

Research on the interaction between scientific and technological innovation and industrial economic growth

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Abstract: *Scientific and technological innovation will drive industrial development, but today's industries have not realized the advantages of scientific and technological innovation, resulting in the industrial economy has been in a state of stagnation. Based on this, this paper studies the interaction between scientific and technological innovation and industrial economic growth. This paper analyzes the relationship between scientific and technological innovation and industrial economic growth, and studies the interaction between scientific and technological innovation and industrial economic growth from three aspects: defining the contribution of scientific and technological innovation to industry, studying the factors of scientific and technological progress promoting economic growth, and improving the interactive constraints between scientific and technological innovation and industrial economic growth. Using the method of example analysis, this paper expounds the close relationship between them more specifically, in order to combine China's economic development with scientific and technological innovation and create reference value for the national economy.*

Keywords: *Technological innovation; Industry; Economy; Growth; Interaction; Research*

1. Introduction

Economic growth is the result that capital, labor and technology complement each other and promote together, and its growth factors depend on different technological contributions. For example, the progress of informatization can reduce the publicity cost for enterprises; The progress of networking can enhance the level of transparent management for enterprises; Scientific and technological progress can create conditions for the development of enterprises [1]. For China, the purpose of scientific and technological innovation is to improve industrial production efficiency, open up new fields and contribute to the country's economic development. Moreover, economic globalization is impacting the state of economic growth in various countries, and the role of scientific and technological progress in economic growth is becoming increasingly prominent. The development of high-tech industry can not only drive economic development, but also adjust the country's industrial structure and make the country's foreign trade more diversified. In addition, scientific and technological innovation is the process of transforming science and technology into technological achievements, an important channel to realize social production and technological transformation, improve the interaction between scientific and technological innovation and industrial economic growth, provide an opportunity for the improvement of industrial production mode, and gradually realize the social goal of integrating economy and science and technology.

2. The relationship between technological innovation and industrial economic growth

Throughout the ages, economists have never stopped emphasizing technological innovation. Technological progress can improve people's abilities and create greater economic development prospects for society [2]. Therefore, scientific innovation is the driving force of economic growth and the foundation of industrial development. In the context of the globalization of science and technology, technological innovation has gradually become a key indicator of national competitiveness. This article believes that economic growth is an increase in economic scale, and economic growth depends on the increase in enterprise output, and the increase in output requires technological progress, which depends on technological innovation. Under normal circumstances, the characteristics of economic growth are: the increase in per capita output leads to an increase in per capita capital; the increase in per capita

economic efficiency leads to an increase in labor capital; the increase in labor capital leads to an increase in the volume of foreign trade; The less the expenditure, the faster the economic growth.

Nowadays, economic growth is a problem of globalization, which has a great impact on the national economy. Led by developed countries, it has promoted trade globalization, and then launched global scientific and technological competition. In order to seize the international market, all countries need to improve the development efficiency of the industry, that is, improve the scientific and technological innovation level of the industry and launch innovative products with international competitiveness. In addition, in addition to relying on scientific and technological means, the level of informatization and networking also needs to be improved. The R & D of informatization technology and networking technology can show the country's scientific and technological level, technology, capital and corporate culture to the world, and obtain higher economic benefits by relying on low-cost and efficient information network technology, Make the country pay more attention to the innovative development of various technologies, combine scientific and technological development with economic development, form a complementary relationship, make common progress and development.

3. Research on the interaction between technological innovation and industrial economic growth

3.1. Define the contribution of technological innovation to the industry

This article believes that the so-called technological innovation is to use advanced science and technology to replace the previous science and technology in terms of science and technology, and to improve the production quality and production level of the industry [3]. In the process of technological innovation, it is the process of improving the quality of labor. Broadly speaking, technological progress can improve the operating capacity, production capacity, and economic capacity of the industry, which is often referred to as soft technology; in a narrow sense, technological innovation The meaning is simpler, that is, the improvement of technology and hard technology. Industrial economic growth includes two aspects: one is to increase input, and the other is to increase output. If the economy is used to develop the economy, the results will not be obvious, and there will even be investment failures. Therefore, in the process of industrial development, we should not only focus on economic benefits, but also the development of other technologies. Scientific and technological innovation can help the productivity of industries. As far as agriculture is concerned, scientific and technological innovation can provide innovative equipment for agricultural development and increase agricultural productivity; as far as industry is concerned, scientific and technological innovation can provide mechanized equipment for industrial development and increase industrial productivity [4].

3.2. Study the factors of scientific and technological progress promoting economic growth

For the development of industrial economy, the innovative development of science and technology can make different promotion and influence according to different industrial needs. Taking labor-saving scientific and technological innovation as an example, its scientific and technological innovation is to use high-tech equipment to replace old equipment, so as to increase labor efficiency and reduce waste. However, it is only applicable to areas with less labor intensity, otherwise the national economy will decline and the contradictions and conflicts between nationals and enterprises will increase [5]. Taking economic and economical scientific and technological innovation as an example, through high economic investment, we can save the cost of scientific and technological progress. Under this condition, economic development is much more difficult than expected. If science and technology can not progress, the level of productivity will decline, and the gains outweigh the losses. Taking neutral scientific and technological innovation as an example, the combination of labor-saving scientific and technological innovation and economic scientific and technological innovation can ensure the connection between labor force and economy, abandon shortcomings, inherit advantages, enhance the quality of workers, and provide feasible support for social and economic conditions. These three types of scientific and technological innovation can promote economic development, but it is a matter of the level of economic development. Therefore, economic development is inseparable from scientific and technological innovation.

3.3. Improving the interactive constraints between technological innovation and industrial economic growth

From the perspective of the current industrial environment, technological innovation is more niche

and lacks market pertinence. The results of technological innovation often do not consider the role of later promotion. The innovative technology of scientific researchers pays more attention to difficulty and is indifferent to subsequent use[6]. In addition, scientific and technological innovation takes a long time and requires researchers to trial and error. If there is no trial and error process, subsequent applications will face greater losses. Take agriculture as an example. Economic benefits are the source of motivation for farmers to use scientific and technological innovations, and corresponding costs need to be paid before they are put into use. If the innovative technology is useless, it will cause certain economic losses and cause farmers to be reluctant to try new technologies easily. . Therefore, in order to improve the above constraints, this article can conduct market research in corresponding regions according to market demand, collect opinions extensively, and improve scientific and technological innovation technologies so that they can be closely connected with market demand and create convenient conditions for the development of various industries. .

4. Case analysis

4.1. Industry Overview

Taking the economic growth of agricultural industry as an example, this paper analyzes the general situation of black tea industry in a county. Black tea industry has a long history. Because it always maintains a manual process to ensure the original aroma of black tea, black tea has always been a good heart of tea lovers. In recent years, with the development of tea picking industry, each tea farm has put into use mechanized scientific and technological innovation technology, which has more than doubled the economic benefits of each tea farm. However, the black tea industry has always been resistant to mechanized science and technology, making its tea production decline day by day. By the end of 2020, the area and output of black tea gardens have begun to decline, and the economic benefits are much lower than before. The mellow advantage is not worth mentioning in the low price of other tea.

4.2. Application results

In this paper, some of the tea trees in the black tea garden are put into use with scientific and technological innovation equipment. The application results are shown in Table 1 below:

Table 1: Application results

	Area/thousand acres	Production / thousand tons
Before application	8.42	0.36
After application	8.42	4.95

As shown in Table 1, under the condition of the same tea garden area, the output of scientific and technological innovation equipment is about 4 times that of manual tea picking, and the mellow effect is no different from that of manual tea picking, which is of great promotion value.

5. Conclusion

In recent years, scientific and technological innovation is not only an important standard to measure the country's comprehensive national strength, but also the power source to promote industrial development. In other words, the development of industrial economy is inseparable from scientific and technological innovation. However, each enterprise holds a neutral attitude towards the theory of the combination of science and technology and economy. This paper studies the interaction between scientific and technological innovation and industrial economic growth, so as to provide a theoretical basis for the development of national strength.

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