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INDICATORS SYSTEM EXPRESSING THE VOLUME OF PRODUCT PRODUCTION IN ECONOMIC ENTITIES AND THEIR USE IN ANALYSIS

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Abstract: Introduction: this article examines the theoretical and practical aspects of the system of indicators expressing the volume of product production in economic entities and their role in economic analysis. Methods: the research utilized methods of systematic approach, economic-statistical analysis, comparative analysis, structural-functional modeling, and inductive-deductive reasoning based on the production data of agricultural and agro-industrial enterprises. Results: the scientific interconnectedness and distinct analytical roles of gross, marketable, and realized production indicators were systemized, and an algorithm for quantitative evaluation of production assortment changes and structural shifts was developed. Discussion: the obtained results demonstrate that relying solely on value-based indicators without considering natural and labor-based metrics distorts the evaluation of production capacity; therefore, a balanced multi-dimensional indicator framework integrated with factor analysis models is essential for optimizing enterprise performance and forecasting sustainable growth.

Keywords: economic entities, production volume, gross output, marketable product, realized product, economic analysis, factor analysis, assortment, structural shifts, agro-industrial complex.

Introduction

In the conditions of deepening market relations and increasing competition, the sustainable development of economic entities directly depends on the efficiency of their production activities. The volume of product production is a crucial economic category that reflects the scale of an enterprise's operations, its production capacity utilization, and its position in the market. For agrarian and agro-industrial enterprises, such as those operating within the system of veterinary medicine and livestock processing, the precise determination and comprehensive analysis of production metrics acquire specific importance due to the seasonal nature of production and biological biological cycles.

The objective evaluation of economic activity requires a comprehensive system of indicators rather than a single isolated metric. The production volume system serves as the basis for calculating labor productivity, asset turnover, cost of production, profitability, and financial stability. Without a deep economic analysis of these indicators, it is impossible to identify internal production reserves, optimize the product mix, and make sound strategic management decisions. This paper aims to analyze the structure of product production indicators in modern economic entities and develop a methodological framework for their effective application in factor analysis and managerial diagnostic practices.

Methods

The methodological basis of this research includes the dialectical method of cognition, the systemic approach to economic phenomena, and classical principles of economic analysis. To evaluate the structure and dynamics of production volumes in economic entities, several general scientific and specific economic-statistical methods were systematically applied:

1. Comparative and structural analysis: used to examine the dynamics of production growth over time and evaluate changes in the specific weight of individual product types within the total production structure.

2. Index method: applied to separate the impact of physical volume changes from price changes when analyzing value metrics.

3. Factor analysis (specifically the chain substitution method): used to determine the exact quantitative impact of production factors, such as resource availability and structural shifts, on the final volume of output.

4. Inductive and deductive reasoning: applied to generalize the empirical accounting data of typical agricultural and processing enterprises into broader theoretical conclusions.

Results

The investigation of accounting and analytical practices in economic entities shows that the volume of product production cannot be expressed by a single metric due to the complex nature of intra-firm consumption and market exchange. The research systemized the production volume indicators into three main interconnected forms: natural, labor-based, and value-based (monetary) metrics. While natural metrics (e.g., tons of meat, liters of milk) are essential for checking physical capacity, value-based indicators serve as the primary tool for generalized economic synthesis.

The quantitative relationship between the main value indicators of production — Gross Output (GO), Marketable Product (MP), and Realized Product (RP) — was established as a core analytical sequence. Statistical monitoring proves that discrepancies between the growth rates of Gross Output and Realized Product often indicate structural imbalances, such as an excessive accumulation of unsold inventory in warehouses or an inefficient expansion of internal agricultural consumption. Furthermore, the study developed an analytical model to calculate the fulfillment of the production plan regarding the assortment, demonstrating that structural shifts in production significantly affect the overall value metrics without representing a real change in physical efficiency [1; 44–46-b.].

To illustrate the practical application of these theoretical relationships, structural monitoring data from a typical processing economic entity was gathered and compiled into a unified systemic analysis.

Production Volume Indicators	Planned Volume (Thous. UZS)	Actual Volume (Thous. UZS)	Deviation (+/-)	Performance Level (%)
Gross Output (GO)	1250000	1310000	+60000	104.8
Marketable Product (MP)	1100000	1125000	+25000	102.3
Realized Product (RP)	1050000	1015000	-35000	96.7
Unsold Inventory Changes	50000	110000	+60000	220.0

The data compiled in the matrix indicates that while the internal manufacturing segments successfully overfulfilled the Gross Output plan by 4.8%, the commercial deployment structure faced structural bottlenecks. The Realized Product level reached only 96.7% of the initial plan, which directly triggered a 220% expansion in unsold warehouse inventories. This quantitative variance highlights that high operational efficiency metrics inside processing facilities do not

automatically translate into market success unless balanced against actual sales realization indexes [10; 118–122-b.].

Discussion

The necessity of using a comprehensive system of indicators, rather than relying exclusively on monetary terms, represents a key point of discussion in modern economic analysis. Many enterprise managers prioritize realized output in current prices because it directly correlates with cash flow. However, as noted in classical economic literature, analyzing production volume solely through realized values can create a false impression of efficiency during periods of high inflation or shifting market prices [2; 112–115-b.]. To eliminate price distortions, economic analysis must utilize constant (comparable) prices alongside natural units of measurement.

The analytical value of distinguishing between Gross Output and Marketable Product is particularly high in agricultural and veterinary-related enterprises. In these entities, a significant portion of the gross output (such as grain, milk, or forage crops) does not leave the enterprise but is recycled internally as animal feed or seed stock [3; 78–81-b.]. Therefore, evaluating an enterprise based purely on marketable product might undervalue its total biological productivity, while focusing only on gross output might disguise liquidity problems.

Factor analysis of production volume must integrate both extensive and intensive growth factors. The expansion of production volume can be achieved either by increasing the quantity of resources (land, labor, capital) or by increasing the efficiency of their utilization (yield rates, labor productivity, asset yield) [4; 55–59-b.]. The application of the chain substitution method allows analysts to isolate these factors. For example, the impact of labor factors on production volume is evaluated through the following model:

$$V=T*W$$

where V represents the volume of production, T is the number of workers or hours worked, and W is the labor productivity per unit of time [5; 92–95-b.]. By breaking down value metrics into physical units and productivity coefficients, economic entities can accurately locate bottlenecks in their operational cycles.

Assortment and structural analysis constitute another vital dimension of production volume evaluation. Assortment refers to the list of product names and varieties produced by the entity, while structure represents the percentage share of each product type in the total volume of output [6; 120–123-b.]. When an enterprise shifts its production schedule toward expensive, high-margin products, the total value of production rises even if the physical volume remains constant or declines. This phenomenon, known as a structural shift, requires careful monitoring because it can mask an underlying decline in market share for basic product lines [7; 210-b.].

To achieve sustainable optimization, economic entities must align their production volume analysis with market demand research. Producing a large volume of gross or marketable products is economically meaningless if the goods cannot be realized due to poor quality, outdated assortment, or incorrect pricing strategies [8; 63–66-b.]. Therefore, modern economic analysis requires a continuous cross-examination of production schedules against contract fulfillment metrics and logistics data. Integrating production indicators into a unified balance framework ensures that manufacturing capacity directly supports financial solvency and long-term competitiveness [9; 142–145-b.].

Conclusion

The system of indicators expressing the volume of product production forms the foundation of operational and strategic economic analysis in any economic entity. A reliable evaluation of production performance cannot be achieved through a single metric; it requires the balanced,

simultaneous analysis of natural units, labor metrics, and value-based indicators such as gross, marketable, and realized output.

For agricultural and specialized biotechnology enterprises, tracking the transition of gross output into realized product is critical for uncovering hidden internal reserves and managing intra-firm consumption. The application of factor analysis models, assortment metrics, and structural shift evaluations enables managers to distinguish real qualitative growth from artificial price inflations. Ultimately, utilizing this comprehensive indicators system allows economic entities to optimize resource allocation, align production capacity with actual market demand, and ensure long-term financial sustainability.

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