Research on the Promotion of Shandong's Economic Transformation and Upgrading by Scientific and Technological Innovation

Gu Yajing

Shandong Yingcai College of Business, Jinan 250104, China

guyajingsd@126.com

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Abstract: At present, China's economic and social development has reached a new stage that must rely on scientific and technological innovation, improve the quality of laborers and management innovation. Science and technology are the primary productive forces. It is necessary to realize the transformation of Shandong's economic development mode and industrial transformation and upgrading. Improve the independent innovation capability of Shandong Province. Based on a comparative analysis of the status quo of Shandong science and technology innovation, the main problems and the world's scientific and technological development trends, this paper draws on the advanced experience and methods of science and technology innovation in other countries and other provinces and cities in China, and proposes to accelerate the pace of scientific and technological innovation in Shandong and improve the ability of independent innovation. Suggested countermeasures.

1. Introduction

At present, Shandong, as a major economic province, is undergoing a crucial transformation from large to strong, and the traditional economic development model cannot meet this demand. In the critical period of comprehensively accelerating industrialization, informationization, urbanization, agricultural modernization and transformation, and restructuring, only relying on scientific and technological innovation can win the development competitive advantage for Shandong and protect the construction of a strong economy. ,

2. Improving the ability of independent innovation is the key to accelerating economic transformation and upgrading

Since the reform and opening up, China has broken through the shackles of the economic system, and its social productivity has been greatly improved. However, in the past economic development, problems such as energy consumption and environmental pollution have been neglected, resulting in tight social production resources and increased pressure on the ecological environment. The structural contradictions of the economy are prominent, and the problems of unbalanced, uncoordinated and unsustainable economic and social development are becoming more prominent. In recent years, the country's economic growth rate has slowed down. Overcapacity has caused contradictions between supply and demand. The rise in labor prices has led to a weakening of low-cost advantages, and the gap between rich and poor has not changed. The problems arising in China's economic and social development are due to the fact that the overall quality of Chinese nationals is not high, the overall strength of scientific and technological development is not strong, and the ability of social innovation is insufficient. To achieve the goal of building a strong economy, we must make great progress in enhancing the capacity of independent innovation, improving the quality of workers, and relying on management innovation to drive economic development.

In the modern history of the world, the rise and fall of all countries in the world are all closely related to technological innovation. From the steam era to the electrical age to the information age,

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the countries that are at the forefront of technological innovation have become the powers of this era. Nowadays, the most fundamental gap between developed and underdeveloped countries lies in the gap in scientific and technological innovation. The economic gap between provinces in China also stems from the gap in science and technology. Only when the country has strong independent innovation capability can it take the initiative in the fierce international market competition. Science and technology innovation plays an important role in the key areas related to the country's lifeline and national security. The key technologies and core technologies cannot be bought, only the country. Independent research and development can guarantee its sTable development.

As early as 2005, China has established “independent innovation” as a national strategy. Later, in many important national conferences, “improving independent innovation capability and building an innovative country” as a development goal, and putting science and technology development in the national society. The core position of development. In order to achieve the goal of building a strong economic province, Shandong Province needs to continuously promote concept innovation, system innovation, management innovation, cultural innovation and technological innovation, comprehensively deepen reform, strengthen government functions, accelerate the transformation of economic development mode, and stimulate market vitality. To enhance the economic endogenous power and release a huge reform dividend to ensure sustained and healthy economic growth.

3. The status quo of Shandong science and technology innovation and the main problems

As a major economic province, Shandong Province has always regarded the enhancement of independent innovation capability as an important means of adjusting structure and transformation. According to the construction goals of Shandong Province in recent years, the research and development of key technologies and the cultivation of innovative talents are the focus of work. A technological innovation system with enterprises as the mainstay, market-oriented, and production, education and research combined has been initially established, and the ability of scientific and technological innovation has risen sharply. In recent years, the province's capital investment in science and technology innovation accounts for about 3% of GDP. The total output value of high-tech industries in the province has reached about 5 trillion yuan, accounting for more than 30% of the province's total industrial output value. With more than 10,000 items, the number of invention patents has reached more than 10,000. These achievements have effectively proved that in recent years, the scientific and technological innovation environment of Shandong Province has been continuously improved, and the science and technology innovation system is accelerating construction. Although great progress has been made in the quality and efficiency of economic development and the benefits of science and technology for the people's livelihood, there is still a big gap between Shandong Province and other developed eastern provinces. Compared with other eastern provinces, the role of technological innovation in promoting economic growth is still low. The realization of scientific and technological innovation to promote Shandong's goal of achieving a strong economic province still faces many difficulties. Such as:

3.1 The importance of technological innovation has been neglected.

In actual work, some local governments and relevant departments are still limited to the traditional economic development model, development concepts and ideas, focusing on large projects, high GDP, and keen on the development of quick success, thus ignoring the long-term development of science and technology. Important role. Failure to incorporate scientific and technological innovation into government functions, not vigorously supporting science and technology innovation enterprises, and more to promote the responsibility of technological innovation to specialized scientific research institutions, universities, and even market enterprises. It hopes that powerful large and medium-sized enterprises will complete the task of technological innovation, which will lead to the lack of policy support for many small and medium-sized enterprises that have just been operated, indirectly improving market access standards, and making small and medium-sized enterprises suffer greatly. Market competition pressure, lack of motivation for innovation. Moreover, many enterprises rely too

much on the extensive development model of abundant resources and cheap labor, but the existing resources and energy are weaker than before, and they are limited to the pressure of environmental protection. Such enterprises are often not favorable. Development, but the lack of technological innovation to achieve transformation and upgrading capabilities, resulting in such enterprises can only be eliminated by the market, is not conducive to the progress of technological innovation. According to the effective data released by the State Intellectual Property Office, the number of authorizations for invention patents in China in the following years is in the order of Beijing, Guangdong, Jiangsu, Zhejiang, Shanghai, Shandong, and Shandong ranks sixth. It can be seen that Shandong has a large gap in research and development of scientific research technology compared with advanced provinces.

3.2 Insufficient investment in science and technology

In 2018, Shandong's fiscal science and technology investment accounted for about 3% of fiscal expenditure, which was lower than Jiangsu and Guangdong by 1.18 and 0.9 percentage points respectively. In 2018, Shandong's research funding investment accounted for about 2.8% of GDP. Although the proportion in 2011 has increased, the gap with advanced provinces is still large. In 2018, research funding in Beijing and Shanghai has accounted for about 6% of GDP, which is higher than the average level of developed countries. In 2018, the investment in scientific research funds of Shandong medium and large enterprises only accounted for 1.5% of the business quota, but internationally agreed that only enterprises with R&D investment intensity of more than 5% have effective market competitiveness. Low-intensity R&D investment makes it impossible for most companies to conduct core technology research and development and forward-looking strategic research. Technology innovation is often maintained in the research and development of low-end technology. Enterprises do not have core competitiveness and will eventually be eliminated by market competition.

3.3 The conversion rate of scientific and technological achievements is not high

Since the “Twelfth Five-Year Plan”, Shandong has achieved nearly 5,000 important scientific research achievements, of which nearly one-third of the international advanced level, but the real industrial conversion rate is only 20%. There are three reasons for this: First, most companies have not achieved long-term cooperation with scientific research institutions, and the scientific research institutions are somewhat out of touch with the market economy. As a result, scientific research topics fail to closely follow the actual production and market demand, seriously affecting the effectiveness of scientific and technological achievements. Transformation; Secondly, the weakness of the “pilot test” is a key factor affecting the transformation of results. Due to insufficient financial support, most colleges do not have the ability to independently complete the “pilot test”, and the “pilot” link has large investment and high risks. Enterprises are reluctant to invest in the “pilot test” for innovation of results. Intention to invest in high-return, mature scientific research results; Finally, the current talent assessment mechanism is not perfect, still regard academic as the basic element of talent assessment, thus ignoring the transformation of results. The transformation of scientific research results requires a lot of manpower and financial resources, which makes researchers lack enthusiasm for the transformation of results, resulting in a large number of innovations being shelved and unable to achieve the transformation of results.

4. To promote economic transformation and upgrading, it is urgent to enhance the ability of scientific and technological innovation

Only by effectively improving the ability of scientific and technological innovation, relying on scientific and technological progress, speeding up the transformation and upgrading of traditional industries, and developing and expanding strategic emerging industries can we support the transformation and adjustment structure of Shandong Province.

(1) Pay close attention to domestic and international scientific and technological innovation

achievements and development trends, and raise awareness of the importance of scientific and technological innovation for the economic development of Shandong Province.

Since the new century, most countries in the world have regarded science and technology innovation as one of the important strategies for national social and economic development. By formulating macro strategies to promote scientific and technological innovation, strengthening investment in scientific and technological innovation, and increasing financial resources to support science and technology innovation, To accelerate knowledge creation and technological innovation. In China, all eastern provinces and cities have already increased science and technology innovation as the main line of economic development, building a science park, forming an economic community, promoting the integration of science and technology, and keeping research institutions close to market demand. These methods are driving the economy. The transformation of development mode and industrial transformation and upgrading have achieved great results. Therefore, it is worthy of careful analysis and use of these methods and experiences that are conducive to promoting economic transformation and upgrading.

(2) Transforming technological progress and independent innovation into a national culture and becoming a socially conscious act.

Scientific and technological progress and independent innovation are not only related to the country's strategic policy, but also to policies that are closely related to people's lives. At present, “mass entrepreneurship and innovation” are also a trend of society. Therefore, we must turn innovation into a social atmosphere and integrate it into In the daily life of all citizens, a social environment that advocates science and advocates scientific and technological reform is formed, and people are encouraged to develop their own creativity and turn them into social wealth.

Technological innovation is the innovation of ideas that originated in people's minds. With creative thinking, they have innovative conditions. In daily life, we should be good at observing, seeing new phenomena in social life, and actively solving problems with thoughtful ideas and methods. Only by constantly innovating the theory and using scientific theories to guide social practice can we lead the trend of the times and become the “waves” of the times. Guide people to form an awareness of opportunity and innovation, and encourage the public to actively invest in entrepreneurial innovation.

The economic base determines the superstructure, while the superstructure is counterproductive to the economic base. The ultimate goal of conceptual innovation is to promote institutional innovation. The backward old system restricts people's ability to innovate, and even kills people's creativity and hinders social progress. Without an innovative employment system and institutional mechanism, innovative talents cannot be allowed to play their talents, and various innovative elements cannot be optimally combined. Therefore, it is necessary to form an effective, scientific and sustainable innovation economic system in the whole society.

(3) Innovating financial technology investment methods and mechanisms to improve the efficiency of the use of science and technology funds.

The government continues to increase support for science and technology innovation policies and continuously improve the efficiency of government science and technology funds. Improve the capital investment mechanism, and accordingly increase the amount of special funds for technological innovation according to the annual growth rate of fiscal revenue. Encourage counties and cities to set up special institutions to provide financial support for scientific and technological innovation, increase government supervision of the use of scientific and technological innovation funds, and ensure that certain funds are invested in technological innovation, thereby improving the efficiency of the use of scientific and technological funds.

(4) Strengthen the main position of the enterprise, improve the collaborative innovation mechanism and technological innovation system of production, education and research, and create a high-level innovation platform.

The enterprise is always the main body of innovation, and the innovation ability of the enterprise represents the level of innovation of a country. It is necessary to establish and strengthen the dominant position of innovative enterprises in technological innovation, promote the concentration of

innovation results to enterprises, tilt innovation policies to innovative enterprises, and innovate technologies and talents to flow to innovative enterprises, so that innovative enterprises can be stronger in the country and the world. Competitiveness.

5. Conclusion

There is still a long way to go to accelerate the transformation of the economic development mode and realize the transformation and upgrading of the economic structure. We will follow the pace of development of the times and actively make adjustments and changes to achieve the transformation and upgrading of the economic structure. In this process, we We must establish a sense of urgency, seize the opportunity of a new round of changes in the times and the revolution of science and technology, proactively realize the strategy of innovation-driven development, accelerate the pace of scientific and technological reform, break the old system that constrains the development of science and technology, and establish and improve the economy that is conducive to economic transformation. The new system of development mode completely liberates and develops social productive forces.

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