Cluster Structure in the Agro-Industrial Complex of Uzbekistan and the Method of Product Distribution

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Abstract
The author of this article examined theoretical and practical approaches to final product distribution methodology and presented his perspective on how to handle this problem based on the job set for the cluster structure.

Keywords— Index of production and technological independence, index of socio-political efficiency, index of socio-economic stability, export capacity index.

Introduction

Due to the need to stabilize the economic situation of agrarian formations, restore destroyed production and economic relations, and comply with the parity of industries and economic entities, the development of integration processes in the entire agro-industrial complex takes on strategic importance in the context of the Republic's agriculture. In order to assess the efficacy of clusters as an integration structure in the republic's agro-industrial complex, it is vital to identify the key characteristics of this organizational structure. Cluster theory was first established in the context of economic geography. M. Porter's work, which has been recognized in over 500 cluster efforts around the world, has sparked renewed interest in clusters as a regional and sectoral development phenomenon. Clusters have become a critical economic policy tool around the world from a global perspective. Scholars and policymakers have been interested in the cluster as a tool for sectoral and regional development to date (governing bodies). It is a sustained combination of partners in the form of cooperative links of economic organizations, which may beyond the mere addition of individual components of potentials, based on the economic idea of a cluster as an integration structure. This rise is the consequence of long-term collaboration and effective utilization of partners' talents, as well as system integration processes. This is due to the emergence of synergies as a result of their ability to share pleasant experiences and cut expenses by utilizing the same services and partners. That is, the synergistic effect obtained in an economic system as a result of the merging of diverse actors in that system may be significantly bigger than the total of the economic benefits of these entities' individual actions.

Literature analysis.

In the monograph by V.A. Tikhonov and M.L. Lezina "The Final Product of the Agroindustrial Complex", the authors give their recommendations on the definition and specifics of the distribution of the final product in the agroindustrial complex. In doing so, they emphasize the fact that the term final product in the agricultural sector is a very abstract concept, as agricultural products are foodstuffs, groceries and industrial raw materials at the same time.

T.D. Kosinski and S. Bondareva in their article "Cluster approach to the formation of food security of the population in the region" consider the cluster approach as a solution to the socio-economic problems of rural areas in the context of the development of rural production infrastructure.

In Uzbekistan's agricultural development strategy for 2020-2030, the government is focusing on financing rural development projects from 2021 onwards. The strategy identifies sources of funding and measures for the targeted use of financial resources.

Research methodology

Agro-industrial production has developed a unique pricing specification by which, through the use of process coefficients, it is possible to determine the performance of the final product by stage of production and intended use.

Analysis and results

As a result of ongoing reforms, the republic's agricultural production is now based on a cluster method of production, which covers a proportion of the total area of agricultural land by type of crop:in the cotton-textile sector 62%, in animal husbandry 8%, in fruits and vegetables 7.5%.

At the same time, under a presidential decree of 14 March 2019 on measures to develop cooperation in fruit and vegetable growing, 41 fruit and vegetable farming associations have been set up in eight districts of the republic. Their economic activities in 2019 resulted in the production of 7.13 million tons of grain, 2.85 million tons of cotton, 19.6 thousand tons of colons, 21 million tons of fruits and vegetables, 400 thousand tons of rice, 2.6 million tons of meat (in slaughter weight), 11 million tons of milk, 8.1 billion eggs, resulting in an economic output of 217.7 trillion soums, up 12 percent from 2018. But the productive activities of the 4.9 million households throughout the country must not be overlooked. The above amounts of agricultural products are both foodstuffs ready for consumption, food raw materials for processing, and industrial raw materials for processing and industrial enterprises. It follows that it is difficult to determine at what stage and in what volume the agricultural production and the final product from the economic activity will be realized. The final product is one of the key concepts in management, defined by Ran Khobbard in his scientific research. The explanatory dictionary, defines it as follows. "A product is an object which is the result of human labour, an activity".It follows that if the product is a material phenomenon, then labor will be part of it. Therefore, economic activity in all its manifestations is the product of human labor. Based on the topic of our study (cluster), we have to define what is the final product of this form of economic activity. The global practice of organizing and establishing cluster structures is characterized by the solution of problematic economic problems faced by an industry or the state. A cluster, as an integrated structure, differs in terms of the forms and motives for integration, which are defined as follows:

1. Vertical integration (sectoral) - motive to create a value chain through profit sharing (sectoral clusters).
2. Horizontal integration (inter-production) - the motive for creating a single production chain through the concentration of production (agricultural associations).
3. Conglomerate form of integration - this includes combining different production activities into a single structure. Motivated conglomeration allows a large part of the cash flow and funds generated by high-demand products can offset reduced revenues from products for which demand has temporarily fallen.

In general, this approach reduces the variation in cash flow indicators and thus increases the chances of integrated entities obtaining the necessary funds on the capital market under normal conditions.

It was this form of integration (conglomerate) that was taken as the basis for the agro-cluster module (algorithm) in the form of the establishment of an agro-industrial committee under the Cabinet of Ministers. Since the current stage of development and economic activity in agriculture, it is necessary to take into account the rapidly changing conditions of management, which form an environment in which not only the strongest survive, but also those who are flexible and respond adequately to all changes and market demands. Under these conditions, forms of economic activity that allow for survival and sustainability under various forms of competition emerge of their own accord. The private sector of the country's agricultural economy possesses these basic characteristics, as it is more adapted to rapid changes and shifts in production processes and is mobile in diversifying its financial resources. But at the same time, one cannot ignore the fact that the private sector alone is not a full member of the integrated structures in the country's agroindustrial sector. Therefore, the country is making a concerted effort to include the private sector in integrated structures, given the fact that it is the main producer of food in the country. Although the private sector occupies 13% of the irrigated arable land, it accounts for 70% of agricultural production, including most meat and milk production, eggs and fruit and vegetable products. Based on the economic essence of the formation and operation of integrated structures in the economy, the final product of their activities and the motive for integration may be not only profit, but also the following indicators:

1. Production and technology independence index.
2. Socio-political effectiveness index.
3. Socio-economic stability index.
4. Export capacity index, or a measure of the volume of agricultural production sold.

Under the given conditions of economic activity, when the agro-industrial complex of the republic is 2/3 dependent on external environmental factors in the context of logistics, the use of the above indicators to assess the effectiveness of integrated structures in the industry, has no production and economic significance.

Therefore, the agricultural sector is intensively oriented towards increasing the export potential of agricultural production. Currently, the country exports only USD 1.5-2 billion worth of agro-industrial products, when the export capacity of the agro-industrial sector could be as high as USD 10-15 billion. Global economic relations and the experience of world trade show that economic activity based on exports is of great importance and induces the development and production of new types of goods and services. In 1664 in the book of Thomas Mena, a prominent representative of mercantilism - 'The Wealth of England in Foreign Trade or the Balance of Foreign Trade as a

Regulator of Our Wealth' - he noted that most countries, including European countries, have no reserves of these precious metals, the only source of money and therefore the wealth of the respective nations is foreign trade, balancing it with a surplus. As far as conventional goods are concerned, they are merely a means of increasing exports, aimed at acquiring money. The essence of this concept was expressed in the very title of this book. The validity of the provisions set out in this concept has been reflected in the economic reality at the present stage. Applying the theory to export-oriented industries, this would provide an opportunity for an inflow of foreign exchange, which could be used as investment in an agro-industrial complex in need of technical and technological upgrading, which requires enormous funds that the industry does not have. This can be achieved with strong government support or by shifting the industry to export-oriented products. But export criteria for certain types of goods and services are subject to various restrictions by international organizations. For example, textile exports from our republic have so far been limited to the use of child labor, which has been used in the production of raw cotton and other commodities, by the condition that our country is not a member of the various international organizations that determine the rules of trade balance and the direction of trade flows in international trade. One example is the republic's accession in November 2018 to the International Organization for Vine and Wine, which entitles the industry's products to move freely on the foreign market. Thus, it follows from the above data that it is advisable to organize and introduce into economic practice such branches of agriculture whose products would be exotic not only in the foreign market, but also in the domestic market, which would determine their high consumer demand and unhindered access to the foreign market in the future. An instructive moment in our country's economic practice is the organization and implementation into production by "Ostrich House" of the brand for ostrich habitat and breeding. The products of this type of economic activity are very competitive on the consumer market, as only countries that have a competitive advantage, in the context of favorable climatic conditions, engage in this form of productive activity. This type of economic activity is not yet widespread in the republic. But the conditions and modalities offered by the company are worthy of encouragement and consist of the following components:

1. Sale of young poultry to entrepreneurs at a technologically acceptable price, determining their interest in this type of production activity.
2. Procurement of finished products at a negotiated price without infringing on the rights of the producer.
3. Domestic and foreign sales.

In this situation, the company is at the same time an entity conducting market research not only in the production and sales market, but also as an object of scientific research and the study of production experience for the wide dissemination of this type of business activity.Thepurposeofascientificstudyofthistypeofeconomicactivityisthat: firstly, there are no scientifically based and production-specific results for this type of economic activity that can be used as production and economic information available to a wide range of entrepreneurs, secondly, on the basis of scientific research, technological coefficients will be developed to convert individual production data into conditional data in order to specify economic calculations for the purpose of making production decisions, thirdly, the company's activities are based on a cluster form of management, i.e. a production-technology chain of research-production-processing-storage-sales has been achieved, fourthly, this type of productive activity is in its infancy and spreading, Fifthly, in

order to implement the state programs "Every Family is an Entrepreneur" and "Youth is Our Future", this type of entrepreneurial activity is very relevant, which gives us the opportunity to use the above formulas.

Ensuring production and technological independence for all agricultural production in the republic under the given conditions of management is very important. As agriculture is currently 2/3 dependent on imports of a wide range of inputs and technologies in some areas of economic activity, including the above-mentioned form of production activity. Consequently, this can be overcome by processes of building up productive forces in the national agro-industrial complex. In our view, import substitution is a system of measures aimed at reducing import dependence, overcoming the actual or possible shortage of imported products, increasing the stability and competitiveness of national production, and creating demand for domestic products. At the same time, it is a form of innovative growth. The need to replace imported products necessitates the development of agriculture at a more dynamic pace, which is possible through the introduction of innovations produced domestically, thereby increasing the technological independence of the industry.

I.The index of production and technological independence characterises the level of industry's dependence on external environmental factors (logistics, technology, etc.) and is calculated as the ratio of the cost of domestically produced resources to the cost of imported production resources:

$L = \frac{Q_1}{Q_2}$, where:

L– Index of industrial and technological independence;

Q_1 – the value of domestically produced resources;

Q_2– the cost of imported resources.

If we take into account that the calculated index has a directly proportional dependence on several factors, the obtained value (formula), the only link between indicators of resource costs of domestic and imported production, characterizing the level of technological independence of production processes in the agroindustrial complex of the republic. It follows that in order to overcome import dependency, it is important to consider the socio-political efficiency index, i.e. an indicator that incorporates factors of the internal environment of the sector through the level of development of the production infrastructure of agricultural production. The most urgent task of modern rural development is the creation of a proper rural production infrastructure. However, it should be taken into account that the production infrastructure for the above-mentioned type of economic activity is in a formative stage. Therefore, the lack of production and technological information in this area has had a negative impact on the widespread adoption of this type of business activity in the agrarian sector. In today's business environment, knowledge dissemination is a key part of the production infrastructure. For example, knowledge about a particular business process may spill over with the departure of important employees, during formal and informal communication, through competitors, control events, etc. At the same time, the reverse process is also possible - knowledge is able to penetrate enterprises, production through the same channels, thus increasing its level of knowledge and competitiveness.

According to Raymond Carré de Malberg, economic actors integrated in cluster structures generate knowledge in three ways:

1. Through various forms of joint action by economic actors, universities and other agents (actors);

2. Due to increased competition and rivalry between entities in the cluster;

3. Due to increased spillover caused by population mobility and social interaction between people.

II. The socio-political efficiency index is calculated as the ratio of the amount of private sector funds allocated to productive infrastructure to the value of the available productive infrastructure:

$\beta = \frac{b_1}{b_2}$, where:

β – index of socio-political effectiveness;

b_1 - the amount of private sector funds allocated to building productive infrastructure;

b_2 – the value of the existing production infrastructure.

The need for the creation of a rural production infrastructure is due to the production and technological problems of the current stage of development of the agro-industrial complex. As it has socio-political significance, a condition for which will be the development of new forms of economic activity, which will help to create new jobs in rural areas. Production infrastructure is the component that most characterizes the competitive advantage of an industry. For all their merits, the implementation of production infrastructure projects will, from our point of view, help reduce our dependence on imported resources, production and technology. By doing so, we will reduce social tensions by creating new jobs and stabilizing the socio-economic situation in rural areas.

III. The socio-economic stability index is calculated as the ratio of the number of new jobs created to the number of existing jobs in rural areas:

$G = \frac{C_1}{C_2}$, where:

G – socio-economic stability index;

C_1 – the number of jobs created through the creation of new production capacities and economic activities;

C_2 – the number of available jobs in the sector.

Widespread implementation of the above-mentioned type of economic activity will provide an opportunity to increase the share of rural employment, as high and stable growth rates of labor resources (over 1.8% per annum against 1.2-1.7%) create conditions for increasing social tension, through higher unemployment rates. Therefore, unsustainable and low-paid (seasonal) new jobs (from 400-500 thousand annually) do not absorb the bulk of graduates from colleges and lyceums or universities. As a result, the World Bank estimates that in recent years the number of labor migrants from Tajikistan has been between 2 and 3 million, or 7 to 10 per cent of the population, which is 2-3 times higher than the world average. Among labor migrants, one in three is young men aged between 20 and 24. The scale of shadow employment in the economy is estimated by the World Bank to exceed 50%, threatening not only fiscal policy but also macroeconomic stability.

The corresponding indicator shows in itself the exact opposite relationship to the previously mentioned indicator, i.e., the socio-political efficiency index, as the creation of a proper production infrastructure through the development of new export-oriented industries in non-resource sectors will provide and create many new jobs and at the same time help to reduce social tensions through the reduction of unemployment.

Organizing the production and distribution of the "Ostrich House" brand is a very promising area of production activity for agriculture in the country, as it has a very high degree of export orientation and is competitive in foreign markets. Therefore, the calculation of the export intensity of

an industry characterizes the ratio of the volume of exports to the volume of output. This indicator, also has a more relative meaning, as there is a certain amount of processed industry output in the volume of exports, which can be calculated using the following formula:

$\gamma = \frac{d_1}{d_2}$, where:

γ – the export intensity ratio of the industry's products;

d_1- the volume of exported products in the sector;

d_2 – the volume of output in the sector.

Exporting Uzbekistan's products to another country means it has a competitive advantage in that country's market, even after an increase in the rate of import duty.

Therefore, this indicator reflects in itself the status not only of the industry, but also of the state in the global economic space. To date, there are no livestock products in the country's export potential that are to be exported. Given these circumstances, the Agri-Food of Uzbekistan brand is set to be launched and disseminated by 2021.

In order to examine the dependence of the indicators under study on various factors, here is a mathematical problem that is formulated as follows: It is necessary to find a functional expression of the relationship between an economic phenomenon and its determinants, i.e. to find a function

$Y= f (F_1, F_2, \ldots F_n)$ *(1)*

Where f – a function of the relationship indicators

$F_1, F_2, \ldots, F_n$ factor indicators.

The most important output factor affecting output is the level of condition of the external environment and the internal environment of the phenomenon under study.

The analysis of the dependence of indicators on several factors is carried out after checking them for multicollinearity, i.e. for independence from each other. In selecting factors, a qualitative theoretical analysis is carried out with the simultaneous use of statistical-mathematical criteria. A three-stage selection process is most appropriate.

In a first step - an a priori analysis - the factors included in the provisional list can be unrestricted, as different variants of the same factor's measures can be included. The following factors affecting output will be highlighted in this analysis.

- number of business entities engaged in this type of business activity;
- business income;
- the average income of a business entity;
- input costs;
- average unit production cost;
- the average selling price per unit of the main and associated products.

The second step is the comparative assessment and exclusion of some factors based on a qualitative analysis with analysis of pairwise correlation coefficients and an assessment of their materiality. To do this, a matrix of pairwise correlation coefficients is compiled, in which the impact vector is measured through the tightness of the linear relationship of each factor with the resultant factor and with each of the other factor attributes.

$$\begin{Bmatrix} \alpha = a_1\ a_2 \\ \beta = b_1\ b_2 \\ G = c_1\ c_2 \\ \gamma = d_1\ d_2 \end{Bmatrix} (2)$$

Based on the numerical values of the factors and the results of the solutions to the equations, a relationship will be found with the values of the pair correlation coefficients. The results of the matrix analysis will show that the following factors aremulticollinear with each other:

- the number of entrepreneurs engaged in this type of business activity and the amount of their income;

- business costs and average income.

To solve a multiple regression equation of two multicollinear factors, the one with the highest association with the resultant variable is taken. The main indicator with which the volume of sales and income from production are linked. The average unit cost and the cost of providing services are removed from the indicators considered. A logical analysis confirms the high correlation of the other influencing factors in the production process.

As a result of qualitative and mathematical-statistical analysis, the following factors are taken into account to establish an analytical expression of the relationship between the volume of sales and production:

- the number of business entities engaged in this type of business activity.

- income from this production activity

- the interest of entrepreneurs in this type of business activity.

But in the third step, a model will be built, taking into account the selected attributes of the factors. On the basis of the obtained levels of correlation models of the studied indicators, we made a forecast of the volume of production and sales for the years 2020-2025.

Table 1

Forecast of production and sales volumes

Indicators	Units	2020	2021	2022	2023	2024	2025
Volume production	centner	x_1	x_2	x_3	x_4	x_5	x_6
Sales volume	centner	y_1	y_2	y_3	y_4	y_5	y_6

The forecast shows that production and sales volumes will increase in direct proportion. In order to achieve the projected volumes, it is necessary to implement a number of measures that contribute to uninterrupted production, while taking into account external environmental factors that have a negative impact on the production process. However, the republic has significant potential for the development of this segment of agriculture. Firstly, the republic is originally a region to be introduced with another specialization in the economic practice of the republic.

Secondly, the development and dissemination of new types of economic activities, such as the brand of the company " Ostrich House" is of social and economic importance.

Thirdly, research and study of Ostrich House's activities with the aim of developing technological coefficients and converting production data into pro forma data to specify economic calculations in order to justify them for implementation in the economic practice of the Republic.

Thus, when looking at agricultural production in combination with other related sectors, one cannot fail to notice that, apart from the strategic interest, the state is concerned with ensuring the smooth functioning of the agrarian sector of the economy.

There is also a well-defined market rationale for the existence and development of in-house agriculture, which creates several jobs in related sectors, and structural shifts in the agrarian sector

inevitably entail corresponding measurements in many sectors of the economy, from machine building to market trade.

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