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THE IMPACT OF EXPENDITURES ON INNOVATIVE TECHNOLOGIES IN REGIONAL TEXTILE INDUSTRY CLUSTERS ON ECONOMIC EFFICIENCY RESULTS

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Abstract

This article analyzes the impact of expenditures directed towards innovative technologies on the economic performance indicators of regional textile industry clusters. The relevance of the study is explained by the crucial role of innovative technologies in enhancing competitiveness within the textile sector, generating high added value, and expanding export potential. The research examines data from 2019 to 2023, including sales revenue, costs, net profit, profitability levels, technological transfer expenses, and the dynamics of fixed assets. In the course of the study, economic-statistical, comparative, and dynamic analysis methods were applied, as well as elements of correlation analysis. The results indicated that, although expenditures on innovative technologies initially increased the financial burden, they led to a significant growth in production volume, revenue, and profitability indicators in the medium term. It has been substantiated that innovative investments are a crucial factor in ensuring the economic stability and competitiveness of regional textile clusters, and scientific-practical recommendations aimed at enhancing their efficiency have been developed.

Keywords: Innovative technologies, technological transfer, textile industry cluster, regional economy, innovative expenditures, economic efficiency, profitability level, investment activity, competitiveness.

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Introduction

Today, the sustainable development of industrial sectors in the world economy is directly related to the level of implementation of innovative technologies. In particular, the textile industry is one of the strategic sectors where global competition is increasing and high demands are placed on product quality and cost. The use of digitalization, energy-efficient equipment, automated control systems and resource-saving technologies in modern production processes is becoming an important factor in increasing the efficiency of enterprises.

The textile industry is one of the leading export-oriented sectors in the economy of Uzbekistan and has been developing on the basis of a cluster system in recent years. Regional textile clusters serve to increase added value, provide employment and expand export potential by forming a single chain from raw material production to finished product production. However, there is a need for a deep scientific analysis of the real impact of the costs associated with the implementation of innovative technologies on economic efficiency indicators.

Practice shows that innovative technological costs can lead to an increase in production costs in the short term, but in the long term they provide economic efficiency through increased labor productivity, energy efficiency, product quality and export volumes. Therefore, assessing the impact of these costs on economic performance indicators, determining the level of their interdependence and developing mechanisms for optimizing them is an urgent scientific and practical issue. The results of the study serve to improve regional industrial policy, stimulate innovative activity in textile clusters and scientifically substantiate the processes of making investment decisions.

LITERATURE REVIEW

The practice of introducing clusters as an effective strategy for innovative development of the regions of Uzbekistan, ensuring competitive advantage, is gaining increasing attention. The introduction of clusters is mainly aimed at revitalizing the processing industry in agriculture, adapting farms that have specialized only in the production of agricultural products to modern scientific and technical progress, and especially training the rural population in new professions. The introduction of industry and innovative technologies in agriculture not only provides the population

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with new jobs and professions, but also leads to the introduction of various areas of service provision in the countryside, including social and innovative infrastructure.

Clusters are not a modern concept, but this practice has been used in foreign countries for a long time. The first to introduce clusters was the economist A. Marshal [1] mentioned them in his scientific works, interpreting them as "Industrial areas". Clusters, in their content, corresponded to A. Marshall's term of industrial areas, and later became a popular term. Clusters formed as a separate economic system that united different industries[2]. Currently, clusters are being formed with the aim of breaking down the vertical management of industries and organizing large-scale production horizontally[3]. Because the development of innovations, as a result of a sharp increase in consumer demand for new products, required the transformation of raw materials, which were prepared separately at each stage, into a single complex product. This situation showed the need to transform production into a single system. M. Porter defines the clusters that emerged in this situation as: “A group of large enterprises that are close in geographical terms and can develop in a mutually dependent manner.”[4]. Such approaches represent a synergistic effect between sectors and within the sector. The effect of synergy appears when internal and external resistances are combined, the sum of achievements is achieved. The term "Synergy" is used in the organization of company structures to achieve the result of collective action A.A. Bogdanov[5], Used by I. Ansoff [6]. Synergy is understood as a promising advantage resulting from the merger of several enterprises into one industry. [7]. Clusters have been formed as a single system that combines the capabilities of entrepreneurs. Cooperation, which is carried out as a result of mutual agreement of entities operating in the same industry, acting together in accordance with the laws of the market, reduces production costs and creates synergy in them. Their agreement mobilizes not only the cluster members, but also the surrounding population and the existing resources. As the population's income increases, it creates the basis for the

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emergence of a variety of service networks[8]. Clusters create the opportunity to implement innovative developments and technology transfers. The reason is that they are carried out through beneficial cooperation to perform large-scale work that one entity could not do. In world practice, there are two views on the emergence of clusters. First, there is M. Porter's free market theory, in which clusters are formed on the basis of self-interested cooperation based on market laws. The state does not give them any privileges or preferences. Because the market situation requires it. Second, local authorities, having noticed the socio-economic effect of clusters, try to unite entrepreneurs who are close to each other, form special zones and provide them with benefits. This first appeared in European countries in the fields of agriculture and mechanical engineering. Cooperation of clusters with local authorities is carried out in two ways. First, with local entrepreneurs if they have sufficient technology and resources, and secondly, with foreign partners if the technology is not new enough and the resources are sufficient.

RESEARCH METHODOLOGY

The research process used the methods of analysis and synthesis, induction and deduction, systematic approach, comparative and dynamic analysis. Economic and statistical methods, including growth rates, ratios and structural analysis, were used to process statistical data. In order to determine the relationship between innovative technological costs and economic efficiency indicators (sales revenue, net profit, profitability, labor productivity, etc.), it was assumed to use elements of correlation-regression analysis**.**

ANALYSIS AND RESULTS

The technological state of agricultural production and processing in the Republic of Uzbekistan does not meet modern requirements, which is the reason for the decrease in the added value created in the sector. Therefore, in order to create an added value chain in the regions of our republic, especially in order to activate the process of transition from raw materials to finished products in the agricultural sector, a reform of the introduction of clusters in the agricultural sector was carried out in cooperation

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with local and foreign entrepreneurs. Economic, organizational, and legal conditions were created for the organization of cotton-textile, grain-growing, fruit-vegetable, pharmaceutical, karakul, and cocoon-growing clusters in the regions.

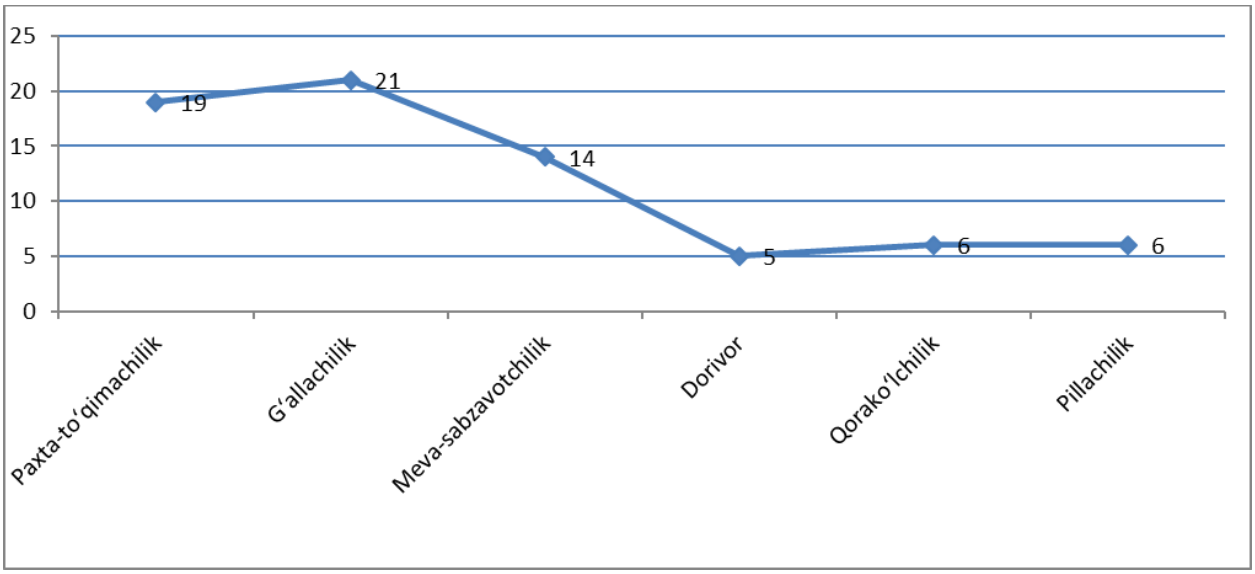

Figure 1. Number of clusters in Kashkadarya region, units.[9]

In Kashkadarya region, 180,300 tons of fiber were produced in 2023, an increase of 74.2% compared to 2022. Yarn production increased by 73.2%, ready-made sewing and knitted products by 81.0%, and oil production by 73.1%.

The number of cotton-textile clusters in Kashkadarya region was 19, of which only 9 produce yarn, fabric, and ready-made sewing and knitted products. These are the initial manifestations of the entry of clusters into the economy of Uzbekistan.

Since 2017, the legal framework for the development of clusters in the agricultural sector has been created. However, the entry of foreign and local investors into this area has been slow. Starting from 2021-2023, clusters began to replace processing industries.

We can take clusters as objects for implementing the results of innovation activities in the Kashkadarya region.

[9] Author's development based on data from the Kashkadarya regional statistics department.

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Table 1.Innovation efficiency indicators of textile clusters in Kashkadarya region [10]

Indicators	O‘lchov birligi	2019-yil	2020-yil	2021-yil	2022-yil	2023-yil	Change in 2023 compared to 2019, times
Sales revenue	Billions of soums	141,3	211,2	1 152,5	3 412,8	4 837,9	34,2
Cost	Billions of soums	141,8	326,4	1 667,9	3 317,1	4 125,8	29,1
Net profit	Billions of soums	-0,53	-115, 2	-515,4	95,6	711,9	X
Profitability,%	Billions of soums	X	x	X	2,9	17,3	X
Technology transfer costs	Billions of soums	227, 6	1 181,04	1 765,9	1819,4	3 882,6	17,1
Fixed assets	Billions of soums	178, 8	713, 4	1 012,6	1 365,8	1 789,2	10,0
Goods and material reserves	Billions of soums	49, 3	695, 2	1 934,8	2 219,6	3 912,8	79,2
Number of employees	Kishi	5 596	6 383	7 212	8 159	7 872	1,4

The table data shows that the dynamics of financial and economic indicators in the regional textile industry cluster during 2019–2023 have undergone sharp positive changes. In particular, sales revenue increased by 34.2 times, from 141.3 billion soums in 2019 to 4,837.9 billion soums in 2023. This growth is explained by the expansion of production volumes, increased export potential, and diversification of the product range. At the same time, the volume of expenses also increased by 29.1 times, from 141.8 billion soums to 4,125.8 billion soums. However, the faster growth of income compared to expenses contributed to a positive change in financial results starting in 2022.

In the first three years of the analyzed period, net profit was negative (–0.53 billion soums in 2019, –515.4 billion soums in 2021). This is due to the high share of production modernization, technological innovation and investment costs. While in 2022 a positive net profit of 95.6 billion soums was formed, in 2023 it reached 711.9 billion soums. As a result, the profitability rate increased from 2.9% in 2022 to 17.3% in 2023. This indicates that innovative investments are beginning to pay off. Technology transfer costs increased by 17.1 times, from 227.6 billion soums in 2019 to 3,882.6 billion soums in 2023. This indicator confirms the expansion of production capacities in the cluster and the introduction of modern technologies, in line with the 10-fold increase in the value of fixed assets. An increase in the volume of inventories

[10] Author's development based on data from the Kashkadarya regional statistics department.

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by 79.2 times indicates a sharp expansion of the scale of production, but it also indicates the need to further improve working capital management.

The number of employees increased by 1.4 times, from 5,596 people in 2019 to 7,872 people in 2023. This indicates an increase in the importance of the cluster in ensuring regional employment. In general, the results of the analysis confirm that innovative technological costs increased financial pressure at the initial stage, but led to a significant improvement in economic efficiency indicators in the medium term.

CONCLUSION

Analysis of the impact of expenditures on innovative technologies on economic efficiency indicators in regional textile industry clusters showed that, although the processes of modernization and technological renewal initially lead to an increase in the financial burden, they ensure stable economic growth in the medium and long term. In particular, investments in technological transfer and fixed assets served to expand production volumes, improve product quality, and strengthen export potential. As a result, a significant positive shift was observed in sales revenue and net profit indicators, and the profitability level entered a stable growth trajectory.

The analysis confirms the existence of a direct and inextricable relationship between innovation expenditures and economic efficiency. Although loss-making was observed in the early years, this was mainly a natural consequence of the investment stage. In the subsequent period, modernized production facilities strengthened financial stability by creating high added value, optimizing costs, and increasing labor productivity.

Therefore, it is important to consistently support innovative activities in regional textile clusters, improve technological transfer mechanisms, and evaluate investment decisions based on economic efficiency criteria. In general, innovative technological expenditures are emerging as a strategic factor in increasing the competitiveness of clusters, accelerating regional industrial development, and ensuring sustainable growth of the national economy.

PROPOSALS

1. Introduce an efficiency-oriented planning system for innovative technological expenditures. It is advisable to develop a system of indicators based on cost-benefit analysis when planning innovative investments in regional textile clusters.

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2. Develop an integrated indicator for assessing the effectiveness of technological transfer. In practice, innovative expenditures are often assessed only through financial results. Therefore, it is recommended to form a complex index (for example, based on profitability, energy efficiency, export share, product quality indicators) that covers the economic, production, and social effects of technological innovation.
3. Improve the diversified mechanism for financing innovation costs. In order to stimulate innovation activities in regional clusters, it is necessary to expand public-private partnerships, preferential loans, tax preferences, and grant mechanisms.

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