

AZERBAIJAN REPUBLIC

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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

**IMPROVING QUALITY MANAGEMENT IN LIGHT
INDUSTRIAL ENTERPRISES**

Specialty: 5311.01 - Organization and management of
enterprises

Field of science: Economics

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BAKU – 2025

The dissertation work was completed at the Department of "Management" of the Azerbaijan University of Technology.

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GENERAL CHARACTERISTICS OF THE RESEARCH WORK

Relevance and degree of development of the topic:

In recent years, the level of advancement in scientific and technical achievements, the organization of production, and the quality of product and service management have turned into key factors ensuring high productivity and superior quality of goods and services. Modern economic conditions demand a deeper and more strategic approach to quality management, with greater focus on attracting both material and human resources to ensure the creation and delivery of high-quality products and services.

Quality management has become a priority tool in achieving the main objectives of enterprises. Therefore, enterprises must pay particular attention to the implementation of incentive-based measures aimed at improving product quality. This includes enhancing production management systems and upgrading organizational structures, taking into account the development level of the quality management system.

The improvement of quality across various sectors is one of the key priorities of the national economic policy¹. As part of this strategy, it is essential to adopt modern quality practices by learning from the experience of developed countries. These efforts have facilitated considerable progress in multiple directions of quality management in recent years. It is important to note that relying solely on traditional quality control methods and mechanisms may worsen the economic condition of enterprises and lead to the weakening of financial sustainability. Therefore, the government has undertaken significant initiatives to enhance quality through improved management across various sectors, including light industry. Such initiatives are outlined in the “State Program on Industrial Development in the Republic of Azerbaijan for Republic of Azerbaijan on Standardization.

¹ Nuriyev, A. Regional Policy and Governance / A. Nuriyev. – Baku: Elm Publishing House, 2004. – 348 pages.

These policy documents emphasize the development of the economy in various sectors 2015–2020”, the “Strategic Roadmap for the National Economic Prospects of the Republic of Azerbaijan”, and the Law of the particularly in the light industry through targeted quality improvement and advanced management practices. The 2015–2020 State Program particularly focuses on the modernization and structural reinforcement of the industrial sector, strengthening science-based and modern production, developing competencies for new areas of manufacturing, introducing and utilizing new technologies, advancing business and management practices, promoting standardization and certification, strengthening brand promotion and marketing, and ensuring healthy and safe working conditions within industrial enterprises.

In addition, the strategic roadmap foresees the harmonization of legislation on standardization that governs quality control with international standards, ensuring a modernized legal framework for quality-related policies. Moreover, the “State Program for Harmonization of the National Standardization System with International Requirements for 2023–2025” has been developed to increase the competitiveness of national industry both domestically and internationally. The program supports the transition toward more effective quality management systems while ensuring the national economy’s adaptability to global challenges. It encourages the production of goods and services that meet international standards and contributes to the sustainable development of the national economy. It also encompasses key strategic areas such as enhancement of the legal and regulatory framework, digital transformation, and expansion of international cooperation in standardization. Like any other industrial field, quality management in the light industry requires a thorough and objective assessment of current production processes and their management structures. Creating the necessary conditions for implementing an effective quality management system can help reduce the time needed for quality improvement initiatives and facilitate their execution.

It is evident from existing theoretical perspectives that the quality management system must take into account organizational

structures, enterprise-specific features, and interactions with both internal and external environmental factors. In general, quality management supports the improvement of processes, products, jobs, and services, thereby reinforcing the competitiveness of enterprises and becoming the foundation for their economic development.

All these advancements demonstrate that in today's context, quality management mechanisms will remain a strategic priority in the organizational and economic development of enterprises. To sustain competitive advantage, enterprise management structures must be continuously improved.

Theoretical issues related to quality management in light industry have consistently drawn the attention of economists. In Azerbaijan, this area has been studied by scholars such as Z.A. Samadzadeh, A.A. Nadirov, A.Kh. Nuriyev, G.Z. Yuzbashiyeva, I.H. Ibrahimov, T.H. Huseynov, G.A. Safarov, B.Kh. Atashov, I.A. Ahmadov, F.A. Mammadov, M.A. Mehdiyev, M.M. Taghiyev, M.H. Farzaliyev, V.S. Rustamov, among others. Notable foreign researchers such as Y.K. Adler, V.V. Versan, S.S. Semenov, F.K. Crosby, X.K. Kume, V.A. Lapidus, V.M. Larin, and others have also conducted extensive studies in this field.

Both local and international researchers have proposed diverse approaches to the concept of quality management. However, existing research often lacks in-depth analysis of the interaction mechanisms between various factors that influence enterprise performance in the context of quality management.

Object and subject of the research. The object of the research comprises enterprises operating in the light industry sector of the Republic of Azerbaijan. The subject of the study includes social, economic, and organizational factors affecting quality management in these enterprises, as well as measures implemented to increase the efficiency of management processes.

The Purpose and Objectives of the Research. The purpose of the research is to enhance the efficiency of the quality management system in light industry enterprises and to provide economic justification for the proposals and recommendations developed in the direction of organizational and management technologies in this

regard. In accordance with the stated purpose, the following objectives have been identified in the dissertation:

- To study the scientific-theoretical approaches to quality and its formation in light industry enterprises based on both international and local experiences;
- To investigate the methodological aspects of the management system that ensures quality control and its continuous improvement;
- To analyze the factors influencing quality management in the operations of light industry enterprises;
- To systematically analyze the main structural elements of quality management, the applied management processes, and their efficiency indicators in manufacturing enterprises;
- To determine the impact of the quality management system on enhancing the competitiveness of the organization;
- To conduct an econometric evaluation of the factors affecting production output in light industry enterprises;
- To develop a set of indicators that allow for assessing the effectiveness of quality management system improvements in light industry enterprises;
- To develop proposals aimed at increasing efficiency in quality management.

Research MethodsThe research employed methods of analysis, synthesis, economic-mathematical modeling, economic-statistical analysis, comparative analysis, and econometric evaluation.

Key Provisions for Defense. The main provisions submitted for defense encompass the following social, economic, and organizational aspects affecting quality management in light industry enterprises:

- In order to improve quality management in light industry enterprises, it is essential to systematize and scientifically justify methodological approaches to training and the development of quality management systems.
- It is necessary to identify the key economic and organizational requirements that must be considered when formulating quality management strategies in the light industry sector.

- It is advisable to analyze quality assurance methods in manufacturing facilities, evaluate their effectiveness, and implement management models adapted to the specifics of the sector.
- To ensure effective management, the interdependence between investments in the sector and product quality should be investigated using empirical methods, and the impact of this relationship on quality indicators should be determined.
- Evaluating the impact of management system efficiency on improving product quality and increasing enterprise competitiveness, as well as identifying the main factors that enhance this impact, is of critical importance.
- The impact of applying innovative management methods on product quality in the light industry and the development of well-founded recommendations for their implementation must be ensured.
- The existing mechanisms of quality control and management systems should be analyzed, and scientifically grounded improvement measures should be applied to increase their effectiveness.

Scientific Novelty of the Research. The scientific novelty of this study is reflected in the economically justified directions for improving the quality management system, namely:

- Justification of the relevance of key criteria used to assess the quality management status in light industry enterprises;
- Identification of specific features related to quality improvement and management in the light industry sector;
- Substantiation of a system of quantitative and qualitative competitiveness factors for light industry enterprises;
- Definition of an appropriate infrastructure threshold for setting standard levels of quality requirements for processes, products, works, and services in a contemporary economic environment;
- Examination of the impact of improved quality management structures on enhancing market competitiveness of end products;

- Justification of the necessity to consider the interrelation of social, economic, and organizational factors within quality management systems;
- Assessment of the independent development potential of light industry enterprises based on acceleration indicators;
- Identification of dependencies between production output, capital investments, and technological innovations in the light industry sector;
- Preparation of forecasts for total product output in Azerbaijan's light industry sector up to 2030.

Theoretical and practical significance of the research. The theoretical provisions substantiated in this dissertation can stimulate economic activity in sectors related to light industry and significantly accelerate quality management improvement measures. The practical application of the research results by light industry enterprises and the use of recommendations by organizational-economic units can positively affect the efficiency of quality management and contribute significantly to strengthening their competitiveness.

Approbation and Application. The preliminary provisions of the dissertation, as well as the results of the research related to the improvement and development of the quality management system, have been presented at global and national scientific-practical conferences and have been published in 3 theses (including 1 abroad) and 10 articles (7 of which were published internationally). Among the key scientific works reflecting the results of the research are: *"Система целей и условий развитие конкурентоспособности на предприятиях швейной промышленности"* (Moscow, 2017), *"New Aspects of Quality Product Production Management"* (Ganja, 2019), *"Main Characteristics of Competitive Innovative Products in Light Industry"* (United Kingdom, 2020), *"Влияние инновационного маркетинга на эффективность производства"* (Moscow, 2023), and others. The studies conducted, along with the obtained results and scientific innovations, have been positively evaluated and approved for implementation by "Ganja Textile"

Open Joint-Stock Company (Certificate No. 24, dated February 25, 2020).

The name of the organization where the dissertation work was performed. Azerbaijan University of Technology.

Total volume of the dissertation in characters, including the volume of individual structural sections The dissertation consists of an introduction, three chapters, a conclusion, and a list of references. Excluding figures, tables, charts, and the reference list, the main body of the research comprises a total of 201,584 characters. Specifically, the introduction contains 12,261 characters, Chapter I consists of 54,979 characters, Chapter II includes 75,265 characters, Chapter III contains 46,511 characters, and the conclusion comprises 12,568 characters. The research also makes use of 122 references and includes 13 tables, 1 diagram, 7 charts, and 5 figures.

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SUMMARY OF THE DISSERTATION

The introduction of the dissertation substantiates the relevance of the topic, outlines the object and subject of the research, its aims and objectives, and characterizes the methods used. The key provisions submitted for defense are explained, as well as the scientific novelty, theoretical and practical significance, and approbation of the study.

Chapter I, entitled "**The Economic Essence of Quality and Theoretical-Methodological Issues Related to its Management,**" discusses scientific and theoretical perspectives on quality and its management, methodological issues of quality management, and the requirements for forming quality management in light industry enterprises.

The issue of quality serves as a key criterion for ensuring the country's socio-economic conditions, social, ecological, and economic security, as well as improving the standard of living in society. Quality is considered a fundamental indicator in the overall evaluation of products, works, and services. From this perspective, quality acts as a material basis for satisfying individual and social needs. Therefore, in developed countries, quality occupies a central place in all fields education, healthcare, ecology, economy, etc².

Quality holds particular significance as a vital category in the economy. The term "quality" applies both to products and to management and organizational spheres. It also serves as a measure for evaluating the level of scientific and technical progress, applied technologies, materials, and the performance of involved personnel. Currently, the rapid and continuous changes in economic phenomena and processes can be observed. This, in turn, expands society's capacity to meet its needs through improving product quality. The level of satisfaction of societal demand depends directly on increasing the production of competitive products and enhancing their quality.

² Svitkin, M.Z., Matsuta, V.D., & Rakhlin, K.M. Quality Management and Product Quality Assurance Based on ISO International Standards. – Saint Petersburg: VSEGEI, 1999. – 403 pages.

Product competitiveness is the ability of a product, compared to similar products, to meet market demands and consumer needs. Competition, by influencing demand and sales, reflects the economic efficiency of enterprises.

Based on the concept of quality management, it can be stated that there are no limits to quality improvement, as improving quality allows reducing overall costs, mainly non-production costs, in a production unit. Therefore, by raising the quality level, an optimal scale with increased quality can be achieved. The economic aspect of quality enhancement provides a basis for forming new quality concepts, shifting from quality control to quality management, increasing productivity through improved product quality, expanding product functionality, and fostering the application of innovative technologies to improve quality.

As can be seen, competition and competitiveness are significantly related to quality. Competitiveness reflects the extent to which a product is valued by consumers in comparison with market offerings, and it measures the product's ability to meet market and consumer needs. Competitiveness is assessed based on both the quality and the price of the product. Moreover, it has a considerable impact on the enterprise's image and its position within market conditions.

The degree of competitiveness indicates the product's relative advantage in terms of its value. These advantages are primarily determined by the product's quality. Indicators of quality and price are presented in relation to an ideal consumption model. Therefore, the quality indicators of a product are directly linked to indicators of competitiveness.

The competitiveness of a product is a significant evaluation criterion when compared with similar products offered by other enterprises. The analysis of an enterprise's competitiveness is typically carried out internally and involves assessing the consumer goods it offers for sale. The evaluation of a product's competitiveness is ultimately based on consumer decision-making.

The application of ISO and AZS standards plays a significant role in improving quality management in light industry enterprises.

These international and national standards provide the fundamental framework for continuous enhancement of product and service quality, optimization of production processes, and increasing competitiveness. Thus, implementing management systems compliant with ISO and AZS standards contributes to sustainable development in the light industry sector.

The relationship between price and quality is a fundamental concept in market economics, characterized by the availability of high-quality products at relatively low prices. In determining prices, it is essential for enterprises to accurately reflect both the quality and the brand image of their products.

It is evident that in cases where producers face intense market pressure, they may be compelled to lower their prices in order to remain competitive. Therefore, in order to succeed in a competitive environment, particular attention must be paid to the following:

- the establishment of flexible economic structures;
- the expansion of production through investment in traditional light industries;
- the development of competitive strategies for product markets;
- the promotion of activities aimed at improving quality;
- the encouragement of innovation in production;
- the implementation of measures to attract investor interest; and so on.

The above considerations suggest that the recovery and development of enterprises largely depend on the improvement of the quality of products and services. Consequently, the integration of entrepreneurial entities into market relations requires new conceptual approaches, forms, and methods in the management of product and service quality.

Quality management is a critical management system grounded in economic and administrative theories, functioning as a control mechanism over the quality of products, services, and processes. It manifests as a continuous, systematic, and goal-oriented activity influenced by the factors and conditions that ensure the realization of product requirements and the characteristics of the production facility within economic processes.

Chapter II, titled "**Assessment of the Current State of Production and Quality Management in the Light Industry Sector**," examines the dynamics of light industry product manufacturing and its influencing factors, evaluates the level of quality management in light industry enterprises, and analyzes the relationship between investments and quality.

Each of the mentioned factors has significantly impacted the performance and economic indicators of light industry enterprises. An analysis of the main economic indicators of light industry enterprises in the Republic of Azerbaijan shows that the physical volume index of industrial production in the textile sector has increased in all years except 2020, when a decline of 15.8% was observed. The highest growth was recorded in 2021, with the index doubling compared to the previous year.

In recent years, the physical volume index for garment production, as well as for leather, leather products, and footwear manufacturing, has demonstrated significantly higher results. In 2021, these indices increased by 6 times and 11.3 times, and in the following year by 14.3 times and 10.5 times, respectively.

The share of these sectors in the overall industrial production index has not undergone significant changes in the respective years—remaining at 0.2 percentage points for textiles, 0.1 percentage points for garment production, and 0.07 percentage points for leather and footwear manufacturing. A similar situation is observed in the share of investments directed to the industry, particularly in the proportion of investments allocated to these sectors (see Table 1).

Table 1. Key Economic Indicators of Light Industry Enterprises in the Republic of Azerbaijan

Indicator	2018	2019	2020	2021	2022
Physical volume index of industrial production (% compared to previous year)					
Including:					
Textile	142.4	133.2	84.2	2 times	114.7
Clothing production	98.3	122.6	135.8	6 times	11.3 times
Leather, leather goods, and footwear production	123.3	97.1	116.8	14.3 times	10.5 times
Share of the sector in total industrial production volume (%)					
Textile	0.5	0.7	0.7	0.7	0.5
Clothing production	0.2	0.2	0.3	0.2	0.2
Leather, leather goods, and footwear production	0.1	0.1	0.1	0.03	0.04
Share of investments allocated to the sector in total industry investments (%)					
Textile	0.5	0.9	0.2	0.3	0.3
Clothing production	0.3	0.2	0.3	0.3	0.3

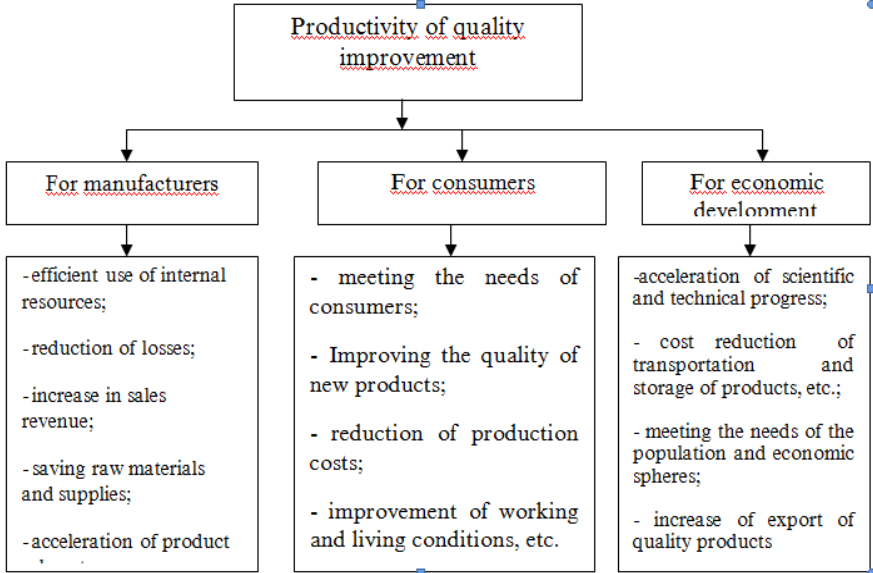
Source: Table compiled by the author based on data from the State Statistics Committee of the Republic of Azerbaijan (<https://www.stat.gov.az/>).

Research indicates that the predominance of large enterprises, accompanied by a decrease in relatively small enterprises in the light industry, is one of the main factors driving production growth. The development pace of the light industry can also be observed through statistical data. A comparative analysis of production volumes across various sectors of the light industry indicates that the subsectors of textiles and clothing have demonstrated higher productivity compared to leather products and footwear manufacturing. At the same time, the annual production growth rates recorded in these sectors have been

faster than those in other sectors, reflecting their economic dynamism and flexibility in responding to market demand.

Scheme 1. Factors determining the efficiency of quality improvement *Source: The scheme was prepared by the author.*

The key indicators of the economic efficiency of the quality



management system include: the payback period of costs incurred for quality improvement, profits gained as a result of quality enhancement, price changes related to quality improvement, expenses required to increase the profitability of enterprises associated with quality, and so forth [Scheme 1].

When determining efficiency within the quality management system, it is essential not to overlook important social indicators, which include:

- Improvement of management quality;
- Enhancement of working conditions within enterprises;
- Provision of educational opportunities for employees;
- Organization of information and data services;
- Increasing the efficiency of decision-making processes.

International practice shows that the most significant indicators of effectiveness for quality management systems are market share, investment intensity, productivity, market development, product quality, product differentiation, integration, potential for creating added value, price levels, and the speed of changes in market positions. The relationship between quality, market share, and profitability is especially important as an indicator of the efficiency of quality management systems³.

In the light industry sector, the quality management strategy involves applying a more advanced management system based on evaluating the efficiency of enterprises' economic activities, and includes the development and implementation of mechanisms for quality improvement. It should be noted that one of the key elements in this area is the analysis and evaluation of the impact of investment process management on quality.

Therefore, in the quality management process, the various aspects and parameters of investment resource management are primarily assessed. In practice, the relationship between investment and quality is typically evaluated in the following stages⁴:

- Assessment of the quality of investment process planning;
- Evaluation of asset management and management outcomes;
- Organization of monitoring and evaluation of the implementation of investment policies.

It is important to emphasize that the assessment of investment management quality is aimed at a general analysis of the management level⁵. Consequently, identifying the directions of investment policy and sources of investment is considered one of the most important issues in management.

The importance of investments directed towards innovations for improving quality is clearly evident. In this regard, the dynamics

³ Jumshudov, S. Economics of the Enterprise / S. Jumshudov. – Baku: Elm Publishing House, 2009. – 359 pages.

⁴ Aliyev, R. Investment financing and lending. / R. Aliyev, B. Novruzov, M. Mammadov – Baku: Azemashr, – 2003. – 432 p.

⁵ Aliyev, R. Theory of economic analysis / R. Aliyev. – Baku: Elm, – 2002. – 441 p.

of expenditures by types of innovation stand out, showing that overall in the industry, compared to 2018, expenses in 2022 decreased by 34.4%, including a 22.1% decrease in expenditures on product innovations and a 60.3% decrease in expenditures on process innovations. In the manufacturing industry, the level of expenditures on process innovations also significantly declined in 2022 compared to 2018 — by 19.8% and 47.6%, respectively [Table 2].

Table 2. Expenditures by types of innovations, thousand manat

Indicators	2018	2019	2020	2021	2022	Compared to 2018, in 2022, %
Total Industry	34353,6	48037.1	35919.8	5848,3	22540,4	65,6
Product Innovations	23298,7	38343.5	20059.2	1986,3	18154,3	77,9
Process Innovations	11054,9	9693.6	15860.6	3862,0	4386,1	39,7
Manufacturing Industry	32967,6	47658.5	34918.7	5318,5	22521,1	68,3
Product Innovations	22619,4	38053.5	19421.0	1868,9	18135,0	80,2
Process Innovations	10348,2	9605.0	15497.7	3449,6	4386,1	42,4
Textile Industry	-	-	250.0	-	-	-
Product Innovations	-	-	250.0			-

Source: Table compiled by the author based on data from the State Statistical Committee of the Republic of Azerbaijan (<https://www.stat.gov.az/>).

It is evident that insufficient attention is paid to the implementation of innovations, which are considered one of the main factors in improving quality in the light industry sector. The above indicates a significant need for modernization of the material and technical base in the development of light industry, one of the most

important sectors of the economy. It is well known that the use of new technological equipment enables the production of goods that meet modern quality requirements, which is a fundamental condition for enhancing the competitiveness of producers both domestically and internationally.

Therefore, considering investments in fixed capital (X_1) and innovation expenditures (X_2) as independent variables, and the total production volume of light industry (Y) as the dependent variable, we obtain the following results based on Table 3 by utilizing the EViews-12 software package.

Table 3. Results of Regression Analysis on the Dependence of Product Output in Light Industry on Investments in Fixed Capital and Innovation Expenditures

Dependent Variable: Y
 Method: Least Squares
 Date: 05/07/22 Time: 08:38
 Sample: 2005 2020
 Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X2	3.601872	0.769304	4.681986	0.0004
X1	0.008327	0.000059	14.11356	0.0077
C	75.67654	31.95956	2.367884	0.0341
R-squared	0.636478	Mean dependent var		175.0438
Adjusted R-squared	0.580552	S.D. dependent var		126.2324
S.E. of regression	81.75424	Akaike info criterion		11.81267
Sum squared resid	86888.82	Schwarz criterion		11.95753
Log likelihood	-91.50138	Hannan-Quinn criter.		11.82009
F-statistic	11.38063	Durbin-Watson stat		1.246049
Prob(F-statistic)	0.001391			

Source: Prepared by the author based on the EViews-12 software package.

As seen from the table obtained using the EViews-12 software package (3), the coefficients of the intercept and dependent variables, which represent the independent and dependent factors, are significantly larger than their standard errors. This indicates the statistical significance of the obtained results⁶⁷. According to the results derived from the EViews-12 software package, the regression equation can be expressed as follows:

$$Y = 0,008327x_1 + 3,60187x_2 + 75,6765 \quad (1)$$

(t) (14,1) (4,68) (2,37)

As observed, the coefficients of the explanatory variables included in the regression model are highly significant based on the t-statistics ($|t| > 3$).

If we perform the histogram normality test for the total output in the light industry sector in Azerbaijan and the factors affecting it, the following results will be obtained.

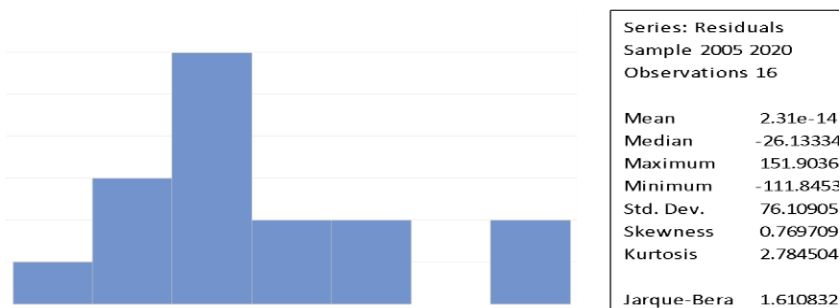


Figure 1. Histogram Normality Test of Total Output in Azerbaijan’s Light Industry and Its Influencing Factors for the Years 2005–2020
Source: Prepared by the author based on the EViews-12 application software package.

⁶⁷ Yadigarov, T. Operations research and solving econometric problems in MS Excel and Eviews software packages: theory and practice / T.Yadigarov. – Baku: Avropa, – 2020. – 352 p.

Based on the histogram normality test graph for total output and its influencing factors in Azerbaijan's light industry, the results of the Jarque-Bera test, as well as the kurtosis coefficient, indicate that the p-value exceeds 0.05 at the 95% confidence interval. This suggests that the residuals follow a normal distribution.

As seen from the graphs, the model characteristics identified using the EViews-12 software package show that the independent variables included in the model and the intercept are statistically significant. Overall, after confirming the statistical significance of the established model, it is possible to draw conclusions about how well the explanatory variables explain the model. For this purpose, the F-Fisher criterion can be employed.

To test the overall statistical significance of the multiple regression equation using the F-Fisher criterion, the calculated F-value should be compared with the critical F-value, $F_{table}(\alpha; m; n-m-1)$.

$$F_{table}(\alpha; m; n-m-1) = (0.05; 2; 11) = 3.98$$

When comparing the F-Fisher criterion with the critical value $F_{table}(\alpha; m; n-m-1)$, it is evident that the Fisher statistic (11.38) is greater than the critical value (3.98). This indicates that the regression equation is statistically significant as a whole, and the established model is adequate.

To verify the correctness of the model specification, it is necessary to check for the presence of autocorrelation. This indicator is primarily assessed based on the Durbin-Watson statistic criteria to form a conclusion about autocorrelation. By testing the residuals of the model for autocorrelation using the Durbin-Watson critical points, we find that $d_l=0.905 \leq DW=1.246 < d_u=1.551$. This means that no conclusion can be drawn about the presence of autocorrelation among the studied variables. Hence, the regression equation is statistically significant, and the constructed model $Y = 0,008327x_1 + 3,60187x_2 + 75,6765$ is overall adequate.

Calculating the elasticity coefficients based on the regression coefficients of the explanatory variables in the equation and the average values of the dependent and independent variables over the study period yields the following results⁷.

$$E_{\text{Innovation expenditures}} = \frac{\alpha_1 \times \bar{x}_1}{\bar{Y}}$$

$$= \frac{0,008327 \times 630,0286}{200,05} = 0,026225$$

$$E_{\text{investment in fixed capital}} = \frac{\alpha_2 \times \bar{x}_2}{\bar{Y}}$$

$$= \frac{30,25214 \times 3,60187}{200,05} = 0,54468$$

Based on the calculated values of the elasticity coefficients, it can be concluded that a 1% increase in expenditures on technological innovations in Azerbaijan's light industry leads to a 0.026% increase in the volume of production in this sector. Similarly, a 1% increase in investments directed toward fixed capital results in a 0.54% increase in the production volume of the light industry.

It is also possible to determine the forecast values of total output in the light industry sector of the Republic of Azerbaijan. Based on the data from the State Statistical Committee of the Republic of Azerbaijan (SSCRA) and using the MS Excel software, the forecasted total output for the light industry sector is presented in Figure 2. as follows.

⁷ Yadigarov, T. Customs statistics and modern information technologies / T.Yadigarov. – Baku: Europe, – 2020. – 520 p. purposes, are presented in the graph below.

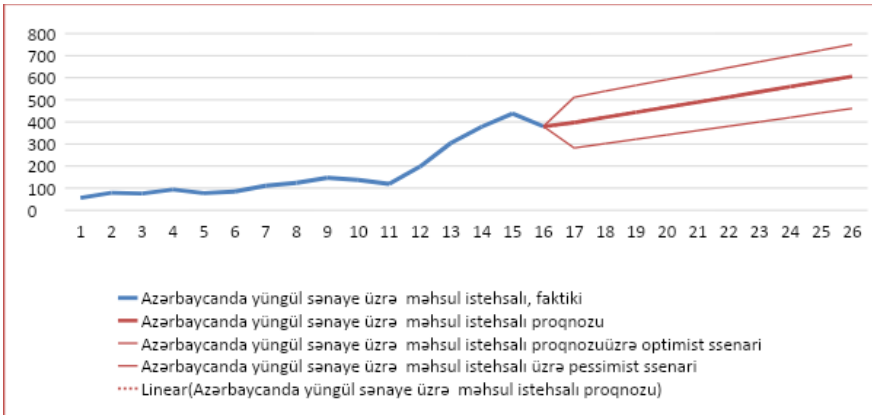


Figure 2. Forecasted Total Output of Light Industry in Azerbaijan until 2030

Source: Compiled by the author based on MS Excel software package.

As shown in Figure 2. there is a very strong correlation between the forecasted total output of light industry in the Republic of Azerbaijan and the time factor, expressed by the trend regression model: $y = 0,1028x^2 + 18,62x + 52,78$ with a coefficient of determination ($R^2 = 0.9997$). According to the forecasts, the total output of light industry is expected to develop with an increasing dynamic trend up to the year 2030.

Chapter III, entitled "**Directions for Improving and Managing Quality in Light Industry Enterprises**", focuses on ensuring managerial efficiency, the utilization of innovations in quality improvement, and the main pathways for enhancing quality management practices.

International experience shows that, regardless of ownership structure or production characteristics, the competitiveness of any enterprise primarily depends on the quality of its products, the alignment of prices with the offered quality, production volume, and the extent to which products satisfy consumer needs⁸. These factors significantly enhance the role of quality management as a key tool for

⁸ Shvандор, B. Standardization and quality management of products / B. Shvандор. - Moscow: Unity-Dana, - 2008. - 487 p.

increasing a company's competitiveness. In turn, this allows for both the improvement of quality and the reduction of production costs. One of the main ways to ensure the competitiveness of products in global markets is to achieve the necessary level of quality at the lowest possible cost. Therefore, one of the crucial conditions for mitigating the negative effects of changes in the international economic system is the implementation of effective quality management systems that can ensure the competitiveness of enterprises.

The application of innovations increases enterprise efficiency, and innovation-driven approaches play an essential role in the development processes of companies. Moreover, the success of an enterprise is directly dependent on how well it adapts to the external environment, the flexibility of its internal structure, and its capacity to embrace innovation. From this perspective, each enterprise aims to develop its innovative potential by equipping its production processes with new technologies and modern equipment. However, it is also important to note that when making decisions about developing and implementing innovative ideas, the risks that may accompany such innovations at all stages must be considered. Thus, contemporary innovation practices observed in international experience necessitate the formation of a new innovation model one that provides a completely new qualitative trajectory for economic development and creates the foundation for gaining competitive advantages in international markets.

First and foremost, priorities within the quality management system should be established so that the quality of products meeting consumer demand is ensured. Furthermore, the priority of economic justification in management decisions is the assurance of quality, while production volume is considered a secondary plan. It should also be noted that even when the market is sufficiently supplied with essential products through these measures, the competitive factor for commercial success is not necessarily maintaining the highest technical parameters of the product⁹. Therefore, it is necessary to

⁹ Mehdiyev, M. Quality management / M. Mehdiyev. – Baku: Chasıoğlu, – 2007. – 208 p.

ensure that quality-related characteristics are maximally aligned with the specific needs of the markets. This underscores the importance of adapting the concept of quality to fit the requirement of conformity to consumer needs.

Thus, based on the analysis results, the following measures can be deemed appropriate to create conditions for the production of high-quality and competitive products through a more effective quality management mechanism in enterprises, to increase export potential, and to enhance the resilience of enterprises to competition:

- organizing control over technical quality within the production process;
- enhancing technical, technological, and organizational levels;
- developing mutual relations and understanding between production enterprises and consumers based on unified principles, approaches, and practical solutions to quality issues;
- improving the efficiency of management decisions through analysis of internal and external factors;
- continuous improvement of management mechanisms and production processes;
- implementing measures to ensure the efficiency of the quality management system;
- conducting quality control activities;
- providing professional development for employees involved in quality management;
- strengthening responsibility for quality management.

Conclusion

Based on the conducted analyses and generalizations, it can be noted that at the current stage of the development of the light industry product market, it is advisable to prioritize the following provisions in quality management:

- considering and utilizing the advantages and disadvantages of new management systems in quality management;
- ensuring a higher quality integration into markets along with the evaluation of internal and external factors affecting the activities of light industry enterprises;
- taking into account the relationship between quality improvement measures and financial outcomes;
- considering profitability factors in enterprise activities aimed at quality enhancement;
- analyzing indicators characterizing the competitiveness of products within the quality management process, as well as comprehensively evaluating influencing factors, among others.

Summarizing the results obtained, it is appropriate to implement the following measures to improve quality management in light industry enterprises:

1. Formation of a self-assessment mechanism, regarded as one of the most effective tools for enterprise development. The application of self-assessment facilitates the analysis of production processes and product characteristics within and outside the enterprise, under the framework of quality criteria determination, thereby creating favorable conditions for preventive actions to avoid potential problems.

2. Ensuring the use of various evaluation mechanisms within enterprises. In modern conditions, the use of evaluation methods allows relatively rapid identification and resolution of problems within a specific market and competitive environment. As a result, it becomes possible to form a more effective quality strategy by obtaining accurate information regarding consumers, competitors, production indicators, and so forth in the context of existing realities.

3. Giving special attention to studying consumer feedback by enterprises. Consumer satisfaction facilitates the promotion of products to the market through marketing mechanisms, shaping the ability of quality to meet needs and demands. This approach includes continuous interaction and comprehensive analysis of incoming data to identify trends in consumer orientation, preferences, and desires.

4. Ensuring the organization of technical quality control in the production process. For this purpose, increasing technical, technological, and organizational levels, as well as strengthening responsibility for quality management, emerge as key issues.

5. Facilitating the application of innovations in the production process. Investment placements and measures stimulating investment attractiveness, which are essential conditions for the use of innovations, hold particular importance. Innovations are among the main conditions for competitive exports as quality guarantors.

6. Ensuring that the objective of improving quality management in enterprises is not limited to satisfying stable and predetermined consumer needs. Such tendencies imply that forecasts should focus on future consumer demands, thereby conditioning the fulfillment of quality standard requirements. For this purpose, the analysis of data regarding consumer satisfaction with products or services gains special importance.

7. Paying special attention to the training of qualified personnel capable of managing quality and producing high-quality products, regardless of the final product quality. The availability of qualified personnel plays a decisive role in increasing awareness of the specific features of individual production processes for certain product types and accordingly improving the effectiveness of quality management.

8. Stimulating the participation and activity of personnel in quality management and fostering employees' ability to respond flexibly to changes. Ensuring the involvement of workers in improving product quality and decision-making related to quality management becomes an integral part of promoting quality production.

9. Developing the quality control system within enterprises. Quality control should not be regarded merely as an official regulatory

measure or state standard. Quality management must become a mechanism for achieving sustained high production results and strengthening market position among competitors.

10. According to the research findings, the independent development potential of light industry enterprises is quite limited in terms of the acceleration indicator. To address this situation and reduce the country's dependency on imports for these products, it is necessary to increase the volume of investments directed towards fixed capital in the light industry sector and to raise expenditures on innovative product manufacturing in this sector with the support of the government.

11. There is a strong correlation between the total output of the light industry, investments in fixed capital, and expenditures on technological innovation in light industry enterprises, which is represented by a regression equation $Y = 0,008327x_1 + 3,60187x_2 + 75,6765$.

12. Based on the research results, the calculated elasticity coefficient indicates that a 1% increase in expenditures on technological innovations in Azerbaijan's light industry leads to a 0.026% increase in the production volume of light industry. At the same time, a 1% increase in investments directed towards fixed capital results in a 0.54% increase in the production volume of light industry enterprises.

13. The study of the independent development potential of light industry enterprises in Azerbaijan for the period 2005–2020 determined the acceleration coefficient to be 0.050602. This result reveals that light industry enterprises face significant constraints in developing using their own financial resources. In other words, 94.9% of their development is financed by external sources. The acceleration coefficient of 0.051 reflects these limitations.

14. Based on the obtained acceleration coefficient of 0.051, it is possible to determine the required amount of investment for economic growth in the light industry during the forecast period.

15. Based on the data of the total product output in the light industry of the Republic of Azerbaijan for the period 2005–2020, the forecasts for the total product output until 2030 were determined using

the MS Excel software package. According to the trend model, the value of the total product output in the light industry is projected to change over time following the regression equation $y=0.1028x^2+18.62x+52.78y = 0.1028x^2 + 18.62x + 52.78$. As a result of the study, it is expected that the total product output will develop with an increasing dynamic, reaching 605.6 million AZN by the year 2030.

The following articles and theses of the author have been published on the topic of the dissertation.

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The defense will be held on 24 October 2025 at 11:00 AM at the meeting of the BED 1.10 Dissertation Council operating under the Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan.

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The dissertation can be reviewed at the library of the Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan.

Electronic versions of dissertation and its abstract are available on the official website (<https://economics.org.az/>) of the Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan.

Abstract was sent to the required addresses on 12 sentyabr
2025

Anchor signed: 08.09.2025

Paper format: A5

Volume: 40672

Circulation: 20