity to increase competition among producers of meat products, increase farmers' income, and meet the demand of consumers of these products.

Although a meat hub has huge potential to improve productivity, quality and rural incomes, it requires significant infrastructure and enterprise-level investment from both the public and private sectors. Integrating smallholders into the value chain and developing customised financial products can accelerate the creation of specialised livestock zones or meat hubs in suitable regions. Addressing these bottlenecks can boost growth in the sector to meet rising domestic and global demand.

The study highlights the need for integrated investments in meat processing infrastructure such as international standard slaughterhouses, testing facilities, cold storage, and collection centres to address shortcomings in storage, slaughtering, and supply chain capabilities that presently obstruct productivity and exports. Adopting advanced technologies across production systems including precision agriculture, climate-resilient breeds, and mechanization through subsidies and credit access aims to augment yields, quality, traceability, and sustainability. Strengthening direct farmer-consumer market linkages via mobile-based solutions can enable price discovery, streamline logistics, and reduce waste while capturing more value. Preferential trade policies and agreements that unlock access to expanding meat export markets like China and the Gulf region are recommended. Launching tailored skills development programs through vocational institutes is deemed essential to build expertise in veterinary services, distribution, mechanization, and marketing to overcome competence gaps.

## 6. CONCLUSIONS

This study presents an economic analysis of Kazakhstan's livestock industry, providing insights into its current status, challenges, and future prospects within a global context. The research shows that although global meat demand is increasing, Kazakhstan plays a minor role in Asian meat production, accounting for only 0.8 % of the total output. Furthermore, the fact that the country relies on imported meat suggests that there is not enough domestic supply to meet local demand. Between 2016 and 2020, meat production in Kazakhstan increased by 21.6 %, mainly due to increases in poultry, cattle, and horse meat. However, overall meat consumption decreased by 5.4 % in 2021 compared to 2020, indicating a shift in consumer preferences. The study emphasises the prevalence of small-scale household farms in livestock rearing, in contrast to larger enterprises. Although agriculture companies make up a small proportion of herds, they generate almost four times the gross income of rural households. A SWOT-analysis of the sector identifies strengths such as available land resources and domestic demand, but weaknesses such as outdated technologies, low productivity, and inadequate infrastructure currently hinder growth.

To enhance competitiveness, incomes, and sustainability, the research proposes the development of integrated livestock hubs that bring together inputs, production, processing, and marketing. Financial modelling projects that the hub can raise revenues by 2 million USD annually and reduce costs by 25 % when fully operational. Export earnings could reach 4 million USD by the third year, benefiting the rural economics. Large public and private investments are needed to turn the vision of specialized livestock zones into reality. Addressing bottlenecks around infrastructure, technology, market linkages, and skills can create the basis for a thriving industry that meets growing national and global demand for meat. Further studies can build on these findings by continuing to monitor the market and evaluate sustainability of the livestock sectors.

## 7. LIMITATIONS AND FUTURE RESEARCH

The study of the livestock breeding state in Kazakhstan showed the existence of prospects for the development of effective partnerships between large enterprises and small farms, as well as close interaction with the state apparatus, which will find new and innovative ways to solve existing problems in this sector of agriculture. However, the research economic focus neglects broader socio-cultural and environmental influences shaping the livestock sector. The empirical approach, although insightful, may not encapsulate the intricate interaction of factors affecting both meat consumption behaviours and industry responses. Thus, perspectives of further research can be identified. Extending the study's duration to capture long-term trends could provide deeper insights. Collaborating with interdisciplinary experts might enrich the analysis by incorporating environmental, health, and international relations viewpoints. Investigating the drivers of consumer behaviour can provide nuanced insights into market fluctuations while assessing the influence of geopolitics and trade on the sector's growth is essential. Cross-country comparisons can reveal effective strategies, and scenario analyses can anticipate potential developments under varying conditions.

Based on the results of the study, future research should focus on continual market monitoring to understand evolving consumer preferences and supply capacities in Kazakhstan's meat market, while also exploring the integration of advanced technologies to enhance efficiency and product quality within the livestock sector. Investigating the environmental sustainability of livestock farming, evaluating strategies for disease control, and assessing the impact of livestock development on rural employment and economic diversification are essential areas for future exploration.

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