

Theoretical Summary of Technological Innovation Promoting Economic Growth

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Abstract

The general feature of economic growth theory is its application. Equilibrium analysis Methods: Through the establishment of various economic models, the equilibrium conditions needed to achieve steady and balanced growth in the long-term dynamic process of economic growth were investigated. There are two interrelated definitions of economic growth. Economic growth refers to what an economy produces. Material product And the sustained growth of labor and services in a long period of time, that is, the reality. Total output The continuous growth of. With the development and progress of society, the global economy has also developed rapidly, and the innovation and development of science and technology have a great influence on the economic growth. The level of technological innovation determines the economic development. By studying the related theories between technological innovation and economic growth, this paper finds that technological innovation is to drive the economic growth from supply and demand through the innovation of production process and product.

Keywords

Technological Innovation; Economic Growth; Research.

1. Background Introduction

With the development of the times, China's economy has also entered a period of economic structure adjustment and industrial optimization. On the basis of maintaining stable development, there are also problems of overcapacity and low economic efficiency in economic growth. With the development of the times, the scale of economy is also increasing, which puts great pressure on resources and environment. While accelerating the economic growth, we should also improve the development quality and output efficiency. Finding the quality and efficiency in economic development is the key to economic development and reform. According to the development situation of our country, the efficiency of economic development can only be improved by technological research and innovation. Technological innovation in research is to promote technological progress, which is based on the development of technological innovation, so technological innovation is the main factor to improve the quality of economic growth. Correctly analyze the main factors that affect the improvement of economic growth rate, and realize the high-quality and sustainable development of Chinese economy.

With the advent of knowledge economy, science and technology have also been well developed, and the position of technological innovation in economic and social development has become very important. There is still controversy about the relationship between technological innovation and economic growth. The mechanism of technological innovation on economic growth and the measurement of the correlation between technological innovation and economic growth are not uniform. This paper makes a simple analysis of technological innovation, hoping to find a way to solve the problem.

2. Contents and Methods of Research

There are many factors that affect China's economic growth, among which the most important factor is technology. Natural resources are limited, and the investment in resources is also limited to economic growth. Only through technological innovation, opening up new markets and developing new products can we promote stable economic growth. The input of material capital will also promote the slow growth of economy, and only through technological innovation can the economy develop smoothly. Technological innovation is an important source of modern economic growth and the direction of economic development. The improvement of technological innovation ability is also the need of national economic development. From the current situation of steady economic growth, China's economy is in transition, and technological innovation plays an important role in the economic growth mode, the adjustment of economic structure and the coordinated development of regional economy.

2.1. Contents of the Research

On the basis of introducing the development of technological innovation and economic development in China, this paper concretely analyzes that technological innovation can well promote the growth of economic output and the change of economic structure. For technological innovation, the goal of some enterprises is not clear enough, and the investment is not in place. The state also needs to strengthen the research on technological innovation from the state, enterprises and universities.

2.2. Research Methods

Starting with the theory of technological innovation and economic growth, this paper studies and analyzes the principle of technological innovation promoting economic growth, explores the difficulties in establishing technological innovation system, and finds out the relationship between technological innovation and economic growth from the perspective of the state, enterprises and schools.

3. Theoretical Summary

3.1. Definition and Classification of Technological Innovation

Science has a certain role in promoting the development of society, and technological innovation has also been widely valued by people. The research on technological innovation has been carried out for nearly half a century, and it was only after the 20th century that people really understood and recognized it. The definition of technological innovation has not been completely unified, and the main viewpoints can be divided into the following three kinds: the first one thinks that technological innovation is mainly product innovation, that is, enterprises turn the design of new products into reality and carry out production and sales; The second view mainly emphasizes the commercial transformation of innovation achievements, and the achievements of technological innovation include new production processes and new products; The third is that technological innovation is enterprise-led, which is the process of market development of new products of enterprises.

Domestic scholars' research on technological innovation is later than that of foreign countries, and some scholars regard technological innovation as a systematic concept composed of many links. Fu Jiaji believes: "Technological innovation is a comprehensive process involving a series of activities such as science and technology, organization, business and finance. In this process, enterprises seize the profit opportunities in the market to maximize commercial benefits, reorganize the production conditions and factors, and establish a high-efficiency and low-cost production and operation system, so as to introduce new products, new production processes, open up new markets, obtain new supply sources of materials, or establish new enterprise

organizations. Xu Qingrui pointed out: "Technological innovation is the process of forming new ideas to meet market demand by utilization and production. It includes not only the technological innovation achievement itself, but also the whole process of achievement promotion, diffusion and application. "

3.2. Definition of Economic Growth

Modern economics believes that economic growth is the combination of the improvement of production capacity and the increase of goods and services. In some western countries, it is generally measured by the annual growth rate of GDP adjusted by price changes, while in socialist countries, it is measured by the annual growth rate of GDP after national income is indexed. The article tends to the viewpoint of modern economics, and economic growth is the improvement of productivity after the combination of the increase of goods and services, and it is the growth of total social output value. At present, most countries and regions use the gross domestic product (GDP) to measure economic growth, that is, in a certain period of time, the total market value of all final products and services provided by a country.

Domestic scholars Xiao Hailin and Wang Fanghua believe that from the statistical point of view, economic growth refers to the growth of industrial and agricultural GDP and the growth of social output value, gross domestic product, gross national product and national income. Zhang Erzhen and others pointed out that economic growth usually refers to a country (or region) in a certain period of time, due to the accumulation of funds, technological progress and the increase in the number of employed people and other reasons, resulting in a substantial increase in the number of economic scale.

3.3. Contribution of Technological Innovation to Economic Growth

Technological innovation can well promote the growth of economic output. Technological innovation is the foundation of economic development, which can make the economy fluctuate and grow. Economic prosperity is brought about by economic innovation. When technology is no longer innovative, the speed of economic growth will slow down. Technology innovation can also improve the productivity of the economy, and the effectiveness of transforming production factors into output. The improvement of productivity is the main mechanism of economic growth after technological innovation. Technological innovation can improve the productivity of production factors such as labor and capital, thus promoting economic growth.

Technological innovation can also promote the transformation of economic and industrial structure. Under the environment of technological innovation, the technology is optimized, the industrial structure is optimized, and the old mode of production is replaced by the new mode, which optimizes the allocation of economic resources and improves the utilization efficiency of resources. With the continuous development of science and technology, many new industries have been created, and the development of science and technology can be directly transformed into productivity in a short time. The development and progress of technology will also be applied to traditional industries, and the traditional industrial structure will change accordingly. R&D is the key to technological innovation. It is to create new technologies and products, form new capital and improve productivity and the quality of human capital. High-tech new products are more profitable, and driven by interests, they will change the investment structure and industrial structure.

3.3.1. Technological Innovation is the Forerunner of the Transformation of Economic Growth Mode

The essential feature of extensive management lies in the repeated production of its low-level technology, while the essential feature of intensive management lies in that it relies on technological innovation to improve the comprehensive utilization ratio of input factors and maximize the output. That is, only technological innovation can realize the transformation from

the extensive operation of low-level repetitive production relying on the input of labor force and means of production to the intensive operation mainly relying on scientific and technological progress and improving the output rate of production factors. Historically, technological innovation, as an extension of human organs, not only enhances human's understanding and ability to transform nature, but also promotes human's continuous development of processing resources in depth, exchanging small input for high output, and realizing human's economic principles. Obviously, only with the emergence of modern production technology and equipment and bioengineering technology will agricultural mechanization, electrification, high-quality, high-efficiency and low-consumption agricultural intensive management emerge. Only after several technological revolutions have taken place can the intensive development of modern industry with mechanization, specialization, automation, low input and high output become a reality.

3.3.2. Technological Innovation is the Power Source for the Transformation of Economic Growth Mode

Without technological innovation, the production and operation of enterprises can only rely on the additional input of labor and capital to maintain inefficient output, which is difficult to meet people's growing material and cultural needs. The actual situation is not the case, because technological innovation has promoted the great development of economy. The main manifestations of technological innovation as the transformation of economic growth mode are as follows: First, technological innovation can promote the rational and advanced development of economic structure, improve macroeconomic benefits and promote economic development. Second, technological innovation can better enable economic activity entities to achieve economies of scale and lead enterprises to intensive management. Third, technological innovation can improve the output rate of production factors, reduce production costs and achieve intensive growth. On the one hand, technological innovation keeps the production technology updated, improves the degree of production automation and specialization, thus improving the utilization rate of input factors, reducing the cost of products, increasing the total amount of products and improving the performance of products, thus realizing the intensive management of enterprises. On the other hand, due to technological innovation, management technology is also improved, so as to realize the optimal allocation of economic resources, improve the comprehensive utilization rate of economic resources and expand the input-output ratio.

3.4. Difficulties in Technological Innovation

Technological innovation is a process with relatively large investment, long time and slow effect. Therefore, many enterprises have no motivation and lack of enthusiasm for technological innovation. Most enterprises attach importance to output value and profit, while ignoring the optimization of assets and technological progress. In the process of China's technological innovation, most of the investment is not in place, and the direction of investment is deviated. In investment, attention is paid to short-term benefit projects, and there is a lack of certain thinking. Technology research and development of enterprises only accounts for 1% of sales, and the international standard accounts for 2% of market sales, so that enterprises can survive, and only when 5% is competitive in the market, some enterprises are short of funds, which inhibits the pace of technological innovation.

In China, the goal of technological innovation is unclear, and some enterprises attach importance to the introduction of advanced equipment, while ignoring the digestion and absorption of technology; Attach importance to the introduction of technical products and neglect the cultivation of core technical capabilities. Some enterprises pay attention to the introduction of technical products and learn advanced technology, but the original technology is ignored. Some enterprises attach importance to the development of products, but despise the

development and application of basic technologies. Basic technologies are the foundation of the development of every industry. Technological innovation can affect the competitive situation of the whole industry and reshape the competitive position of enterprises in the industry. If enterprises only pay attention to improving the shape of products, neglect the application of basic technologies and lack the investment of new technologies, it will lead to a big gap between enterprises and other enterprises in the future development.

4. Take Manufacturing Industry as an Example to Analyze the Influence of Technological Innovation on Economic Growth

Manufacturing industry is not only the main source of technological innovation, but also the main force to promote China's rapid economic growth. Promoting technological innovation in manufacturing industry is an important way to maintain China's sustainable and high-quality economic growth and stability. Especially when China's economic development has entered the "new normal", technological innovation in manufacturing industry has played a key role in promoting rapid economic growth. At this time, technological innovation in manufacturing industry not only attracts extensive attention to the regional economic growth rate, but also gradually pays attention to the improvement of the quality of economic growth. Facing the current situation of technological innovation in manufacturing industry and the quality of regional economic growth, how to improve the quality of regional economic growth through technological innovation in manufacturing industry has become the current key issue.

4.1. The Impact of Manufacturing Technology Innovation on the Quality of Economic Growth

4.1.1. Improve the Economic Growth Rate

First of all, technological innovation in manufacturing industry can effectively adjust the combination mode and composition ratio of production factors, make full use of resource allocation, and achieve the goal of reducing the resource input cost of enterprises, improving production efficiency and increasing enterprise income. In addition, we can also improve the production efficiency through technological innovation in the production process and technological innovation in production management, and finally realize the continuous growth of economic benefits of enterprises. Secondly, with the continuous development of economic globalization, the international division of labor and cooperation has also developed rapidly, and most manufacturing industries have begun to implement division of labor and cooperation. The manufacturing process of manufactured goods is not completed in one region, but by different regions and countries. In this whole process, the technological innovation capability has played a great role [1]. As the largest manufacturing country in the world, China already has a perfect manufacturing system. Through technological innovation, it not only improves the production efficiency of enterprises, enhances the market competitiveness of enterprises, but also improves the economic growth rate of enterprises.

4.1.2. Optimize the Economic Structure

First of all, the development track of manufacturing industry is determined by the demand of economic market. Only when the market has the demand in this respect will the demand of consumption be generated, which will attract the attention of all factors of production, slowly move closer to this direction, and finally change the structure of economic development and promote the sustainable development of economy. Secondly, the technological innovation of manufacturing industry can promote the development of local urban and rural economy and narrow the local poverty gap, especially when local governments are gradually entering the late stage of industrialization, the local government can improve the technological innovation ability of manufacturing industry by increasing the financial investment in science and

technology, so that the new technological economy can better meet the requirements of farmers, thus alleviating the gap between urban and rural areas, increasing farmers' income and promoting local economic development. Finally, technological innovation in manufacturing industry not only drives people's consumption and investment, but also optimizes the international division of labor, enhances China's international competitiveness, and optimizes the structure of international balance of payments and consumption and investment.

4.1.3. Promote Green Development

As China is a big manufacturing country, and manufacturing enterprises have the characteristics of high energy consumption and low added value, the backward technological production mode has affected the ecological balance of China, and technological innovation can change the ecological environment and reduce environmental pollution, which is mainly reflected in the following two aspects: First, people pay more and more attention to health preservation with the improvement of living standards, and enterprises can bring healthy and environmentally friendly products to ensure people's health through technological innovation, while enhancing their own market competitiveness, they can also force competitors to go green. Secondly, the manufacturing industry will produce a large amount of sewage, waste gas and other pollution in the production process, which will affect the air quality and cause air pollution. Through technological innovation, the manufacturing industry has developed new energy sources of environmental protection, reduced the consumption of natural resources, improved the treatment equipment of waste gas, waste residue, sewage and other pollutants, so that wastes can be recycled, reduced the damage of pollutants to the environment and promoted the local green development.

4.1.4. Guarantee People's Happy Life

People's happy life not only means eating well and drinking well, but also embodies in all aspects of life, such as education, health care, medical care, spiritual civilization construction and so on. In terms of education, technological innovation in manufacturing industry needs talents as a guarantee, which indirectly promotes the development of education in China, trains more talents for technological innovation, and at the same time, with the diffusion of technological innovation, it can also promote the continuous growth of manufacturing enterprises, create more jobs for the society, increase the employment rate of the people and ensure the living standard of the people [2]. In the medical field, through technological innovation, smart bracelets and smart blood pressure monitors can be produced, which can record people's health status and reduce people's health risks.

4.1.5. Improve the Stability of Economic Growth

Technological innovation can improve the technical level of manufacturing enterprises, enhance the market competitiveness, enhance the performance and management ability of enterprises, and ensure the economic growth of enterprises. At the same time, manufacturing enterprises can also increase their market share, increase the number and types of products, enhance their ability to resist risks, and reduce the economic growth risks brought by market competition.

4.2. The Status Quo of Manufacturing Technology Innovation and Regional Economic Growth Quality

From the current situation of China's manufacturing technology innovation, the foundation of manufacturing technology innovation is good. Since the founding of New China, China has regarded industrialization as the key project of China's economic construction, and the most important thing in developing industrialization is to promote the development of manufacturing industry. Without the support of strong manufacturing industry, China cannot occupy a place in the global economic development. Therefore, after years of efforts, China has

established a complete manufacturing system and become a powerful manufacturing power. With the continuous development of global trade, China has a huge domestic demand market and a stable economic operation environment, which has laid a good foundation for technological innovation in manufacturing industry. However, due to the lack of innovative talents in manufacturing industry, insufficient investment in R&D, and the lack of core technologies, the innovation and development of manufacturing industry has been restricted to a certain extent [3]. Judging from the present situation of regional economic growth quality, it can be comprehensively evaluated from five aspects: economic growth rate, economic structure optimization, green projects, people's happy life and economic growth stability, and these five aspects will be influenced by technological innovation of manufacturing industry, which shows that the quality of regional economic growth also depends on local manufacturing innovation ability.

4.3. Policy Recommendations

4.3.1. Promote Technological Innovation of Manufacturing Industry and Improve its Development Efficiency

First of all, we should strengthen the leading position of manufacturing enterprises in innovation. If enterprises want to innovate, they should have the sense of innovation, have the basic force for innovation as a guarantee, and establish a technological innovation model on this basis to realize technological innovation in manufacturing industry. Technological innovation supported by the government is generally not affected by cost factors, and only considers that it can solve major scientific and technological problems. However, as the research institutions of technological innovation are mainly composed of state-owned enterprises and large-scale scientific research institutions, their production needs are practical and effective, and pay attention to the rate of return. Based on this, under the leadership of the government, state-owned enterprises regard technological innovation and economic growth of enterprises as independent individuals when studying technological innovation, so as to improve their innovation ability and market efficiency [4] Secondly, we should establish an innovation mechanism. On the one hand, it creates an environment for employees to support innovation from the salary and benefits; on the other hand, it encourages employees to carry out innovative practice continuously by stimulating innovative thinking of talents, and creates an innovative atmosphere, so that employees can have innovative consciousness and courage, and firm confidence in R&D technological innovation. Finally, strengthen the deep cooperation among universities, enterprises and research institutions, cultivate more innovative talents, provide research institutions with the direction of technological innovation, and improve the efficiency of technological innovation of manufacturing enterprises.

4.3.2. Ensure that the Development Level of Manufacturing Technology Innovation is Improved

First of all, we should establish and improve relevant laws and regulations. In order to standardize the trading market system of technological innovation achievements in manufacturing industry, scientific, reasonable and complete laws and regulations are needed for supervision and management. By cracking down on bad competition means, the fairness of market competition can be guaranteed, the interests of innovators can be protected, their innovative behaviors can be encouraged, and their initiative for innovation can be increased. Only in this way can we improve the market system, ensure orderly and legal transactions in the competitive market and promote the sustainable development of technological innovation. Secondly, improve the innovation policy [5]. The government can encourage enterprises to carry out technological innovation by reducing or exempting taxes of enterprises that have made contributions to technological innovation, or by giving certain subsidies. In addition, the government should also take measures such as establishing insurance fund reform for

enterprises and supporting high-quality innovative brands of enterprises to improve their international market competitiveness.

4.3.3. Construction of Economic Growth Quality Index System

After China has entered the new normal, governments at all levels pay more attention to regional economic development. In order to improve the quality of local economic growth, it is necessary to construct the quality index system of economic growth. In this process of construction, governments at all levels should not only consider the economic growth rate, but also ensure the balanced relationship among environment, resources and people's livelihood. They should, in accordance with the principle of adapting to local conditions and according to the economic development situation of various places, determine the basic governance objectives and formulate the quality index system of economic growth that meets the needs of local economic development and citizens.

5. Relevant Strategies to Support Technological Innovation

Technological innovation is the necessity of a country's economic development, and it is the key to revitalizing the national economy and promoting the quality growth of the national economy. Local governments are the regulators and managers of the market, and governments should increase their investment in basic technology research. The development of basic construction can promote the improvement of national basic strength and lay the foundation for technological innovation. The state should also provide a good business environment for technological innovation, including good finance, commodities and clearing the environmental obstacles in technological innovation. It is also necessary to establish a mechanism of technological innovation, strengthen the economic effects of research in schools, research institutes and other research institutions, and all enterprises can also obtain economic benefits through other research results, provide financial support for research and development, and provide impetus for the high-quality growth of national economy.

With the rapid development of social economy, technological innovation is constantly deepening, and the life cycle of products is constantly shortening. Enterprises should keep the vitality of technological innovation in the market, and the speed of technological development should be accelerated, and they should also have the original spirit. Enterprises should learn from the wisdom of others, establish a management mechanism of technological innovation, provide various support for R&D departments of enterprises, and ensure that the ideas of R&D personnel become a reality. Technological innovation originates from people's thoughts and knowledge. If technicians turn ideas of technological innovation into actions of technological innovation and produce results, they need interdisciplinary professional technical knowledge, problem-solving methods and comprehensive thinking, as well as the ability to understand foreign cultural background and psychological preparation for lifelong learning. These require enterprises to strengthen the training of technical talents, encourage high-tech talents with policies, encourage high-quality talents to adhere to the concept of lifelong learning, and make efforts for technological innovation of enterprises, so that enterprises can keep up with the pace of modernization.

First of all, technological innovation should strengthen the training of talents, not only for enterprises, but also for technical talents in universities across the country. The government should speed up the system construction of universities, expand the autonomy of running schools, improve the internal governance structure, formulate effective training plans, and strive to cultivate all kinds of innovative and practical talents that can adapt to economic development. Strengthen the construction of experimental training bases and basic scientific research platforms in colleges and universities, support the construction of key projects and the cultivation of innovative talents in colleges and universities, guide colleges and universities

to establish interdisciplinary and interdisciplinary research teams, optimize the construction of innovative teams, and make colleges and universities become the core force of the regional technological innovation system.

6. Summary

Technological innovation can greatly promote economic growth, and it is also the source of economic growth. This paper analyzes the difficulties of technological innovation, and improves technological innovation from the perspective of the state, enterprises and schools, so as to achieve better technological innovation. There are some limitations in data collection and processing in this paper, and many benefits brought by technological innovation to economic growth have not been estimated, which need further improvement.

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