МРНТИ: 06.52.13; 06.58.55
JEL Classification: Q18; Q17
DOI:https:doi.org/10.52821/2789-4401-2026-1-28-45

FROM SELF-SUFFICIENCY TO FOOD INDEPENDENCE: METHODOLOGICAL APPROACH AND STATE ASSESSMENT IN KAZAKHSTAN

R. S. Yakudina[1]*, A. A. Kurmanalina[1], V. Filimonau[2]
[1]K.Zhubanov Aktobe Regional University, Aktobe, Kazakhstan
[2]University of Surrey; Guildford, United Kingdom

ABSTRACT

Research Objective is to comprehensively assess the state of food independence in Kazakhstan and to develop an adapted methodology for calculating the level of food independence, taking into account actual exports and rational consumption norms.

Research Methodology: includes a systematic review of the literature; general scientific methods: comparative and graphical analysis, statistical analysis, cause-and-effect analysis, generalization. The core analytical approach is a comparative calculation of indicators using two alternative formulas, the official and proposed by authors food-independence indicator, in combination with a dynamic analysis for 2020–2024. The comparison is conducted for aggregated product groups (meat products, milk and dairy products, eggs, fruit and berries, vegetables, potatoes, and sunflower oil).

Originality and Practical Value of the Study. Based on the justification of the need to distinguish between the concepts of "food self-sufficiency" and "food independence," the authors developed a methodology for calculating the level of food independence, taking into account actual exports and physiological consumption standards. The approaches and calculations proposed in the work can be used in public administration practice when forming strategies to increase food independence.

Research Findings: as part of the study, the country's level of food independence was calculated using official and author's methods for the main product groups, and the results were compared. The identified discrepancies between the approaches demonstrate the need to revise the current methodological recommendations. According to the authors' methodology, the greatest shortages are observed for dairy products, certain types of meat (lamb), fruits and berries, and sunflower oil. In qualitative terms, the level of supply for these groups is characterized as below critical (cheese and cottage cheese, fruit) and below the low threshold level (dairy products, sunflower oil, lamb), which indicates the existence of a persistent domestic deficit. An imbalance has been identified, whereby the growth in exports of certain products (sunflower oil, lamb) is accompanied by continued import dependence and a deficit in the domestic market, which requires a review of export and import policy.

Keywords: food security, food independence, food self-sufficiency, physiological norm of consumption, actual domestic consumption, economic availability of food.

INTRODUCTION

The vulnerability of the food sector is clearly demonstrated by recent political events related to geopolitical tensions. Disruptions in international trade contribute to price increases and limit the availability of certain food categories.

This is particularly evident in the situations in the Middle East and Ukraine. Regional conflicts and the military confrontation between Russia and Ukraine, which began in 2022, have serious consequences not only for Kazakhstan but also for the global food market, as both countries are important exporters of agricultural products, including grain and oilseeds. The military conflict has exacerbated the rise in global food prices and intensified existing risks, while the devaluation of the tenge has accelerated the rise in prices of both domestic and imported products.

Experience shows that food supply processes are among the most vulnerable to external and internal factors. Current practice indicates that one of the key ways to strengthen the resilience of the food system is to develop national production, processing, and modern logistics chains. In this context, a country's ability to be self-sufficient in food is an important indicator of economic stability and the basis for achieving real food independence. Thus, food security is becoming a priority for strengthening food independence and expanding a country's self-sufficiency.

The relevance of food independence is increasing not only due to geopolitical instability, but also in the context of global processes. As shown by research conducted by Nugroho et al., the sustainability of the agricultural sector in developing countries directly depends on institutional quality, anti-corruption policies, and regulation of the impact of economic globalization on agriculture [1,2]. These aspects are particularly important in the context of increasing competition for food resources and growing dependence of countries on external markets.

In this regard, issues related to the country's food security through domestic production are becoming particularly relevant. In our view, given the current geopolitical instability and intensifying competition for food resources, it is advisable to consider food independence as a key element of food security, without which it is impossible to fully assess the sustainability of the national food system and respond to external threats in a timely manner.

It is important to emphasize that in order to develop an effective agri-food policy, it is necessary not only to strategically strive to strengthen food independence, but also to objectively and correctly determine its actual state. Insufficient depth of calculation approaches can lead to a distorted picture of the risks and vulnerabilities of the food system. According to data from the Ministry of Agriculture of the Republic of Kazakhstan (MoA RK), the level of food independence for most basic food products is over 80%: 87,7% for poultry, 94,7% for beef, 98,9% for eggs, 86,9% for milk and dairy products, and 99,7% for vegetables [3].

It should be noted that the official methodology for calculating food self-sufficiency is based solely on the ratio of gross production to actual consumption, without taking into account the rational norms of physiological consumption established by the Ministry of National Economy of the Republic of Kazakhstan and international organizations. This creates the risk that a formally high level of self-sufficiency may be achieved against the backdrop of actual underconsumption of essential food categories by the population. In this regard, there is a need to improve the calculation approach, taking into account rational consumption standards and accessibility.

Consequently, timely qualitative and quantitative assessment of the country's food self-sufficiency allows identifying vulnerabilities in the agricultural sector, determining the actual level of dependence on imports, and developing measures to reduce it. The effectiveness of the country's agri-food policy and, as a result, the level of food security and well-being of the population directly depend on the decisions made. Thus, the chosen topic remains relevant over time and emphasizes its scientific and practical significance.

The *purpose* of the research is to assess the current state of food self-sufficiency and food independence as key components of food security in the Republic of Kazakhstan and to develop an adapted methodology for calculating the level of food independence, taking into account consumption patterns and the export-import balance. To achieve this goal, the following *tasks* were set: to analyze current domestic and foreign approaches to defining and calculating food independence and self-sufficiency; to conduct a comparative analysis of production, consumption and import indicators for basic foodstuffs; to identify groups of goods with critically low levels of self-sufficiency and high degrees of import dependence; to develop practical recommendations for increasing food independence and the economic accessibility of food.

This study uses three interrelated but conceptually different terms. Food self-sufficiency is seen as the ratio of domestic food production to domestic food consumption, calculated using traditional statistical methods. Food independence is interpreted as the ability of domestic production to provide the population with food in accordance with rational (physiological) consumption norms, taking into account export withdrawals. Food security is used in a broader sense and includes the physical and economic accessibility of food, as well as the sustainability of the supply system; in this article, the term is used only in an interpretative context and is not used as a calculated indicator.

Literature review

Numerous domestic and foreign researchers offer various approaches and interpretations for defining the concepts of food security, food independence, and self-sufficiency. The review can be analytically structured around three interrelated debates: the distinction between food self-sufficiency and food independence, the role of consumption norms in food system assessments, and the influence of exports and import structure on internal food availability.

The first line of discussion concerns the conceptual distinction between food self-sufficiency and food independence. Dedkova E.G. et al. [4] defined food security as a state of a country's economy in which the state's food independence is ensured and the population's needs for physical and economic access to sufficient quantities of high-quality food products are met. The authors emphasize the importance of distinguishing between the concepts of «food security» and «food independence»: the latter reflects the degree of a country's self-sufficiency and its dependence on food imports.

Expanding upon this distinction, several scholars explicitly equate food independence with food self-sufficiency, treating the terms as synonymous in their analyses. For example, N. Shagaida and V. Uzun [5] define food self-sufficiency as a situation in which production, including reserves, exceeds consumption. Within their framework, both food independence and self-sufficiency are achieved only in this context, suggesting a strong conceptual link between the two terms.

At the same time, the authors O. Botkin, A. Sutygina, and P. Sutygin [6] disagree with this and believe that if the excess of production over consumption is observed at a low level of consumption of products by the population, then we cannot talk about the achievement of food independence. The authors argue that food independence and food self-sufficiency are not identical, so they propose different methods for their calculation: food self-sufficiency represents the proportion of domestically produced food products in personal consumption, whereas food independence is achieved only when the population's needs for domestic food products are not lower than the norms of rational consumption.

Kazakhs scientists similarly consider the concepts of «food independence» and «food self-sufficiency» as synonyms, indicating the importance of the concept of food self-sufficiency. According to Belgibaeva A.S., Denisova O.K., Dauletkhanova J.D., [7] the countries with food self-sufficiency should produce at least as much food as they consume. However, this methodology assumes that consumption volumes are sufficient in themselves, ignoring the potential emergence of implicit deficits caused by a decline in consumption. This argument highlights the vulnerability of approaches that focus solely on measuring production indicators and insists on the need to introduce a normative component into the assessment of food systems.

The officially approved methodology applied in Kazakhstan further illustrates this issue: food independence by types of food products is considered secured if their annual production in the country is not less than 80 percent of domestic consumption (Order of the MoA RK No. 380, November 18, 2024) [8]. According to the approved document, food independence in Kazakhstan is identified with food self-sufficiency. However, in our assessment, this methodology allows to determine only the level of self-sufficiency, but does not provide a full assessment of food independence, taking into account the export-import balance and the norms of rational consumption.

The second major debate in the literature adresses the role of consumption norms in assesing food systems. Several modern foreign studies by Beltran-Pena, A., Rosa, L., and Paolo, D. [9], define food self-sufficiency as the ability of a state to meet its domestic demand for caloric nutrition solely through its own agricultural production, without relying on external supplies. However, according to a number of researchers, production surpluses arising from reduced or insufficient consumption cannot serve as a reliable indicator of food independence[6]. This position is consistent with Clapp [10], who emphasizes that food self-sufficiency makes sense only when it is correlated with the sustainability of domestic production, economic accessibility, and rational nutritional standards. From this perspective, rational consumption norms serve as a reliable indicator of hidden food shortages and nutritional quality, especially when purchasing power declines or structural changes occur in the diet.

The third line of research focuses on the impact of exports and import structure on internal food availability. Clapp and Moseley [11] draw attention to the risks of high import dependency and underdevelopment of local

supply chains, which became particularly acute during the COVID-19 pandemic. Von Braun et al. [12] emphasize the role of scientific innovation and food system transformation in increasing actual food independence and resilience to global shocks. The latest FAO global report (2023) also notes that only a balance between own production, sustainable consumption, and affordability can ensure reliable food security in the face of urbanization and global change [13]. Empirical studies of crisis periods support this conclusion, emphasizing the importance of strengthening food self-sufficiency in crises and showing that formal self-sufficiency may coexist with high import dependence and internal vulnerability [14,15].

Among the quantitative methods aimed at assessing self-sufficiency, the approach proposed by E.N. Antamoshkina, who uses the self-sufficiency coefficient Kc, calculated on the basis of the ratio of domestic production volumes and rational consumption norms, deserves attention. The advantage of this approach is its physiological validity and simplicity of calculation, but it does not take into account such important factors as exports and foreign trade structure [16].

In turn, the study by Tleuberdinova et al. proposed a method for assessing food self-sufficiency based on the comparison of actual average per capita consumption with the volume of domestic production [17]. Despite the value of this approach for analyzing the current availability, it does not allow to objectively assess the degree of food independence, because it does not take into account the normative needs of the population. Both approaches emphasize the importance of domestic resources, but require supplementation for a comprehensive assessment of the sustainability of the food system.

Overall, the literature indicates that existing approaches to assessing food independence, which focus on production volumes, are not suitable for import-dependent economies such as Kazakhstan. Because they do not take into account the difference between self-sufficiency and independence, ignore the real needs of the population, and do not sufficiently analyze export-import dynamics. Formal self-sufficiency can be achieved by reducing average per capita food consumption. However, this does not reflect real food independence. Food independence cannot be ensured by reducing actual food consumption.

Thus, the modern food system dictates the need for objective and adequate assessment to ensure food independence. Our study solves this problem by integrating rational consumption norms and foreign trade factors into the assessment of Kazakhstan's food independence.

MAIN BODY

Methods. During the research, the data sources were official statistical materials of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan for 2020-2024, MoA RK, FAO (Food and Agriculture Organization of the United Nations) reports, regulatory and legal acts.

Within the framework of this study, rational (physiological) consumption norms are compared with national analytical indicators. The actual level of consumption of the population and the indicators of sufficiency calculated according to the current methodology of the MoA RK are used as analogues. Such a comparison allows us to identify cases of formal sufficiency achieved at an underestimated level of consumption and to justify the limitations of the existing practice of assessing food independence.

The study was conducted in two stages. The first stage involved collecting and analyzing data on the production, consumption, and import of basic foodstuffs. A comparative analysis was carried out of per capita consumption trends for individual categories of food products against rational consumption standards. In the second stage, a comparative dynamic analysis of food supply indicators and their compliance with food independence criteria for the period 2020–2024 was carried out. The calculations were performed using official methodology and the author's own approach.

The theoretical part employed general scientific methods: comparative and graphical analysis, grouping, measurement, generalization, analysis, and synthesis. Statistical analysis was used as a key tool, allowing us to track the dynamics of food production, consumption, and foreign trade, which enabled a comprehensive assessment of the country's current level of food independence.

To calculate the Food Self-Sufficiency Ratio (FSSR), the official formula from the Methodological Recommendations approved by Order of the MoA RK was applied, formula 1[8]:

$$\text{FSSR} = \frac{\text{Vp}}{\text{Vdc}} * 100\%, \quad (1)$$

where:
FSSR - food self-sufficiency ratio, %;
Vp - volume of production of food products, tons;
Vdc - volume of actual domestic consumption of food products, tons.

In determining actual domestic consumption of food products (ADC), the volume of imported products is included[8]. This approach most accurately reflects how much national production satisfies domestic demand and helps establish the real level of dependence on external supplies. This indicator is calculated according to the following formula 2:

$$\text{ADC} = \text{Vp} + \text{Vi} - \text{Ve}, \quad (2)$$

where:
Vi - volume of food imports, tons;
Ve - volume of food exports, tons.

In accordance with methodological recommendations, calculations should be made for each type of food, but in the framework of this study, goods were grouped into aggregated categories for the purpose of generalization and comparability of data.

Existing calculation approaches, including those by E.N.Antamoshkina and Tleuberdinova et al., mainly emphasize either actual consumption or the production-consumption balance. This highlights the need for a universal indicator that reflects real self-sufficiency. Such an indicator should consider domestic production, export scale, and rational consumption norms.

There is a need to develop an alternative approach because of the limitations of the established standard methodology. In this methodology, food independence is defined as the ratio of production to actual domestic consumption in physical terms. It is considered ensured when domestic production reaches at least 80% of consumption. This approach, described in the official methodological document, does not always allow an objective assessment of the country's real food resource endowment. It fails to consider important aspects such as rational consumption norms. In this regard, the authors proposed a formula to estimate the share of domestic food remaining in the domestic market based on the following parameters, formula 3:

$$\text{Food independence} = \frac{\text{Production} - \text{Export}}{\text{Population} * \text{Consumption norm}} * 100\%, \quad (3)$$

This approach allows not only to take into account the retired volumes of products (in the form of exports), but also to correlate them with the normative needs of the population, which, in our opinion, provides a more accurate and applied assessment of the level of food independence for certain categories of products.

The comparative nature of the methodology used allows for an empirical assessment of the differences between existing practices and the proposed approach to measuring food independence, reflecting the main idea stated in the title of the article.

Results and discussion. The basis for ensuring food security of any country is, first of all, the ability to self-sufficiency in food from its own production, which implies a sufficient level of development of the agricultural sector. However, if the excess of production over consumption is observed at a low level of food consumption by the population, we cannot claim to have achieved food independence. This may indicate a low level of economic accessibility to food products.

Therefore, we consider it necessary first of all to compare the level of food consumption with the established rational consumption norms (Table 1).

Table 1 - Dynamics of per capita consumption of main types of foodstuffs in Kazakhstan, kg

Indicator	2020	2021	2022	2023	2024	Consumption norm	Consumption as a % of the norm in 2024
Meat and meat products	83,7	82,3	78,2	80,1	82,7	78,4	105,5
including: beef	23	24	23,7	24,6	25,6	20	128,0
pork	3,4	3,4	3,3	3,2	3,3	5,5	60,0
lamb	6,1	5,5	5,4	5,3	5,3	10	53,0
horse meat	5,9	5,7	6,2	6,7	7,0	15,5	45,2
poultry	21,9	22,1	18,1	21,1	22	16	137,5
Bread products and cereals	140,3	133,8	128,0	124,4	124,0	109	113,8
Fish and seafood	15,1	14,8	14,1	14,0	14,2	14	101,4
Milk and dairy products	259,4	243,2	226,4	227,2	232,9	301	77,4
Eggs (units)	199,1	193,9	194,6	202,0	206,4	265	77,9
Fruit and berries	78,7	76,8	73,0	76,3	80,4	132	60,9
Vegetables	86,4	80,6	77,6	78,5	80,7	149	54,2
Potatoes	50,1	46,3	45,0	45,0	45,4	100	45,4
Sunflower oil	14,0	13,3	12,8	12,8	12,8	12	101
Note: compiled by the authors based on the source [18]							

Over the past five years, the structure of nutrition in Kazakhstan has undergone gradual changes, but several key imbalances in the diet persist. The assessment of the population of Kazakhstan's consumption of the main types of foodstuffs showed that, for most areas, there is still a slight decrease in consumption compared to 2020. Between 2020 and 2024, a decline in consumption is observed for bread products, potatoes, as well as fish and fish products. Consumption of various food products is below the established rational norms. Vegetables (54,2%), fruits (60,9%), milk (77,4%), and eggs (77,9%) are below the consumption norms. In 2024, the country's potato consumption per capita was 45,4 kg, which is significantly lower than the average of 100 kg per year.

Consumption of meat and meat products remains high – 82,7 kg/person in 2024, especially poultry and beef meat, which exceed the consumption norm by 37% and 28% respectively; however, at the same time, there is insufficient consumption of other types of meat: mutton and horse meat are consumed 2 times less than the norm.

As a result, we can say that at the current stage, the main food areas that require increased attention from the perspective of food self-sufficiency are milk and dairy products, eggs, as well as vegetables and fruits, as low consumption in these areas has persisted throughout the period. The reasons for underconsumption of some types of food products can be both insufficient production and low economic accessibility. Therefore, it requires to analyze the dynamics of food production (Table 2).

Table 2 - Production of main agricultural and industrial products in Kazakhstan

Indicator	Total production volume, thousand tons					Production volume per capita, kg	
	2020	2021	2022	2023	2024	2023	2024
All types of meat	1168,5	1231,1	1044,6	1120,0	1167,8	56,3	58,1
including: beef	521,8	540,2	383,8	399,3	429,4	20,1	21,4
pork	87,4	83,7	56,6	55,4	50,2	2,8	2,5
lamb	152,9	155,4	134,9	137,0	132,8	6,9	6,6
horse meat	142,9	151,2	157,3	167,4	171,1	8,4	8,5
poultry	236,5	272,6	287,0	335,7	358,7	16,9	17,8
Bread products and cereals	4430,2	3944,2	4365,7	4306,8	4230,1	216,4	210,5

Fish	36,3	45,5	51,2	37,8	37,4	1,9	1,9
Raw milk (total yield)	6051,4	6247,2	3354,5	3472,8	3571,9	174,5	177,7
Milk and dairy products (industry)	971,5	992,0	951,4	1003,2	1019,5	50,4	50,7
Milk and dairy products(converted to milk)	3218,0	3290,4	3158,0	3269,2	3362,5	164,3	167,3
Eggs, million units	5047,2	4814,6	4506,7	4406,8	4461,1	221,4	221,9
Fruits and berries	442,3	440,1	440,2	412,8	373,3	20,8	18,6
Vegetables	4590,9	4768,5	4792,6	4425,9	3781,0	222,4	188,1
Potatoes	4006,8	4031,6	4080,5	2046,8	2634,6	102,9	131,1
Sunflower oil	351,3	331,1	552,2	537,1	632,2	27	31,4
Note: compiled by the authors based on the source [18]							

Speaking about the state of production of major agricultural and industrial products, it is worth noting that the analysis shows several key trends and features. The total volume of meat production in Kazakhstan fluctuated in different years. For example, in 2021, there was a peak of meat production –1231,1 thousand tons, followed by a sharp decline to 15,1% in 2022 and amounted to 1044,6 thousand tons. In 2023-2024 there was a gradual increase, and by 2024 the production volume was 1167,8 thousand tons of livestock meat in slaughter weight, an increase of 4,2% compared to 2023, returning to the level of 2020. However, we see that this volume of meat produced does not cover the needs of the population: per capita production is much less than the level of consumption, 56,3 kg in 2023 and 58,1 kg in 2024, which is about 70,2% of the consumption level.

Looking at individual types of meat, beef production decreased sharply in 2022 compared to 2021 (from 383,8 to 540,2 thousand tons) by almost 29%, but by 2024 production recovered to 429,4 thousand tons. Still, it is worth noting that the volume of beef produced covers the demand by more than 80% over the last 2 years. As for pork, there has been a prolonged decline, which can be attributed to a decrease in pork consumption in the country. In 2024, the production is 50,2 thousand tons, i.e. down by 40% compared to 2020.

Despite the fact that mutton production in Kazakhstan is steadily declining (by 13% in 2024 compared to 2020), Kazakhstan ranks 16th in the world's mutton producer ranking, with a share of 1,2% (155,4 thousand tons per year), fully covering the domestic market's needs. Based on the consumption of 5,3 kg per person and Kazakhstan's population of 20,1 million, the total consumption of mutton in the country is slightly more than 106,5 thousand tons. Production of mutton in 2024 was about 132,8 thousand tons. However, as noted, lamb consumption has been steadily declining year on year; per capita consumption is half the norm. The only type of red meat that is not experiencing declines, but on the contrary, is steadily growing is horse meat - from 142,9 thousand tons in 2020 to 171,1 thousand tons in 2024.

In Kazakhstan, poultry meat consumption is the second largest in terms of volume. Over the past 5 years, the poultry meat market has demonstrated steady growth, with an increase of 34%. Such dynamics is due to the development of domestic production, which is driven by the introduction of innovative technologies, government support for the industry, and modernization of poultry farms. Increased demand for poultry products is driven by population growth and a gradual shift in people's eating habits towards healthier and more nutritious products.

Milk production in Kazakhstan grew steadily from 2020 to 2022. In 2022, about 6 million tons of milk (all categories of farms) were produced - 2% more than the level of 2021. In 2021, growth was comparable (nearly +2%), the volume was about 6,2 million tons. In 2020, production is estimated at about 6,0 million tons. Per capita, this corresponds to about 320-330 kg of milk per year (in terms of raw milk). Nevertheless, in 2023, the revision of statistics has led to a decrease in the official volume to 3,42 million tons - in fact, only marketable milk actually coming from cows is taken into account, without the previous inflated estimates in private farms. The new calculation approach makes direct comparison difficult; however, expert estimates suggest that actual gross milk yield in 2023 is virtually unchanged, remaining at ~6,4 million tons (old methodology). Thus, in 2023 and 2024, the volume of dairy products produced in terms of milk was only 163.4 and 167.3 kg

per capita, with consumption of 227,2 and 232,9 kg respectively, i.e. production covers about 70% of actual consumption and only 55% of the norm in 2024. This indicates dependence on imported dairy products.

The egg market also shows a negative trend in the industry over the last 5 years, with egg production volumes declining by 11,61% between 2020 and 2024. The domestic market remains fully secured, but there is a decrease in the difference between consumption and production.

Vegetable production in Kazakhstan has met and even exceeded domestic demand in recent years. From 2020 to 2023, there was a gradual increase in production of 1% annually. Production volumes are influenced by agro-climatic conditions and the availability of irrigation. Thus, 2021 showed an average yield for vegetables, as drought-hit rainfed areas were compensated for by the main vegetable-growing regions (South Kazakhstan, Zhambyl oblasts) through irrigation. In 2023, moisture problems (especially in southern oblasts due to low river water levels) also limited the harvest of vegetable crops.

Potato is one of the key food products in Kazakhstan, and its production for 2020-2022 shows a smooth growth and full coverage of domestic needs. However, according to the statistics for 2023, the harvest significantly decreased by 50,1% to 2046,8 thousand tons in 2023. This is primarily due to a 52% (94,7 thousand hectares) reduction in sown area in 2023 compared to the previous year (199,5 thousand hectares). In general, vegetable production is more than sufficient, with significant export potential; however, actual vegetable consumption by the population is below the norm.

Fruit production is also extremely low, with about 440,000 tons produced per year from 2020 to 2022, and production in 2023-24 falling by 6% and 10%, respectively, compared to previous years. The production for the last year (18,6 kg) covers only 23,1% of current consumption and only 14,1% of the norm. The ratio of production and per capita consumption in Kazakhstan is presented more clearly in Figure 1.

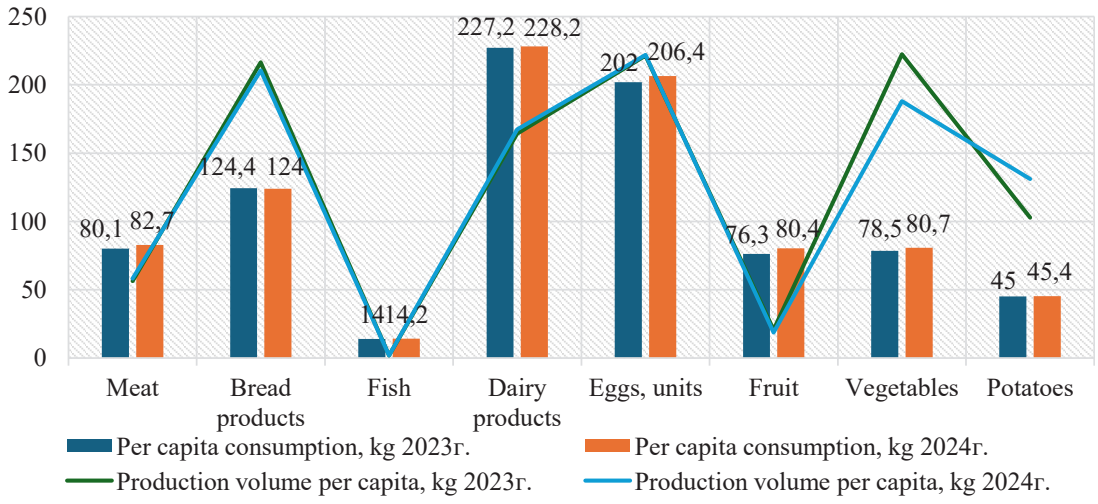

Figure 1 – Ratio of production and consumption per capita in Kazakhstan

Note: compiled by the authors based on the source [18]

According to the comparative analysis, it can be seen that insufficient production is particularly evident in dairy products, meat products, fish, and fruit. There is a particularly large negative gap between production and consumption of dairy products, eggs, and fruit. In addition, the actual consumption of these product groups by the population consistently falls short of the normative values, despite formally sufficient production volumes. This indicates that the identified food self-sufficiency is formal in nature and is achieved through underestimated consumption levels rather than through actual compliance with the normative needs of the population.

The above analyses provide a general picture of self-sufficiency and food independence of the country. However, for a more complete and objective understanding it is necessary to analyze the indicators of food imports, as it reflects the degree of dependence on external markets and allows to identify potential risks in

ensuring food independence. This will make it possible to assess which types of products are not covered by domestic production and to develop priority areas for their substitution or development of relevant industries.

Further calculations included indicators of imports, exports, ADC, as well as the share of imported food products (Table 3). The calculation of this indicator is of fundamental importance for assessing the level of food independence, as it demonstrates the degree of dependence of the country on external supplies and forms the basis for the development of measures to reduce import dependence.

Table 3 – Import, export, ADC and share of imports for major food products in Kazakhstan (2020–2024)

Product	2020	2021	2022	2023	2024
All types of meat	215,1 24,3 1359,3 15,8%	197 33,8 1394,3 14,1%	175 43,3 1176,3 14,9%	177,9 55,3 1242,6 14,3%	158,4 81,7 1244,5 12,7%
Beef	25,1 9,4 537,5 4,7%	19,4 7,3 552,3 3,5%	6,6 18,3 372,1 1,8%	12,2 15,8 395,7 3,1%	12,3 22,1 419,6 2,9%
Lamb	0,03 1,4 151,5 0,02%	0,026 1,3 154,1 0,02%	0 10,3 124,6 0%	0,032 7,8 129,2 0,02%	0,03 17,5 115,3 0,03%
Poultry meat	183,4 12,6 407,3 45,0%	168,5 24,7 416,4 40,5%	156,9 14,7 429,2 36,6%	155,9 31,5 460,1 33,9%	135,7 42 452,4 30,0%
Milk and dairy products	171,3 56,9 1085,9 15,8%	158,2 57,9 1092,3 14,5%	167,4 37,7 1081,1 15,5%	175,8 25,6 1153,4 15,2%	182,9 29,3 1173,1 15,6%
Cheese and cottage cheese	34,5 3,2 67 51,3%	33,2 3,6 69 47,9%	35,3 2,7 72 48,8%	37,3 3 79 47,1%	47,7 3,9 92 51,8%
Fish	34,4 14,5 56,2 61,2%	36,6 16 66,1 55,4%	39,3 14,8 75,7 51,9%	47 14,1 70,7 66,5%	44,7 11,5 70,6 63,3%
Eggs	117,5 176 4988,7 2,4%	159,9 202,9 4771,6 3,4%	126,8 201,7 4431,8 2,9%	235 148,1 4493,7 5,2%	87,4 43,1 4505,4 1,9%
Fruits and berries	562,8 102,2 902,9 62,3%	590,8 69,4 961,5 61,4%	574,1 22,6 991,7 57,9%	580,5 74,9 918,4 63,2%	780,3 97,1 1056,5 73,9%
Vegetables	384,5 232,8 4742,6 8,1%	478,9 201,7 5045,7 9,5%	549,5 232 5110,1 10,8%	441,3 214,5 4652,7 9,5%	424,6 380,4 3825,2 11,1%
Potatoes	75 356,9 3724,9 2,0%	102 199,4 3934,2 2,6%	52,9 241,7 3891,7 1,4%	61,9 411,5 1697,2 3,6%	59,7 563,9 2130,4 2,8%
Sunflower oil	105 115,1 341,2 30,8%	94 87,9 337,2 27,9%	108,4 233,6 427,0 25,4%	94,8 372,7 259,2 36,6%	119,5 483,5 268,2 44,6%

Note: Values in each cell are presented top to bottom as Import, Export, ADC, and Share of imports (%). Units: thousand tons; for eggs – million units. Source: compiled by the authors based on the source [18]

For some categories of food products, there is a tendency to reduce the share of imports, which is a positive sign of the development of domestic production. However, in a number of positions there is still high import dependence, especially fish, cheese and cottage cheese, fruits and berries, as well as poultry meat.

In general, for meat, there is a steady development of export potential with a simultaneous reduction in import dependence. For example, the share of imports for all types of meat decreased from 15,8% to 12,7%. At the same time, exports more than tripled in 5 years from 24,3 to 81,7 thousand tons. Imports of beef decreased by 2 times over 5 years, while exports increased 2,3 times. ADC of beef decreased from 552,3 thousand tons to 419,6 thousand tons, primarily due to active exports and insufficient production growth. However, high exports with limited herd growth may lead to shortages in the domestic market. The growing export of mutton also reduces its availability for domestic consumption, as imports are practically absent, while exports have increased more than 12 times.

Almost half of meat product imports consist of poultry meat. This indicates a continuing dependence on external supplies, although import volumes are gradually declining: since 2020, the decline has been 26% at an average rate of 8% per year. These figures demonstrate the effectiveness of the government's import substitution policy, but the share of imported products remains high.

The level of import dependence for milk and dairy products remains stable at around 15% for the entire period under review. At the same time, ADC for the period 2020–2024 shows moderate growth (+8%), reflecting steady consumer demand for dairy products. Cheese and cottage cheese remain among the dairy products with a consistently high share of imports – around 48–52%. The import structure is dominated by expensive hard cheeses and specific types of products, the production of which requires technology and highly skilled personnel. Therefore, domestic production is developing at an insufficient pace to displace imports.

A key factor is the almost twofold decline in exports, which indirectly supports domestic consumption but at the same time indicates a decline in the competitiveness of domestic dairy products in foreign markets. This is due to fluctuations in the quality of raw materials, the obsolescence of some equipment, and high production costs due to dependence on imported feed.

Based on the analysis, it has been established that the fish and fruit and vegetable segments remain highly dependent on imports. The share of imports in actual domestic consumption of fish consistently exceeds 60%, while for fruits and berries it is growing and reaches about 74%.

This dependence is caused, on the one hand, by the limited natural and climatic resources and the seasonality of agricultural production, and on the other hand, by the low level of development of aquaculture and intensive horticultural technologies, as well as the underdeveloped infrastructure for storage and processing of products and the lack of large investments in these industries.

An analysis of the situation with sunflower oil and lamb during the period under review reveals a contradictory trend: growth in export volumes is accompanied by continued import dependence and insufficient domestic supply. This imbalance is due to systemic structural factors. Increased exports lead to a reduction in supply on the domestic market, while the existing import structure does not provide adequate compensation for the domestic deficit, which creates a sustained dependence on external supplies. This confirms that export growth can be accompanied by a domestic deficit and does not ensure food independence.

Thus, the analysis of the structure and dynamics of actual domestic consumption of food products, taking into account imports and exports, made it possible to identify key groups of products with a continuing high degree of import dependence, in particular in the dairy, fish, poultry, and fruit and berry segments. Trends show that despite overall growth in consumption and partial expansion of domestic production, a significant portion of the domestic market for many items still depends on imports. This circumstance poses a threat to the country's food security in the event of global price spikes, logistical problems, and restrictions on international trade.

In this regard, it is logical to proceed to the next stage of analysis — assessing the level of food self-sufficiency and independence, which involves a final evaluation of the ratio of domestic production, population needs, and the degree of self-sufficiency for the main food commodity groups.

At the same time, for a comprehensive assessment of the country's food security, the indicators of food independence and food self-sufficiency, calculated according to the methodology of the MoA RK, were compared with the results of calculations using the author's methodology, which allows for a more flexible consideration of internal and external factors (Table 4).

Table 4 – Calculation of the level of food independence in Kazakhstan, %

	Food self-sufficiency ratio/Food independence (according to the methodology of the MoA RK)					Food independence (author's methodology)				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
All types of meat	86,0	88,3	88,8	90,1	93,8	91,3	94,1	76,2	80	80,6
Beef	97,1	97,8	103,1	100,9	102,3	137,0	140,2	93,2	96,4	101,3
Lamb	100,9	100,8	108,3	106,0	115,1	81,0	81,1	63,6	64,9	57,4
Poultry meat	58,1	65,5	66,9	73,0	79,3	74,8	81,5	86,8	95,5	98,5
Milk and dairy products	89,5	90,8	88,0	87,0	86,9	56,2	56,5	52,9	54,2	55,1
Cheese and cottagecheese	53,5	57,3	54,9	56,7	52,4	11,7	12,6	12,5	13,9	14,6
Eggs	101,2	100,9	101,7	98,1	99,0	98,3	91,6	82,9	80,8	82,9
Fruits and berries	49,0	45,8	44,4	44,9	35,3	13,8	14,8	16,1	12,9	10,4
Vegetables	96,8	94,5	93,8	95,1	98,8	156,4	161,3	156,2	142,0	113,5
Potatoes	107,6	102,5	104	120,6	123,7	195,2	201,7	195,9	82,2	103,0
Sunflower oil	103,0	98,2	129,3	207,2	235,7	105,3	106,7	135,5	68,8	61,7
100% >						50–79% - low level of sufficiency				
80–99% - adequate level of sufficiency						50 % <				
Note: compiled by the authors										

This comparative analysis shows the extent to which domestic production and the availability of goods within the country correspond to the regulatory values necessary to maintain national food independence.

A comparison of calculations using official and proprietary methodologies shows a similar overall trend: for most food categories, supply is at a satisfactory level and shows positive dynamics (meat, eggs, vegetables, potatoes). For example, the level of meat, in general, and beef, in particular, is consistently close to or even exceeds the norm. According to the author's approach, the indicators show fluctuations, but in general exceed 75%, which indicates significant potential for self-sufficiency. At the same time, there is a stable insufficient degree of satisfaction of demand for chicken, cheese, cottage cheese, as well as fruits and berries, which identifies them as key areas for state support and development of domestic production.

In accordance with the current methodology of the MoA of the RK, the level of food independence for certain types of products, in particular milk and eggs, in the period under review is assessed as secured on the basis of a comparison of production volumes and actual consumption. At the same time, actual consumption for these groups remains below rational norms, which indicates the existence of formal security that does not reflect the achievement of the normative level of food security for the population. This justifies that formal food security can be achieved even with an underestimated level of consumption, which limits the analytical validity of production-oriented indicators.

It is worth noting that when comparing the results of assessing the level of food independence obtained using two approaches, significant differences are revealed in some categories of goods. For example, in categories such as dairy products and lamb, the indicators are significantly lower in the author's methodology, which is due to the consideration of physiological consumption standards and export supplies.

A similar situation can be observed with sunflower oil: according to the author's methodology, the level of supply shows a downward trend, despite the overall growth in production. This is because the calculations also take into account the significant growth in export volumes, as a result of which most of the products manufactured are exported outside the domestic market, which effectively reduces the availability of goods for domestic consumption. Domestic sunflower oil producers produced 632,200 tons of their product in 2024, but since a significant part of the production — 483,500 tons — was exported, store shelves are filled with imported oil.

At the same time, the share of imports in the domestic market remains high—44,6%—which points to a paradoxical situation: despite growth in production and export potential, the domestic market is forced to partially cover demand through imports. It should be noted that export growth significantly outpaces the growth in total production. This creates a situation in the market where, despite more than sufficient production, consum-

ers experience a shortage of domestic products and are forced to buy imported ones, reducing the actual level of food independence in this area.

To highlight the differences between the assessment methods used, the study identified product groups with the greatest discrepancies between food self-sufficiency and food independence indicators. The most significant deviations in 2020–2024 were identified in the groups of milk and dairy products, fruits, vegetable oil, and certain types of meat. For these categories, formally high self-sufficiency values in a number of years were combined with food independence levels below the critical threshold or close to the low threshold, indicating the existence of an internal deficit. The main mechanisms behind the identified discrepancies are export exemptions, the discrepancy between actual consumption and rational norms, and the structure of imports.

Thus, the differences between the methodologies are due to the fact that the author's approach focuses not only on gross production, but also on the real balance of the domestic market, taking into account actual exports, consumption standards, and the potential for seasonal fluctuations, which provides a more conservative and realistic assessment of the level of food independence.

The most important factor influencing the level of food independence is the economic accessibility of food. Low economic accessibility due to rising food prices can lead to malnutrition among certain population groups and increase social tensions, despite the country's formally high level of gross production. The above analysis shows that the average per capita consumption of certain types of food in Kazakhstan (mutton, horse meat, dairy products, and fruit) is well below the established consumption standard. This may indicate low economic accessibility of food products.

As shown by the results of the research [19], even with sufficient food production, the actual level of consumption may remain low due to limited household incomes and the high share of food costs. This points to the importance of analyzing economic factors when assessing food independence, even if these factors are not directly reflected in the calculation methods used.

According to the data of the Bureau of National Statistics, the average expenditure of a Kazakh family on food in 2024 amounted to 1977,3 thousand tenge. This is 6,1% more than was spent in 2023. The share of spending on food remains very high: 50,6% of total household spending is on food products, making the country one of the leaders among countries with the highest share of food costs. For comparison, in developed countries this figure rarely exceeds 15%. Overall, over the past 5 years, the share of food spending in Kazakhstan has not fallen below 50% (Figure 2).

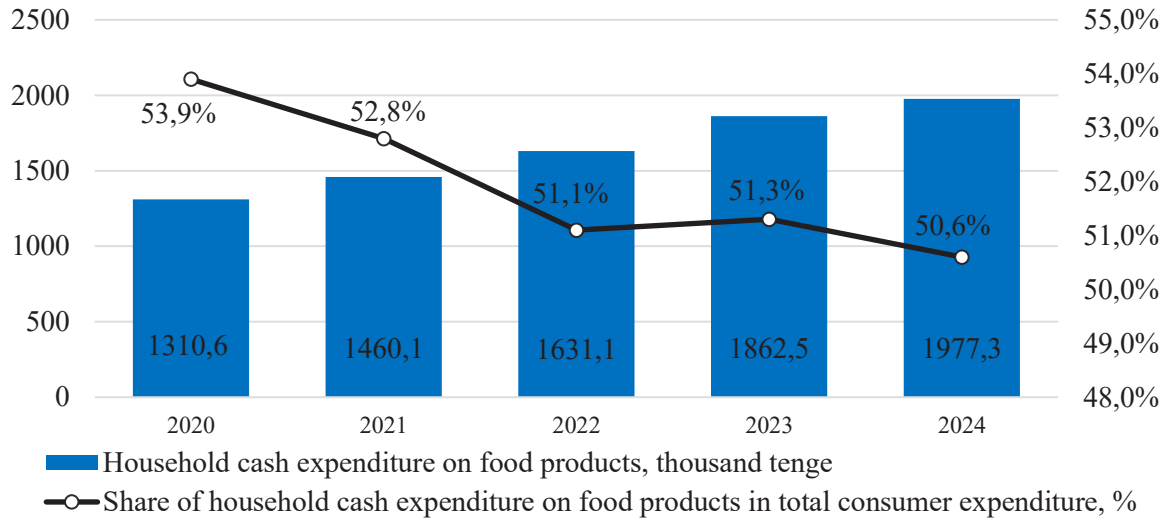

Figure 2 – Household expenditure on food products in Kazakhstan
Note: compiled by the authors based on the source [18]

The analysis shows that the purchasing power of the population of Kazakhstan is low and that food products are not sufficiently affordable in the required quantities and assortment. The most important factor in ensuring the affordability of food is the socio-economic development regime and the corresponding growth and differentiation of real incomes of the population. It is for this reason that food security policy is of a general economic rather than a sectoral nature.

Thus, based on the analysis, it can be concluded that even with a formally sufficient level of gross production and security in a number of areas, the actual level of food independence may decline due to the limited economic accessibility of certain types of food for a significant part of the population. To ensure food security, it is necessary not only to develop domestic production, modernize processing, and establish modern logistics chains to reduce import dependence, but also to take measures to increase the economic accessibility of food for the population.

CONCLUSION

The results show that while Kazakhstan's agricultural sector and some processing areas are improving, structural imbalances still exist. These issues prevent the country from reaching full food independence. As shown in results, a comparison of data on gross production, actual domestic consumption, and physiological consumption standards revealed a mismatch in the supply of a number of key commodity groups. This is particularly true for dairy products, fish, cheese and cottage cheese, fruits and berries — these categories remain the least sustainable in terms of domestic production and economic affordability. The analysis demonstrates that formal food security can be achieved even with an underestimated level of consumption, which limits the analytical validity of production-oriented indicators.

The study revealed a key problem with the existing methodology for calculating food independence, primarily due to its narrow focus on production and consumption indicators: its limited coverage of factors affecting the actual state of food self-sufficiency. The discrepancies identified between the official methodology for calculating food independence levels and the author's proposed approach demonstrate the need to revise the current methodological recommendations. In particular, the use of a more flexible calculation that takes into account the share of exports and rational consumption standards allows for a more objective assessment of food independence and the identification of hidden risks.

An imbalance has been identified, which confirms that export growth can be accompanied by a domestic deficit and does not ensure food independence. It is important to note that the trend of export growth coupled with dependence on imports creates a paradoxical situation: part of the production is exported outside the country, while the domestic market continues to experience a shortage. This is particularly evident in the case of sunflower oil, lamb meat, and dairy products. This imbalance requires clearer regulation of export and import policy and the development of mechanisms that would guarantee priority satisfaction of domestic demand.

An analysis of household expenditure patterns shows that food remains unaffordable: food expenditure in Kazakhstan consistently accounts for over 50% of total expenditure, which is significantly higher than in developed countries and indicates low purchasing power among a large segment of the population. This confirms that food security policy should be considered not only in terms of physical access to food, but also in close connection with the level of income of the population and the effectiveness of the state's social policy.

Thus, the results of the study confirm the relevance of the chosen title and demonstrate that the comparative and methodological focus stated in it is fully realized in the text of the work.

Based on the research conducted and the empirical data obtained, the following practical recommendations aimed at improving the country's food security have been formulated:

1. Improve the methodology for calculating the level of food independence — it is recommended to take into account not only the ratio of production to consumption, but also the share of exports, as well as the standards of rational physiological consumption for individual groups of goods. A distinction should be made between the concepts of “food self-sufficiency” and “food independence,” since formally high levels of self-sufficiency can be achieved even with a decrease in per capita food consumption, which does not reflect the real level of food independence, since food independence cannot be achieved by reducing actual food consumption by the population. In this regard, it is advisable for the MoA RK to initiate a review and update of the

current methodological recommendations for calculating the level of food independence. This will improve the accuracy of calculations, reduce the risk of overestimating the level of food independence, and allow this data to be used to formulate a more informed agricultural policy.

2. Develop measures to improve the economic accessibility of food, including through price regulation for socially significant goods and income support for vulnerable groups. Kazakhstan currently has a mechanism in place for setting maximum prices for socially significant food products, as well as stabilization funds to smooth out seasonal price fluctuations. In a number of regions, agricultural fairs are held and direct deliveries from producers are organized. However, given the persistently high level of inflation and the significant share of household expenditure on food, these measures are not sufficient to fully address the problem of low economic accessibility of food. This requires stronger state support for household incomes and more flexible price regulation instruments to protect the most vulnerable groups.

3. The basis of the state's food security is the development of agriculture. Therefore, it is important to continue supporting farms, introducing innovative agricultural technologies, expanding the feed base, and developing the infrastructure for storage and distribution of products. Agro-industrial clusters and cooperatives should be developed to bring together small producers, reduce costs, and increase the competitiveness of domestic products. It is also advisable to improve state support measures for horticulture, greenhouse farming, and aquaculture through grant programs, subsidies for irrigated land, and the construction of logistics centers.

4. Focus state support on developing import-substituting industries, especially for those types of products that remain highly dependent on imports. The analysis showed that over the past five years there has been a steady trend towards an increase in the total volume of food imports. In 2024, the volume of food imports in Kazakhstan increased to $5,348.7 million, which exceeded the 2020 level by 1.5 times. The growth rate of imports compared to 2020 was 55%. This dynamic reflects the growing dependence of the domestic market on external supplies and indicates continuing imbalances in the development of certain sectors of the agro-industrial complex, which requires additional measures to stimulate import substitution and the development of domestic production.

The MoA RK is systematically working to increase production volumes and import substitution for import-dependent food items. The task of strengthening food security is planned to be solved through the implementation of investment projects. By 2027, it is planned to implement 780 investment projects worth 2.3 trillion tenge, including 170 projects worth 855 billion tenge for import-dependent goods [3].

However, it should be emphasized that the measures being implemented at the current stage are not sufficient to radically reduce import dependence, given the steady growth in import volumes for a number of commodity items and the continuing structural imbalances in the production and logistics chain. This requires further expansion of support for import-substituting industries and increased efficiency of the programs being implemented.

5. Control export volumes of socially significant food products to ensure that supplying the domestic market remains a priority. For example, in the case of vegetable oil, a significant portion of production is exported despite the continuing share of imports and the needs of the domestic market. It is therefore recommended that flexible mechanisms for regulating exports be developed, such as setting thresholds, quotas, or monitoring the balance of production, consumption, and exports, in order to prevent shortages and price pressure within the country.

REFERENCES

1. Nugroho A.D., Cubillos Tovar, J.P., Bopushev, S.T., Bozsik, N., Fehér, I., Lakner Z. Effects of corruption control on the number of undernourished people in developing countries // Foods. – 2022. – Vol. 11. – N.7. – Article 924. https://doi.org/10.3390/foods11070924.

2. Nugroho A.D., Bhagat, P.R., Magda, R., Lakner Z. The impact of economic globalization on agricultural value added in developing countries // PLoS ONE. – 2021. – Vol. 16. – N. 11. – e0260043. https://doi.org/10.1371/journal.pone.0260043.

3. Министерство сельского хозяйства Республики Казахстан. Уровень самообеспеченности продовольственными товарами в Республике Казахстан на 1 января 2024 года [Электронный ресурс].

– 2024. – URL: https://www.gov.kz/memleket/entities/moa/press/news/details/897863?lang=ru (дата обращения: 17.07.2025).

4. Дедкова Е.Г., Жидова О.П. Анализ государственной политики по обеспечению продовольственной безопасности // Управленческий учет. – 2019. – №7.- С. 19-27.

5. Шагайда Н.И., Узун В.Я. Продовольственная безопасность: проблемы оценки // Вопросы экономики. – 2015. – № 5. – С. 63–78. – https://doi.org/10.32609/0042-8736-2015-5-63-78.

6. Боткин О.И., Сутыгина А.И., Сутыгин П.Ф. Аргументы к методике определения уровня продовольственной независимости // АПК: Экономика, управление. – 2016. – № 3. – С. 22–31.

7. Бельгибаева А.С., Денисова О.К., Даулетханова Ж.Д. Обеспечение продовольственной безопасности Республики Казахстан в условиях импортозамещения // Проблемы агрорынка. – 2024. – № 3. – С. 47–57. https://doi.org/10.46666/2024-3.2708-9991.04.

8. Приказ №380 от 18 ноября 2024 года «Об утверждении методики расчёта уровня самообеспеченности продовольственными товарами». Министерство сельского хозяйства Республики Казахстан. [Электронный ресурс]. – 2024. – URL: https://www.gov.kz/memleket/entities/moa/documents/details/764518?lang=ru (дата обращения: 17.07.2025).

9. Beltran-Pena A., Rosa L., Paolo D. Global food self-sufficiency in the 21st century under sustainable intensification of agriculture // Environmental research letters.- 2020.-N 15.- 095004.

10. Clapp J. Food self-sufficiency: making sense of it, and when it makes sense // Food Policy. – 2017. – Vol. 66. – P. 88–96. https://doi.org/10.1016/j.foodpol.2016.12.001.

11. Clapp J., Moseley W.G. This food crisis is different: COVID-19 and the fragility of the neoliberal food security order // The Journal of Peasant Studies. – 2020. – Vol. 47, No. 7. – P. 1393–1417. https://doi.org/10.1080/03066150.2020.1823838.

12. Von Braun J., Afsana K., Fresco L.O., Hassan M.H.A. Science and Innovations for Food Systems Transformation and Food Security and Nutrition. – Cham: Springer, 2023. – 478 p.

13. FAO, IFAD, UNICEF, WFP & WHO. The State of Food Security and Nutrition in the World 2023: Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum Rome, FAO [Electronic resource]. - 2023. - URL: https://www.fao.org/3/cc3017en/cc3017en.pdf (date of access: 17.07.2025).

14. Brankov T., Matkovski B., Jeremic M., Duric I. Food self-sufficiency of the SEE countries: is the region prepared for a future crisis?// Sustainability. – 2021. – No. 13. – 8747. https://doi.org/10.3390/su13168747.

15. Swinnen J., Vos R. COVID-19 and impacts on global food systems and household welfare: introduction to a special issue // Agricultural Economics. – 2021. – Vol. 52, Issue S1. – P. 365–374. https://doi.org/10.1111/agec.12623.

16. Антамошкина Е.Н. Оценка продовольственной безопасности региона: вопросы методологии // Продовольственная политика и безопасность.2015. - No 2(2).- С. 97-112. https://doi.org/10. 18334/ppib.2.2.575

17. Tleuberdinova A., Nurlanova N., Alzhanova F., Salibekova P. Food security and self-sufficiency as a factor of country's sustainable development: assessment methods and solutions// Discover Sustainability. – 2025. – Vol. 6. – Article 50. https://doi.org/10.1007/s43621-025-00849-y.

18. Официальный сайт Бюро национальной статистики Агентства по стратегическому планированию и реформам Республики Казахстан [Электронный ресурс]. – 2024. – URL: https://www.stat.gov.kz/ru/ (дата обращения: 27.05.2025).

19. Mudrak R., Lagodiienko V., Osipova A., Froter O., Sokoliuk K. The concept of food security: theory and ukrainian practice // Financial and Credit Activity Problems of Theory and Practice. – 2024.–No1(54). - P.452-470. https://doi.org/10.55643/fcaptp.1.54.2024.4194

REFERENCES

1. Nugroho, A.D., Cubillos Tovar, J.P., Bopushev, S.T., Bozsik, N., Fehér, I., Lakner Z. (2022). Effects of corruption control on the number of undernourished people in developing countries. *Foods,* 7, 924. https://doi.org/10.3390/foods11070924.

2. Nugroho, A.D., Bhagat, P.R., Magda, R., Lakner Z. (2021). The impact of economic globalization on agricultural value added in developing countries. *PLoS ONE,* 11, e0260043. https://doi.org/10.1371/journal.pone.0260043.

3. Ministerstvo sel'skogo hozjajstva Respubliki Kazahstan. Uroven' samoobespechennosti prodovol'stvennymi tovarami v Respublike Kazahstan na 1 janvarja 2024 goda [Ministry of Agriculture of the Republic of Kazakhstan. Level of self-sufficiency in food products in the Republic of Kazakhstan as of January 1, 2024]. Available at: https://www.gov.kz/memleket/entities/moa/press/news/details/897863?lang=ru (date of access: 17.07.2025) [in Russian].

4. Dedkova, E., Zhidova, O. (2019). Analiz gosudarstvennoj politiki po obespecheniju prodovol'stvennoj bezopasnosti [Analysis of the State Policy on Food Security]. *Upravlencheskij uchet - Management Accounting*, 7, 19–27 [in Russian].

5. Shagajda, N.I., Uzun V.Ja. (2015). Prodovol'stvennaja bezopasnost': problemy ocenki. [Food security: assessment issues]. *Voprosy jekonomiki - Economic issues*, 5, 63–78. https://doi.org/10.32609/0042-8736-2015-5-63-78 [in Russian].

6. Botkin, O.I., Sutygina, A.I., Sutygin, P.F. (2016). Argumenty k metodike opredelenija urovnja prodovol'stvennoj nezavisimosti [Arguments for the methodology for determining the level of food independence]. *APK: Jekonomika, upravlenie – AIC: Economics, management,* 3, 22–31. [in Russian].

7. Belgibayeva A.S., Denissova O.K., Dauletkhanova Zh.D. (2024). Obespechenie prodovol'stvennoj bezopasnosti Respubliki Kazahstan v uslovijah importozameshhenija [Ensuring food security of the Republic of Kazakhstan in the conditions of import substitution]. *Problemy agrorynka -Problems of AgriMarket*, 3, 47-57. https://doi.org/10.46666/2024-3.2708-9991.04 [in Russian].

8. Ministerstvo sel'skogo hozjajstva Respubliki Kazahstan. Prikaz №380 ot 18 nojabrja 2024 goda «Ob utverzhdenii metodiki raschjota urovnja samoobespechennosti prodovol'stvennymi tovarami». [Ministry of Agriculture of the Republic of Kazakhstan. Order No. 380 of November 18, 2024, «On Approval of the Methodology for Calculating the Level of Self-Sufficiency in Food Products»] Available at: https://www.gov.kz/memleket/entities/moa/documents/details/764518?lang=ru (date of access: 23.07.2025) [in Russian].

9. Beltran-Pena, A., Rosa, L., Paolo, D. (2020). Global Food Self-Sufficiency in the 21st Century Under Sustainable Intensification of Agriculture. *Environmental research letters,* 15, 095004 [in English].

10. Clapp, J. (2017). Food Self-Sufficiency: Making Sense of it and When It Makes Sense. *Food Policy*, 66, 88–96. https://doi.org/10.1016/j.foodpol.2016.12.001 [in English].

11. Clapp, J., Moseley, W. G. (2020). This food crisis is different: COVID-19 and the fragility of the neoliberal food security order. *The Journal of Peasant Studies*, *47*(7), 1393–1417. https://doi.org/10.1080/03066150.2020.1823838 [in English].

12. Von Braun, J., Afsana, K., Fresco, L.O., Hassan M.H.A. (2023). Science and Innovations for Food Systems Transformation and Food Security and Nutrition. *Cham: Springer*, 2023. – 478 p. https://doi.org/10.1007/978-3-031-15703-5 [in English].

13. FAO, IFAD, UNICEF, WFP & WHO. The State of Food Security and Nutrition in the World 2023: Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum Rome (2023). Available at: https://www.fao.org/3/cc3017en/cc3017en.pdf (date of access: 17.07.2025) [in English].

14. Brankov, T., Matkovski, B., Jeremic, M., Duric, I. (2021). Food Self-Sufficiency of the SEE Countries: Is the Region Prepared for a Future Crisis? *Sustainability*, 13, 8747. https://doi.org/10.3390/su13168747 [in English].

15. Swinnen, J., & Vos, R. (2021). COVID-19 and Impacts on Global Food Systems and Household Welfare: Introduction to a Special Issue. *Agricultural Economics*, 52, 365–374. https://doi.org/10.1111/agec.12623 [in English].

16. Antamoshkina, E.N. (2015). Ocenka prodovol'stvennoj bezopasnosti regiona: voprosy metodologii [Assessment of Food Security in the Region: Issues of Methodology]. *Prodovol'stven naja politika i bezopasnost' - Food Policy and Security*, 2(2), 97–112. https://doi.org/10. 18334/ppib.2.2.575 [in Russian].

17. Tleuberdinova, A., Nurlanova, N., Alzhanova, F., Salibekova P. (2025). Food security and self-sufficiency as a factor of country's sustainable development: assessment methods and solutions. *Discover Sustain-*

ability, 6, 50. https://doi.org/10.1007/s43621-025-00849-y [in English].

18. Bjuro nacional'noj statistiki Agentstva po strategicheskomu planirovaniju i reformam Respubliki Kazahstan [Bureau of National statistics Agency for Strategic planning and reforms of the Republic of Kazakhstan] (2025). Avaitable at: https://stat.gov.kz (date of accessed: 16.07.2025).

19. Mudrak, R., Lagodiienko, V., Osipova, A., Froter, O., Sokoliuk, K. (2024). The Concept of Food Security: Theory and Ukrainian Practice. *Financial and Credit Activity: Problems of Theory and Practice*, 1(54), 452–470. https://doi.org/10.55643/fcaptp.1.54.2024.4194 [in English].

ӨЗІН-ӨЗІ ҚАМТАМАСЫЗ ЕТУДЕН АЗЫҚ-ТҮЛІК ТӘУЕЛСІЗДІГІНЕ: ӘДІСТЕМЕЛІК КӨЗҚАРАС ЖӘНЕ ҚАЗАҚСТАНДАҒЫ ЖАҒДАЙДЫ БАҒАЛАУ

Р. С. Якудина[1*], А. А. Курманалина[1], V. Filimonau[2]
[1]Қ.Жұбанов атындағы Ақтөбе өңірлік университеті, Ақтөбе, Қазақстан
[2]Суррей университеті, Гилфорд, Ұлыбритания

АҢДАТПА

Зерттеудің мақсаты. Қазақстанның азық-түлік тәуелсіздігі жағдайын кешенді бағалау және нақты экспорт пен тұтынудың ұтымды нормаларын ескере отырып, азық-түлік тәуелсіздігінің деңгейін есептеудің бейімделген әдістемесін әзірлеу.

Зерттеу әдіснамасы әдебиетке жүйелі шолуды қамтиды, жұмыста жалпы ғылыми әдістер - салыстырмалы және графикалық талдау, статистикалық талдау, себеп-салдарлық, жалпылау қолданылды. Негізгі талдамалық тәсіл екі баламалы формуланы пайдалана отырып, көрсеткіштерді салыстырмалы есептеуден тұрады: 2020-2024 жылдарға арналған серпінді талдаумен үйлестірілген азық-түлік тәуелсіздігінің ресми және авторлар ұсынған коэффициенті. Салыстыру өнімдердің біріктірілген топтары (ет өнімдері, сүт және сүт өнімдері, жұмыртқа, жемістер мен жидектер, көкөністер, картоп және күнбағыс майы) үшін жүргізілді.

Зерттеудің түпнұсқалығы мен практикалық құндылығы. «Азық-түлік өзін-өзі қамтамасыз ету» және «азық-түлік тәуелсіздігі» ұғымдарын ажырату қажеттілігін негіздеу арқылы авторлар нақты экспорт пен физиологиялық тұтыну нормативтерін ескере отырып, азық-түлік тәуелсіздігінің деңгейін есептеу әдістемесін әзірледі. Жұмыста ұсынылған тәсілдер мен есептеулер азық-түлік тәуелсіздігін арттыру жөніндегі стратегияларды қалыптастыру кезінде мемлекеттік басқару тәжірибесінде қолданылуы мүмкін.

Зерттеу нәтижелері. Зерттеу шеңберінде өнімнің негізгі топтары бойынша елдің азық-түлік тәуелсіздігінің деңгейі ресми және авторлық әдістеме бойынша есептелді және нәтижелер салыстырылды. Тәсілдер арасындағы анықталған алшақтықтар қолданыстағы әдістемелік ұсынымдарды қайта қарау қажеттілігін көрсетеді. Авторлардың әдіснамасы бойынша ең көп тапшылық сүт өнімдері, ет түрлері (қой еті), жемістер-жидектер және күнбағыс майы бойынша байқалады. Сапалық мәнде осы топтар бойынша қамтамасыз етілу деңгейі ішкі тапшылықтың болуын көрсететін критикалық (ірімшік пен сүзбе, жеміс) және төменгі шекті деңгейден (сүт өнімдері, күнбағыс майы, қой еті) төмен болып сипатталады. Жекелеген өнімдер (күнбағыс майы, қой еті) экспортының өсуі ішкі рынокта импортқа тәуелділік пен тапшылықтың сақталуымен қатар жүретін теңгерімсіздік анықталды, бұл экспорт-импорт саясатын қайта қарауды талап етеді.

Түйін сөздер: азық-түлік қауіпсіздігі, азық-түлік тәуелсіздігі, азық-түлікпен өзін-өзі қамтамасыз ету, азық-түлікпен өзін-өзі қамтамасыз ету деңгейі, тұтынудың физиологиялық нормасы, нақты ішкі тұтыну, азық-түліктің экономикалық қолжетімділігі.

ОТ САМООБЕСПЕЧЕННОСТИ К ПРОДОВОЛЬСТВЕННОЙ НЕЗАВИСИМОСТИ: МЕТОДИЧЕСКИЙ ПОДХОД И ОЦЕНКА СОСТОЯНИЯ В КАЗАХСТАНЕ

Р. С. Якудина[1*], А. А. Курманалина[1], V. Filimonau[2]
[1]Актюбинский региональный университет имени К.Жубанова, Актобе, Казахстан
[2]Университет Суррея; Гилфорд, Великобритания

АННОТАЦИЯ

Цель исследования. Комплексная оценка состояния продовольственной независимости Казахстана и разработка адаптированной методики расчёта уровня продовольственной независимости с учётом фактического экспорта и рациональных норм потребления.

Методология исследования включает систематический обзор литературы, общенаучные методы: сравнительного и графического анализа, статистического анализа, причинно-следственный, обобщение. Основной аналитический подход заключается в сравнительном расчете показателей с использованием двух альтернативных формул: официального и предлагаемого авторами коэффициента продовольственной независимости в сочетании с динамическим анализом на 2020–2024 годы. Сравнение проводится для агрегированных групп продуктов (мясопродукты, молоко и молочные продукты, яйца, фрукты и ягоды, овощи, картофель и подсолнечное масло).

Оригинальность и практическая ценность исследования. На основе обоснования необходимости разграничения понятий «продовольственная самообеспеченность» и «продовольственная независимость», авторами была разработана методика расчёта уровня продовольственной независимости с учётом фактического экспорта и нормативов физиологического потребления. Предложенные в работе подходы и расчёты могут быть использованы в практике государственного управления при формировании стратегий по повышению продовольственной независимости.

Результаты исследования. В рамках исследования был рассчитан по официальной и авторской методике уровень продовольственной независимости страны по основным группам продуктов и сопоставлены результаты. Выявленные расхождения между подходами демонстрируют необходимость пересмотра действующих методических рекомендаций. По методологии авторов, наибольший дефицит наблюдается по молочным продуктам, отдельным видам мяса (баранина), фруктам и ягодам и подсолнечному маслу. В качественном выражении уровень обеспеченности по данным группам характеризуется как находящийся ниже критического (сыр и творог, фрукты) и низкого порогового уровня (молочные продукты, подсолнечное масло, баранина), что указывает на наличие внутреннего дефицита. Выявлен дисбаланс, при котором рост экспорта отдельных продуктов (подсолнечного масла, баранины) сопровождается сохранением импортозависимости и дефицита на внутреннем рынке, что требует пересмотра экспортно-импортной политики.

Ключевые слова: продовольственная безопасность, продовольственная независимость, продовольственная самообеспеченность, уровень продовольственной самообеспеченности, физиологическая норма потребления, фактическое внутреннее потребление, экономическая доступность продовольствия.

ABOUT AUTHORS

Yakudina Raikhan – PhD student at K.Zhubanov Aktobe regional university; 030000 Aliya Moldagulova Ave., 34, Aktobe, Kazakhstan; email: ryakudina@zhubanov.edu.kz; https://orcid.org/0000-0001-7875-154X*

Kurmanalina Aigul – Candidate of Economic Sciences, Associated Professor; K.Zhubanov Aktobe regional university; 030000 Aliya Moldagulova Ave., 34, Aktobe, Kazakhstan; email: kurmanalina@mail.ru; https://orcid.org/0000-0002-0729-6401

Viachaslau Filimonau – PhD, Associate Professor (Reader) in Hospitality Innovation, School of Hospitality & Tourism Management; Centre for Sustainability and Wellbeing in the Visitor Economy; University of Surrey; Guildford GU2 7XH, United Kingdom. email: v.filimonau@surrey.ac.uk; https://orcid.org/0000-0001-7353-5696