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THE ROLE OF STRUCTURAL CHANGES IN THE MODERNIZATION OF THE ECONOMY

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In order to increase the competitiveness of the national economy, it is necessary to modernize and diversify the branches of the real sector. At the same time, the process of diversification and modernization of the economy and the structural transformation will be accompanied by a parallel interconnection. Ultimately, these two interconnected processes ensure transition to innovative development. In the country with innovative development, the export potential will be increased and sustainable economic growth will be ensured through the production of high value-added products. This, in turn, increases the national wealth and ensures the competitiveness of the national economy. The competitiveness of the national economy guarantees the welfare of the population. Through the implementation of the national economy modernization and structural transformation program in the world practice, many developed countries have ensured sustainable economic growth based on innovative factors. In this regard, Japan, Germany, the Republic of Korea and the People's Republic of China have achieved steady economic growth thanks to the deep structural transformation of the economy on the basis of economic modernization strategies. Modernization includes the technical and technological renewal of the leading sectors of the economy, the qualitative improvement, and ultimately, diversification of production, as well as the development of human factor. In the context of modernization of the national economy, it is crucial to form a state-of-the-art innovation program, to prepare a new generation of personnel effectively using innovations and investments and preparing a new class of investors. For this purpose, Uzbekistan needs a national idea for national technological development and domestic market modernization. This program should allow Uzbekistan to facilitate its inclusion into the list of the world's most developed countries. From this point of view, the formation of an innovation program, training of the new generation, effectively using innovations and investments, support for the development of a class of owners, become important. This requires a well-thought-out program for the technological development of Uzbekistan and the modernization of the domestic market. The implementation of this program should create new opportunities for Uzbekistan to find a worthy place in the ranks of the developed countries. In achieving these long-term strategic goals, the modernization of the national economy and the implementation of structural transformations play a leading role. The Strategy of Actions for the Development of the Republic of Uzbekistan for 2017–2021 has highlighted that “enhancing its competitiveness through deepening structural transformation, modernization and diversification of leading sectors of the national economy” is a priority.

Keywords: modernization, modernization of economy, investments, national economy, structural changes, priorities

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**РОЛЬ СТРУКТУРНЫХ ИЗМЕНЕНИЙ
В МОДЕРНИЗАЦИИ ЭКОНОМИКИ**

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Для повышения конкурентоспособности национальной экономики необходимо модернизировать и диверсифицировать отрасли реального сектора. В то же время процесс диверсификации экономики с ее модернизацией и структурной трансформацией будет сопровождаться параллельной взаимосвязью. В конечном итоге эти два взаимосвязанных процесса обеспечивают переход к инновационному развитию. В стране с инновационным развитием экспортный потенциал будет увеличен, а устойчивый экономический рост будет обеспечен за счет производства продукции с высокой добавленной стоимостью. Это, в свою очередь, увеличивает национальное богатство и обеспечивает конкурентоспособность национальной экономики. Конкурентоспособность национальной экономики – залог благополучия населения. Реализуя в мировой практике программу модернизации национальной экономики и структурных преобразований, многие развитые страны обеспечили устойчивый экономический рост, основанный на инновационных факторах. В этом отношении Япония, Германия, Республика Корея и Китайская Народная Республика достигли устойчивого экономического роста благодаря глубокой структурной трансформации экономики на основе стратегий экономической модернизации. Модернизация включает техническое и технологическое обновление ведущих секторов экономики, качественное улучшение и, в конечном итоге, диверсификацию производства, а также развитие человеческого фактора. В контексте модернизации национальной экономики «крайне важно сформировать современную инновационную программу, подготовить новое поколение кадров, которые эффективно используют инновации и инвестиции и готовят новый класс инвесторов. Ведь для этого Узбекистану нужна национальная идея национального развития, развития технологической модернизации внутреннего рынка, которая должна позволить Узбекистану ускорить доступ к наиболее развитым странам мира. С этой точки зрения важным становится формирование инновационной программы, обучение нового поколения, эффективное использование инноваций и инвестиций, поддержка развития класса собственников. Для этого нужна продуманная программа технологического развития Узбекистана и модернизации внутреннего рынка. Реализация этой программы должна создать для Узбекистана новые возможности занять достойное место в ряде развитых стран мира. В достижении этих долгосрочных стратегических целей ведущую роль играют модернизация национальной экономики и проведение структурных преобразований. В Стратегии действий по развитию Республики Узбекистан на 2017–2021 годы подчеркивается, что приоритетной задачей является «повышение ее конкурентоспособности за счет углубления структурных преобразований, модернизации и диверсификации ведущих секторов национальной экономики».

Ключевые слова: модернизация, модернизация экономики, инвестиции, национальная экономика, структурные изменения, приоритеты

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Introduction

In order to increase the competitiveness of the national economy, it is necessary to modernize and diversify the branches of the real sector. At the same time, the process of diversification and modernization of the economy and the structural transformation will be accompanied by a parallel interconnection. Ultimately, these two interconnected processes ensure transition to innovative development. In the country with innovative development, the export potential will be increased and sustainable economic growth will be ensured through the production of high value-added products. This, in turn, increases the national wealth and ensures the competitiveness of the national economy. The competitiveness of the national economy guarantees the welfare of the population.

Through the implementation of the national economy modernization and structural transformation program in the world practice, many developed countries have ensured sustainable economic growth based on innovative factors. In this regard, Japan, Germany, the Republic of Korea and the People's Republic of China have achieved steady economic growth thanks to the deep structural transformation of the economy on the basis of economic modernization strategies. Modernization includes the technical and technological renewal of the leading sectors of the economy, the qualitative improvement, and ultimately, diversification of production, as well as the development of human factor.

In the context of modernization of the national economy, it is crucial to form a state-of-the-art innovation program, to prepare a new generation of personnel effectively using innovations and investments and preparing a new class of investors. For this purpose, Uzbekistan needs a national idea for national technological development and domestic market modernization. This program should allow Uzbekistan to facilitate its inclusion into the list of the world's most developed countries¹.

From this point of view, the formation of an innovation program, training of the new generation, effectively using innovations and investments, support for the development of a class of owners become important. This requires a well-thought-out program for the technological development of Uzbekistan and the modernization of the domestic market. The implementation of this program should create new opportunities for Uzbekistan to find a worthy place in the ranks of the developed countries.

In achieving these long-term strategic goals, the modernization of the national economy and the implementation of structural transformations play a leading role. The Strategy of Actions for the Development of the Republic of Uzbekistan for 2017–2021 has highlighted that “enhancing its competitiveness through deepening structural transformation, modernization and diversification of leading sectors of the national economy”² is a priority.

Purpose of the study. Analyze the role of structural transformations in the process of modernization of the national economy of the country.

Research methods. In the process of the research, the structural method, systemic approach and grouping, comparative analysis, historical and logical method, scientific abstraction method and other methods were used.

Results and Discussion

The world practice shows that energy- and capital-intensive production with high specific consumption and a lack of integration of modern technologies in the national economy have a negative impact on product competitiveness. The opportunity to identify priorities of stirring Uzbekistan to the path of innovation will be facilitated through deep analysis of the conceptual aspects of accelerating the modernization processes in the economy and implementing structural changes. In the global economy, research is under way to establish a balance between the modernization of the economy and the structural changes.

In the process of formation of market relations in transitional economies, in most cases the concepts of “reform” and “transit economy” have been used instead of modernization theories. However, a single market institute was unable to ensure successful economic development, and the concepts of “modernization”, “structural changes” and “national competitiveness” were introduced into the economic turnover. Modernization has begun to be regarded as a national program, not as a follow-up to the West [2, p. 40–52].

In 1960, Walt Whitman Rostow, an American scientist and Professor of the Massachusetts Institute of Technology, proposed a theory of transformation to the “self-sustaining growth” which had a great impact on the shaping of the concepts of modernization of the economies of the developed Western countries. The main idea of this theory is to transform a traditional society into a modern western society [4, p. 154–186],

¹ Mirziyoyev Sh.M. Address of the President of the Republic of Uzbekistan Sh. Mirziyoyev to the Oliy Majlis//www.president.uz

² Decree of the President of the Republic of Uzbekistan "About the strategy of action for the further development of the Republic of Uzbekistan" February 7, 2017, UP-4947//lex.uz

and the scientist improved his views of “self-sustaining growth” with subsequent economic growth stages [5, pp. 307–331]. Professor U. Rostow highlighted the following stages of economic growth:

1. Traditional society;
2. The preconditions for take-off;
3. The take-off;
4. The drive to maturity;
5. The age of high mass-consumption.

Let us briefly describe each of the above steps in terms of the modernization of the economy in Uzbekistan. According to the theory of U. Rostow, more than 75 percent of the population of the traditional economy is employed in agricultural production or processing, while the land resources are owned by private owners or the state. Note that according to the statistics of sectoral distribution, between 2000 and 2017, 12.7–13.5% of the population in Uzbekistan has been engaged in the industrial sector, while the share of the population employed in agriculture and forestry amounted to 34.4–27.3%, being significantly higher than in other sectors. It can be seen that the share of the employees in the industrial sector increased insignificantly, for example, in 2000, 1145 thousand people were in the industrial sector, and by 2017 the number increased up to 1825.2 thousand people. In agriculture and forestry, in 2000, 3093 thousand people were employed, and by the end of 2017 3691 thousand people³ worked in the same sector.

Despite the fact that the agrarian sector generated more than 19.2% of the country’s GDP, in 2017, investments in this sector accounted for only 3.3% of the total amount [14]. Thus, on the one hand, the increasing share of the manufacturing industry in the structure of GDP seems to be as a sufficient precondition for the transition to the next stage of economic development. On the other hand, the share of the economically active population employed in the agricultural sector in comparison with the other sectors explicitly shows that the economy remains at the stage of the traditional society.

The second stage, called “The preconditions for take-off”, implies significant structural changes in the three non-industrial sectors: agriculture, transport and foreign trade. In the economy of Uzbekistan, the volume of agricultural production in 2000–2017 increased by 103.1–102.0% compared to the previous period, while the foreign trade turnover increased by 97.9–111.0% in the same period.

The Strategy of Actions for further development of Uzbekistan in 2017–2021 includes the construction of Bukhara-Miskin railway line in 2017, electrification of Karshi–Termez railway line in 2017 and Pop-Namangan-Andijan in 2017–2019 within the framework of improving the road condition and development of road infrastructure, electrification of the railway line, reconstruction of railways.

The third “Take-off” phase has lasted from 20 to 30 years, with growth rates of capital investment going up rapidly, the per capita output increases, and the introduction of new technologies in the industry and agriculture will accelerate. If the development first occurs in certain sectors, then the entire economy will be covered.

The fact that the share of fixed capital investments in gross domestic product is less than 24% ensures the rapid implementation of structural changes and modernization of the economy⁴. The world practice shows that the investment rate for modernization of the economy should be at least 25 percent.

If investment in fixed capital per capita in 2010 amounted to 543.4 thousand soms in the Republic of Uzbekistan, then in 2019 it amounted to 5834.6 thousand soms, and by the end of 2020 it was 5900.9 thousand soms. If we analyze this indicator in 14 regions (Table 1), it is higher than in the Republic of Karakalpakstan, Andijan, Jizzakh, Namangan, Samarkand, Surkhandarya, Syrdarya, Tashkent regions and Tashkent city in 2020.

Table 1 shows, that the per capita investment in 2020 increased by almost 11 times compared to 2010. The Kashkadarya, Bukhara and Navoi, which are the regions of large territory, have the potential to boost this figure.

³ Cer.uz

⁴ Cer.uz

Table 1. Investments into fixed capital per capita in 2010-2020 (in thousand sums)

Regions name \ Years	2010	2015	2016	2017	2018	2019	2020	Change in 2020 compared to 2010
The Republic of Uzbekistan	543.4	1431.7	1608.6	2227.8	3769.6	5834.6	5900.9	10.9 t
The Republic of Karakalpakstan	279.5	3388.2	2094.0	1542.2	3641.1	4644.4	4273.7	15.3 t
Andijan	214.8	678.4	745.3	999.6	1550.3	2406.0	2772.4	12.9 t
Bukhara	1273.5	2264.0	3237.6	6254.2	5112.4	5429.3	5812.1	4.6 t
Jizzakh	319.5	1033.1	1125.1	1361.9	2693.9	5778.9	9291.9	29.0 t
Kashkadarya	639.7	1969.9	2389.3	3583.4	5193.4	7534.6	6032.2	9.4 t
Navoi	1987.6	1965.1	3168.1	4185.4	10892.1	17855.2	15954.9	8.0 t
Namangan	237.1	863.8	1074.8	1340.3	2992.5	4344.1	4220.5	17.8 t
Samarkand	296.8	912.0	1001.6	1189.4	1878.3	2674.9	3431.7	11.6 t
Surkhandarya	271.9	773.0	879.1	1427.1	2848.3	4552.8	3737.3	13.7 t
Syrdarya	532.3	1382.2	1660.3	2011.1	3280.2	7002.9	8404.0	15,8 t
Tashkent	581.4	1595.0	1507.5	2087.2	3898.4	6970.0	6399.9	11.0 t
Fergana	273.8	731.6	747.8	822.4	1516.8	2336.2	2990.0	10.9 t
Khorezm	227.0	884.7	885.8	1215.1	1655.6	2718.4	3544.6	15.6 t
Tashkent city	1472.4	2877.4	3848.1	5552.7	10627.8	16710.5	17062.5	11.6 t

To switch to “self-supporting growth” automatically, several conditions must be satisfied:

1. A sharp increase in the share of investment in production of national income.
2. Intensive development of one or more industries.
3. Political victory of the advocates of modern society over the supporters of traditional society.

In the conditions of Uzbekistan, the above conditions were fulfilled in a certain sense.

At the fourth stage, according to U. Rostow, technical development era will begin, where the level of urbanization will increase and industrial production will be transferred to qualified managers. The beginning of this phase dates back to 1850 in England, 1900 in the USA, 1910 in Germany, 1910 in France, 1920 in Canada, 1930 in Sweden, 1940 in Japan, and 1950 in Russia.

At the fifth stage of high mass-consumption, there is a transition from supply to demand, from production to consumption, i.e. the production is focused only on the consumption matching the demand. Later on, U. Rostow adds the sixth stage of economic growth. This stage, called “the search for quality”, is characterized by an increased demand for high quality durable goods [7, p. 230]. In Uzbekistan, the requirements of the fourth and fifth stages must be fully fulfilled to create decent living conditions for the people.

In modern literature, this topic has been studied by many authors. In particular, Collin Constantine revealed the essence of economic structures, institutions and economic performance [17].

The modernization phase of the country’s economic development is an important step. Both the developed and the developing countries either have completed this step or are currently in the process of modernization. Modernization is a process of technological upgrade aimed at increasing the competitiveness of products produced (works and services). It is a tool to eliminate technological retardation of enterprises, which has a profound impact on the level of labor, resources and raw materials use. The results of modernization, technical and technological renovation determine the conditions for the rapid development of high-tech, competitive production.

Modernization of the economy is a comprehensive concept, and its essence in economic literature is different. “The modernization is like an elephant: difficult to describe, but easy to recognize when you see one,” says a Singaporean political scientist Goh Keng Swee [8, p. 1]. Economic reforms aimed at technological

renewal of any production capacities do not always imply modernization. At the same time, any sector of the economy that is subject to modernization does also experience a state of renewal. The theory of modernization reflects the sum of the socio-economic and political development concepts which describe the process of transition from a stable traditional economic system to modernized industrial society [9, p. 12]. The conceptual essence of modernization is evident from the need for fundamental reforms to face the economic, technological, institutional challenges and transition to a new stage in civilization development [10, p. 5].

Secondly, the stage of modernization of the economy will be realized within a certain period of time: as a rule, from 10 to 30 years. Modernization experiences in the developed countries of the world in the second half of the XX century are remarkable. Russian economist Prof. B. A. Heifets and A. B. Chubais have systematized their successful modernization projects [11, p. 23], [12, p. 121].

Table 2. Successful modernization projects in the world

Country Name	Launching of Modernization	Sustainability Development Duration	Period
Japan	Beginning of 1960	The end of 1970	20 year
USA	Beginning of 1960	1980	25 year
Chili	The end of 1960	The end of 1980	20 year
Taiwan	Beginning of 1970	The end of 1990	25 year
Malaysia	1980	Beginning of 2000	20 year
Israel	1980	Beginning of 2000	20 year
India	1980	The end of 2000	20 year
China	1980	Beginning of 2000	20 year
South Korea	1980	Beginning of 2000	20 year
Singapore	1980	Beginning of 1990	10–15 years
Finland	1980	2000	15–20 years
Ireland	1980	2000	15–20 years

Table 2 shows that in developed countries, the duration of the modernization project is definite and between 10 and 25 years. Studying world practice, the beginning of the modernization of economy in Uzbekistan corresponds to the year 2005. The reason for that was the inherited stagflation economy, crisis conditions from the period of ex-Soviet Unions, the structural transformation of 1990s with the period of explosive economic growth. According to the table data, Israel, India, China and South Korea successfully completed the modernization in the early 2000s and achieved sufficient conditions to start using the innovative model of economy.

In the modernization of the economy, one can switch from one model to another. According to many economists and analysts, the models of global economic development vary in different periods or show the power of influence on changes. The structure of global economic development models includes 6 subsystems or submodels [13, p. 4]. These submodels are:

1. Global financial submodel (Global financial system).
2. Sub-model of trade and exchange relations.
3. Global production submodel.
4. Reduction of the population (labor resources) is a global submodel.
5. Institutional regulation of international economic relations submodel.
6. Other self-propagating global submodels.

The countries that use a natural model of economic modernization, developed submodels 1–5 well and have sufficient experience. Changes in submodels 1–5 are the result of the specific features of the countries that have chosen the “catching up” model.

The Decree of the President of the Republic of Uzbekistan PD-5308 as of January 22, 2018 “On State Program on Implementation of the Strategy of Actions for the Development of the Republic of Uzbekistan in 2017–2021 in the Year of Support of Active Entrepreneurship, Innovative Ideas and Technologies” identified certain tasks. Particularly, the third chapter of this program indicates the priorities of economic development and active entrepreneurship support, namely, a step-by-step approach to a new model of economics which consists in: promoting macroeconomic stability, maintaining high economic growth, and developing “smart” technologies, increasing exports of local products, attracting foreign investment, increasing investment and tourist attractiveness of the country. In addition, paragraphs three and four set tasks for the enhancement of structural reforms, modernization and diversification of leading sectors of the national economy, as well as the modernization and accelerated development of agriculture, and assigned the responsible ministries and agencies responsible for their implementation. Also, the timeline for the implementation of the program is clearly defined in months, costs, funding sources and the mechanism for implementing these measures and the expected outcomes.

The document also presents an extensive program aimed at modernization of the construction industry. It develops a strategy for innovation and advanced development of the industry, introduction of innovative technologies. There are measures to encourage the national project for contracting organizations to enter the external markets. The goal is to eliminate bureaucratic obstacles and barriers and provide access to the construction market, revise the existing normative and technical regulations, construction norms and requirements based on world standards. There is a need to form a professional class of qualified builders and architects, thereby eliminating the misconduct based on attracting one-time workers, attracting qualified foreign specialists on a systematic basis and creating conditions for the professional development of local professionals abroad. It is envisaged to consider the interests of building materials manufacturers on the basis of localization projects in the process of public procurement.

At the moment, transition economies are dealing with the transition to innovative development based on the modernization and diversification of the economy [15].

The main principles of the economic policy of transition economies are:

- 1) economic liberalization;
- 2) changing the attitude towards property, focusing on the development of the private sector;
- 3) structural transformation of the economy;
- 4) inflation control;
- 5) adaptation of economic entities to new business⁵.

The countries with transitional economies attempt to strengthen government stabilization processes, increase competitiveness of national production, and facilitate the implementation of a new market economy [16, p. 227].

In the CIS countries, strategies for the modernization of the economy have been developed since the 1990s and directions of its implementation have been identified. However, not all countries transforming to the new economy had the opportunity to develop and implement the strategy of modernization of the economy evenly. The reason is that the development of technological and macroeconomic parameters has not been uniform, there was no structured program of modernization, and that some countries were lagging far behind the developed countries in terms of scientific and technical development. Nevertheless, the following three areas of economic modernization are characteristic of transforming economies:

- increasing the competitiveness of products;
- prevention of economic risks;
- forming a new management mechanism.

Along with the positive aspects of modernization of the economy, there are specific negative aspects, which are the risks that threaten the economic security of the state and prevent the process of modernization. Modernization of the economy is a necessary stage for the transforming economies. The modernization

⁵ Shcherbanin Yu.A. *Mirovaya ekonomika [World economy]*. M.:2009. – p. 380.

zation program covers key areas such as technological renewal of production, structural transformation of the economy and innovative development. At the same time these structural elements are characterized by a “catching up” modernization model. In countries with transition economies, we find the answers to some of the questions that are specific to the case study of the “catching up” model of the modernization of the economy and the way in which this model is being utilized. There were conditions in the countries with economies in transition to use the “catching up” model of modernization of the economy. Firstly, in the first half of the XX century, industry had developed, although the production capacities were out of date. Secondly, the high military potential is confirmed by the triumph in the First and Second World Wars. Thirdly, the role of the state in the regulation of the economy is high, which is reflected in the tax, monetary policies and pricing. In the transition period, if the government’s interference in the economy is limited, it might cause negative and severe consequences. The Global Financial and Economic Crisis, which started in 2008, forced some countries with economies in transition, which initially chose the “catching up” model of economic modernization, to change their priorities in order to fight against the crisis and elaborate the measures to overcome its negative consequences. Two of the countries included in the single customs union, Russia and Kazakhstan, have similarities in the modernization strategy. Uzbekistan is one of the transitional economies and the experience of the above-mentioned countries is important in the process of developing a modernization strategy, as it is part of the CIS. According to CIS statistics, in the period 2000–2017 different trends were observed in the study of the main macroeconomic parameters (Table 3).

Table 3. GDP growth rates (in % of the previous year) [21]

Countries	2000	2005	2010	2013	2014	2015	2016	2017
Russia	110.0	106.6	104.5	101.3	100.6	96.3	99.8	101.5
Ukraine	105.9	102.7	104.1	100	93.2	90.1	102.3	102.5
Kazakhstan	109.8	109.7	107.3	106.0	104.4	101.2	101.0	104.0
Uzbekistan	103.8	107.0	108.5	108.0	108.1	108.0	107.8	105.3

Table 3 shows that GDP growth rates declined in Russia, Ukraine, and Kazakhstan in 2000–2016, and went to a recovery phase in 2017, while Uzbekistan achieved a trend of steady growth (over 5%) for 2004. The tendency to decline has been driven by the global financial-economic crisis due to the debt-driven economy of these countries, while the measures taken to overcome the negative consequences of the crisis in Uzbekistan have provided a stable growth.

In the medium term, the goal of modernization of the national economy is to achieve sustainable growth in real sectors of the economy by implementing institutional and structural reforms, increase competitiveness of the national economy, filling internal and external markets with high quality products and modern services, and, ultimately, transform economic system to the trail of innovative development.

Conclusions

Due to these goals, the following tasks of modernization of the economy can be distinguished in the long-term perspective:

- implementation of institutional and structural transformations aimed at effective accomplishment of privatization processes;
- implementation of government programs aimed at ensuring sustainable growth in industry, including machinery, fuel and energy complex, light industry, agricultural processing industry, and implementation of targeted government programs;
- mobilizing domestic resources and capacities to ensure sustainable growth through the use of existing production capacities and alternative energy sources, accelerating localization programs through domestic



raw material resources, expanding regional development among areas, improving efficiency of investment and material-technical resources;

- formation of priority directions of state scientific and technical programs, expansion of the elements of high tech and knowledge economy and innovative development.

Analyzing the structural shifts in the generation of GDP in the national economy from 1991 to 2020, we can conclude the share of services and other sectors had the tendency to increase, while the share of agriculture decreased.

In the long term, the GDP is expected to double by 2030 by means of increasing the share of the manufacturing industry up to 40%. When drafting the industry development strategy of Uzbekistan, the state set the main goal of increasing the competitiveness of production to ensure sustainable growth through delivering high-demand goods for domestic and foreign markets.

Directions for further research

The following points represent the major factors contributing to the sustainable growth of industrial output:

1. An active investment policy aimed at accelerating the introduction of modernization, structural transformations and major hi-tech production capacities.
2. Step-by-step expansion of production localization.
3. Financial support of local producers.

The long-term strategy of modernization of the economy should be based on recent achievements in science, technology and innovation.

To sum it up, the modernization of the economy is closely linked to structural changes. The annual growth of GDP in the leading sectors of the country, including the growth of the manufacturing industry, will vary depending on the sector structure, the volume of investments, the state of the fixed assets, the employment-to-population ratio.

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