

Labor and scientific – technical innovation in the economy modern China

The phenomenal growth of the Chinese economy since the beginning of 80s of the 20th century has led China to second place in world rankings according to GDP and made a real competitor to the US in this regard.

However, the rapid growth of China's economy in the last decades changed its deceleration. In 2015, the PRC's GDP grew by 6.9 per cent, GDP growth in 2016 was 6.7 per cent, and in 2017 according to some analysts, the growth rate of China's GDP will be reduced to 6.4 per cent. On the one hand, it is a good result against the background of weak global growth. But, on the other hand, it is much lower in comparison to those indicators that China showed a few years ago.

Chinese economy has entered the stage of "new normality" amid declining world trade and a slowdown in investment and consumer demand within the country. There are three main features characteristic of this stage: a slowdown in economic growth from high to medium high; implementation of the necessary structural adjustments in the economy; The engine of economic growth is innovation, not natural resources and cheap labor, as it was before.

Describing an innovative model of China, we can note the following specific features: focus is made on integration in the global innovation sphere; the priority of the government policy in the field of science and education, creation of favorable institutional conditions for innovative businesses; the impact of the mechanisms of the Communist party in terms of the development of medium and long term plans in this area (the so-called five-year plan); hierarchical system of management ("adjustment" of government policy under specific social, economic and geographical conditions in each province).

The financing of innovative activities is carried out by the Federal government and local authorities. There is also a system of public procurement, according to which the government has to allocate funds for the purchase of products of Chinese innovative enterprises. The Innovation Fund of small business supports Chinese enterprises with subsidies and concessional financing.

Following world trends, China demonstrates the effective use of its innovative technological achievements in real production. In the twenty-first century knowledge-based industry grew from small to large, from weak to powerful, and became a powerful force, affecting the development of the national economy. The average annual growth of knowledge-based industries exceeded 20 per cent and by 10 per cent surpassed the average annual growth rate of the entire

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industry. During this period the proportion of knowledge-based industries in the national economy has increased from 1 per cent to 15 per cent. In a short time, China has come to a situation where 100 per cent of complex products (TVs, VCRs, etc.) were made from Chinese parts. China became the leader with the number of employees in scientific and technical sphere in 2005 (38.5 million people, including 1.1 million engaged directly in research and development). Now China exports computers, phones, televisions, monitors, and circuits for \$180 billion a year, followed by the United States in the output. According to many experts, in a few years China will become the leader in the world market of information and communication technologies. The Ministry of science and technology of China supposes that by 2020 China will enter the number of States of an innovative type, which include USA, Japan, Germany, South Korea and Finland. This will be the consequence of the upgrading of the innovation system.

Skillfully using the advantages of planning and the adjustable model of innovation management, for example, steadily improving credit service of high-tech enterprises and the conditions for the venture capital accumulation, China is promoting the transfer of advanced technologies, for example, from the EU. Europe, because of the existence of strict rules regulating the activities of venture capital funds, it is not able to use the potential accumulated research: 35–40 per cent of scientific results obtained in the implementation of EU programs in the field of R&D can't be absorbed by European economies and under-developed in Europe and in the United States and now in China.

The growing quality of Chinese products and the growing influence of China on the maintenance of the standards of high technology products contributed to the increase of foreign trade turnover of China. So, the American Corporation Wal-Mart buys Chinese goods for \$14 billion (13 per cent of U.S. imports from China). The growth of foreign trade operations and production of certain high-tech goods such as computers, promotes more rapid increase of market capacity for software and service computing. According to experts, the Chinese segment of the Internet in its capacity in the short term can overtake the segment of the United States in the number of users. The on-line market in China reached 839 million US dollars, herewith 65 per cent of the capacity of the market occupied by local producers. Approximately the same is the situation in the market of electronic Commerce (Alibaba).

Production of the major innovative result of the Chinese economy will require significant policy adjustment in the field of science, innovation and investment. It's necessary to make the transition from the practice of borrowing research results (with the accelerated development of these innovations and bringing to perfection of an existing technology) to the creation of a new knowledge. And here it is necessary to eliminate the main obstacle to this transition, the one that has formed Chinese institutional economic model – the one that was able to demonstrate the “Chinese economic miracle”.

Established by the government of China's strategy focused on the increasing scientific-technical, innovative and industrial capacity in promising areas of industrial development in the five-year plans include:

1. Assistance in formation of high-tech industries, including the establishment of an effective system of technology transfer, both foreign and inter-industry.
2. Creation and support of an activity of modern elements of scientific and innovation infrastructure (technology parks, national research centers, scientific-technological zones, etc.) in cities where there is a network of scientific and technical and industrial organizations and enterprises with high scientific and technological potential.
3. The use of the existing scientific and technical potential in the development of post-industrial economy industries. China today has a scientific basis, which allows developing knowledge-intensive production based on domestic developments in several areas, including: biotechnology (new varieties and genotypes of crops and animals, bacteria strains, etc.); nuclear technologies; space technologies; creation of new materials, chemical products, etc.
4. Creating the necessary conditions for conducting research in the field of modern scientific-technical areas, such as: new materials and chemical technologies; information technologies.
5. Improvement of the legislative base aimed at stimulating innovative activities of scientific-technical and production organizations and enterprises, attracting investments in science and innovation, the early occurrence of innovation in industry and services.

Chinese economic reform are inextricably linked with the strategy of innovative development of the country due to the rapid rise in the quality of education, its own science and immediate implementation borrowed from abroad technology. Chinese experts calculated that one-third of economic growth in the last 25 years is provided by advanced technology. The pace of development of science and technology in China is recognized as unprecedented in the history. In over 35 years China has made a dizzying leap in R&D and innovation, developing those areas that helped to create modern products that won international markets. Six factors favored that today China is the main world producer of science and technology: a large population and rapidly growing, thanks to the efficient education system, the quality of human capital; effective labor market of specialists of higher qualification; an effective system of R&D government and business funding; a reasonable system of incentives (the explosive growth of salaries for world-class scientists—65–150 thousand dollars. per year); effectively built system of knowledge transfer in the technology (universities, government, business); world's largest diaspora of scientists of Chinese descent, many of who have returned home to help the country.

In the first decade of the 21st century the level of development of science and technology in China approached to the world level. China occupies a leading place in the world for the production of computer equipment and the degree of informatization of education, health, government (e-government). China's booming Internet economy with legally approved doctrine of information security. The breakout of China, referred to by analysts as the "Chinese miracle", is a significant achievement due to the hard work, energy and dynamism of the Chinese nation and the implementation of carefully crafted strategies of innovative development of the country. A key feature of Chinese economy, determines its high dynamics, the availability of relatively cheap labor disappears (the average salary in the country has increased from \$115 in 2008 to \$888,29 in 2016) and is being replaced with another high level of innovation development.

China, which until recently was one of the poorest and backward countries in the world embarked on building a knowledge economy, ensuring a continuous process of transformation of new knowledge into new technologies, products and services.

The policy of the Chinese government in innovation is directed not so much on import of R&D from the developed countries, but to stimulate private innovation. For this the tax tools are used in the form of tax deductions for expenditure on R&D, tax breaks for companies working in the field of electronics and software. And also the government adopted a number of laws on venture funding and established the Association of venture capital firms. To stimulate innovative activity of enterprises, a significant increased of expenditures on R&D and a qualitatively new level of protection of intellectual property.

There is no doubt that by 2020, thanks to the youth of key scientific personnel, China will expand its leadership in science and innovation and, as planned, in 11 areas will reach the world level, and in 2030–40 years will become the undisputed world leader not only in size of its economy, but also in scientific and technological development. By 2050, China expects to build a knowledge economy.

References:

1. Maximova E. I., China's Economy to 2050// East analyst
2. Kovalev M. M., Wang Xing, China is building a knowledge economy.– Minsk: Publishing center BSU, 2015
3. "The Chinese proposal. Xi Jinping is changing the ideology of economic reforms". [Electronic resource].URL: <http://glav.su/forum/4/123/threads/1126449-chinese-proposal/> (17.08.2016)
4. "China, which we lose". [Electronic resource].URL: <http://svpressa.ru/politic/article/126712/> (13.03.2017)
5. "Wages in the world for 2016." [Electronic resource]. URL: <http://ekonomika-stran.com> (16.07.2016)