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THE IMPORTANCE OF HIGH-TECH PRODUCTION IN THE STABILITY OF THE ECONOMY OF AZERBAIJAN

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Introduction. The Anglo-Australian economist C. Clark was the first to conduct a comprehensive structural analysis of the capitalist economy in the 1930s. Empirically, he established the existence of interdependencies between the industrial structure of the economy, its institutional structure, and the general rate of economic growth. Clark made a long-term forecast of the economic development of capitalism in the post-war period, according to which the upward stage of the great Kondratieff cycle was to take place before the early 1970s. Clark's forecast came true in many ways [1, p. 37]. The structural crisis of the 1970s stimulated more research into the evolution of structural instability and its impact on economic development. As a result, it was found that a structural crisis matures irrespective of the development of cyclic processes. This brings the onset of the economic crisis, affects its depth and duration. The experience of world economic crises of 1974–1976 and 1980–1982 showed that in various countries, the structural crisis is roughly similarly "woven" into the cyclical movement of the economy [2, p. 120].

The structural analysis of G. Mensch [3], conducted for the economy of Germany, showed that it was the structural instability of 1971–1974 years that caused a severe crisis of production and employment in 1975–1976. He showed that a similar situation took place for other developed countries. Mensch discovered that structural instability in certain parts of the economy goes hand in hand with structural susceptibility to basic break-through innovations and formulated a rule according to which, "innovations overcome depression". It is the revolutionary technologies, which lie within basic innovations that, in turn, lead to both technological and industrial structural changes in the economy [2, p. 121].

Reducing the share of manufacturing industries below the critical level may lead to structural instability of the economy. [2, p. 122]. Sustainable Development Goal No. 9 states "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation".

For 21 years (from 1997 to 2018) in Azerbaijan mining industry grew from 31.3% to 69.8%. The manufacturing industry, on the contrary, decreased from 51.8% to 22.9%.

According to the Classification of Manufacturing Industries by Technology Group of the UN Industrial Development Report [3], let's review how the dynamics of low-, medium- and high-tech production in Azerbaijan has changed.

As can be seen from the calculations (see Table 1, 2, 3), among the low-tech production, there is a quite high efficiency of such manufacturing industries as food and textile. Among medium-tech production, over 8 years, the efficiency of production of petroleum products increased by four times. Over the same period, the efficiency of the metallurgical industry increased by 6, 7 times, although its share in the industry of Azerbaijan decreased from 1.6% to 0.6%.

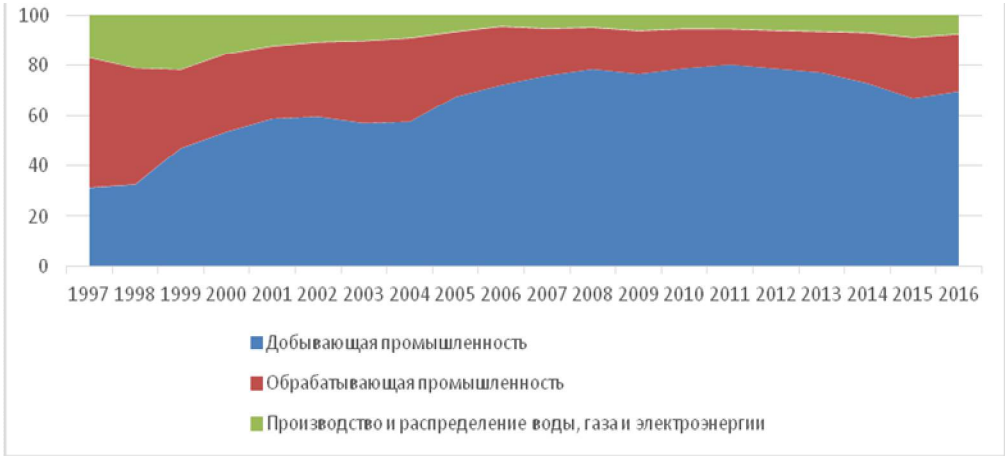

Fig. 1. Dynamics of the main industries of the Azerbaijani economy

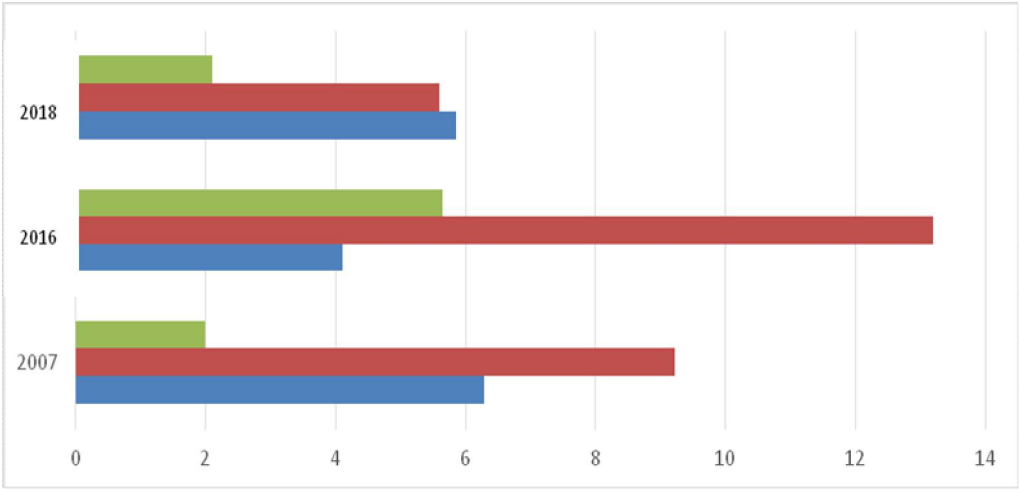

Fig. 2. Dynamics of low - , medium - and high- tech production in Azerbaijan, in % of the Azerbaijani industry

Table 1

Dynamics of efficiency and share of low-tech industry of Azerbaijan

Azerbaijan's low-tech manufacturing industries	Years					
	2007		2016		2018	
	share in industry, %	efficiency	share in industry,%	efficiency	share in industry,%	efficiency
Food production	5,7	33,2	2,5	30	4,7	n. d.
Beverage production			0,8	8,5	0,4	n. d.
Textile industry	0,3	3,8	0,1	2,8	0,4	n. d.
Production of leather, leather products and shoes	0,1	n. d.	0,1	1,4	0,03	n. d.
Production of wood products, except furniture	0,04	n. d.	0,1	0,6	0,02	n. d.
Production of paper and paperboard	0,14	n. d.	0,1	7,2	0,1	n. d.
Printing and publishing	n. d.	n. d.	0,2	1,6	0,1	n. d.
Furniture manufacture	n. d.	n. d.	0,2	23,6	0,1	n. d.

** n. d. – no data*

Source: [4-8], author's calculations

Table 2

Dynamics of efficiency and share of medium-tech production in the industry of Azerbaijan

Azerbaijan's medium-tech manufacturing industries	Years					
	2007		2016		2018	
	share in industry,%	efficiency	share in industry,%	efficiency	share in industry,%	efficiency
Production of rubber and plastic products	0,12	3,1	0,4	3,8	0,3	n. d.
Production of construction materials	1	6,6	1,8	11,6	0,8	n. d.
Metallurgical industry	1,6	6,4	0,9	44	0,6	n. d.
Petroleum products	6,5	35	10,1	149	3,9	n. d.

** n. d. – no data*
Source: [4-8], author's calculations.

Table 3

Dynamics of efficiency and share in the industry of high-tech production of Azerbaijan

Azerbaijan's high - tech manufacturing industries	Years					
	2007		2016		2018	
	share in industry,%	efficiency	share in industry,%	efficiency	share in industry,%	efficiency
Chemical industry	0,8	n. d.	1,4	42,4	0,7	n. d.
Production of computers and other electronic equipment	0,19	n. d.	0,3	746	0,4	n. d.
Production of electrical equipment			0,4	3,3		n. d.
Production of machinery and equipment	0,4	n. d.	0,8	10,2	0,4	n. d.
Production of other vehicles	0,6	n. d.	0,05	1,9	0,6	n. d.
Installation of machinery & equipment and repair	n. d.	n. d.	2,7	28	n. d.	n. d.

** n. d. – no data*
Source: [4-8], author's calculations

Conclusion. The observed period of 1997 to 2018 can be divided into two periods: from 1997 to 2007 – when we could observe the economic stability of the Azerbaijani economy and from 2007 to 2018 –when the economy of Azerbaijan considered partially unstable to external and internal shocks.

Undoubtedly, high prices for oil in the world and a positive trade balance make it possible to ensure a certain financial stability of the Azerbaijani economy due to foreign exchange earnings. But, as calculations show, such stability and sustainable economic growth is possible mainly in the short term. The stability of the economic system as a whole is based on the optimal structure of GDP. A change in the situation is possible on the basis of an integrated approach, the use of favorable domestic capabilities of the country in all areas, which our country is undertaking. The efforts of public authorities are aimed at ensuring the

sustainability of the economy, which is considered as a priority. These directions are reflected in the Roadmaps on the development of the Azerbaijani economy.

As a measure to improve the stability of the Azerbaijani economy, it is proposed to expand high-tech and medium-tech production. As a result of the overflow of resources to the above-mentioned sectors, a reduction in low-tech production in the technological structure of the country's industry and increase the competitiveness of products will follow. Indeed, structural changes in the form of a transition from a labor-intensive to a technologically intensive economy are factors of economic modernization. Diversification of the economy in favor of the manufacturing industry will allow to achieve high growth rates, longer periods of growth and a decrease in its volatility, which supports long-term growth.

The proposed measures will lead to an increase in the stability of the Azerbaijani economy, a decrease in the fluctuation in dynamics of macroeconomic indicators, which ultimately will lead to an increase in the growth rate of GDP per capita and sustainable economic growth in the long term.

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Ельшад Мамедов, професор. **Есміра Ахмадова,** аспірант. Азербайджанський державний економічний університет (АДЕУ), Азербайджанська Республіка. **Значення високотехнологічного виробництва в стабільності економіки Азербайджану.** Метою цієї статті є теоретичне та емпіричне вивчення ролі високотехнологічного виробництва у стійкості економік, особливо азербайджанської. Методологія статті полягає у фундаментальних працях зарубіжних вчених та дослідженнях ООН у галузі визначення та оцінки стійкості економічної системи. Визначено значення та структуру низького, середнього та високотехнологічного виробництва в Азербайджані. На основі критичного аналізу наукової літератури з даної теми та отриманих результатів у статті запропоновано відповідні пропозиції та висновки. Дані, отримані в цій статті, є актуальними і можуть бути використані для моніторингу економіки та підвищення її стійкості. Основним фактором стійкості економіки було визначено частку та ефективність високотехнологічної продукції в структурі промислового виробництва. Запропоновані заходи призведуть до підвищення стабільності економіки Азербайджану, зменшення коливань в динаміці макроекономічних показників, що в підсумку призведе до збільшення темпів зростання ВВП на душу населення та стійкого економічного зростання в довгостроковій перспективі.

Ключові слова: економічна стійкість, структура ВВП, азербайджанська економіка, виробництво, економічне зростання.

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Elshad Mammadov, Professor. **Esmira Ahmadova**, PhD student. Azerbaijan State University of Economics (UNEC), Azerbaijan Republic. **The importance of high-tech production in the stability of the economy of Azerbaijan.** The aim of this research is a theoretical and empirical study of the role of high-tech production in the sustainability of the economies, particularly Azerbaijani economy. The methodology of the paper lies in the fundamental works of foreign scientists and United Nations research in the field of determining and assessing the sustainability of the economic system. As a result of the study, the significance and structure of low, medium and high-tech production in Azerbaijan were determined. On the basis of a critical analysis of the scientific literature on this topic and the results obtained, the article proposed relevant proposals and conclusions. The data obtained in this article is relevant and can be used to monitor the economy and increase in its sustainability. The main factor in the sustainability of the economy was determined to be the share and effectiveness of high-tech products in the structure of industrial production. The proposed measures will lead to an increase in the stability of the Azerbaijani economy, a decrease in the fluctuation in dynamics of macroeconomic indicators, which ultimately will lead to an increase in the growth rate of GDP per capita and sustainable economic growth in the long term.

Keywords: economic sustainability, structure of GDP, Azerbaijani economy, manufacturing, economic growth.