

ANALYTICAL BASIS OF LIVESTOCK DEVELOPMENT AS A SOCIAL FACTOR OF ECONOMIC SECURITY STRENGTHENING OF AGRICULTURE



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Abstract. Agribusiness is one of the most risky forms of the enterprising capital investment due to the presence of the significant threats to the economic security of the economic entities. These are a number of the factors of the changing external and internal environment, the study of the impact and leveling of the threats which is an important part of economic work. The reasons for the decline in the overall efficiency of the production process were many factors that have both economic and social origin. The purpose of the research is to substantiate the dependence of the level of the economic security of the branch and agricultural enterprises on the social and economic indicators of livestock development. The level of the economic activity of the rural population of Kharkiv region, the degree of variation of employment in agriculture and economy of the region, the dynamics of the number of the employees of the agricultural enterprises in the plant-growing and livestock branches are analyzed in the first part. Using the method of analytical grouping the impact of the social and economic indicators of livestock development on the level of the economic security at the micro level is analyzed in the second part.

Keywords: *economic security, employment of the population in livestock and plant-growing, perspective extrapolation, analytical grouping, agriculture, enterprise.*

Introduction

Agribusiness is one of the most risky forms of the enterprising capital investment due to the presence of the significant threats to the economic security of the economic entities. These are a number of factors of the changing external and internal environment, the study of the impact and leveling of the threats

which is an important part of economic work. The reasons for the decline in the overall efficiency of the production process were many factors that have both economic and social origin.

The successful solution of the social issues of the rural residents depends on the development of the livestock branch. From the point of view of the economic security, we have the following important points: first, this branch solves the problem of providing the consumers with the indispensable high-quality food products, ensuring the proper level of their consumption, expanding the opportunities to export the livestock products abroad. Secondly, the social result of its functioning is to ensure the employment of the rural population and their stable income from work. Third, the level of livestock development depends on the efficiency of the processing industry and the employment of the workers in this area.

The need to develop the methodological bases for the analysis of the dependence of the level of socio-economic security on the level of development of the livestock branch in agriculture of Kharkiv region (Ukraine) is caused by the fact that the scientists are developing mainly the methods for analyzing the financial and investment components of the security. This led to the choice of the research topic, determined its purpose.

The purpose of the research is to substantiate the theoretical and methodological foundations of the development of the analytical basis for the development of the livestock branch at the level of the economic security of agriculture.

Literature Review. The issue of assessing the economic security, the relationship between the economic and social components of the agricultural security in general and individual agricultural enterprises is the subject of the research by a number of the economists, including Arkhireiska N., Vivchar O., Kurkin M., Nazarenko D., Pozdieiev V., Ponikarov V. and other scientists. The socio-economic efficiency of the development and social significance of the livestock are studied by O. Mazurenko, O. Ksionova, N. Stoliarchuk, M. Kozak.

Academician V. Andriichuk identifies the following components (subsystems) of the economic security: financial, personnel, technical and technological, political and legal, information, environmental law enforcement and land use security. The personnel component is achieved through the effective personnel management and development of the intellectual potential of the enterprise (Andriichuk, 2013).

The clarification and characterization of the socio-economic security factors at the macro and micro levels will be carried out by us on the basis of the structural and functional analysis. This conceptual direction is based on the idea of the functioning of the society as a system of the interconnected elements.

In the researches of O. Vivchar the need to form a mechanism for managing the socio-humanitarian factors as a basis for strengthening the economic security of the enterprises is substantiated (Vivchar, 2018). Neglect of the social factors of the economic security can lead to the catastrophic consequences: the decline of the industries, bankruptcy of the enterprises, undermining the livelihood of the state. The implementation of the actions to strengthen the economic security of the enterprise should begin with a study of the risks of the social and humanitarian component.

Investigating the current problems of the analysis of the economic security of the enterprise, V. Pozdieiev offers an approach that allows identifying the threat as a stage of the risk development. The scientist investigates the methods of determination of the threshold values of the indicators and opens the areas of their application (Pozdieiev, 2016, p. 16).

Research Methodology. The methodology of the research of the social factors of maintenance of the economic safety is based on the separate initial positions, among which are the following: account of the specificity of functioning of the agricultural enterprises which develop both plant-growing and livestock branches; study of the isolation of the impact of the socio-economic indicators of livestock on the economic security; separation of the information security as a component of the economic security and organizational regulations for its protection; introduction of the diagnostics of the economic security on the basis of the econometric modeling and forecasting of the economic phenomena's and processes.

Since 2017, the statistical report "Report on the main economic indicators of the agricultural enterprises" (form 50 agriculture) removed the indicator "Average number of full-time and average number of part-time employers in agricultural production" (including plant-growing and livestock). This creates some difficulties in analyzing the further trends. The missing indicators on the number

of the employees by the branches on the farms in Kharkiv region were calculated by us by the method of the perspective extrapolation. The number of the employees in the plant-growing branch for 1998 - 2016 was aligned by the logarithmic function $y_t = 57628 - 14868 \ln(t)$ ($R^2 = 0,9263$). According to the parameters of the equation, we calculated the theoretical (forecast) number of the plant-growing workers at the enterprises of the region for 2017 - 2019. The trends in the number of livestock workers for 1998 - 2016 were identified using the power function $y_t = 110425t^{-0,9288}$ ($R^2 = 0,9406$).

The analytical grouping allowed studying the variety of the connections between the economic security of the enterprises and the social factors. The advantages of using the method of the analytical groupings over others is that it does not require compliance with certain conditions for its use, except for one - the qualitative homogeneity of the studied population.

Research results. According to the statistical yearbook "Kharkiv region in 2018", the number of the available rural population, which at the time of the census was in the rural areas of the region, including temporary residents, as of the 1st January, 2019 made up 507.2 thousand people vs. 684.2 thousand people at the beginning of 1990 and 555 thousand people in 2009. Over 30 years, the population has decreased by 177 thousand people or 25.9%, over the past 10 years – by 47.8 thousand people or 8.6%. The economically active population, which offers its work for the production of goods and services, is included in the UN System of National Accounts. In Kharkiv region, the number of the economically active rural population aged 15-70 in 2018 amounted to 238.9 thousand people, which is less than in 2009 by 42.9 thousand people or 15.3%. As we can see, the rate of decrease in the number of the economically active rural population is significantly ahead of the rate of decrease in the existing population - 15.3% vs. 8.6%.

Among the objective sectoral features of agriculture, which affect the mechanism of strengthening the economic security of the agricultural sector, we call the interdependence and complementarity of the branches and subsectors of the production. Taking into account this factor should be the basis for strengthening the economic security of the enterprises in agriculture and will avoid the negative trends in the financial state of the agricultural enterprises. According to the statistical reports, we analyzed the employment of the workers in the plant-growing and livestock branches for 1998 - 2019 (Figure).

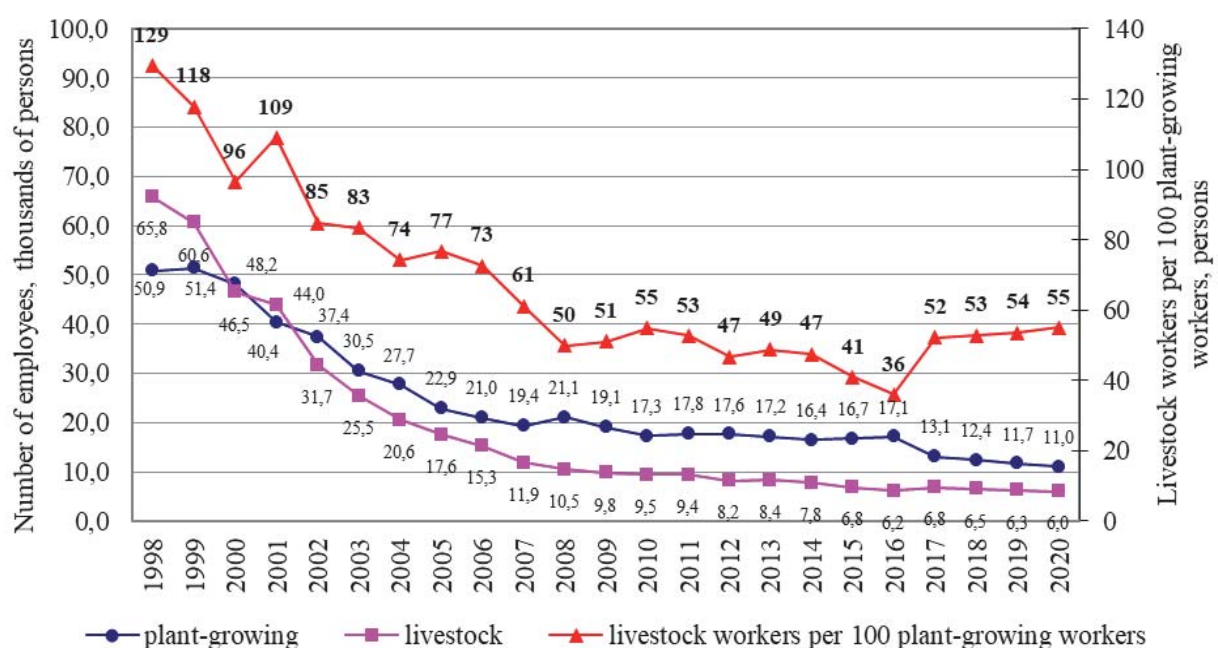


Figure: Dynamics of number of employees employed in plant-growing and livestock at agricultural enterprises of Kharkiv region, 1998 – 2019

Negative tendencies to change the number of the employees are observed both in the plant-growing and livestock branches. In agriculture, the number of the employees decreased by an average of 1,899 people or 7% per year. In the livestock branch of Kharkiv region, the rate of decrease in the number of the employees for 1998 - 2019 is much higher: on average for the year by 2848 people or 10.6%. Such circumstances make it impossible to meet the needs of the population in livestock products of their own production and lead to a decrease in the overall efficiency of the production process and weaken the level of the economic security of the agricultural branch.

Discussion of research results. The agricultural enterprises of Kharkiv region ($N=542$) were grouped into five analytical groups according to profitability. The main condition for the application of the grouping method is the qualitative homogeneity of the studied population. The degree of the variation in the level of profitability of the surveyed agricultural enterprises of Kharkiv region in 2018 is significant and is 41.77%. With such a high value of the coefficient of the variation, the assessment of the average level of profitability of the sales of the agricultural products in the region can be considered unreliable ($25\% \leq CV \leq 50\%$). This significantly exceeds the normative value of the variation coefficient. According to Shmoilova R., the population is homogeneous if the variation coefficient does not exceed 33% (Shmoilova, 1998, p. 192). Other scientists allow the value of 40% (Spyryna, 1997, p. 106).

The specificity of livestock development in Ukraine is determined by the predominance of the share of households in total livestock production. In 2018, the enterprises of the population of Kharkiv region produced 60.3% of meat (in slaughter weight), 54.4% of milk, 59.3% of eggs, and 90.4% of wool. The economic crisis reduced the output of the industry and the number of the employees employed in it. In 2000, the livestock of the agricultural enterprises of Kharkiv region employed almost 50% of the employees, in 2005 - 43.4%, in 2010 - 35.4%.

While analyzing the socio-economic indicators of the livestock branch, it was found out that in 2018, out of 542 enterprises in Kharkiv region produced and sold milk at 111 enterprises, produced and sold beef to 113 enterprises (table).

Table 1.

Dependence of profitability of agricultural products on socio-economic indicators of livestock development on farms of Kharkiv region, 2018

Indicator	Groups of enterprises by profitability level of agricultural products, %					In aggregate
	I	II	III	IV	V	
Number of enterprises	54	60	150	172	106	542
The average level of profitability of agriculture products by group, %	8,69	30,43	43,64	58,6	83,2	47,8
Profitability of livestock production, %	-0,3	-41,4	6,9	3,7	-0,01	2,3
Share of enterprises in which livestock are kept, %:						
- cows	20,4	15,0	22,0	24,4	15,1	20,5
- cattle	24,1	18,3	20,7	25,0	14,2	20,8
Share of livestock workers, %	33,9	21,7	33,0	30,4	29,0	29,0
Livestock workers per 100 crop workers	51	28	49	44	18	41
Livestock per livestock worker, conditional heads	5,62	9,88	9,70	11,44	14,59	10,18
Livestock density and 100 ha of agricultural land lands, conditional heads	4,07	4,33	7,05	8,54	3,28	6,33
Labor productivity in livestock	203,9	229,8	501,8	283,2	204,4	333,9

(cost of production per employee), thousand UAH						
Produced per 100 hectares of agricultural lands, centers:						
- milk	111,6	128,6	247,4	283,9	60,5	201,8
- growth of cattle	5,8	6,8	10,3	12,9	3,0	9,1

According to the calculations in the table, in the region we have problems with livestock development, which provides employment for a third of agricultural workers. Only every fifth enterprise in the region is engaged in dairy farming. The smaller is the share of workers employed in animal husbandry, the higher is the profitability of agricultural production. If in the first group (with the lowest level of profitability 8.69%) per 100 crop workers there are 51 livestock workers, in the fifth group (with the highest level of profitability 83.2%) - 18 people (2.8 times less). Profitability in livestock is generally lower than in plant-growing (2.3% vs. 56.7%). At the same time, as noted by Tulush L., the level of capital investment and payback period in livestock far exceeds the corresponding indicators for plant-growing (Tulush, 2015).

However, despite the identified "disadvantages" of livestock, it can be affirmed that there is a pattern of positive impact of the branch development on the economic security of the agricultural enterprises. As the indicators of the level of intensity of the branch, we have calculated the number of cattle per worker and the density of livestock per 100 hectares of the agricultural land. Livestock workload per employee increases from the level of 5.62 conditional heads in the first group to 14.59 conditional heads in the fifth group (the range of variation of the conditional heads, the oscillation coefficient is $K_o = 88,1\%$). The similar trends with the change in the density of livestock per unit area of land, the scope of variation is $R = 4,47$ of the conditional heads, the oscillation coefficient is $K_o = 70,6\%$.

According to the average indicators of the livestock efficiency by the groups of the enterprises, there is a tendency to increase both milk and growth of cattle per 100 hectares of the agricultural land. Moreover, the oscillation coefficients of the efficiency indicators exceed the corresponding coefficients of the intensity levels and are, respectively, 110.7% and 108.8%. The growth rate of cattle growth per 100 hectares of the agricultural land outpaces the growth rate of livestock density in the second group by 10.2%, in the fourth group - by 3.4%. In the third group, the growth rate of milk production per 100 hectares of the agricultural land is 192.4%, which is 18.2% higher than the growth rate of livestock density per 100 hectares of the agricultural land.

The indicator of labor productivity in livestock as a factor in the management of the socio-economic security of the agricultural enterprises does not work properly and increases to the level of 501.8 thousand UAH. On the enterprises of the third group, and then tends to decrease. Increasing the labor productivity of livestock should be achieved by increasing production in two interrelated ways - expanding the mechanization of production processes and increasing animal productivity. The identified patterns confirm that the development of the livestock industry has significant reserves in the management of the socio-economic security of the agricultural enterprises.

Conclusions

The lack of a common vision of the essence of the economic security and a perfect analytical basis for its strengthening and definition of its components, both in the scientific literature and in the legal framework, creates a number of the contradictions and inaccuracies of the methodological approaches to calculating its level which actualizes the improvement of the existing accounting and analytical support of the complex management processes.

The main principles of the structural and functional approach to the management of the socio-economic security at the macro and micro levels are: the study of the economic security as a multilevel integrated system consisting of the interconnected and interdependent financial, economic, social and environmental subsystems; the analysis of the socio-economic relations within the subsystems; defining the role, features and functions of a particular socio-economic element. The study of the social component of the economic security should precede and underlie the adoption of the strategies, tactical decisions, justification of methods and tools to be used to

strengthen the economic security of the agricultural enterprises and the agricultural sector in general.

Livestock is becoming a social sector and is important for the functioning of the agricultural sector. This branch determines the level of the food security more than plant-growing (because it provides the population with the key food products - milk, meat and eggs). The state of the livestock branch development is closely linked to solving the problem of employment in the rural areas. The livestock branch is more labor-intensive and creates a significant number of jobs, while work in the plant growing branch is seasonal and mostly short-term.

We have proposed and developed the system of the socio-economic indicators of livestock development, which indirectly affect the economic security level of the agricultural enterprises and agriculture in general, Kharkiv region, which strengthens the analytical basis of the economic security management of the agricultural enterprises.

The prospects for the further research are the development of the multifactor econometric models of the impact of the factors on the level of the economic security of the agricultural enterprises and forecasting its level on a strategic basis.

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