Л.Н. Гумилев атындағы Еуразия ұлттық университетінің ХАБАРШЫСЫ.
ISSN (Print) 2789-4320. ISSN (Online) 2789-4339

ҚАРЖЫ /FINANCE/ ФИНАНСЫ

IRSTI 06.73.15 https://doi.org/10.32523/2789-4320-2025-3-205-226
Article type (research article)

Effectiveness of agricultural subsidies in Kazakhstan as a factor of inclusive development

R.S. Sarbassova*[1], B.T. Aimurzina[2], G.A. Mataibaeva[3]

[1,2,3]L.N. Gumilyov Eurasian National University, Astana, Kazakhstan

(E-mail: [1]sraikhan_81@mail.ru, [2]aimurzina@mail.ru, [3]mataibaevagauhar@mail.ru)

Abstract. Agriculture plays a key role in the economy of Kazakhstan, ensuring food security. Under conditions of climate change and economic instability, subsidies remain the main instrument of state support. However, the effectiveness of such a measure requires deep analysis.

The article is devoted to the analysis of the impact of state subsidies on the volume of agricultural production in Kazakhstan for the period 2017–2024 within the framework of inclusive development. The problem of the research is to identify the effectiveness of subsidies to the agro-industrial complex (AIC) in the context of changing economic and climatic factors. The relevance of such research is due to the importance of state support for increasing the sustainability and competitiveness of the agricultural sector in the country.

The research results have shown that the subsidies exert a significant influence on agricultural production and underline the need for strengthening subsidies, improving the availability of credit, and implementing modern technologies in agriculture. It is recommended to develop strategies aimed at increasing labor productivity and profitability of the agricultural sector, as well as the effectiveness of monitoring of government support programs.

Keywords: agro-industrial complex, agriculture, subsidy, state support, efficiency, gross agricultural output, profitability, inclusive development.

Introduction

The development of an inclusive economy is one of the innovative management methods and a prerequisite for further modernization of agriculture. Inclusiveness allows for the inclusion of agricultural producers of different categories (small agricultural producers, farmers) in the chain of added value of products, which helps to gain access to larger markets through cooperation, contract production, and other mechanisms. Involvement in this process of

Received 12.03.2025. Revised 18.07.2025. Accepted 21.08.2025.Available online 30.09.2025

***автор для корреспонденции**

vulnerable segments of the population (women and youth), who often face inequality in the distribution of resources and income, the introduction of an inclusive agricultural development model will contribute to the creation of equal opportunities for equitable growth and increased well-being, expanded access to markets, technology, and finance.

The development of the agro-industrial complex (AIC) faces a number of challenges, including climate change, economic instability, low labor efficiency, and insufficient levels of technical modernization. Therefore, the state subsidies remain the main tool for supporting the industry, aimed at production stimulation and competitiveness increase in agriculture.

The effectiveness of agricultural subsidies within the framework of inclusive development lies in ensuring not only higher productivity and yields but also equal access to resources for all categories of producers – from large agribusinesses to small farms and family households. Subsidies are most effective when they reduce social inequality, promote rural development, create jobs, and involve women and youth in agribusiness, thus becoming a tool for sustainable and fair growth in the agricultural sector.

The urgency of the research is based on the need for a thorough analysis of the effectiveness of subsidies, since insufficiently developed mechanisms for the distribution of financial resources can lead to the irrational use of assets and undermine the sustainability of the agricultural sector. Within the framework of inclusive development, this problem becomes even more critical, as unequal access to subsidies may widen the gap between large agribusinesses and small farms, limiting opportunities for women, youth, and rural households. Under conditions of growing demand for food products and significant global climate change, solving this issue is of strategic importance for ensuring sustainable and inclusive growth of Kazakhstan's economy.

The purpose of this article is to conduct a comprehensive assessment of the economic effectiveness of existing agricultural subsidy mechanisms, with a particular focus on their role in promoting inclusive development. The study aims to determine how current approaches to subsidy distribution affect the sustainability of the agricultural sector, the reduction of inequality between different groups of producers, and the overall potential for sustainable and inclusive growth of Kazakhstan's economy.

To achieve this goal, the following tasks have been set:

– to analyze the gross agricultural output in dynamic and the subsidies amount in Kazakhstan;

– to identify the main factors influencing the efficiency of agricultural production.

– identify relationships between subsidies and associated indicators such as investment, productivity, employment, and efficiency;

– to provide a regression model for quantitative assessment of subsidies impact on the volume of agricultural production.

The degree of scientific development of the issue. The matter of state support for the agro-industrial complex and the impact of subsidies on its development are extensively covered by the world and domestic literature. However, the majority of the research focuses on separate aspects of the subsidies, while a comprehensive approach considering dynamics on key indicators remains insufficiently developed. This article focuses on system analysis, which allows us to assess not only the direct influence of subsidies, but also their relationship with other economic and social factors.

The theoretical significance of the research involves expanding knowledge about the impact of state support on the efficiency of agriculture, as well as developing methodological approaches

to analyze the agricultural sector in a dynamic context. The practical significance consists of providing recommendations for optimizing state policy aimed at the sustainable development of AIC.

Analysis of the used materials reveals that subsidies have a significant positive impact on the production capacity, but their effectiveness is limited by a number of factors, including the low level of technical equipment and the availability of financial credits. The use of correlation and regression analysis have proved the feasibility of this methodological approach in assessing the subsidies impact on agricultural efficiency. The obtained results have allowed us to identify key areas for further improvement of the state support mechanisms.

This research is made not only to confirm the importance of subsidies as a state policy instrument, but also underlines the need to integrate it into the labor efficiency improvement programmes, infrastructure modernization, as well as financial inclusion.

Literature review

Agriculture, as the basis of food security and sustainable development of the country, attracts the particular attention of researchers. The state support issues for the agro-industrial complex (AIC) are considered from various points of view in the world practice: such as economic, social, and environmental aspects. The literature review gives prominence to the main ideas and trends that form the theoretical basis for studying the impact of subsidies on agricultural efficiency.

International approaches to agricultural subsidies. The scientific works of foreign researchers, such as Garcia M., Brook A., Brown L., and Smith J. [1, 2, 3], emphasize the role of subsidies in stimulating the growth of agricultural production and ensuring food security. It is emphasized that the effectiveness of the subsidies depends on funds allocation structure and their targeted use. The researches show that subsidies aimed at equipment modernization and implementation of innovative technologies, as well as supporting small farmers who more often face restrictions on access to credits and resources, provide higher efficiency.

Kazakhstan research in AIC. A group of researchers (works by Yesimov A., Kairat Zh., Seidakhmetov, K., Aitzhanova, L. [4, 5]) of domestic literature emphasized the specifics of Kazakhstan agriculture, including dependence on climatic conditions, low labor productivity and insufficient technical equipment. The main research trends are related to the impact assessment of various types of subsidies to crop and livestock farming. It is emphasized that subsidies play a significant role in reducing farmers' costs, but require increased transparency and efficiency of their distribution.

Investments and productive efficiency. Numerous research works (for example, studies by Idrisov K., Zhanibekov M., Abay A., Yergali, M. [6, 7]) emphasize that labor efficiency and the level of investment in agriculture remains a key factors determining the sustainability of the industry and its profitability.

Disadvantages of existing support mechanisms. The literature review also points to problems associated with the low subsidies efficiency. The research by Tastanbekova A. and Akhmetov N. [8] pointed out that subsidies are often aimed at short-term goals, which reduces their long-term effect. In addition, the research indicates a high proportion of administrative barriers that hinder farmers' access to such support.

Theoretical basis of the research. The analysis is based on economic theories of government intervention and optimal resource allocation. The concept of subsidies is considered as

mechanism to stimulate external effects, which is especially relevant for countries with an agricultural economy. Regression models used in this study are based on the relationship between government spending and macroeconomic indicators (Johnson R., and Martin P. [9]).

Current trends and underpinnings of choosing the research direction. Modern research demonstrates the necessity to take into account the advanced factors for subsidies impact analysis [10]. The assessment importance of their relation with investment, labor productivity, and employment levels is confirmed by the results of the majority of scientific research. This direction allows to identify key factors limiting the subsidies effectiveness and propose ways to optimize them.

Evaluation of the research mastery. Despite a significant number of studies, there is a lack of work devoted to a comprehensive analysis for subsidies in the context of the interaction of various macroeconomic factors. This study aims to eliminate this gap by proposing the integration of subsidies into other elements of state support.

Thus, the literature review reveals the need to study the subsidies impact on agriculture in Kazakhstan through the prism of an integrated approach, which determines the theoretical and practical significance of this research.

Methodology

Statistical data on agriculture development in Kazakhstan during 2017–2024 were used to conduct analysis. The main information sources are following:

– government reports and publications providing information on gross agricultural output, subsidies amount, investment, credit granting, labor productivity and other economic indicators.

– expert assessments and publications related to the agro-industrial complex area (AIC).

– research results available in scientific databases.

This research has been performed on the basis of aggregated data related to the development of the agricultural sector in Kazakhstan. Macroeconomic and climatic factors influencing the dynamics of production have been taken into account. Particular attention has been paid to changes in subsidies amount, their allocation (crop production, livestock farming, processing industry), and their efficiency.

Research methods

Data gathering: The data gathering has been performed from government sources and specialized reports. The information for the same time line (2017–2024) has been used in order to ensure comparability and completeness of the analysis.

Correlation analysis: This method has been used to identify relationships between the dependent variable (gross agricultural output) and the independent variables (subsidy amounts, investments, lending and credits, labor productivity, employment, etc.). Calculation of correlation coefficients allows to determine the strength and direction of the factors' influence.

Regression analysis :

– A multiple linear regression model has been used to conduct a quantitative assessment of the subsidies impact and other factors on Gross Agricultural Output.

– dependent variable: gross agricultural output.

– independent variables: subsidies amount, investments, amount of credits granting, labor productivity.

– the model was developed with consideration of the verification of multicollinearity and exclusion factors with low significance.

Trend analysis: A Dynamic series of key indicators have been studied in order to identify general trends and significant changes in the related period of the research.

Base of methodological approach:

– regression correlation analysis has been chosen to provide an assessment for the quantitative impact of subsidies, since it allows to assess change degree in the target variable under influence of several factors simultaneously.

– using the information gathered over a long period is to ensure objectivity and reliability of the conclusions.

Correlation and regression analyses allow to determine the degree and nature of the subsidies impact on the volume of agricultural production. The trend analysis complemented the findings that indicates structural changes in the industry. The integrated approach provides overall picture of the problem and allows to develop of recommendations for improving the state support effectiveness in the agro-industrial complex.

Results and discussion

The contribution of agriculture to the country's economy is determined by the volume of products manufactured in this sector. The total volume of Gross Agricultural Output increased from 4,070.9 billion tenge in 2017 up to a peak of 9,481.2 billion tenge in 2022, which corresponds to an increase of 2.33 times. In 2023, this figure decreased to 7,576.5 billion tenge, followed by partial recovery to 8,286.8 billion tenge in 2024 – which is 2.04 times higher than the 2017 level.

Crop production value predominates among the basic areas in agriculture. Crop production demonstrated significant growth to 5,808.2 billion tenge in 2022 (an increase of 2.58 times compared to 2017), but there was a decrease to 4,552.4 billion tenge in 2023 with subsequent growth to 4,982.4 billion tenge in 2024 – 2.21 times higher than in 2017.

Livestock farming provided stable growth to 3,658.8 billion tenge in 2022 (an increase of 2.02 times since 2017), despite a decline to 3,012.5 billion tenge in 2023, followed by recovery to 3,290.1 billion tenge in 2024, which is 1.82 times higher than the 2017 level. This indicates the gradual development of the sector even in conditions of economic instability.

Agricultural services remain the smallest category, with minor fluctuations within the range of 9.9–14.3 billion tenge during the entire analyzed period, indicating their low share in the structure of Gross Agricultural Output.

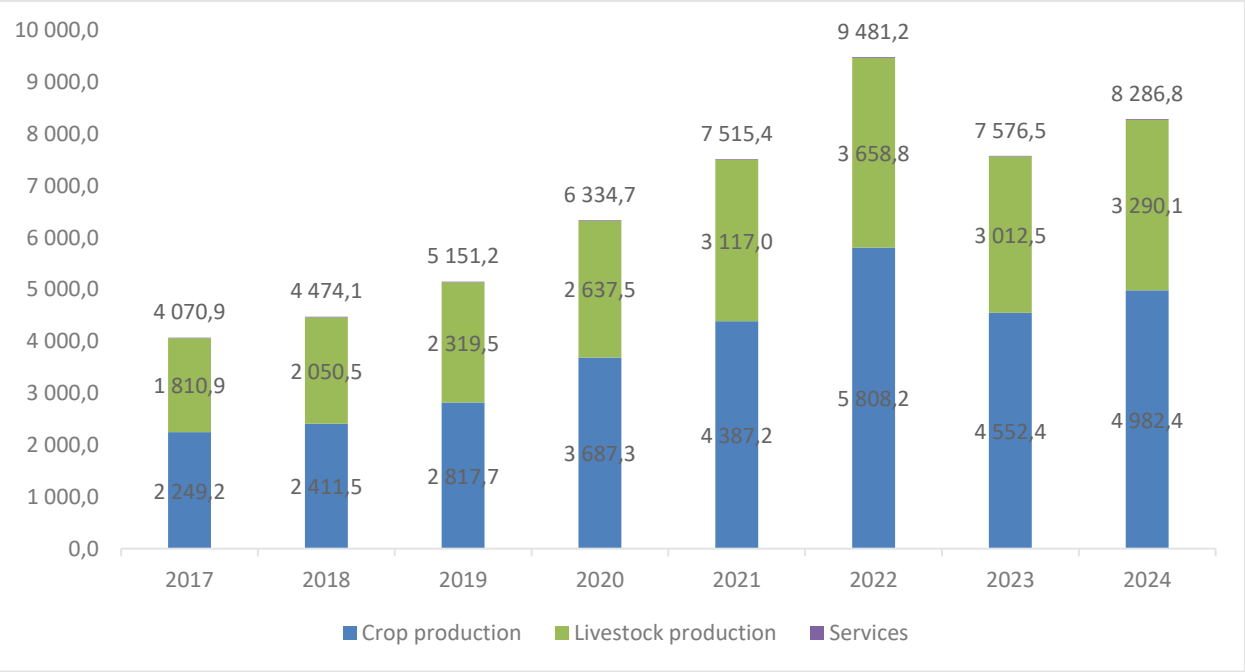

Figure 1 Gross Output of agricultural products (services), billion tenge

Note: Compiled by the author based on data from source [11].

These data underline the importance of crop production and livestock production as key drivers for agricultural growth, and it is required to analyse the decline causes in 2023 to ensure sustainable growth.

The agricultural sector of Kazakhstan is significantly dependent on government subsidies, which is confirmed by subsidies dynamics for the agricultural sector in 2017–2024.

Over the past 8 years, the amount of subsidy assistance for the agro-industrial complex (AIC) of Kazakhstan has demonstrated stable growth, having increased more than 1.77 times from 260.5 billion tenge in 2017 to 461.0 billion tenge in 2024. The most significant increase was obtained in 2019 (from 226.2 billion to 323.7 billion tenge) and between 2021 and 2022 (from 376.1 billion to 490.0 billion tenge), but since then, subsidy growth has slowed down, with a correction in 2024. The average annual growth rate (CAGR) of subsidies in this period amounted to 8.05%, which still highlights the steady role of state support, though at a more moderate pace than previously estimated.

The dynamics of subsidies growth reflects the strategic focus of the state policy on support and modernization of the AIC. Productivity increase of the industry and creation of added value are meant to help strengthen the country's food security.

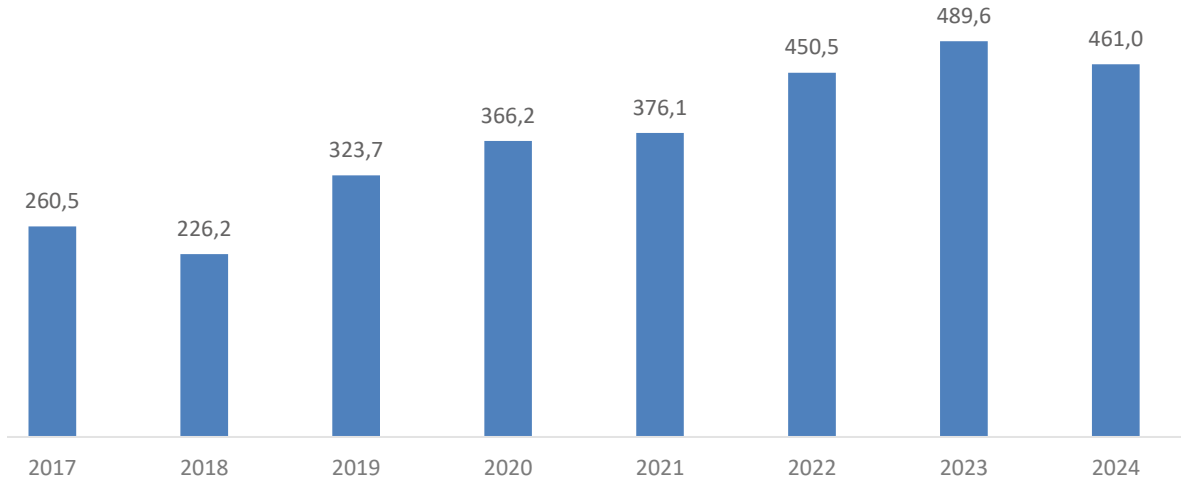

Figure 2 Subsidies dynamics for the agro-industrial complex over 8 years, billion tenge

Note: Compiled by the author based on data from source [12].

Livestock farming remains a key area for government support. The amount of subsidies increased from 73.99 billion tenge (2017) to 130.69 billion tenge (2022), but decreased to 117.03 billion tenge in 2023 and further to 99.52 billion tenge in 2024, which indicates a downward trend in state support for this subsector.

Crop production, on the contrary, demonstrates overall growth despite short-term fluctuations: from 64.85 billion tenge (2019) to 108.50 billion tenge (2022), then a decline to 99.97 billion tenge (2023), followed by a renewed increase to 127.30 billion tenge in 2024, making this subsector the largest recipient of subsidies.

Agricultural processing shows the lowest but relatively steady growth in financing activity. Over a period of 7 years, the financing increased nearly fivefold – from 3.63 billion tenge (2017) to 19.40 billion tenge (2023), although in 2024 there was a correction to 14.98 billion tenge. This still highlights the gradual development of processing capacities, though with some recent volatility.

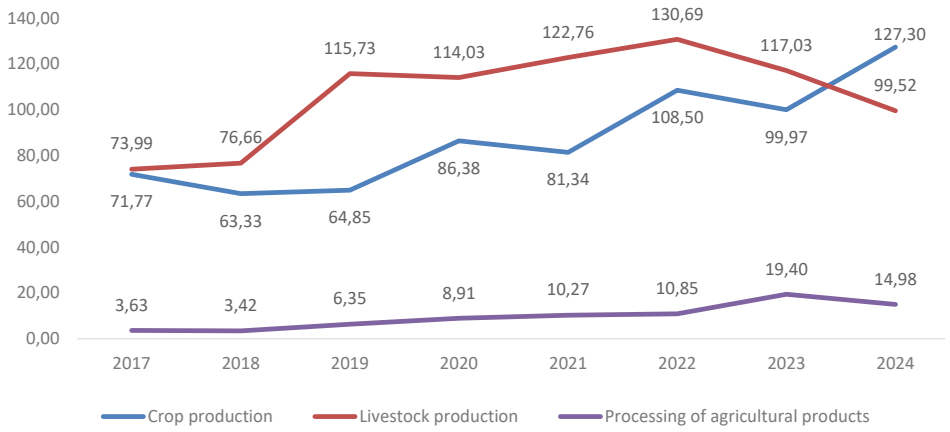

Figure 3 Dynamics of agro-industrial (AIC) subsidies in a period of 7 years, billion tenge

Note: Compiled by the author based on data from source [12].

The analysis of subsidy rates allows to identify structural changes: Crop production: subsidies share fluctuated from 28% (2017–2018) to an average of 22% in 2019–2023, but in 2024 it again reached 28%, which shows the restoration of state priorities in this subsector.

Livestock production: the share peaked at 36% (2019) and then steadily declined, amounting to 24% in 2023 and further decreasing to 22% in 2024, reflecting a weakening of support and slowdown in livestock productivity growth.

Agricultural processing: the share increased from 1% (2017) to 4% (2023), but slightly corrected to 3% in 2024. Despite this decline, the subsector maintains its strategic importance for developing processing capacities and added value.

Fisheries: remains minimal, indicating a consistently low priority for this area.

The funding reduction in livestock and processing in 2024 contrasted with the renewed growth of crop production support, which indicates the state's tactical redistribution of resources while still keeping processing development as a long-term strategic goal.

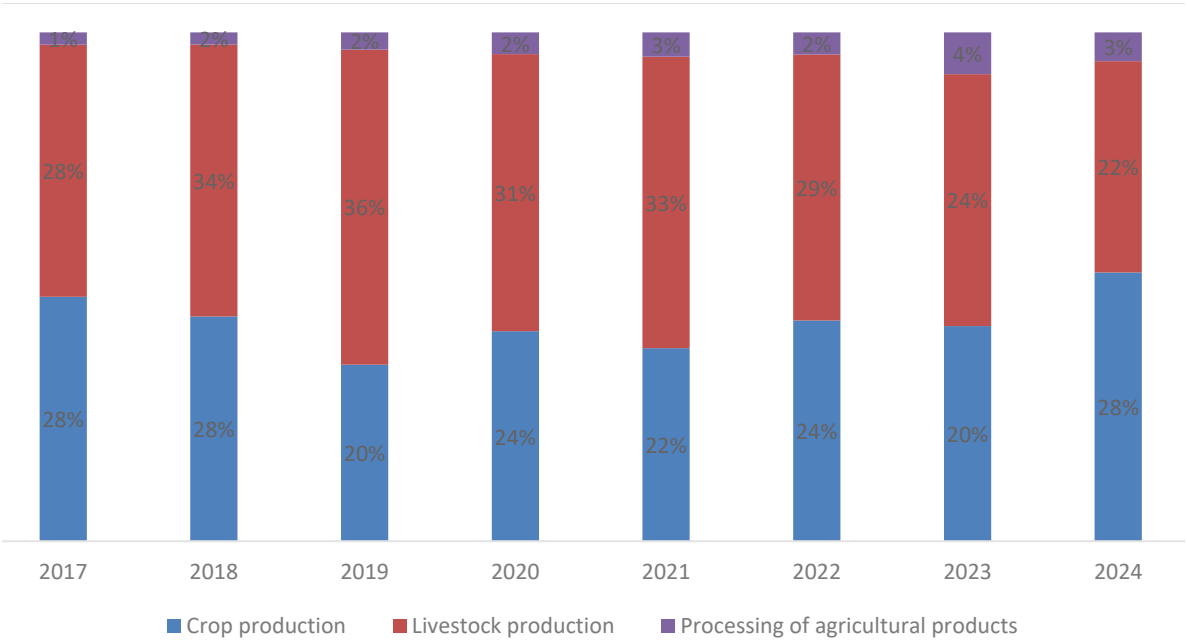

Figure 4 Breakdown of subsidies distribution structure by sector, %

Note: Compiled by the author based on data from source [12].

Financing of the agro-industrial complex by means of financial instruments has traditionally occupied a large share throughout the entire period: 43% in 2017, with a minimum of 37% in 2018. In 2019–2022, the indicator stabilized at 42–44%, followed by a decrease to 38% in 2023. In 2024, however, the share of financial instruments increased to 47%, while the share of direct subsidizing of agricultural industries amounted to 53%. This indicates a relative rebalancing of state support between direct subsidies and financial mechanisms, with a renewed emphasis on subsidizing agricultural production, yet preserving the significant role of credits, insurance premiums, and other financial tools in sustaining the industry.

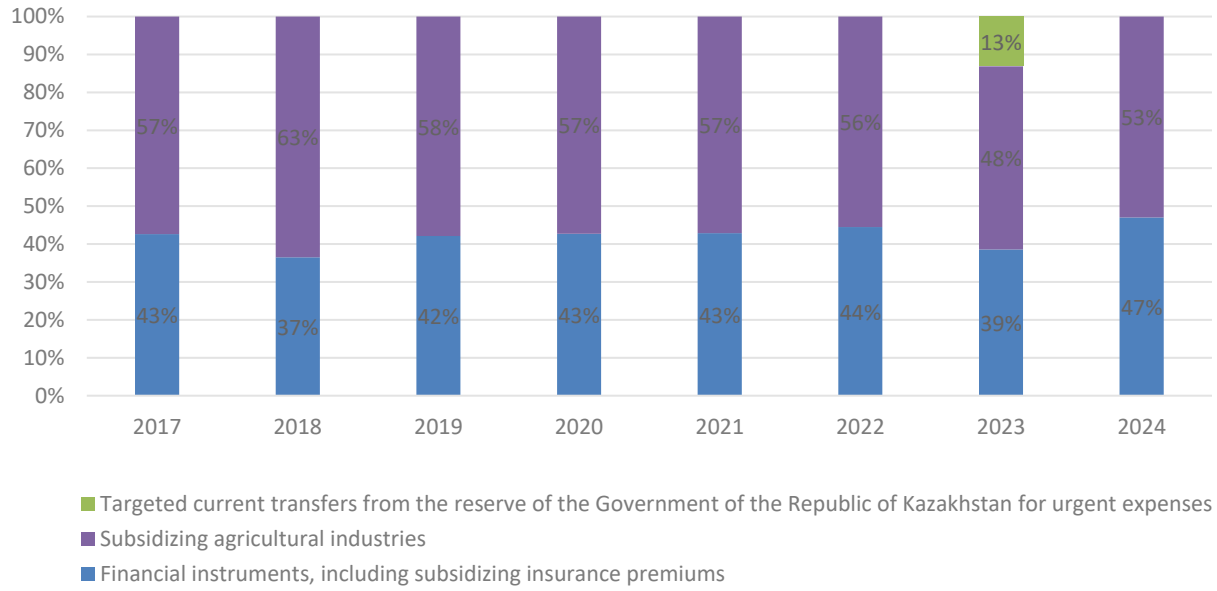

Figure 5 Aggregate distribution structure of the subsidies in the agro-industrial complex, %
Note: Compiled by the author based on data from source [12]

The financial instruments that occupied the largest amount in subsidies to the agro-industrial complex (AIC) from 2017 to 2024 are represented by several areas of support. The following data breakdown allows to reveal the in-depth analysis of the financing structure (Table 1).

The financial instruments are a system-forming mechanism for supporting the agro-industrial complex which include:

1. **Investment subsidies –** remain the main direction stimulating long-term investments and modernization.

2. **Subsidies of lending and leasing interest rates –** steadily growing instrument aimed at increasing the availability of borrowed funds.

3. **Subsidies of credits and leasing interest rates for financial recovery –** phased out and currently not applied.

4. **Other subsidies –** do not have a significant role in the overall structure.

The following detailed analysis of agro-industrial complex financing allows us to trace the reorientation of financial instruments towards supporting investment and credit programs, which contributes to the sustainable development of the agro-industrial complex.

1) Investment subsidies – aimed at reimbursing part of expenses incurred by AIC entities during investments, helping stimulate modernization and implementation of new technologies. The share of investment subsidies within the framework of financial instruments varied between 55%–81%: peak values were 81% (2019) and 74% (2020). After tapering to 66% (2021) and 55% (2023), in 2024 their share stabilized at 55%, confirming their role as a key mechanism for long-term support.

2) Subsidies of lending and leasing interest rates – aimed at reducing interest payments on credits and leasing of agricultural machinery, equipment and animals. The share of this area showed consistent growth: 14% (2017) → 24% (2020) → 45% (2023) → 45% (2024). This growth underlines increasing demand for leasing and credit accessibility among agricultural producers.

3) Subsidies of credits and leasing interest rates for financial recovery – previously supported financial stabilization of the AIC. Their share was 13% (2017), 15% (2018), 2% (2019), and since 2021 has been reduced to 0%, reflecting a complete redistribution of funds to more effective instruments.

4) Other subsidies – remain insignificant and did not exceed 1% throughout the entire period, with a share of 0% in 2024.

5) Subsidies of insurance rates – were first applied in 2020 (1%), then decreased to 0.3% (2021), 0% (2022) and returned to 0.5% (2023). In 2024, their share again amounted to 0%, which indicates weak demand and the absence of systematic implementation.

6) Targeted current transfers – introduced in 2023 as a new instrument for urgent expenses covered from the Government's reserve (13.1%). In 2024, this direction was not applied (0%), which emphasizes its temporary, crisis-response character rather than permanent inclusion in the subsidy system.

Table 1. Heat map of the subsidies intensity value of various areas in a year-based way, %

Item No.	Name	2017	2018	2019	2020	2021	2022	2023	2024
1	Crop farming	28%	28%	20%	24%	22%	24%	20%	28%
2	Livestock (Subsidies for livestock breeding and increasing production)	28%	34%	36%	31%	33%	29%	24%	22%
3	Fisheries (Subsidies for increasing fish farming productivity)	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.5%
4	Processing of agricultural products (Subsidies purchase of agricultural products for deep processing)	1%	2%	2%	2%	3%	2%	4%	3%
5	Financial instruments	43%	37%	42%	42%	43%	44%	38%	47%
5.1	Investment subsidies	73%	65%	81%	74%	66%	61%	55%	55%
5.2	Subsidies of lending and leasing interest rates for equipment, animals and machinery	14%	20%	17%	24%	33%	38%	45%	45%
5.3	Subsidies of credits and leasing interest rates for financial recovery of the agro-industrial complex	13%	15%	2%	1%	0%	0%	0%	0%
5.4	Other subsidies	0%	1%	0%	1%	0%	0%	0%	0%
6	Subsidies of insurance rates				1%	0.3%	0.0%	0.5%	0%

7	Targeted current transfers from the reserve of the Government of the Republic of Kazakhstan for urgent expenses							13.1%	0%

Note: Calculated by the author based on data from source [12].

Financial instruments dominate in the structure of subsidies (38-47%), which confirms their key role in ensuring the sustainability of AIC.

Livestock and crop production remain important areas, but their share is gradually declining, indicating a redistribution of resources.

There is a tendency to increase in the share of agricultural processing, which rose to 4% in 2023, but slightly declined to 3% in 2024. Despite this correction, the subsector continues to contribute to in-depth processing and the development of production lines, maintaining its strategic importance for enhancing added value in the agro-industrial complex.

The appeared targeted transfers in 2023 reflects the flexibility of government support and readiness to emergency situations responding.

In order to estimate the subsidies impact on agricultural production, a regression model can be developed based on the data provided. However, it is important to select correctly the dependent variable (Y) and independent variables (X), as well as appropriate data pre-processing need to be carried out.

A dependent variable is taken to analyze the overall effect on production volume.

The main independent variable (X) – is the amount of subsidies to the agro-industrial complex, as far as their exact influence needs to be assessed.

Control variables that affect production volume in order to minimize bias:

1) Investments in agriculture: reflect the contribution of other financing sources.

2) Second-tier bank credits and credits for agriculture: indicate additional financing.

3) Gross profit: is an indicator of economic activity.

4) Profitability: reflects the resource use efficiency.

5) Cost of sold products: reflects income from the sale of agricultural products, which indicates production efficiency and market demand.

6) Labor productivity: characterizes the human resource use efficiency and technological level in agriculture. This can affect production volume by means of outcome growth per a worker.

7) Employment: reflects the number of workers employed in agriculture which demonstrates the availability of labor resources and their impact on production volume.

8) Remuneration of labor: indicates the compensation level of employees, which can affect their motivation, efficiency and drift of labor into the industry.

An important step in data analysis is checking for multicollinearity prior to forming up a regression model. The Pearson correlation coefficient (r) measures the degree of linear dependence between two variables. It takes values from -1 to +1.

The calculation formula for the Pearson correlation coefficient is:

$$r_{xy} = \frac{\sum(x_i - \overline{x}) * (y_i - \overline{y})}{\sqrt{\sum(x_i - \overline{x})^2 * \sum(y_i - \overline{y})^2}} \quad (1)$$

Where:
x i – X is the value to be accepted when choosing;
y i – Y is the value to be accepted when choosing;
¯x– X is the average value, ¯y– Y is the average value.

The correlation coefficient value is important for the interpretation of the relationships obtained as a result of calculations. The correlation coefficient characterizes the strength of the relationship.

If the correlation coefficient has a negative value, the strength of the relationship between the variables will be opposite, that is, if the indicator of one variable increases, the indicator of the other variable decreases accordingly. This relationship will be inversely proportional.

To eliminate multicollinearity that occurs with high correlation of independent variables, an iterative analysis of **8 control variables** has been conducted (investments in agriculture, credits of second-tier banks and loans to agriculture, gross profit, profitability, cost of sold products, labor productivity, employment, wages). As a result, the most significant factors have been picked out, such as subsidies amounts and the total volume of second-tier banks' crediting and agriculture (table 2). The high importance of subsidies is explained by the fact that it directly reduces the financial burden on producers, allows them to cover part of the costs of resources, machinery and technology, thereby stimulating the growth of gross output. The volume of loans also plays an important role, providing agricultural producers with working capital and investment funds.

Table 2. Dynamics of correlation dependence, billion tenge

	y	x1	x2
Years	Gross Output of agricultural products (services)	Subsidies amounts for AIC	Total volume of credits from Second-tier banks for agriculture
2017	4070.9	260.5	695.2
2018	4474.1	226.2	489.7
2019	5151.2	323.7	255.1
2020	6334.7	366.2	234.3
2021	7515.4	376.1	340.1
2022	9481.2	450.5	288.7
2023	7576.5	489.6	372.7
2024	8286.8	461	534.7

Note: Calculated by the author based on data from source [12, 13].

X1 and X2 have a correlation relationship in the table above and each of them does not affect separately the Y value, these values have an indirect effect (Table 3).

Table 3. Correlation matrix model

variables	*y*	*x1*	*x2*
y	1		
x1	0,90	1	
x2	-0,40	-0,36	1

Based on the above data we construct an aggregated regression model. We consider the relationship between several independent variables in aggregate regression which is expressed as follows:

$$y = f(x_1, x_2, \_x_p), \quad (2)$$

Where,

y – dependent variable (resulting value);

x_1, x_2, _x_p – independent variable (factors).

When there is a linear relationship between the variables, the pooled regression equation is expressed as follows:

$$y = b_0 + b_1 \bullet x_1 + b_2 \bullet x_2 + ... + b_n \bullet x_n \quad (3)$$

Where,

y is the dependent variable (resulting index);

b_0 is free term (intercept) representing the value of y for all x equal to zero;

b_1, b_2, ..., b_n are regression coefficients showing the magnitude of the influence of each independent variable on y;

x_1, x_2, ..., x_n are independent variables (factors influencing y).

This model estimates the contribution of each factor to the change in the dependent variable taking into account their simultaneous impact (Table 4).

Table 4. Aggregate regression model

DERIVED RESULTS

Regression statistics	
Multiple R	0,902155075
R-squared	0,813883779
Normalized R-squared	0,73943729
Standard error	984,1939771
Observations	8

Analysis of variance

	df	*SS*	*M.S.*	*F*	*Significance of F*
Regression	2	21179201,24	10589600,62	10,93246701	0,014943783
Remainder	5	4843188,923	968637,7846		
Total	7	26022390,17			

	Coefficients	*Standard error*	*t-statistics*	*P-Value*	*Low95%*	*Top 95%*	*Low 95.0%*	*Top 95.0%*
Y-intersection	581,54348 15	2143,489 101	0,27130 6946	0,796 999822	-4928,4 70667	6091,5576 3	-4928,4 70667	6091,5576 3
Variable X 1	17,48 8147 78	4,168270 786	4,19554 0232	0,008 526121	6,7732 6661	28,20 3028 95	6,7732 6661	28,20 3028 95
Variable X 2	-1,064 3049 41	2,494710 944	-0,42662 4553	0,687 397786	-7,4771 63579	5,348 553697	-7,4771 63579	5,348 553697

DERIVED REMAINDER

Observation	*Predicted Y*	*Remains*	*Standard balances*
1	4396,430803	-325,5140026	-0,391338873
2	4015,81744	458,2706602	0,550941349
3	5971,44647	-820,2834703	-0,986159755
4	6735,484205	-400,8154046	-0,481867593
5	6797,439474	717,9940261	0,863185519
6	8153,033706	1328,146094	1,596721468
7	8746,635848	-1170,102148	-1,406718152
8	8074,495755	212,3042449	0,255236037

Interpretation of regression statistics

Multiple R (0.9022): This is the correlation coefficient between the predicted and actual values of the dependent variable (Gross Agricultural Output). The value indicates a very strong positive correlation, which means the model captures the relationship between independent variables and agricultural output well.

R-squared (0.8139): About 81.4% of the variation in Gross Agricultural Output is explained by the independent variables (X1 and X2). This is a high value, confirming good explanatory power of the model.

Adjusted R-squared (0.7394): After adjusting for the number of predictors, the model still explains 73.9% of the variance, which indicates adequacy and reliability of the regression.

Standard error (984.2): On average, predicted values deviate from actual values by about 984 units. This shows acceptable prediction accuracy, though some room for improvement remains.

Interpretation of Analysis of Variance (ANOVA)

F-statistic (10.93): The model explains significantly more variance in the dependent variable compared to random noise.

Significance F (0.0149): Since this value is below 0.05, the regression as a whole is statistically significant.

Significance of independent variables

Variable X1 (coefficient = 17.49, p-value = 0.0085):

X1 has a strong positive and statistically significant effect on Gross Agricultural Output. This confirms that the factor represented by X1 is a key driver of agricultural growth.

Variable X2 (coefficient = –1.06, p-value = 0.6874):

X2 has a negative coefficient but is statistically insignificant. This means X2 does not have a reliable effect on Gross Agricultural Output within this model.

Constant term (581.54, p-value = 0.7970):

The intercept is not significant, which is typical in applied economic regressions and does not reduce the explanatory power of the model.

General conclusions of the model

1. The regression model is adequate and statistically significant (Significance F < 0.05).

2. About 81% of the variation in agricultural output is explained by the independent variables, which indicates high model reliability.

3. X1 is a decisive factor driving agricultural output, while X2 does not play a statistically significant role.

4. For policy and management, greater emphasis should be placed on strengthening the factor represented by X1, since it has a proven positive impact on agricultural growth.

Table 5. Regression coefficients

Variable	Coefficient	P-value	Interpretation
Y-intercept	581.54	0.7970	The intercept has a very high p-value (0.7970), which means it is statistically insignificant. Its effect on the model can be considered negligible.
X1	17.49	0.0085	The coefficient is positive, meaning that a 1 billion tenge increase in X1 is associated with a 17.49 billion tenge
			increase in Gross Agricultural Output. The p-value is well below 0.05, making this variable statistically significant and an important driver of growth.
X2	-1.06	0.6874	The coefficient is negative, meaning that a 1 billion tenge increase in X2 is associated with a 1.06 billion tenge decrease in Gross Agricultural Output. However, the p-value is far above 0.05, so this variable is statistically insignificant.

Note: Calculated by the author based on data from source [12, 14]

Main results of the research

1. Gross agricultural output dynamics: Gross agricultural output in Kazakhstan increased by 2.33 times from 2017 to 2022, reaching a peak of 9,481.2 billion tenge. In 2023, this figure dropped to 7,576.5 billion tenge, but in 2024 recovered to 8,286.8 billion tenge, which is 2.04 times higher than the 2017 level. Despite the partial recovery, the indicator remains below the 2022 peak, reflecting both the sector's resilience and continuing vulnerability to external and climatic factors.

2. Subsidies impact on Gross Agricultural Output:

– Regression analysis has revealed that a 1 billion tenge increase in subsidies is associated with a 17.49 billion tenge increase in Gross Agricultural Output.

– The regression coefficient for subsidies (X_1 = 17.49; p-value = 0.0085) confirms the high statistical significance of this effect.

– Subsidies remain a key instrument of state support, providing a strong positive impact on agricultural development.

3. Limited impact of lending:

– The volume of credits issued by second-tier banks (STBs) demonstrates a negative but statistically insignificant impact on Gross Agricultural Output (X_2 = –1.06; p-value = 0.6874).

– This indicates the need to revise and optimize credit support mechanisms to enhance their effectiveness.

4. Other factors analysis:

– Agricultural investments and gross profit act as important complementary drivers alongside subsidies.

– Labor productivity, however, remains low relative to the national average, limiting the growth potential of the sector.

5. Identified patterns:

– Strong dependence of agricultural production volumes on the level of government subsidies.

– Inefficiency of credit resource allocation remains a systemic problem.

– Increased investment and technology modernization are directly correlated with higher productivity and profitability.

Scientific novelty of the study

This research presents one of the first comprehensive analyses of the impact of subsidies on agriculture in Kazakhstan based on long-term data and regression modeling. The results not only confirm the crucial importance of subsidies but also highlight systemic challenges in related areas such as crediting efficiency and labor productivity.

Recommendations

1. Improving the subsidies efficiency: Redistribute budget funds toward long-term subsidies aimed at modernization of equipment, introduction of innovations, and raising labor productivity.

2. Credit programs optimization:

– Develop preferential conditions for small-scale farmers, including subsidized interest rates.

– Simplify access to credit resources by reducing administrative barriers.

3. Infrastructure modernization:

– Increase investments in technical equipment and digital transformation of agriculture.

– Implement capacity-building programs for agricultural workers.

4. Monitoring efficiency: Introduce systematic evaluation mechanisms for subsidies and other forms of state support to ensure transparency, accountability, and targeted use.

The study results have revealed that subsidies remain a key instrument for supporting agriculture in Kazakhstan, exerting a strong positive effect on production volumes. Regression analysis, using subsidies of 461.0 billion tenge (X_1) and total lending of 534.7 billion tenge (X_2) for 2024, has confirmed that an increase in subsidies by 1 billion tenge is associated with a 17.49 billion tenge increase in Gross Agricultural Output, highlighting the high dependence of the agro-industrial complex (AIC) on government funding.

In contrast, the total lending volume demonstrates a negative but statistically insignificant effect ($X_2 = -1.06$; p-value = 0.6874), indicating that current credit programs do not substantially influence agricultural output. The Gross Agricultural Output reached 8,286.8 billion tenge in 2024, showing a partial recovery after 2023 and reflecting the sector's resilience, while persistent challenges such as limited credit effectiveness and insufficient labor productivity continue to constrain growth potential.

Conclusion

In conclusion, the data obtained are consistent with the findings of both foreign and domestic researchers. International studies emphasize that subsidies contribute to strengthening the sustainability of agriculture, especially in countries with a predominance of small farms. This is particularly relevant for Kazakhstan, where inclusive development requires ensuring equal access to state support for all categories of agricultural producers, including small and family farms, as well as rural households. At the same time, the results of the study indicate the importance of integrating subsidies with other measures – such as infrastructure modernization, digitalization, and improved access to financial resources. Such a comprehensive approach not only increases efficiency but also contributes to reducing inequality between regions and social groups, which fully aligns with the goals of inclusive development.

From the perspective of theoretical foundations, the study confirms the applicability of the economic theory of state intervention, according to which subsidies are designed to correct market distortions and stimulate positive externalities. However, the revealed shortcomings in credit allocation and low labor productivity highlight the need to improve mechanisms of state engagement with the agricultural sector. These improvements should not only focus on economic efficiency but also take into account social inclusiveness, providing opportunities for vulnerable groups in rural areas.

The results underline the necessity of a strategic and inclusive approach to state support in agriculture. They can be used to optimize subsidy programs, develop innovative and more equitable financing mechanisms, and enhance the sustainability and inclusiveness of Kazakhstan's agricultural sector, thereby strengthening its contribution to long-term national development. To further enhance the effectiveness of agricultural subsidies within the framework of inclusive development, it is important to focus not only on the financial dimension of state support but also on institutional and social aspects. This includes improving the transparency of subsidy allocation, introducing digital monitoring tools to prevent mismanagement, and creating mechanisms that encourage cooperation among small farms and cooperatives. In addition, aligning subsidies with sustainable practices — such as resource-efficient technologies, climate-smart agriculture, and environmentally friendly innovations — would strengthen resilience to global challenges. Such an approach will ensure that subsidies stimulate not only productivity and competitiveness but also inclusiveness, sustainability, and long-term balanced growth of the agricultural sector.

Practical recommendations

1. To increase the volume of long-term subsidies aimed at the technologies modernization and increasing labor productivity.

2. To revise approaches to agricultural credit provision, ensuring access to resources for small and medium-sized farmers.

3. To develop competence development programs and implementation of digital technologies in the agricultural production management.

The results obtained can be used to improve the subsidies state policy; to develop support programs and increase sustainability of the agricultural sector.

The conclusion confirms the goals achievement and objectives of this research, providing substantiated proposals for improving the effectiveness of the state support for agriculture.

Conflict of interest

The article was prepared within the framework of the project AP26100879 Design and Implementation of an Inclusive Agricultural Development Model (2025-2027).

Authors' contribution.

R.S. Sarbassova – theoretical substantiation, literature review, data collection, results interpretation.

B.T. Aimurzina – model building, data collection and processing, goal statement.

G.A. Mataibaeva – literature review, data collection and processing, results interpretation.

References

1. Johnson, R., & Martin, P. (2019). Agricultural subsidies and their economic impact in developing countries. Agricultural Economics, 49(5), 745–755.

2. Sovershenstvovanie mehanizma subsidirovanija APK. [Improving the mechanism of agricultural subsidies] Ministerstvo sel'skogo hozjajstva Respubliki Kazahstan (2022).[Ministry of Agriculture of the Republic of Kazakhstan] [Electronic resource].URL:https://www.gov.kz/memleket/entities/moa/documents/details/353976?lang=ru.[in Russian]

3. OECD (2024). Report. Agricultural Policy Monitoring and Evaluation 2024. Paris: OECD Publishing. https://www.oecd.org/en/publications/agricultural-policy-monitoring-and-evaluation-2024_74da57ed-en.html

4. Balans resursov i ispol'zovanija osnovnyh produktov sel'skogo hozjajstva Respubliki Kazahstan za 2015-2019 gg. [Balance of resources and use of basic agricultural products of the Republic of Kazakhstan for 2015-2019] Komitet po statistike MNJe RK [Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan] [Electronic resource].- 2024.- URL:http://www.stat.gov.kz (accessed: 02.11.2024).

5. Esimov A., Kajrat Zh. (2021) Vlijanie subsidij na razvitie sel'skogo hozjajstva v Kazahstane [The impact of subsidies on agricultural development in Kazakhstan]// Vestnik jekonomiki i upravlenija.[Bulletin of Economics and Management] №2. p. 14–23. .[in Russian]

6. Garcia, M., & Brook, A. (2020). Evaluating agricultural subsidies: Lessons from the European Union. European Journal of Economics, 35(4), 1021–1035.

7. Brown, L., & Smith, J. (2018). Long-term effects of agricultural subsidies. Journal of Sustainable Development, 15(6), 765–780.

8. Idrisov, K., & Zhanibekov, M. (2022). Productivity growth in agriculture: The role of subsidies in Central Asia. Journal of Central Asian Studies, 18(2), 45–60.

9. Sejdahmetov, K. A., Ajtzhanova, L. E. (2020). Mehanizmy gosudarstvennoj podderzhki APK Kazahstana [Mechanisms of state support for the agro-industrial complex of Kazakhstan]// Problemy agrarnoj jekonomiki [Problems of the agrarian economy] №3. p. 56–67.

10. Tastenbekova, A., & Akhmetov, N. (2020). Challenges of agricultural financing in Kazakhstan. International Journal of Agricultural Policy, 27(3), 345–360.

11. Poslanie Prezidenta RK «Konstruktivnyj obshhestvennyj dialog – osnova stabil'nosti i procvetanija Kazahstana» ot 02.11.2020g. [The Message of the President of the Republic of Kazakhstan "Constructive public dialogue is the basis of stability and prosperity of Kazakhstan" dated 02.11.2020.][Electronic resource].- 2024.-URL: http://www.akorda.kz/ru/addresses/addres-ses_of_president/poslanie- glavy-gosudarstva-kasym- zhomarta- tokaeva-narodu-kazahstana (accessed: 02.11.2024).

12. Dannye s oficial'nogo sajta Ministerstva finansov Respubliki Kazahstan [Data from the official website of the Ministry of Finance of the Republic of Kazakhstan.] [Electronic resource]. 2024. URL:https://www.gov.kz/memleket/entities/minfin/about?lang=ru

13. Oficial'nyj sajt Nacional'nogo Banka Respubliki Kazahstan [Official website of the National Bank of the Republic of Kazakhstan][Electronic resource].-2025.-URL:https://www.nationalbank.kz/ru/news/kredity-bankovskogo-sektora-ekonomike (accessed: 02.11.2024).

14. Monitoring development of agricultural cooperatives in Kazakhstan Electronic resource].-2019.-URL:http://www.oecd.org/Eurasia / competitiveness-programme/ central-asia/ Ka-zakhstan-Monitoring- Agricultural- Cooperatives (date of access: 02.11.2024).

15. Heigermoser Maximilian, Glauben Thomas COVID-19, the oil price slump and food security in low-income countries [Electronic re-source].- 2024.- URL:http://www.iamo.de/en/ pu-bliccations/ iamo-policy-briefs/ (date of access: 02.11.2024).

16. Monitoring development of agricultural cooperatives in Kazakhstan Electronic resource].-2019.-URL:http://www.oecd.org/Eurasia / competitiveness-programme/ central-asia/ Ka-zakhstan-Monitoring- Agricultural- Cooperatives (date of access: 02.11.2024).

17. Abaj, A., Ergali, M. (2022). Rentabel'nost' sel'skogo hozjajstva v Kazahstane: sovremennye vyzovy i reshenija. [Profitability of agriculture in Kazakhstan: modern challenges and solutions] Jekonomika i menedzhment [Economics and Management] №4. p. 89–97.

Р.С. Сарбасова*, Б.Т. Аймурзина, Г.А.Матайбаева

Л.Н. Гумилев атындағы Еуразия ұлттық университеті, Астана, Қазақстан

Қазақстандағы ауыл шаруашылығын субсидиялаудың тиімділігі инклюзивті даму факторы ретінде

Аңдатпа. Ауыл шаруашылығы азық-түлік қауіпсіздігін қамтамасыз ете отырып, Қазақстан экономикасында шешуші рөл атқарады. Климаттық өзгерістер мен экономикалық тұрақсыздық жағдайында субсидиялау мемлекеттік қолдаудың негізгі құралы болып қала береді. Алайда, мұндай шараның тиімділігі терең талдауды қажет етеді.

Мақала инклюзивті даму аясында 2017-2024 жылдар кезеңінде Қазақстандағы ауыл шаруашылығы өндірісінің көлеміне мемлекеттік субсидиялардың әсерін талдауға арналған. Зерттеу проблемасы өзгермелі экономикалық және климаттық факторлар жағдайында агроөнеркәсіптік кешенді (АӨК) субсидиялаудың тиімділігін анықтау болып табылады. Тақырыптың өзектілігі

елдегі ауыл шаруашылығы секторының тұрақтылығы мен бәсекеге қабілеттілігін арттыру үшін мемлекеттік қолдаудың маңыздылығына байланысты.

Зерттеу нәтижелері субсидиялардың ауыл шаруашылығы өндірісінің көлеміне айтарлықтай оң әсер ететінін көрсетті және субсидиялауды күшейту, несиелердің қолжетімділігін арттыру және ауыл шаруашылығына заманауи технологияларды енгізу қажеттілігін көрсетеді. Ауыл шаруашылығы секторының еңбек өнімділігі мен рентабельділігін арттыруға бағытталған стратегияларды әзірлеу, сондай-ақ мемлекеттік қолдау бағдарламаларының тиімділігіне мониторинг жүргізу ұсынылады.

Түйін сөздер: агроөнеркәсіптік кешен, ауыл шаруашылығы, субсидия, мемлекеттік қолдау, тиімділік, ауыл шаруашылығының жалпы шығарылымы, рентабельділік, инклюзивті даму.

Р.С. Сарбасова*, Б.Т. Аймурзина, Г.А.Матайбаева
Евразийский национальный университет имени Л.Н. Гумилева, Астана, Казахстан

Эффективность субсидирования сельского хозяйства в Казахстане как фактор инклюзивного развития

Аннотация. Сельское хозяйство играет ключевую роль в экономике Казахстана, обеспечивая продовольственную безопасность. В условиях климатических изменений и экономической нестабильности субсидирование остается основным инструментом государственной поддержки. Однако эффективность такой меры требует глубокого анализа.

Статья посвящена анализу влияния государственных субсидий на объем сельскохозяйственного производства в Казахстане за период 2017-2024 годы в рамках инклюзивного развития. Проблема исследования заключается в выявлении эффективности субсидирования агропромышленного комплекса (АПК) в условиях изменяющихся экономических и климатических факторов. Актуальность темы обусловлена важностью государственной поддержки для повышения устойчивости и конкурентоспособности сельскохозяйственного сектора в стране.

Результаты исследования показали, что субсидии оказывают значительное положительное влияние на объем сельскохозяйственного производства и подчеркивают необходимость усиления субсидирования, повышения доступности кредитов и внедрения современных технологий в сельское хозяйство. Рекомендуется разработка стратегий, направленных на повышение производительности труда и рентабельности сельскохозяйственного сектора, а также мониторинг эффективности государственных программ поддержки.

Ключевые слова: агропромышленный комплекс, сельское хозяйство, субсидия, государственная поддержка, эффективность, валовый выпуск сельского хозяйства, рентабельность, инклюзивное развитие.

References

1. Johnson, R., & Martin, P. (2019). Agricultural subsidies and their economic impact in developing countries. Agricultural Economics, 49(5), 745–755.

2. Sovershenstvovanie mehanizma subsidirovanija APK. [Improving the mechanism of agricultural subsidies] Ministerstvo sel'skogo hozjajstva Respubliki Kazahstan (2022).[Ministry of Agriculture of

the Republic of Kazakhstan] [Electronic resource].URL:https://www.gov.kz/memleket/entities/moa/documents/details/353976?lang=ru.[in Russian]

3. OECD (2024). Report. Agricultural Policy Monitoring and Evaluation 2024. Paris: OECD Publishing. https://www.oecd.org/en/publications/agricultural-policy-monitoring-and-evaluation-2024_74da57ed-en.html

4. Balans resursov i ispol'zovanija osnovnyh produktov sel'skogo hozjajstva Respubliki Kazahstan za 2015-2019 gg. [Balance of resources and use of basic agricultural products of the Republic of Kazakhstan for 2015-2019] Komitet po statistike MNJe RK [Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan] [Electronic resource].- 2024.- URL:http://www.stat.gov.kz (accessed: 02.11.2024).

5. Esimov A., Kajrat Zh. (2021) Vlijanie subsidij na razvitie sel'skogo hozjajstva v Kazahstane [The impact of subsidies on agricultural development in Kazakhstan]// Vestnik jekonomiki i upravlenija.[Bulletin of Economics and Management] №2. p. 14–23. .[in Russian]

6. Garcia, M., & Brook, A. (2020). Evaluating agricultural subsidies: Lessons from the European Union. European Journal of Economics, 35(4), 1021–1035.

7. Brown, L., & Smith, J. (2018). Long-term effects of agricultural subsidies. Journal of Sustainable Development, 15(6), 765–780.

8. Idrisov, K., & Zhanibekov, M. (2022). Productivity growth in agriculture: The role of subsidies in Central Asia. Journal of Central Asian Studies, 18(2), 45–60.

9. Sejdahmetov, K. A., Ajtzhanova, L. E. (2020). Mehanizmy gosudarstvennoj podderzhki APK Kazahstana [Mechanisms of state support for the agro-industrial complex of Kazakhstan]// Problemy agrarnoj jekonomiki [Problems of the agrarian economy] №3. p. 56–67.

10. Tastenbekova, A., & Akhmetov, N. (2020). Challenges of agricultural financing in Kazakhstan. International Journal of Agricultural Policy, 27(3), 345–360.

11. Poslanie Prezidenta RK «Konstruktivnyj obshhestvennyj dialog – osnova stabil'nosti i procvetanija Kazahstana» ot 02.11.2020g. [The Message of the President of the Republic of Kazakhstan "Constructive public dialogue is the basis of stability and prosperity of Kazakhstan" dated 02.11.2020.][Electronic resource].- 2024.-URL: http://www.akorda.kz/ru/addresses/addres-ses_of_president/poslanie- glavy-gosudarstva-kasym- zhomarta- tokaeva-narodu-kazahstana (accessed: 02.11.2024).

12. Dannye s oficial'nogo sajta Ministerstva finansov Respubliki Kazahstan [Data from the official website of the Ministry of Finance of the Republic of Kazakhstan.] [Electronic resource]. 2024. URL:https://www.gov.kz/memleket/entities/minfin/about?lang=ru

13. Oficial'nyj sajt Nacional'nogo Banka Respubliki Kazahstan [Official website of the National Bank of the Republic of Kazakhstan][Electronic resource].-2025.-URL:https://www.nationalbank.kz/ru/news/kredity-bankovskogo-sektora-ekonomike (accessed: 02.11.2024).

14. Monitoring development of agricultural cooperatives in Kazakhstan Electronic resource].-2019.-URL:http://www.oecd.org/Eurasia / competitiveness-programme/ central-asia/ Ka-zakhstan-Monitoring- Agricultural- Cooperatives (date of access: 02.11.2024).

15. Heigermoser Maximilian, Glauben Thomas COVID-19, the oil price slump and food security in low-income countries [Electronic re-source].- 2024.- URL:http://www.iamo.de/en/ pu-bliccations/ iamo-policy-briefs/ (date of access: 02.11.2024).

16. Monitoring development of agricultural cooperatives in Kazakhstan Electronic resource].-2019.-URL:http://www.oecd.org/Eurasia / competitiveness-programme/ central-asia/ Ka-zakhstan-Monitoring- Agricultural- Cooperatives (date of access: 02.11.2024).

17. Abaj, A., Ergali, M. (2022). Rentabel'nost' sel'skogo hozjajstva v Kazahstane: sovremennye vyzovy i reshenija. [Profitability of agriculture in Kazakhstan: modern challenges and solutions] Jekonomika i menedzhment [Economics and Management] №4. p. 89–97.

Сведения об авторах:

Сарбасова Р.С. **–** хат-хабар авторы, Л.Н.Гумилев атындағы Еуразия ұлттық университетінің Қаржы ББББ докторанты, Қажымұқан көшесі, 11, Z01C0T6, Астана, Қазақстан

Аймурзина Б.Т. **–** экономика ғылымдарының докторы, Л.Н.Гумилев атындағы Еуразия ұлттық университеті, қаржы кафедрасының профессоры, Қажымұқан көшесі, 11, Z01C0T6, Астана, Қазақстан

Матайбаева Г.А. **–** PhD, Л.Н. Гумилев атындағы Еуразия ұлттық университеті, қаржы кафедрасының аға оқытушысы, Қажымұқан көшесі, 11, Z01C0T6, Астана, Қазақстан

Сарбасова Р.С. **–** автор для корреспонденции, докторант ОП «Финансы» Евразийского национального университета имени Л.Н.Гумилева, ул. Кажымукана, 11, Z01C0T6, Астана, Казахстан

Аймурзина Б.Т. **–** доктор экономических наук, профессор кафедры «Финансы» Евразийского национального университета имени Л.Н.Гумилева, ул. Кажымукана, 11, Z01C0T6, Астана, Казахстан

Матайбаева Г.А. **–** PhD, старший преподаватель кафедры «Финансы» Евразийского национального университета имени Л.Н.Гумилева, ул. Кажымукана, 11, Z01C0T6, Астана, Казахстан

R.S. Sarbassova **–** Corresponding author, PhD student of the Finance educational program, L.N. Gumilyov Eurasian National University, st. Kazhymukan, 11, Z01C0T6, Astana, Kazakhstan

B.T. Aimurzina **–** Doctor of Economics, Professor, Department of Finance, L.N. Gumilyov Eurasian National University, st. Kazhymukan, 11, Z01C0T6, Astana, Kazakhstan

G.A. Mataibaeva **–** PhD, Senior Lecturer, Department of Finance, L.N. Gumilyov Eurasian National University, st. Kazhymukan, 11, Z01C0T6, Astana, Kazakhstan