



MECHANICAL ENGINEERING AND METALWORKING IN THE DEVELOPMENT OF THE NATIONAL ECONOMY

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ABSTRACT

The national economy consists of a complex of many industries, each of which contributes differently to the development of the country. However, there are industries that determine the technical progress of the whole country and make a significant contribution to the innovative development of the economy. One such sector is the machinery sector, which is the main driving force of economic growth.

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Introduction

Today, the share of machinery in the global processing industry is 32.1%, of which: the production of computers, electronics and optical products - 8.5%, machinery and equipment - 8.2%, transport engines, trailers and semi-trailers, production of electronic machinery and equipment by 4.1% and transport equipment by 3.2%.

The machine-building industry is characterized by specific development features compared to other sectors of the national economy and is distinguished by the following aspects:

- ✚ Orientation of industry products for mechanization and automation of production processes in various sectors of the economy;
- ✚ Variety of products of the network and high complexity (variety of products, high accuracy, size, weight, etc. in the manufacture of the product);
- ✚ multiplicity of equipment used for production;
- ✚ versatility of technological processes of products manufactured in the industry;
- ✚ high diversity of applied technological processes (mechanical processing, thermal and electromechanical processing methods, welding and wiring, painting, etc.);
- ✚ high diversity of materials used;
- ✚ Variety of professional staff, etc.

Mechanical engineering is the main means of technical and technological modernization of the

economy, and its main purpose is to expand the fixed assets of production in the economy and to ensure the continuous renewal of machinery and equipment.

Also, the main function of the machine-building and metal-working industry is to provide industries and sectors of the economy with machine-building products, as well as to provide them with technical parameters and access to innovations.

It should be noted that in developed countries there is a strong link between the growth rate of production in the processing industry and the dynamics of demand for production equipment. In addition, the development of production in the engineering sector activates the multiplier factors in the economy and shows a positive trend in manufacturing.

From the above considerations, it can be concluded that the engineering and metalworking industry is the "muscle power" of the national economy, and this sector performs the following functions in the macroeconomy.

Analysis of the relevant literature

First of all, it should be noted that from the literature on the subject O.B. Aleksandrova, O.P. Garshina's "Industry Economics (mechanical engineering)", according to which data on the economics of the machine-building industry were obtained. From the scientific article of N.A. Krasnopeevea and E.Y. Nazrullaeva Investments in fixed assets in the cost of materials in industry used research to model the effects.

However, in order to strengthen the knowledge on this topic and further clarify the research questions, Z.M. Mamaev in the economy. The information provided in Part 2 of the textbook "Econometrics" on mathematical models and methods is also studied by the author.

Research methodology

The first function of the above-mentioned machinery and metalworking industry is to ensure the expansion of the national economy, and this function reflects the quantitative aspects of the role of the industry in the national economy.

The second function of the industry in macroeconomics is the process of innovation and technological renewal of production, which reflects the qualitative aspects and changes in the process of expansion of the national economy. The implementation of this function will directly ensure the competitiveness of the national economy and the country's scientific and technological progress.

The third function is to meet the demand of the population for goods and services with high technical and scientific-technical capacity, and this function will further increase the welfare of the population.

The fourth function directly serves to strengthen the material and technical base of the country's industry, and it leads to an increase in the country's industrial potential.

It should also be noted that the functions of the machine-building and metal-working industries are interpreted differently in different scientific sources and are not limited to the above functions.

For example, M.A. Gureeva, recognizing the development of machine building, the role of machine products in ensuring competitiveness, the role of strengthening national industrial policy, highlights the following tasks of the industry:

- expansion of the domestic market with machine-building products;
- modernization of existing productions on the basis of innovations and creation of new productions using automated design systems and modern information technologies, product quality management and support of their life cycle;
- increase labor productivity and improve and develop human resources;
- updating the product range with the aim of cost-effective technologies and high-productivity production;

- modernization of the production and technical base of natural monopolies with the use of national equipment;
- increase the investment attractiveness of machine-building enterprises, development of a system for the supply of machinery and equipment on a leasing basis;
- Improving the legislative and legal framework in order to accelerate the internal structural processes of subsector machinery;
- Ensuring support for the export of machinery products.

Fig1.

The share of industries in the formation of GVA in small entrepreneurship (business) for 9 months of 2020 (in % of the total)



According to A.K. Baskakov, the following tasks will be assigned to the machine-building industry for the development of the national economy:

- ✚ providing network farms with high-efficiency machines and equipment;
- ✚ Improving the competitiveness and quality and technical level of products in domestic and foreign markets;
- ✚ the transition to the production of a new generation of machines and mechanisms, ensuring a significant increase in labor productivity;
- ✚ introduction of advanced energy and resource-saving technologies;
- ✚ Increasing the level of automation and mechanization at all stages of production, from the development of prototypes to the mass production of finished products.

In modern economic conditions, the machine-building industry is a key element in the development of productive forces, without which no technical and technological changes will take place in the country. Also, the role of machinery in the system of productive forces consists of the following.

Analysis and results

Today, the modern machine-building and metal-working network consists of 20 large networks

and more than 100 branches, which allows to analyze the structural and qualitative changes in the network.

In turn, the development of the structure of the machine-building and metal-working industries is largely characterized by the rational integration of the individual industries that make it up, which requires the formation of the most optimal structure in the industry.

- heavy industry, energy and transport machinery;
- electrical engineering industry;
- chemical and petrochemical engineering;
- machine tool and tool industry;
- instrumentation;
- automotive industry;
- transport and agricultural machinery;
- road construction and utility engineering;
- food and light industry machinery and accessories;
- aviation industry;
- shipbuilding industry;
- communication industry;
- Metals and scrap metal processing industry.

The machine-building and metal-working industries are also classified using various other criteria. For example, depending on the markets to which the products of enterprises of this network are directed, this network is conditionally divided into 5 groups:

✚ Investment machinery industry group. This group includes such sectors as heavy, energy, transport, chemical, oil, road construction machinery, which determine the investment activity and development of construction and transport complexes, as well as YoEM;

✚ Group of agricultural and tractor machinery and processing industries of agro-industrial complex and machine building of light industry enterprises. Which these industries are directly related to agricultural processors and agricultural production;

✚ A group of industries with high scientific and technical capacity. This sector mainly includes science-intensive industries that promote the development of the machine-building and electrical industries, including components, instrumentation and other industries;

✚ Automotive industry and end-consumer products, as well as machinery for the needs of government agencies, enterprises and firms, including passenger cars, buses and trucks;

✚ Defense industry enterprises. These include a set of enterprises producing products related to the country's defense.

It can be said that mechanical engineering is the most complex branch of the industry, which is also classified in terms of the location of production and the complexity of technological processes.

Conclusions and suggestions

In addition to the above, the machine-building industry is conventionally divided into two groups on the label "regional equipment of the market of raw materials", which are:

1. Import-substituting machinery industries. This group includes the automotive industry, tractor

and agricultural machinery, transport machinery, road construction machinery. The development of this group of industries determines the infrastructural factors of the economy and the demand for its products in the domestic market.

2. Export-oriented machinery industries. The branches of this group include the power engineering industry, the electrical industry, the tool industry for the production of various elements of control system automation, the machine tool industry for the production of pressing and heavy metal lathes, as well as the aviation and shipbuilding industries.

One of the important factors in the development of the machine-building industry in the country is to increase the share of high-tech machinery in total industrial production, the second important factor is the optimal placement of this industry.

Due to the richness of the composition of mechanical engineering, the type of factors affecting it is also different.

For example, heavy machinery that requires a lot of metal (wagons, equipment for mining and quarrying, etc.) in the areas of ferrous metallurgy, such as precision and precision engineering, such as instrumentation, electrical engineering, computing, which requires a small but skilled workforce. placed in centers of technical development.

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