REPUBLIC OF AZERBAIJAN

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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy
(Doctor of Science)

WAYS TO IMPROVE MARKETING IN THE MANUFACTURING INDUSTRY

Speciality: 5312.01 – "Field economy"

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Applicant: **Arif Akif Ibayev**

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The work was performed at the "Economy of industry" department of Azerbaijan State Oil and Industry University.

Scientific supervisor (consultant):	doctor of philosophy in economic sciences, associate professor, **Akima Amir Ahmadova**
Official opponents:	doctor of economic sciences, professor, **Telman Iman Imanov**
	doctor of philosophy in economic sciences, associate professor, **Fikret Veli Guliyev**
	doctor of philosophy in economic sciences **Lamiya Mavaddin Huseynova**

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OVERALL QUALITY OF WORK

The actuality of the research and the degree of problem development. In the current conditions of the globalization of the world economy, it is important to ensure economic growth in all areas of the economy in the Republic of Azerbaijan as well as in the countries of the world. Studies show that at the current stage of the development of the economy of Azerbaijan, the formation of fertile conditions and initial conditions for ensuring economic growth is being observed. As a result of the oil policy associated with the name of the brilliant leader Heydar Aliyev, who returned to power in 1993 at the call of the people, the economy, including the oil refining industry, entered a period of development. With the motto of the great leader Heydar Aliyev, *"Oil is the national wealth of Azerbaijan"*, the period of recovery and development of the oil industry of the republic expanded even more. In the first years of independence, the Republic of Azerbaijan experienced an economic recession, with the economic reform measures of the great leader Heydar Aliyev, the involvement of the first vice-president of the Azerbaijan State Oil Company, Ilham Aliyev, in the negotiation process, the preparation and successful implementation of a new oil strategy. As a result, on September 20, 1994, the recession was prevented with the signing of the "Contract of the Century" agreement, and the start of the process of revitalization of production in the processing industry, as well as in all sectors of the economy due to oil revenues, gave a strong impetus to the development of entrepreneurship.

In modern conditions, the role of processing industry enterprises in the dynamic and inclusive development of the national economy, as well as in ensuring its sustainability and stability, has increased significantly. In this regard, the efficient operation of the oil industry as the leading force of the national economy in Azerbaijan plays a key strategic role for our country. At the same time, it is extremely important for oil production and processing industry enterprises to be guided by the principles of the market economy, including the global economy, in their economic activities. In the processing industry enterprises, which play an important role in the economy of

Azerbaijan, in accordance with the market demand, which products are produced, determining their buyers, developing the optimal price policy, and solving such issues as competitiveness directly creates the need for the implementation of permanent marketing activities in the enterprises. Research shows that despite the fact that marketing activity plays an important role in the development of enterprises, this activity is still not developed at the necessary level in the enterprises of the processing industry of our republic. This is explained by the fact that most of the enterprises of the processing industry consider the marketing activity to be essentially separate from the production process and start the marketing activity at the later stage of the production process. However, studies show that the marketing activity of enterprises is not an activity outside of production, but is organically connected with the determination of ways to effectively use the existing resources of the enterprise. Therefore, optimization of the enterprise's marketing activity process is one of the main issues. It is possible to achieve efficiency with marketing activities in processing industry enterprises, which are considered an important part of the industry, and to optimize processes by approaching it as a system.

The development of the oil and gas processing industry, which is the basis of the country's economy, plays an important role in ensuring the economic and social progress of the Azerbaijani society. From this point of view, determining ways to improve marketing activity in the processing industry of the Republic of Azerbaijan is of great theoretical and practical importance. Thus, although the development of the oil industry in the economic and social progress of Azerbaijan, by stimulating the progress of other areas of material production, creates favorable conditions for the significant expansion of social activities in our republic, the level of development of processing areas still lags behind the potential capabilities of our country, which has a favorable geographical location and rich hydrocarbon resources. The solution of these problems stipulates the need to determine ways to improve the marketing activity in the processing industry, which is aimed at increasing the efficiency of using the wide potential of the processing industry in our republic. Increasing profits through the improvement of marketing activities in the oil refining industry is

important in this regard. Since wrong marketing decisions caused by lack of information or experience in the oil refining industry can have a negative impact on the entire country's economy, it is especially important to carefully plan the marketing activities of oil refining enterprises, to predict the impact of the external environment and possible risks. By effectively and comprehensively using the existing marketing concepts and strategies of oil refining enterprises, planning, implementation and control of marketing strategy and market behavior tactics, it is necessary to determine ways to improve the marketing of oil refining products, marketing programs and optimal implementation of marketing, so that this determines the relevance of the dissertation work.

According to the decree on the approval of "Azerbaijan 2030: National Priorities for socio-economic development" signed by the President of the Republic of Azerbaijan Mr. Ilham Aliyev on February 2, 2021, ensuring development in all areas of economic, social, political and cultural development, as well as social life as a whole In the realization of the five National Priorities for the socio-economic development of the independent Republic of Azerbaijan, which is experiencing a historical turning point, the stable construction of an increasingly competitive economy is characterized as the main direction.

The development of the oil refining industry, the importance of marketing activities in this direction, improvement of the activity mechanism and legal basis in the field, the experience of foreign countries where the field is developing, the management of the market of refining industry products, the modernization of the refining industry enterprises, etc. the study of the issues makes it more urgent to determine the mechanisms of the formation of the field in the conditions of globalization.

Issues related to the development of marketing activity in the refining industry, its principles of operation, its importance in the economy, as well as the development of the marketing market, the solution of its numerous problems, as well as the analysis of oil refining in the country's economy, among the Azerbaijani scientists Z.A. Samadzade, A.Kh. Nuriyev, I.M. Abbasov, A.H. Samadov, M.C.

Atakishiyev, A.H. Huseynov, B.S. Khidirov, G.A. Safarov, E.N. Guliyev, M.A. Allahverdiyeva, Y.K. Bayramzadeh, L.A. Hajiyeva, E.M. Hajizadeh, T.I. Imanov, K.A. Shahbazov, A.T. Mammadov, C.Y. Osmanli. It was also widely commented in the contributions of economic scientists and academicians and chemists who have invaluable activities in the oil field, such as Y.H. Mammadaliyev, V.M. Farzaliyev, M.I. Rustamov, A.M. Guliyev, R.H. Ismayilov, S.H. Agayev. From foreign scientists M.I. Akimova, L. I. Akulich, V. M. Kapustin, A. R. Fatkhudinov, M. M. Amirova, V. I. Belyayev, A. B. Vishniyakova, A. K. Vorobyev, S. G. Gushin, A. B. Aleksunin, A. B. Zazulov, V. D. Sekerin, S. V. Veselov , F.G. Pankratov, A.I. Kovalev, E.M. Porter, K.P. Kotler, J.P. Kalkman, A.J. Keller and others in their research on the marketing of various areas of the economy, including the processing industry, the theoretical and methodological issues of marketing activity, its role in the optimal regulation of financial and economic activities of enterprises , marketing strategy in the oil and gas industry, etc. such issues have been widely investigated.

The issues related to the main perspectives and development of the marketing market in the processing industry were approved by the Decree of the President of the Republic of Azerbaijan, the worthy follower of the great leader, Mr. Ilham Aliyev, and were broadly explained in the “Strategic Road Map” for the perspective of the national economy in 2016.

In connection with the innovations taking place in the world economy and at the same time in our national economy, it should be noted that in order to ensure the efficiency of the use of marketing activities in the processing industry enterprises, the fundamental organization mechanisms of the marketing activities in the processing industry enterprises are currently being developed in a way that is modern and innovative, and at the same time meets the current trends and requirements of the world. is important and these factors necessitate the relevance of the research topic.

The object and subject of the research. The research object of the dissertation is the oil refining industry enterprises of the Republic of Azerbaijan.

Goals and tasks of the research ways to improve marketing activities in oil refining industry enterprises of Azerbaijan.

Research goals and objectives. The purpose of the dissertation work is to develop scientifically based practical proposals for determining ways to improve marketing activity in oil refining enterprises based on the analysis of the current state of marketing activity in oil refining enterprises of the Republic of Azerbaijan.

According to the purpose of the dissertation, the following main tasks were performed:

- determination of theoretical and methodological aspects of marketing activities in the processing industry;
- investigation of the role of marketing in increasing the competitiveness of the enterprise;
- the study of methodological issues of the marketing factor in the management of the oil refining products market;
- Analyzing the current state of the processing industry in the Republic of Azerbaijan;
- Analysis of the role of marketing in the investment attractiveness of processing industry enterprises in Azerbaijan;
- Evaluation of the impact of marketing activities on the ability of independent development of processing industry enterprises in Azerbaijan;
- modeling of the impact of marketing operations on economic growth in oil refining industry enterprises;
- determination of directions for increasing the efficiency of marketing activities in the processing industry.

Research methods. General scientific methods, including dialectical, structural-functional, abstract-logic and system-purpose analysis methods form the methodological basis of the work. General scientific principles, mathematical and statistical analysis methods were used during the research.

The main provisions defended:

1. The ideas and works of economists on the theoretical-methodological bases and principles of the marketing activities of enterprises in the manufacturing industry were analyzed and their attitude was expressed, and the importance of the functional matrix

models of marketing in the manufacturing industry was investigated, the goals, functions and functional role of marketing were studied and their close interaction was discussed. made it possible to draw conclusions.

2. As a result of the research, it was determined that the main goal of the marketing strategy in oil refining enterprises is to manage the sales market along with production, including sales methods, and to adapt the capabilities of the enterprise to the environment, and the optimal scheme of the marketing strategy in oil refining enterprises was drawn up.

3. Since the balance of commodity products at the end of the year for processing industry enterprises is higher than in other areas, it was considered appropriate to expand the marketing activity of processing industry enterprises in order to increase the efficiency of the sales strategy of products produced in the processing industry.

4. The role of marketing in the investment attractiveness of processing industry enterprises in Azerbaijan was analyzed and evaluated and it was determined that the increase in the volume of investments directed to fixed capital led to the development of innovative technologies in the processing industry, increased the volume of production, and caused the increase in labor productivity.

5. Based on the research work, the dependence between advertising expenses and GDP, which play an important role in marketing researches around the world, was established, and it was concluded that the increase in advertising expenses increases the volume of GDP by creating conditions for the increase in the income of enterprises from work and services in the world economic system.

6. In the Republic of Azerbaijan, there is a high correlation dependence between the investments directed to the capital of the processing industry and the volume of total product production in the processing industry.

7. The research results showed that increasing the efficiency of marketing activities in the processing industry in the Republic of Azerbaijan will result in an increase in the income obtained from the work and services of enterprises and will increase the volume of production in this sector by 2030.

8. It was determined that there is a need to evaluate the effectiveness of the sale of oil refining products through marketing in the country's oil refining industry sector and its enterprises, and to develop and implement new mechanisms in the modern era.

Scientific novelty of the research. The scientific results that determine the novelty of the dissertation research include the following:

- since marketing research is closely related to advertising activity, the expenses allocated to this area directly increase the volume of goods, work and services, and due to the increase in the market share of the products, work and services produced by enterprises, it leads to an increase in the efficiency of advertising expenses for marketing activity;

- Based on the Eviews application software package, it was determined that there is a high correlation between the world's advertising expenditures and GDP, and a 1% increase in the world's advertising expenditures leads to a 0.42% increase in the world's GDP (due to the increase in advertising expenditures);

- Based on the Eviews-12 application software package, it was investigated that there is a high correlation relationship expressed by the regression equation Y=3,524*x+4737.14 between the investments directed to the fixed capital in the manufacturing industry and the total output of the manufacturing industry in the Republic of Azerbaijan, and the fixed capital in this sector a 1% increase in directed investments results in a 0.4% increase in the volume of total product production in the manufacturing industry;

- Based on the increase in the volume of production of manufacturing enterprises in Azerbaijan, the equation of the growth of investments was established, and the acceleration index was calculated by applying the net of least squares, and it was concluded that this equation is in the form of $\Delta It^* = -15.0116 + 0.243\ \Delta Yt\text{-}1$. Based on the acceleration index in the obtained equation, it was estimated that the processing industry enterprises have independent development potential with a tendency to the average level due to their internal funds. This means that in prospective periods, the processing industry will develop with a substantial impact on the increase in market share as a result of effective marketing activity at the expense of external sources;

- Based on the EViews application software package, the Y=3,524*x+4737.14 regression equation was used to determine the annual values and standard errors of the total product output for the processing industry, as well as a number of characteristics of using the equation for the purpose of forecasting, and processing in the Republic of Azerbaijan until 2030. It is predicted that the total output of the industry will develop with increasing dynamics due to marketing activities.

Theoretical and practical significance of research. The results of the research, suggestions and recommendations can be used in the preparation of relevant state programs, projects, guidelines and other normative-legal acts on the improvement of marketing activities in the oil refining industry, as well as in the teaching of "Enterprise Marketing", "Marketing Research" subjects in higher schools.

Approbation and application. The main scientific-theoretical claims, results and proposals of the dissertation are reflected in 7 articles (3 of which are abroad) and 5 theses (1 of which are abroad) published in prestigious journals and conference materials recommended by the Supreme Attestation Commission under the President of the Republic of Azerbaijan.

Among the conference materials are the thesis "Azercell is a marketing service provider research object" (Samara, 2019), "The role of digital marketing in the oil and gas industry" (Baku, 2020), "Marketing strategies of oil industry companies during the recession" (Baku, 2020) can be shown.

During the research, the author also wrote "Increasing the market share of the oil refining industry through marketing" (Baku, 2020), "Opportunities to apply world experience in marketing strategies" (Hungary, 2020), "Transformation of the refining industry" (Moscow, 2020), "Oil in Azerbaijan "Improving innovative marketing in the processing industry as a condition for success" (Baku, 2020) was published.

The name of the organization where the dissertation work was performed: Azerbaijan State Oil and Industry University.

The total volume of the dissertation with a sign indicating the volume of the structural sections of the dissertation separately.

Dissertation consists of introduction, three chapters, conclusion and list of used literature. The total volume of introduction (22374 tokens), chapter I (61743 tokens), chapter II (37315 tokens), chapter III (74299 tokens), conclusion (6662 tokens) and bibliography (18621 tokens) is 242882 tokens. The mark number of the dissertation is 202393, excluding tables, diagrams, graphs, and the list of used literature.

MAIN CONTENTS OF THE WORK

In the **introductory** part of the thesis, the relevance of the topic, the level of elaboration, the object and subject, goals and tasks, research methods, the main provisions defended, scientific innovation, theoretical and practical importance, approval and application, the name of the organization where it is performed, the information about the structure and volume are defined. has been presented.

In chapter I of the dissertation entitled **"Theoretical-methodological foundations of the organization of marketing activity in the refining industry"**, the theoretical-methodological aspects of marketing activity in the refining industry were investigated, the role of marketing in increasing the competitiveness of the enterprise was determined, and the methodological issues of the marketing factor in the management of the oil refining products market were evaluated.

With the analyzes and evaluations carried out here, the ideas and works of economists on the theoretical and methodological bases and principles of the marketing activity of enterprises in the manufacturing industry were analyzed and their attitude was expressed, and the importance of the functional matrix models of marketing in the manufacturing industry was investigated, and the goals, functions and functional role of marketing were studied through the functional matrix models. it is determined that they allow to draw conclusions about their close interaction.

The functional-objective approach allows to greatly expand the fields of application of marketing as a management system. In this form, marketing goes beyond the framework of market relations and allows to connect goals, functions and resources in almost all

subsystems of social life - economic, social, scientific-technical, political and other subsystems. The specific goals and functions of marketing, as well as their arrangement by color, depend on the object itself. Each of the management objects mentioned below has its own goals and functions: production system, educational system, scientific and technical system, social system, etc. each of the systems listed above can be described within the functional-purpose multidimensional marketing model.

Multidimensionality of a specific model is determined not only by the number of goals and functions, but also by the amount of costs for their realization. The last factor allows for a more complete assessment of the effectiveness of a specific marketing program. In this case, the functional matrix models of marketing will be in the form of a functional-value model as follows (figures 1, 2). The interaction between the targeted functions of marketing and the costs for their realization can be described according to the following scheme with functional-value analysis categories.

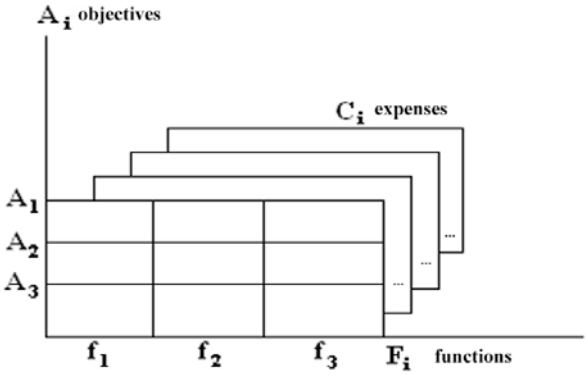


Figure 1. Functional value matrix model of marketing.
Source: *Image courtesy of The Great Economic Encyclopedia made on the basis of materials.*

Using this method, it is possible to determine both the costs for the implementation of each function and the total costs for the implementation of the marketing program as a whole.

Since it is very important to make a strategic decision on the selection of the target segment when evaluating the market environment, the strategy of marketing in this direction is a long-term process, it is a decision that determines separate organizational, economic and social measures of marketing to achieve the set goals. However, in the process of organizing marketing management, the choice of strategy is limited by external and internal conditions. Strategic conditions should be used for the precise construction of the strategy.

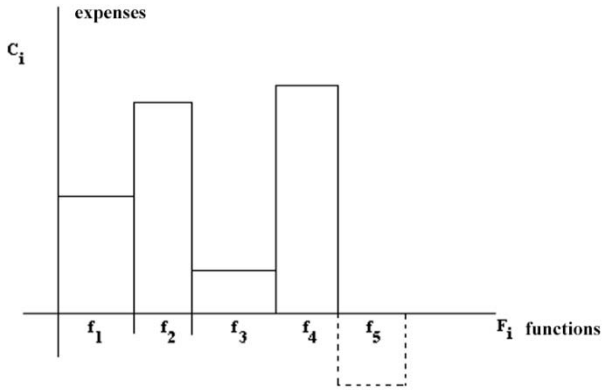


Figure 2. The mutual difference between the objective functions of marketing and the costs for their realization

Source: Image courtesy of The Great Economic Encyclopedia made on the basis of materials.

Symbols:
f1,..., f5 - appropriate marketing functions;
Ci - comparable costs for their realization.

Studies show that the producer, owner and specialist dealing with the sale of products in the oil products market face the problem of evaluating the productivity of their work and the task of finding ways to constantly improve this work.

The main goal is determined by the specific situation, especially the conjuncture in the local and global markets and the changes that await it. The success of realizing this goal depends on the efficiency of the market strategy and the company's product distribution system.

As the balance of commodity products at the end of the year for processing industry enterprises is higher compared to other areas, the feasibility of expanding the marketing activity of processing industry enterprises has been determined in order to increase the efficiency of the sales strategy of products produced in the processing industry.

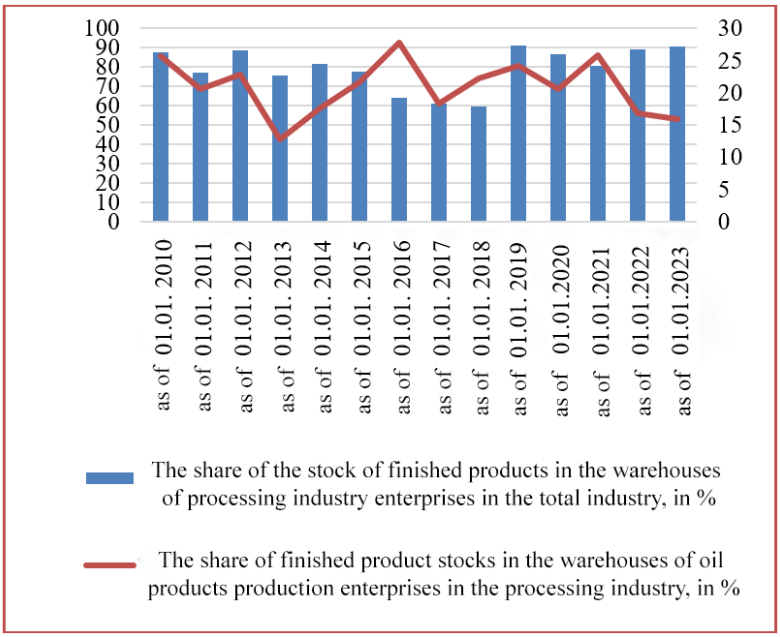


Figure 3. Share of manufacturing industry products in the total industry by the end of the year, in %
Source. *It was compiled based on the information of ARDSK.*

As can be seen from Figure 3, the share of the commodity product balance at the end of the year in the oil refining industry in the refining industry was 17.5% by 01.01.2023, starting from the period until 01.01.2010, and developing with decreasing dynamics in 2022. It was 15.1 million manats. In general, and for the processing industry, this indicator increased during the studied period and reached 90.4 million manats in 2022. As it can be seen, the balance of finished products intended for sale is higher in the processing industry. This requires important work to be done in the direction of increasing the efficiency

of marketing research in the processing industry in order to further expand the market share of the enterprise.

In chapter II of the dissertation, which is called **"Analysis and assessment of the modern level of the refining industry in Azerbaijan"**, the analysis of the current state of the refining industry in the Republic of Azerbaijan and the role of marketing in the investment attractiveness of the refining industry enterprises in Azerbaijan was carried out, the modern state of the marketing activity in the refining network of the oil industry was evaluated, and the provisions determining improvements in this direction were put forward. driven.

The share of the oil refining industry, which is the basis of the economy of Azerbaijan, in the total industry and in the processing industry has increased in 2022 compared to the previous year. We can see them more clearly from the picture below.

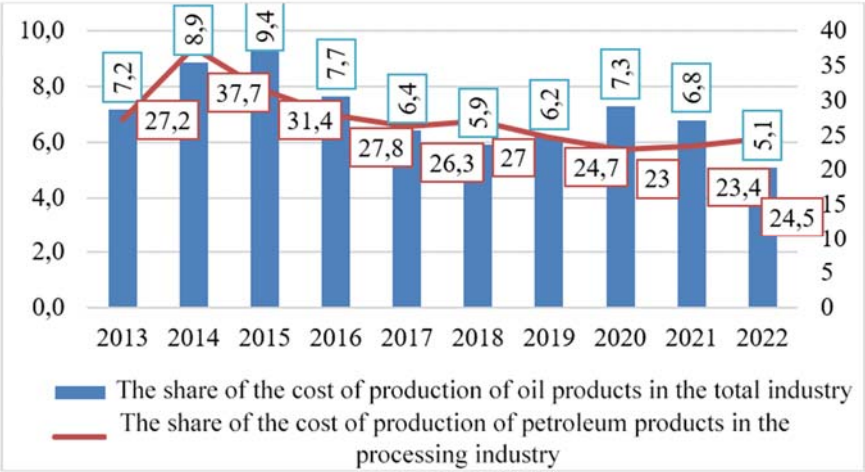


Figure 4. The Share Of Oil Refining İndustry Production İn The Total İndustry And İn The Refining İndustry For 2012-2022,%

Source: Compiled by the author in MS Excel based on the official data of the State Statistics Committee of the Republic of Azerbaijan.

As can be seen from the figure, the share of the total cost of oil production in industrial production in 2013-2022 ranged from 5.1 to 9.4%, while the share of oil refining in the total value of products

produced in the processing industry varied from 24.5 to 37.7%. In 2022, the value of products produced by oil refining enterprises in the refining industry increased by 14% or 2229.4 million manat compared to the previous year, as can be seen from Figure 3, but decreased by 5.1% compared to previous periods. Despite the fact that the value of the products produced in oil refining enterprises has developed with increasing dynamics throughout the studied period, despite the fact that the products produced in other areas of the industry, including the mining industry, in 2022 have increased by 1.8 times compared to the previous year, the oil refining industry has decreased in the total industry. caused. On the other hand, the share of oil refining in the processing industry has increased compared to the previous year, as can be seen from the figure.

These can be seen more clearly from the dynamics of oil production in Azerbaijan for the years 1871-2020 in the graph below.

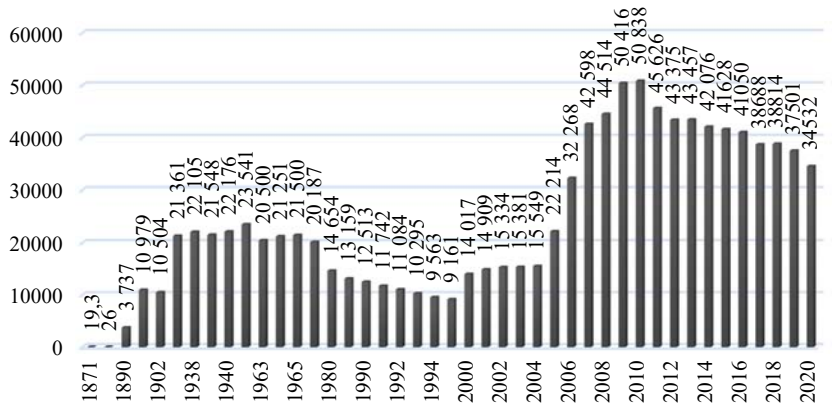


Figure 5. Dynamics of oil production in Azerbaijan for the years 1871-2020, in thousand tons

Source: compiled by the author based on the statistical data of the State Statistics Committee of the Republic of Azerbaijan.

As can be seen from the graph, oil production increased by 34.7% from 19.3 thousand tons to 26 thousand tons in 1872, which was characterized as a period of extensive industrial production starting from 1871, compared to the previous year. In 1901, 20 million tons of

oil were produced in Azerbaijan, which was the largest indicator among the countries of the world at that time. During the period of the former USSR, oil production in Azerbaijan was 23.5 million tons in 1940-1941, which means ¾ of the oil production in the former USSR. Although oil production developed at an increasing pace until the 1980s, in the following years, especially after the independence of our republic, a decreasing dynamics in oil production was observed. In 1994, oil production decreased by 23.5% compared to 1990 and was 9563 thousand tons.

One of the most important indicators of development in the oil refining industry is the depth of oil refining, which clearly expresses the level of development of the refining industry, as well as the diversity and variety of the final product. From this point of view, serious attention is paid to the issue of the depth of oil processing in our country. Although Azerbaijan lags behind some of the developed countries of the world in terms of the depth of processing, as a result, the quality and production volume of processed products is higher.

This list can include car gasoline, diesel fuel, white oil and others. Hydrocarbon semi-finished products, which are the main raw materials of petrochemical and chemical industries, are products of the oil refining process. If we pay attention to the dynamics of the percentage of the depth of oil refining in our country in the last ten years, we can clearly observe this.

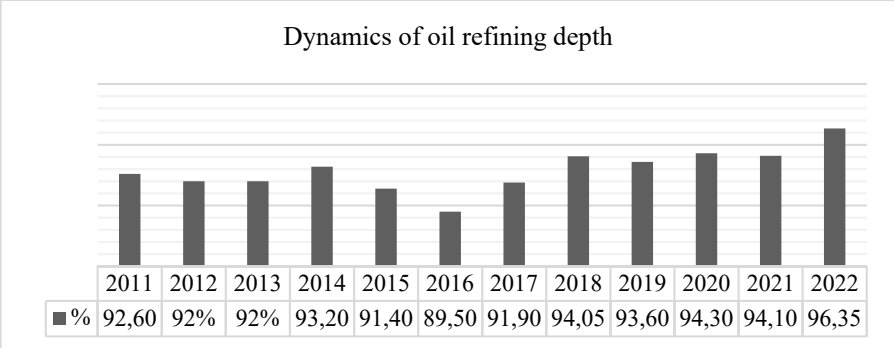


Figure 6. Dynamics of oil refining depth in 2011-2022, in %

Source: *Compiled by the author in MS Excel based on the annual report on the activities of the State Oil Company of the Republic of Azerbaijan.*

As can be seen from the picture, the depth of oil refining in Azerbaijan shows a high percentage dynamics, being mostly less variable in the last ten years. Despite the fact that the lowest indicator was 89.50% in 2016, this dynamic gradually increased and reached 96.35% in 2022.

The investment policy covers the issues of providing favorable conditions for investment by the state and economic entities, improving the economy and effectively using the investment potential for solving socio-economic development problems. The economic reforms carried out in our country served to increase the efficiency of the investment environment and conditioned the development of the processing industry. The following table shows the amount of investments in the processing industry in the Republic of Azerbaijan.

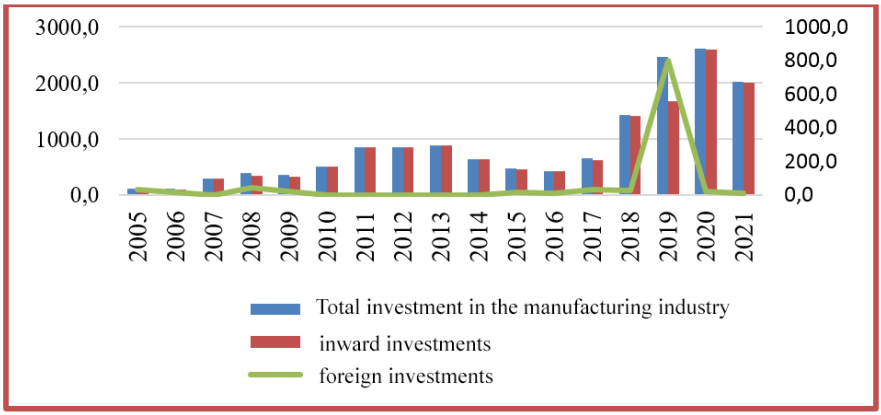


Figure 7. The amount of investments in the processing industry in the Republic of Azerbaijan, in million manats

Source. It was compiled by the author in MS Excel according to the information of ARDSK.

As can be seen, the amount of investments in the processing industry in the Republic of Azerbaijan developed with increasing dynamics over the years 2005-2013. In 2013, total investments in the processing industry amounted to 888.9 million manats, of which 888.7 million manats were domestic investments, and 0.2 million manats were foreign investments. Compared to 2005, the amount of investments increased 7.7 times during that period. In the following

periods, the amount of investments increased and reached 2466.4 million manats in 2019, which is the highest indicator for the entire studied period. During that period, foreign investments in the processing industry increased to 798 million manats compared to previous years, which is 22.2 times higher than in 2005 and 31.2 times higher than in 2018. In general, although investment in the processing industry increased in 2020, it decreased by 592.5 million manats in 2021 compared to the previous year. This decrease was also reflected in foreign and domestic investments. Expenditures on technological innovations in the processing industry surpassed other areas of the industry, including the mining industry, and amounted to 5,318.5 thousand manats in 2021, which means 90.9% of innovation costs in the entire industry. The share of spending on technological innovations in the processing industry in the period 2005-2021 in the total industry varied in the range of 16.1-99.8%. Innovation costs have also had a positive effect on the increase in labor productivity of enterprises.

The State Oil Company of the Republic of Azerbaijan - SOCAR, which has a special share in the growth of the country's economy and our state policy, and has sufficient influence in the international arena, is considered the driving force of the state's oil strategy. Today, SOCAR implements various projects and operations on behalf of our state in different countries. Examples of these are the projects implemented together with neighboring Georgia and brother Turkey.

The fact that SOCAR is subordinated to the state is also one of the main issues. As a result of the wise activities of the great leader Heydar Aliyev, this enterprise remained under the state and for many years it has brought millions to the country's economy and continues to do so. These thoughts of the genius leader Heydar Aliyev, which are of historical importance, reflect deep facts and issues in themselves: *"At that time, some people were thinking of privatizing the oil industry enterprises, including the oil industry of Azerbaijan. The industry that will serve the people of Azerbaijan now and 100, 200 years from now, will contribute to the country's economy and social welfare. I did not allow it. Let everyone know that the oil industry cannot be privatized. The oil industry and oil refining industry should be owned by the country. Know that this cannot be left to anyone's responsibility."*

If we compare the opinions expressed by Heydar Aliyev when he regretfully commented on the situation in 1990-1991 with today's realities, we will see how many reforms have been carried out in this field. He said about the past situation at the "Azerneftyanag" plant: *"Such a plant has been operating at a loss for many years. However, it could operate with high profit in all political systems. By creating 150 small enterprises within the enterprise, they worked for their own purposes and wanted to legalize theft. There was no need for them. Now those enterprises are completely non-existent."* Enterprises and companies distinguished by their productivity in the development of oil refining, as they were during the years of Heydar Aliyev's rule, are always considered now, and their activities are constantly supported by the state due to the decrees and orders of the head of state, Mr. Ilham Aliyev, and the state programs signed by him.

Production of EVRO-2005 diesel and jet engine fuel at the Azneftyag oil refinery in the "State Program for the Development of the Fuel-Energy Complex of the Republic of Azerbaijan" adopted by the order of the President of the Republic of Azerbaijan Ilham Aliyev in 2005-2015, oil sludge processing construction of the facility, establishment of a heat exchange scheme in ELOU-AVT-6, which is used in the primary processing of oil, delivery of dry gas, construction and re-adjustment of measuring nodes and automatic control-measurement system in production areas, gas processing depth capacity of 2.5 billion It is planned to increase the capacity of a new gas processing unit through the construction of a new gas processing unit, to ensure the continuity of production, and to prepare processing and commodity park equipment.

In the country's oil refining industry, the Heydar Aliyev Oil Refinery (NEZ) acts as the enterprise that provides the main part of domestic demand. Founded in 1953, the refinery has been named after national leader Heydar Aliyev since 2004. The plant produces 15 types of products, including gasoline, fuel oil, diesel fuel, aviation kerosene, petroleum coke. With four main units called ED-AV-6, Catalytic reforming, Gradual coking and Catalytic cracking, the plant processed more than 300 million tons of oil by 2017, 6 million tons

in 2019, and 5.9 million tons in 2020. 45% of the produced oil is intended for export.

The reconstruction project at the Heydar Aliyev Oil Refinery, which has completed its initial stage, is being carried out in three consecutive stages. The plant is implementing a reconstruction and modernization project with the goals of increasing production capacity, optimizing costs, raising its quality to the "AVRO-5" standard, and meeting the demand for raw materials of "Azerikimya" Production Union. As a result, it is planned to increase the annual primary processing capacity of the plant to 7.5 million tons, and the production capacity of the catalytic cracking unit to 2.5 million tons per year. As the current result of the works, a new 7.7-hectare bitumen plant and a liquid gas filling station (LPG) consisting of 7 tank cars and 5 tank wagon loading branches have been built in the first phase.

As the next step within the modernization and reconstruction project, the enterprise aims to produce diesel and gasoline fuel according to the "AVRO-5" standard. Modern devices are being installed in order to increase the quality and productivity of the mentioned fuels. As a result of these works, 19 new units will be built and made fully operational. Examples of some of these facilities include diesel hydrotreating, sour water and wastewater treatment, catalytic cracked gasoline hydrotreating, liquid gas pretreatment, and liquid gas alkali treatment.

At the end of the current phase of the project, it is planned to operate 22 main technological units at the refinery. According to the planning, in general, more than 70 percent of the entire economic system and infrastructure should be fully modernized. Additional impacts will be greatly reduced by the construction of a wastewater treatment plant and a new flare system against environmental pollution. According to the forecasts, it is known that the full implementation of the project will create substantial positive effects on the environment. As a result of the "AVRO-5" standards, it is expected that emissions and greenhouse gas emissions from motor vehicles will decrease dramatically.

Table 1.

Oil refining and production of oil products in 2011-2021 (thousand tons)

Oil refining and production of oil products in 2011-2021 (thousand tons)							
The name of the product	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Oil refining-total	**6478,9**	**6009,4**	**5810**	**6095,75**	**6189,72**	**5874,9**	**6657,716**
Gasolines - total	1419,2	1313,1	1383,6	1390,27	1408,17	1383,82	1643,274
Inc. Automotive gasolines	1223,9	1139,6	1215,2	1185,64	1161,38	1166,76	1265,516
Hydrotreated gasoline	195,3	173,6	168,4	204,63	246,79	217,06	377,758
Jet engine fuel	688,3	627,3	588	617,04	591,13	502,24	491,803
Diesel fuel	2053,4	1881,9	1849,2	1921,78	2080,2	2032,32	2395,835
Light colored products	4160,9	3822,4	3820,7	3929,09	4079,5	3918,38	4530,912
Yield of light-colored products, %	64,2	63,6	65,8	64,46	65,91	66,7	67,42
Liquid gases	157,6	185,6	200,6	204,02	197,92	187,2	269,862
Refined dry gas	64,9	59,3	60,1	53,6	54,27	49,97	58,77
Engine fuel DT	63,6	68,4	46,5	34,11	32,55	36,31	19,061
Lubricating oils	24,6	9,8	35	50,93	22,91	23,22	35,954
Stove fuel oil	313	398,6	236,1	106,57	126,46	61,6	106,245
Petroleum bitumen	171,8	179,1	237,1	289,67	260,09	374,73	362,202
Petroleum coke	254,8	206,6	226,9	243,95	238,44	196,92	256,201
Processing depth, %	**91,4**	**89,5**	**91,9**	**94,05**	**93,6**	**94,35**	**94,1**

Source: *compiled based on the annual report on the activities of SOCAR.*

As can be seen from the table data, the physical volume of oil refining in 2021 was 6,657,716 thousand tons of oil, which is 13.3% more than in 2020. The total gasoline processing in 2021 was 1643,274 thousand tons, which is 15.79% more than in 2020, diesel fuel was 2395,835 thousand tons in 2021, which is 15.17% more than in 2020.

In chapter III of the thesis called **"Ways of development and improvement of marketing activity in the refining industry",** an assessment of the impact of marketing activities on the ability of independent development of processing industry enterprises in Azerbaijan was carried out, the issues of modeling the impact of marketing operations on economic growth in oil refining industry enterprises and directions for increasing the efficiency of marketing activities in the processing industry were analyzed. goals and results ensuring effectiveness are justified and relevant proposals are put forward.

According to the acceleration coefficient calculated in the research work, it was determined that the independent development ability of the processing industry in the Republic of Azerbaijan is lower than the average level and 75.7% depends on external sources. This dependence is explained by the low efficiency of manufacturing and marketing activities in some areas.

In order to assess the independent development potential of the processing industry, ΔIt increases in fixed capital investments in the current t year related to the economic development of the enterprise are formed due to ΔYt-1 increases in product production in the previous (t–1) year. If we calculate with generalizations based on the above, we get the following results.

In connection with the compiled table data, dependence on the change in the volume of production of processing industry products in the year (t-1) due to the investments directed to the fixed capital related to the development of the processing industry of the Republic of Azerbaijan in the year

$$\Delta \dot{I}_t = \alpha_0 + \alpha_1 \Delta Y_{(t-1)}$$

will be defined as a linear regression equation.

ΔIt – investment increases directed to fixed capital for primary production in year t;

ΔY(t-1) - increases in volumes of industrial products in (t-1) year;

The α_1 coefficient is an indicator of acceleration and shows the independent development potential of enterprises.

Table 2.

Indicators for assessing the ability of industrial enterprises in the Republic of Azerbaijan to develop independently in the period covering the years 2005-2021

Year	ΔI_t	ΔY_{t-1}	x^2	Xy
n=15	Y	X		
1	2	3	4	5
2007	187,6	1237,9	1532396,41	232230,04
2008	95,3	608,2	369907,24	57961,46
2009	-41	780,8	609648,64	-32012,8
2010	156	-863,9	746323,21	-134768,4
2011	337,7	899,6	809280,16	303794,92
2012	13,3	656,7	431254,89	8734,11
2013	27,7	639,4	408832,36	17711,38
2014	-244,3	213,1	45411,61	-52060,33
2015	-161,7	815,7	665366,49	-131898,7
2016	-58,6	-180,2	32472,04	10559,72
2017	228,3	1019,1	1038564,81	232660,53
2018	779,3	824	678976	642143,2
2019	1034,5	741,9	550415,61	767495,55
2020	144,1	1328,4	1764646,56	191422,44
2021	-592,5	54,5	2970,25	-32291,25
Total	1907,7	8778,2	8154069,87	1849451,8

Source: *calculated by the author based on the materials of ARDSK.*

It should be noted that the coefficient α_1, which represents the acceleration indicator, represents the amount of investments directed to the growth of fixed capital (fixed funds) due to the increase in the volume of product production in the light industry in the past (t-1) period.

The coefficients α_0 and α_1 in the linear regression equation are determined by applying the least squares method in the following manner.

$$\begin{cases} \alpha_0 n + \alpha_1 \sum(\Delta) = \sum(\Delta \dot{I}) \\ \alpha_0 \sum(\Delta \dot{I}) + \alpha_1 (\Delta Y)^2 = \sum(\Delta Y \Delta \dot{I}) \end{cases}$$

According to Table 3.1.2, the following system of normal equations can be drawn up by applying the method of least squares.

$$\begin{cases} 15\alpha_0 + 8778{,}2\alpha_1 = 1907{,}7 \\ 8778{,}2\alpha_0 + 8154070\alpha_1 = 1849452 \end{cases}$$

$$\boldsymbol{Y = -15{,}0116 + 0{,}243\alpha_1}\text{, yəni } \boldsymbol{\Delta \dot{I}_t = -15{,}01 + 0{,}243\ \Delta Y_{t-1}}$$

Here, α_1 is the acceleration indicator that expresses the amount of investments directed to the growth of fixed capital (fixed funds) due to the increase in the volume of production in light industry in the past (t-1) period ($0 < a1 \leq 1$]).

Since a1 (acceleration index) in the obtained equation = 0.243, based on this index, we believe that the processing industry enterprises had independent development potential with a tendency to the average level due to their internal funds. Acceleration coefficient of 0.243 indicates that during the studied period, processing industry enterprises had the ability to develop by 24.3% at the expense of their own funds, and 75.7% at the expense of external sources. This means that it is predicted that the processing industry will develop due to external sources in the prospective periods. Investments focused on fixed capital have a significant impact on the production volume of processing industry products, expanding its double potential, increasing the quality and competitiveness of manufactured products, and fundamentally influencing the increase in market share due to effective marketing activity.

Advertising expenses for marketing research have a positive effect on the expansion of the market share due to the increased turnover by accelerating the sale of the company's manufactured products. The increase in the enterprise's market share determines the economic efficiency of advertising expenses.

Table 3.

The effectiveness of marketing advertising expenses of some processing industry enterprises

	Advertising expenses	Share of expenses by areas, in %	market share, in %	Advertising effectiveness
Textile industry	7000	12	0,4	3,33
Clothing manufacturing	2850	4,9	1,5	30,6
Production of leather and leather goods, shoes	4690	8	3,2	40
Production of oil products	34000	58,2	76,7	131,79
Chemical industry	9850	16,9	18,2	107,7

Source: Compiled by the author based on primary data from the sector.

As can be seen from the table data, in 2021, the advertising expenses in the textile industry for the light industry were 7000 manats, and these expenses made up 12% of the advertising expenses in that field. The market share was 0.4%. However, although the advertising expenses in the processing industry for the production of leather and leather products, shoes made 8%, the market share was 3.2. All this is reflected in the efficiency of advertising costs in those areas.

Based on research in the thesis work, it was determined that there is a high correlation dependence between investments directed to the main capital of the manufacturing industry in the Republic of Azerbaijan and the volume of total product production in the manufacturing industry. In order to determine the interrelationship between the total output of the manufacturing industry and the investments directed to the fixed capital, by marking the investments directed to the fixed capital in the manufacturing industry with X as the causal factors, and the volume of the total product production of the manufacturing industry with Y as the result factor, EViews-12 using the software package, we get the following result.

Table 4.

The result of the regression analysis of the dependence between product production and fixed capital investment in the manufacturing industry

Dependent Variable: Y
Method: Least Squares
Date: 02/06/23 Time: 02:37
Sample: 2005 2021
Included observations: 17

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X	3.523985	0.596069	5.912047	0.0000
C	4737.136	696.0874	6.805376	0.0000

R-squared	0.699714	Mean dependent var	7870.747
Adjusted R-squared	0.679694	S.D. dependent var	3287.215
S.E. of regression	1860.417	Akaike info criterion	18.00512
Sum squared resid	51917275	Schwarz criterion	18.10315
Log likelihood	-151.0435	Hannan-Quinn criter.	18.01486
F-statistic	34.95230	Durbin-Watson stat	1.352562
Prob(F-statistic)	0.000029		

Source: *Developed by the author based on the Eviews-12 application software package.*

As can be seen from the table obtained based on the Eviews-12 application software package, the coefficients of the free threshold and the dependent variable reflecting the cause factor and the effect factor are significantly larger than their standard errors. This means the statistical significance of the obtained result. According to the Eviews-12 application software package, in this case, the regression equation will be as follows:

$$\boldsymbol{Y = 3,524 * x + 4737,14} \qquad \textbf{(3.1.1)}$$

t (5,912) (6,805) DW=1,353, R^2=0,68.

When comparing the F-Fisher criterion with the value of F_table (a;m;n-m-1), it can be seen that F-Fisher criterion (34.9) > F_table (4.54). This means that the regression equation as a whole is statistically significant and the built model (3.1.1.) is an adequate model. Since the crisis points according to Darbon-Watson statistics d_l=1.183 d_u=1.381,

$\boldsymbol{d_l = 1,183 \ \leq DW = 1,353 < d_u = 1,381}$ is obtained, which means that the conclusion about the existence of autocorrelation between the studied indicators is not established.

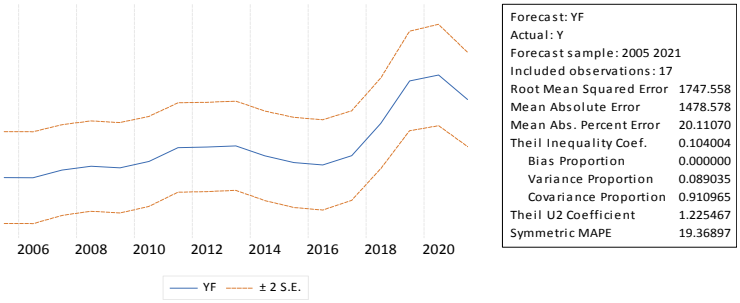
If we calculate the coefficient of elasticity according to the coefficient of the free variable in the relationship equation and the average values of the volume of the cause factor and the result factor for the studied periods, we will get the following result.

$$E_{capital\ investment} = \frac{\alpha \times \bar{x}}{\bar{Y}} = \frac{3{,}524 \times\ 889{,}2235}{7870{,}747}$$

Based on the calculated values of the elasticity coefficient, it can be concluded that a 1% increase in capital investment in the manufacturing industry in the Republic of Azerbaijan results in a 0.4% increase in the total production volume of the manufacturing industry.

As a result of the research, it was determined that increasing the efficiency of marketing activities in the processing industry in the Republic of Azerbaijan will result in an increase in the income from the work and services of enterprises and will increase the volume of production in this sector by 2020.

Based on the Eviews-12 application software package, the regression equation Y=3,524*x+4737.14 values and standard errors of the total output of the manufacturing industry by year, as well as a number of characteristics of using the equation for forecasting purposes, are shown in the graph below.



Graph 1. Prices and standard errors of the total output of the manufacturing industry in Azerbaijan by year, characteristics for forecasting
Source: *Developed by the author based on the Eviews-12 application software package.*

Using the graph, it is possible to calculate the forecast values of the total output of the manufacturing industry in the Republic of Azerbaijan. If we predict the total output of the manufacturing industry, we get the following result.

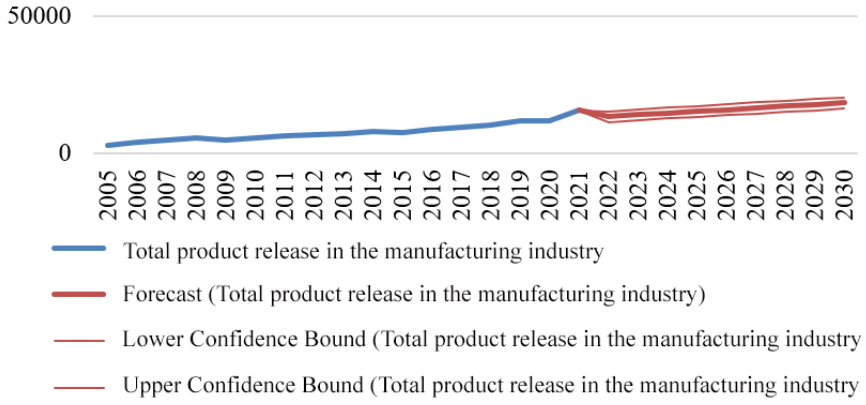


Chart 2. Total output of the processing industry in Azerbaijan Forecast prices until 2030
Source: *Prepared by the author.*

As can be seen from the graph, the forecast prices of the total output of the processing industry in the Republic of Azerbaijan will develop

with increasing dynamics until 2030 and will be 18,501 million manats according to forecasts.

In the course of the research, the following results were obtained, scientifically and empirically important suggestions and recommendations were put forward:

- According to the research, the reconstruction works of the oil refining industry are highly evaluated and it is believed that the successful completion of this process will have a positive effect on the level of development of the industry and its efficiency indicators.
- In the new stage of development of the oil refining industry, it is appropriate to improve the marketing activity in the following directions:
- Obsolete and low processing volume, as well as processing facilities that do not meet the requirements of modern times, should be replaced with new ones, this process should be kept under control, inspections should be conducted regularly, and equipment according to world standards should be used.
- The processing and production volume of the facilities should be in accordance with the forecasted processing and production volume in the current and future period.
- In 2005-2015, in the "State Program for the Development of the Fuel and Energy Complex of the Republic of Azerbaijan" established by the order of the President of the Republic of Azerbaijan, Ilham Aliyev, successful reconstruction and modernization works are ongoing for the full transition to ecologically clean and economically efficient processing. .
- The timely steps taken by the great leader Heydar Aliyev, not allowing the privatization of the oil refinery, and the worthy continuation of that political idea by President Ilham Aliyev in the modern era ensured the continuous development of the refinery industry.
- In modern times, the development of the oil refining industry as a result of the successful and continuous reforms carried out by Mr. President Ilham Aliyev, the production of more than 2 billion tons of oil gives reason to say that the implementation of marketing activities

in the refining industry will give an impetus to achieve even higher results.

- The conducted studies show that the successful operation of Azerbaijan's oil and gas complex has depended on the results of marketing activities in modern times. For the implementation of a successful marketing policy, it is necessary to raise the technical level of production by attracting foreign investments and changing the ownership forms in enterprises;

- The improvement of the management system of processing enterprises and the organization of marketing activities should be based on a systematic approach. At this time, it is more appropriate to use the linear-functional organizational management structure, which is distinguished by its simplicity, in oil and gas enterprises;

- As a result of the research, it was determined that the structural changes in the country's economy take into account the changes accompanied by increasing dynamics as modernization progresses, which in the conditions of changes in the structure and volume of the demand for oil and gas products, the emergence of competition and the weak use of marketing in enterprises, the theoretical and methodological aspects of marketing it is necessary to work out the problems.

- The conducted studies show that it is appropriate to use the expert method based on the processing of normative-technical and economic indicators of the studied product to determine the level of competitiveness of oil and chemical products.

- In our opinion, it is necessary to improve the existing system of advertising work. The effectiveness of advertising measures can be achieved when the effectiveness of advertising for the advertiser is directly related to the goal;

- In order to ensure the maximum effect of the funds allocated for the implementation of marketing measures, the management of marketing activities in oil and gas enterprises includes the establishment of an information collection and processing system, in-depth market research of sales operations, etc. is required;

- Oil refining industry enterprises should improve the mechanism of competition strategy formation by solving the following factors in order to produce competitive products and enter the world market;

- It is more appropriate to study the development trends of processing industry enterprises and determine their level of competitiveness;

- Since marketing research is closely related to advertising activity, the expenses allocated to this area directly result in an increase in the volume of goods, work and services, causing an increase in the market share of the products, work and services produced by enterprises, and lead to an increase in the efficiency of advertising expenses for marketing activity;

- Based on the research, based on the Eviews application software package, it was determined that there is a high correlation between global advertising spending and GDP, and a 1% increase in global advertising spending leads to a 0.42% increase in global GDP (due to the increase in advertising spending);

- Based on the Eviews-12 application software package, it was determined that there is a high correlation between investments in the manufacturing industry in the Republic of Azerbaijan and the total output of the manufacturing industry, and a 1% increase in the investments in the manufacturing industry increases the total production volume by 0.4 results in an increase in %;

- It was determined that the independent development potential of processing industry enterprises in Azerbaijan is below the average level, and in prospective periods, the processing industry will develop due to effective marketing activity at the expense of external sources, substantially affecting the increase in market share;

- It was determined that the expenditures on technological innovations by activity types and financial sources developed with the increasing dynamics of the industry as a whole. The increase in the volume of investments directed to the fixed capital led to the development of innovative technologies in the processing industry, increasing the volume of production and increasing labor productivity;

- Based on the EViews application software package, the annual prices and standard errors of the total output of the manufacturing industry, as well as a number of characteristics and forecast suitability of using the equation for the purpose of forecasting, were determined and it was determined that it will increase due to effective marketing activities according to forecasts until 2030.

The main provisions of the dissertation work, the obtained results and suggestions are reflected in the following works of the author:

1. Ibayev A.A. Marketing services market development strategy. // – Baku: Ministry of State Education of Azerbaijan, Sumgayit State University – republican scientific conference "Development prospects of the non-oil sector of Azerbaijan", April 25-26, 2019. – p. 44-51.

2. Ibayev A.A., Ahmedova A.A., Nagiyeva X.A., Alizade N.M. Azercell is a marketing service provider research object. // – Samara: "Trends of development of science and education", 2019. No. 54 (4). - p. 90-92.

3. Ibayev A.A. "Azercell" company as a research object of marketing services market. // – Baku: Materials of the XXIII republic scientific conference of doctoral students and young researchers, December 3-4, 2019. – p. 307-309

4. Ibayev A.A. The role of digital marketing in the oil and gas industry. // – Baku: Conference dedicated to the 100th anniversary of Azerbaijan State Oil and Industry University – May 6-7, 2020. – p. 1021-1026

5. Ibayev A.A. Modern development trends of marketing activity. // – Baku: Scientific and Pedagogical News of Odlar Yurdu University, No. 54, 2020. – p. 6-10

6. Ibayev A.A. Marketing strategies of oil industry companies during recession. // – Baku: "Scientific work" international scientific journal - materials of the 1st International scientific conference on humanities and social sciences, July, 2020. - p. 257-259

7. Ibayev A. A. Increasing the market share of the oil refining industry through marketing. // – Baku: News of ANAS. Economics Series, 2020 (July August). July - August 2020. - p. 66-70

8. Ibayev A.A. Opportunities to apply world experience in marketing strategies atlas international journal on social sciences. // – Budapest, Hungary: 7th International Congress on Social Sciences September 23-25, 2020/ 23-25 September 2020. – p. 16-22

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10. Ibayev A.A., Ahmedova A.A., Alizade N.M. Marketing features of renewable energy in the manufacturing industry. // – Turkey: New Era international journal of interdisciplinary social researches - December 2020.

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12. Ibayev A.A. Modern economic problems of oil refining industry in Russia. // – Baku: Young Researcher scientific and practical magazine - November 2021. – p. 281-285.

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Address: AZ1106, Republic of Azerbaijan, Baku city, Najaf Narimanov street, 93.

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