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Research on the Interactive Relationship Between University Technological Innovation and Regional Economic Development

Jing Liu¹, Kexin Cao¹, Peiying Zhu^{2,*}

¹ School of Business, Jiangxi Normal University, Nanchang, Jiangxi 330022, China ² Jiangxi Normal University Science and Technology College, Gongqingcheng, Jiangxi332020, China

**Corresponding author. Email:429501629@qq.com*

ABSTRACT

Science and technology innovation is the source of power to promote the high quality development of regional economy and the development of regional economy also affects the innovation of science in universities. This article discusses the serviceability of university science and technology innovation to the regional economy in terms of improving production efficiency, optimizing industrial institutions, and improving innovation capabilities. It also reveals the impact of regional economic development on university science and technology innovation from the perspectives of providing guarantees, stimulating innovation demand, and promoting talent training. Based on the interactive relationship between university technological innovation and regional economic development, a number of suggestions have been made in this essay.

Keywords: university science and technology innovation, regional economic development, interaction

1. INTRODUCTION

Since the reform and opening up, with the rapid development of my country's overall economy, the regional economy has achieved a leap in "quantity" and an improvement in "quality". However, due to depleted resources and high prices of production factors, the traditional economic model can no longer meet development needs. Realizing the transformation of scientific and technological innovation power of universities into the driving force of regional economic development and the transformation of scientific and technological innovation achievements of universities into practical progress is the key to transforming the development model and overcoming the lack of economic development under the background of the new economic normal. Therefore, it is particularly important to explore the interactive relationship between university technological innovation and regional economic development.

2. THEORIES RELATED TO TECHNOLOGICAL INNOVATION AND REGIONAL ECONOMIC DEVELOPMENT

2.1. Endogenous growth theory.

The core idea of endogenous growth theory is to achieve sustained economic growth without relying on external forces, and endogenous technological progress is the decisive factor to ensure sustained economic growth. The endogenous growth theory has made a major breakthrough in the neo-classical growth theory, among which the representative research mainly includes: Arrow's "learning by doing" model, Lucas's human capital model, etc. Arrow's "learning by doing" model proposes that companies will continue to accumulate experience and summarize their advantages and disadvantages, so that good experience can be transformed into "knowledge and technology", which is conducive to improving the production efficiency of the company. [1] In the environment of corporate competition, the spillover of experience can help other companies learn from their progress experience, thereby generating increasing returns for the entire market. This model effectively proves that knowledge accumulation is the source of economic growth, and that knowledge accumulation and technological progress can promote economic growth. Lucas' human capital model believes that knowledge and human capital are the source of economic growth. From a micro perspective, enterprises or individuals can achieve higher returns by investing in human capital; from a macro perspective, due to the diffusion effect of knowledge, their own knowledge will eventually become the accumulation of social public knowledge, thereby increasing the production of the entire society effectiveness.

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2.2. Schumpeter's Theory of Technological Innovation.

Schumpeter's important position in the field of economics is the result of his theory of "innovation", the theory explains the nature of capitalism, this paper expounds the capitalism appear, development and tend to be the end of destruction, mainly including the innovation must be able to create new value, innovation is an important factor of economic development, entrepreneurs in innovation has the important status, etc, the research had a profound influence on economic development for the latter.[2] Schumpeter believed that entrepreneurs played a unique role in the economic cycle from recession to recovery, more important than any other factor. However, with the continuous progress of The Times, this view no longer applies to the speed and scale of development, and now the economic development has not only depended on entrepreneurs, but more importantly on the innovative practice of the public.

3. THE INFLUENCE OF SCIENTIFIC AND TECHNOLOGICAL INNOVATION IN UNIVERSITIES ON REGIONAL ECONOMIC DEVELOPMENT

Most colleges and universities of science and technology innovation includes three aspects of talent, technology innovation, knowledge, colleges and universities through the diffusion of knowledge and communication, help enterprise technology innovation technology into real productive forces, to become the core of the regional economic competitiveness.

3.1. Scientific and technological innovation in universities improves the production efficiency of enterprises.

With the implementation of science and technology innovation policy in colleges and universities, various localities have promoted the process of industry-university-research cooperation. In line with the principle of "comprehensive cooperation, resource sharing, mutual benefit and common development", a good cooperative relationship has been formed between local universities, scientific research institutions and enterprises to improve the production efficiency of enterprises and promote regional economic development. On the one hand, colleges and universities can take advantage of their geographical location to build a good transmission mechanism for talents and scientific and technological innovation achievements with local enterprises and research institutions. On the other hand, local governments understand the blank spots and development needs of regional economic development, so as to guide the direction of scientific and technological innovation in colleges and universities, "check the loopholes and fill the gaps", and at the same time provide certain policy support and financial support for scientific and technological innovation in colleges and universities, thus achieving a virtuous circle.

3.2. Optimization of regional industrial structure through university science and technology innovation.

With the continuous consumption of regional economic development resources and the continuous improvement of government environmental supervision, the traditional resource consumption mode gradually presents a weak phenomenon, and the development potential is not enough to meet the needs of regional development. Therefore, transforming the mode of economic development and developing the technology industry with high added value and high technology content have become the only way of industrial development.[3] Scientific and technological innovation in colleges and universities can always take advantage of its own dominant human resources and facilities resources to firmly grasp the breakthrough point of regional economic innovation. Through their scientific and technological innovation achievements, colleges and universities actively participate in the regional economic development, affect the regional industrial structure, and promote the integrated development of technological innovation and research and development. On the basis of close cooperation with local enterprises, the recombination of knowledge flow in the region and the continuous diffusion of technology provide more development possibilities for the region.

3.3. University scientific and technological innovation to enhance regional innovation ability.

In the development of regional economy, colleges and universities play a role as a "human processing plant", "intelligent transport plane", shouldering the important task of training various industrial technical talents, innovative talents and industrial breakthrough and innovation.[4] The continuous progress of scientific and technological innovation speeds up the product update and shortens the cycle of product iteration. Industries that have a close cooperative relationship with scientific and technological innovation in colleges and universities can quickly capture the innovation demand and timely obtain scientific research results and corresponding talent guidance, so as to occupy a leading position in the same field. Scientific and technological innovation in colleges and universities promotes the "knowledge flow" in the region and forms the cultural atmosphere of innovation. In this environment of great scientific and technological innovation, in order to avoid being eliminated, regional enterprises or industries will form the competitiveness of scientific and technological innovation, strengthen the efforts of scientific and technological innovation to seek a breakthrough in ATLANTIS PRESS

development, and finally form the regional competitiveness to drive the development of regional economy.

4. THE INFLUENCE OF REGIONAL ECONOMIC DEVELOPMENT ON SCIENTIFIC AND TECHNOLOGICAL INNOVATION IN COLLEGES AND UNIVERSITIES

4.1. Regional economic development provides guarantee for scientific and technological innovation in colleges and universities.

First, in the process of scientific and technological innovation, colleges and universities should not only pay attention to the cultivation of existing talents, but also need to introduce high-quality innovative talents. However, it is difficult for colleges and universities to attract high-end talents by themselves. At this time, some talent policies set by local governments can help colleges and universities inject "fresh agent" of scientific and technological innovation, provide guarantee for talents and improve the efficiency of scientific and technological innovation. Second, the prosperous regional economy can provide financial support for scientific and technological innovation in colleges and universities. Although the national government has a certain fund allocation for scientific research work in colleges and universities, they are still too low.In order to relieve the financial concerns of colleges and universities on scientific and technological innovation, local governments with good regional economic development can play their policy-oriented role, help colleges and universities to attract the participation of non-governmental funds.[5] Third, we will help universities transform their scientific and technological innovation achievements. Regional economic development enables more enterprises to be stationed here which reduces the obstacles to the transformation of scientific and technological innovation achievements of colleges and universities.

4.2. Regional economic development drives the demand for scientific and technological innovation in universities.

The scientific and technological innovation of colleges accelerates the development of regional economy, and at the same time, the regional economic development also drives the demand of innovation of colleges and universities to a certain extent, and speeds up the process of scientific and technological innovation of colleges and universities. This mainly manifests in the product demand, the talent demand two aspects. On the one hand, regional economic development provides need for colleges innovation. The prosperity and development of regional economy also means that the regional market has huge development space and more product demand, which will stimulate enterprises to produce new products and good products to meet the full consumer demand. However, the diversity and novelty of demand require enterprises to increase investment in production technology and product innovation, which is difficult to be achieved by enterprises alone. Only by combining with university scientific research institutions can innovation and innovation achievements be transformed. On the other hand, the regional economic growth produces the huge talent demand. In the development of regional talents, cultural, political, economic and other factors all affect the demand for talents, among which the most important one is economy. The development of regional economy not only adjusts the regional talent structure, but also plays a derivative role in the development of science and technology in colleges and universities. The larger the total social economic scale is, the greater the demand for talents will be.

4.3. Regional economic development promotes the training of scientific and technological talents in universities.

The development of a region is a process in which both its economic level and cultural soft power are constantly improved and complement each other. Solid economic foundation can provide economic security for scientific and technological talents and meet their development prospects. The rich scientific and cultural atmosphere promotes the continuous progress and self-realization of scientific and technological talents. In both the industrial age and the information age, "talent capital" is a competitive resource. However, in the traditional industrial age, "human resources" should be emphasized, while in the information age, "talent" should be emphasized. The development of regional economy is inseparable from the contribution of scientific and technological talents in colleges and universities. Just like the interaction of forces, the high prosperity and development of regional economy can further promote the cultivation of scientific and technological talents in colleges and universities.

5. STRATEGIES FOR THE COORDINATED DEVELOPMENT OF UNIVERSITY SCIENCE AND TECHNOLOGY INNOVATION AND REGIONAL ECONOMY

5.1. Improve the university government enterprise win-win mechanism.

In order to serve the regional economy, the scientific and technological innovation development of colleges and universities must be closely related to the system and operation mechanism of government and enterprises. To realize the transformation and upgrading of local colleges



and universities and the rapid development of regional economy, it is necessary to innovate the cooperation mechanism between colleges and universities, government and enterprises, standardize the cooperation among the three parties, form an institutional system, and thus produce relatively unified values and incentive mechanism. This is the urgent task to change the slack state of the economy.

5.2. Promote the incubation of university science and technology parks.

University science and technology parks in China have gone through three stages of development: beginning of exploration, standardized development and steady progress. On the one hand, the management of many university science parks still adopts the traditional method system in evaluating the incubation rate of scientific research achievements, which is out of step with the new development of The Times. Managers in regional development should renew their focus on the incubation rate of scientific research achievements to ensure that it is in line with the development needs. On the other hand, strengthen the quality management of university science park staff. The university science and technology park must strengthen the construction of the working team of the statistic management of the incubation rate of scientific research results and promote the overall improvement of its theoretical knowledge and professional ability.

5.3. Improve the evaluation system for scientific and technological achievements.

Scientific evaluation of scientific and technological achievements in colleges and universities can help regions make correct policy promulgation and funding decisions in development, realize the effective docking of innovative resources, and enable the limited resources to play their role. With the rapid development of modern science and technology, the previous evaluation method that only depends on the number of publications or the number of patents transferred is no longer in line with the development requirements.[6] We should improve the achievement evaluation system that focuses on the role of scientific and technological achievements. From its scientific, economic and social three aspects of the role of comprehensive evaluation, so that the university science and technology innovation in different degrees to meet the needs of discipline theory, economic development, and social impact.

6. CONCLUSION

Colleges assume the responsibility of teaching, scientific research and serving the society. They are the center of knowledge progress, the training base of innovative talents and the incubator of high-tech industry. They play a pivotal role in regional scientific and technological innovation. Accelerate the process of integrating the relatively independent scientific and technological innovation subsystem into the regional and national innovation system effectively, and help the development of regional and national economy.

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