CSCanada
Studies in Sociology of Science
Vol. 3, No. 2, 2012, pp. 39-43
DOI:10.3968/j.sss.1923018420120302.1911

ISSN 1923-0176 [Print]
ISSN 1923-0184 [Online]
www.cscanada.net
www.cscanada.org

Study on the Interaction of Enterprise Technological Innovation and Regional Economic Development in China

SUN Jing[a],*

[a] Business Management School, Shenyang University, Shenyang, Liaoning Province, China.
*Corresponding author.
Address: 54#, Lianhe Road, Dadong District, Shenyang, Liaoning Province, 110041, China.

Received 31 January 2012; accepted 22 May 2012

Abstract
With the development of economy and society, technological innovation has become an important factor of supported the sustainable development of regional economy, it is the guarantee of sustained regional economic growth. This essay to interaction effects of technological innovation and regional economic development as the theme, elaborated advantages in the interaction between technological innovation and regional economic development, and to the problems in the development of the regional economy, proposed the countermeasures for the technological innovation and regional economy development reciprocal promotion.

Key words: Technological innovation; Regional economic; Creativity

SUN Jing (2012). Study on the Interaction of Enterprise Technological Innovation and Regional Economic Development in China. *Studies in Sociology of Science, 3*(2), 39-43. Available from: URL: http://www.cscanada.net/index.php/sss/article/view/j.sss.1923018420120302.1911
DOI: http://dx.doi.org/10.3968/j.sss.1923018420120302.1911

Inextricably linked to the technological innovation and economic growth, technological innovation leading to economic growth, technological innovation process is the process of economic growth. Currently, humans are experiencing a global revolution in science and technology, the inexorable trend of technology is promoting rapid development of regional economy and society. 21st century is dominated by technology innovation. The new technological revolution with information technology, nanotechnology, biotechnology as the representative, are profoundly changing the traditional model of production organization, the economic and business. China will engage in direct competition with those technologies and economic strong countries in a vast area, larger scale, which required enterprises must actively promote technological innovation, to achieve the sustainable development of regional economy and society.

1. ADVANTAGES OF INTERACTION OF ENTERPRISE TECHNOLOGICAL INNOVATION AND REGIONAL ECONOMIC DEVELOPMENT

1.1 Technical Innovation to Promote the Economic Growth Mode Transformation
Technological innovation is the core factor of affecting the industrial upgrading and structure of conversion, there is no technical innovations, there is no industrial development, thus there is no sustainable economic growth, a country of high quality economic growth, is the process of technology innovation effects continue to play. Now, economic growth mode shift from extensive to intensive economic growth, improving the overall quality of the national economy, the most important measure is from develop strategies to specific policies, as well as micro-economic activities subject to a high degree of importance to the role of technological innovation in social and economic development and implement technology innovation-led development model, speed up the pace of science and technology into productivity, with minimal production factor inputs for maximum output, reducing reliance on natural resources and the destruction of the ecological environment, is a low-input and high output model of sustainable development.

1.2 Changes in Technology Innovation to Promote Regional Production

Technology innovation to create not only a wealth of material life for the mankind, but as a core and foundation of the advanced culture, also has created a rich legacy for humanity, changing the way of production, plays an important role for improving the economic competitiveness of the region. Last 30 years, production in developed countries has risen from "Ford system" to "post-Ford system," and became the main production model of traditional industries. After the 70's, there was a production mode of flexibility to meet the diverse needs of the people, this is the so-called flexible production, flexible production system in industrial activities of developed countries, gradually occupies a dominant position. After the 90's, United States put forward the "agile manufactory", quickly response to rapidly changing market needs and progress of market. Whether it be "flexible production" or "agile manufactory" all depend on technological innovation, requires businesses to quickly convert between different production, "agile manufactory" has become the enterprise main mode of 21st century.

1.3 Leading Industry in Regional Economic Development Needs Technical Innovation

Growth of leading industry in regional economic development has an important role, in the era of knowledge economy, leading industry in the regional economy is a collection of innovative technology companies. Technology innovation as a regional leading industry is increasingly become a focus of regional economic competition. Infiltration of technology innovation on regional leading industry, continuous improvement of production processes and production methods, and improving comprehensive productivity of the various elements,technical innovation has become the most direct power for the development of regional leading industry. In a sense it can be said that left the new technology, it is impossible to form a regional economic growth, regional economic development will be stopped. Therefore, regional economic development in leading industries needs of technological innovation, technological innovation is the fundamental guarantee of sustainable development of regional economy.

1.4 Technical Innovation in Consolidating Regional Advantage

In the practice of long-term economic development, different economic zones relying on its advantages formed a distinct regional economies. How to play advantage, use advantage is at the core issues of regional economic development. Regional economic development with inheritance, with changes in economic growth and rapid development of the market economy, development of the original advantage is not perfectly adapted to today's development, and must fully take advantage of original accumulation of capital, talent, product and market, foster the new growth point which adapted to the future economic development, the role of technological innovation in the process emerged.

2. THE PROBLEMS IN THE INTERACTION BETWEEN ENTERPRISE TECHNOLOGICAL INNOVATION AND REGIONAL ECONOMIC DEVELOPMENT

2.1 Lack of Core Competitiveness of Regional Leading Industry

Leading industry although has a strong material foundation and market infrastructure, but with the intensification of international and domestic market competition, and there are still not better adapt to the needs of the new situation in many ways. Focus on performance in: industrial concentration low; insufficient of independent research and development ability, and conspicuous structural contradictions, and economic dependence on the energy consumption directly. Leading industry already has a certain competitiveness, while also facing severe challenges. From the perspective of economic elements of intensity, leading industry is industry of labor-intensive and capital intensive, and characterized with low processing, industrial chains short, technology content is not high, independent intellectual property rights and proprietary brand products is very few, therefore, must rely upon independent innovation to solve many challenges in the industry development.The other hand, the pressures of resources, and energy constraints, environmental pollution, excess capacity and price reduce, such as problems become the prominent contradictions of the sustainable industrial development, impact on leading industry has seen. If these conditions do not change, leading industry will lose their competitiveness, sustainable development of the economy will lose support, independent innovation and implementation of innovative strategies become key link and the only way to improve competitiveness of the leading industry. Of course, industry has certain comparative advantages, can only show the current development situation, in order to maintain superiority, must improve its capacity for sustainable development.

2.2 Innovation Clusters of Small and Medium-Sized Technology Enterprises in Region is Weak

Lack of capital, technology, human resources, information, self-development capacity low, more risk of technology innovation. The vast majority of SMEs in terms of capital, technology, human resources, information is at a disadvantage. And due to itself development ability limited, most SMEs had to with the external technology,

to get technology results by technology transfer way, but even so, still has a part of SMEs lacking the basic of technician, faced many difficulties in technology transfer process, even under government sector or some organization provides certain policy supporting, some SMEs still difficult to using because lacking talents who can understanding and accept these technology support. Due to size constraints, SME products and product designing are very difficult to adapt to the changing needs of users. Even though they have to produce a new product, or due to inadequate investment or insufficient technical strength, product reliability and quality are often lacking the necessary safeguards, these factors greatly limit the activities space of SMEs new product development .Although the return on investment of technology innovation of SMEs are higher than large enterprises, but there are more risks. Challenges, Protection of intellectual property for SMEs faced two major difficulties: on the one hand, the medium and small enterprises do not like large enterprises that use patents to protect their inventions, because they are difficult to bear the higher costs required to apply for patents and more worried about disclosure of know-how; on the other hand is a small and medium enterprises difficult to bear huge legal costs required to take intellectual property disputes. To encourage small and medium enterprises technology innovation, national and local governments has introduced a series of incentives in recent years, including tax policy, talent mobility, knowledge property protection, government procurement, and so on. But due to the implementation of the policy will affect local financial revenue, resulting in many of the policy has not been implemented.

2.3 Lack of Integration for Technical Resources and Regional Industry

Inadequate interaction and integration in the region, to be further integrated and consolidated. There was a more serious problem of industrial structure convergence in the process of regional economic development in China. Convergence of industrial structure, causing excessive competition between regions, but also cause configuration of uncoordinated and resources of waste. The reseason of Isomorphism of regional industry is that in the formulation of development plans are not proceeding from the areas of comparative advantage, but according to the principle which so-called “high correlation, and thus leading role”, “high income elasticity, thus great potential for future growth,” “technical level is high”, “high added value” principle, as well as all the key development of industry is determined by country to determine the region’s leading industries. Therefore, in regional industrial development plan, as the focus on the development of the industry has not developed, and some have not been included in the focus on the development of the industry growing up in casual.

2.4 High-Tech Industry is Seriously Unbalanced in Region

Overall most of the high-tech enterprises in technology innovation capacity is not strong enough, the product competitive position in the market difficult to firmly establish. Core technologies and cutting-edge technology in high-tech areas largely in foreign hands, which is not conducive to the long-term development of the high-tech industry, mainly to foreign high-tech enterprises, but foreign investment to areas of production is high and to technology research and product development are still relatively low. High-tech industry is seriously unbalanced. Problems manifested in three aspects: first, Electronic information industry output is preferred, and such as new materials industry, biotechnology industry, optical, mechanical and electronic integration industry output is lower. Second, development of within industries subclass also seriously imbalance. As electronic information industry an example,computer hardware and tel-communication industrial output value accounted for the high proportion of electronic information industry output, and the output value of the software industry are very low. Third, from the perspective of quality, product technical development imbalance is particularly prominent. Chinese enterprises which really has the core technology and advanced technology in the whole high-tech industry are less.

3. THE STRATEGIES OF INTERACTION ON ENTERPRISE TECHNOLOGICAL INNOVATION AND REGIONAL ECONOMIC DEVELOPMENT

3.1 Strengthening the Construction of Regional Innovation Network

Regional technological innovation service network in order to promote advantages complemented and collaborative development of a variety of high-tech enterprise and built a network. Service network of technological innovation is an organic whole, the various components of mutual support, and are indispensable. In this way, can supply a platform of communication and cooperation for between the enterprises. Good regional innovation networks will enable the enterprises maintain efficient contacts, speed up the exchange of information, technical cooperation between enterprises, which could greatly facilitate the development of innovative enterprises, promote regional economic growth and social progress.Enterprise as main provider for technical innovation service network, need to update the idea to train and perfect the regional innovation networks. From two aspects: one is from the start with the reform of enterprise management system, change enterprises’

management mechanism enables enterprises to maximize profit as business goals, resulting in internal demand for technology innovation; the second is to increase investment on enterprise development, and strengthen innovation main body status. “Cultivating innovation ability”, that is, by transforming operational mechanisms, while enhance the inherent power of innovation, strengthen the exchanges and cooperation between the innovation actors. “The effective allocation of resources” is that based on market allocation of resources, in accordance with the principle of benefit-sharing and risk sharing, effective organization and allocation of resources for different professions, different ownership enterprises.

3.2 Development Good Regional Technical Innovation Environment

Regional environmental to technology innovation development is extremely important, and the the key form of government to promote technology innovation is to create a good environment for enterprises’ technological innovation. Technological innovation environment is a dynamic concept, it will be with China’s reform, opening up, and the actual situation of the enterprise technology innovation and change. One Is government investment in a good regional transportation system, network communications systems, and strengthening investment in universities and research institutions to foster good material base;second is that developed about policy to provide offers of conditions for innovation type enterprise, award major of technology innovation, strengthened mutual contact of government, and development institutions and enterprise; third is further break out segmentation, implementation of optimization configuration on technology innovation resources by network organization running, and promote high-tech enterprise of development in more large range. In short, the Government has an important role in the regional innovation, the Government should take steps to strengthen the construction of regional innovation network, create a favorable environment for regional innovation.

3.3 Strengthening Construction of Regional Technology Innovation Personnel Training Services System

Innovation resources’ effective allocation are important drivers of sustainable development of regional economy and society harmonious, human resources are the most important factors of innovation resources, to achieve the “effective configuration” for the human resource on management. Enterprise managers should fully understand the technical characteristics and multi-level needs of creative talent, reasonable functioning of the incentive mechanism, give full play to their initiative in innovation activities, continuously enhance the capability of independent innovation, so as to build the core competitiveness of enterprises.Enterprise technology innovation resources include human resources and material resources, human resources are the basis of technology innovation. Region is facing a major problem is that lack of technology innovation human resources total, structure is reasonable,lack of excellent crop talented person, therefore, to strengthen the training of technical personnel in the region, at the same time using various incentives,containment the decline trend of the engineers and technicians proportion in the industrial enterprises in the region. According to statistics, in the existing State-level high and new technology development area, only a few distributions in the Western region, economies of scale not only significantly lower than the national average, even average size and economic benefits have not reached 50% of high-tech development area in Center-East, and lack of technical innovation personnel also limits the development of the Western region. Thus, managers provide a perfect environment for creative services to scientific and technical personnel, should be an important task.

3.4 Encourage Regional Enterprise Independent Innovation

Independent innovation is the soul of development of science and technology, is power that the enterprises for faster and better development. independent innovation Is creative activity relative to the introduction technology and imitation technology, means possess the unique core technologies with independent intellectual property rights, and on the basis of realize the value of new products process. Required core technologies comes from the internal technical breakthroughs, rely on their own strength, gained through independent research and development activities, its essence is to firmly grasp the innovation initiative in the central part, acquire ownership of core technologies. Results of independent innovation, reflected in the new scientific discoveries and technologies, products, brands with independent intellectual property rights, enterprises must take the road of independent innovation to development.Therefore, from a strategic perspective, regions should be encouraged to large and medium-sized enterprises carry out self-innovation. Not only to foster and develop high-tech industries, can also chang the traditional industries, to improve the industry whole technical level, promote the optimization and upgrading of the industrial structure.

3.5 Promoting the Development of Industrial Clusters to Build a Regional Innovation System

As the rapid development of the economic information, network, globalization and the new technological revolution, technology innovation, showing obvious cluster development trends, more and more entrepreneurs and businesses tend to get the cluster innovation advantage with cluster. From the perspective of regional

development, and actively promote the construction of regional industry technology innovation strategic alliance, contribute to the development of regional industrial clusters, accelerated regional economic growth. New growth theory suggests that economic activity and growth has the characteristics of spatial agglomeration, endogenous technological progress on economic growth expressed as regional economic growth does not balance in the region of space, industrial clusters make the factors of marginal revenue increasing, thus lead to economic activities of agglomeration and diffusion. Knowledge spillover is reason of technology innovation clusters, because of the implication of knowledge leads to localization of technology innovation, technology of external lead to economic activities of space to expand, industrial clusters make enterprise Innovation results are vulnerable to be studied, absorbed and diffused by other enterprises, thereby improving the innovation ability. Therefore, all kinds of industrial clusters has comparative advantages should be established in the region, clusters enterprise Technology Alliance to reduce the costs and risks of technology development, thus promote enterprise technology innovation development.

REFERENCES

Joseph, Schumpeter (1991). *Theory of Economic Development* (pp. 145-148). Beijing: Commercial Press.

FU, Jiaji (1998). *Technology Innovation* (pp. 76-83). Beijing: Tsinghua University Press.

Gong, Y. (2003). The Special Area of Export Products is for Processing Export-Orient Economy Development Another Position. *Modern Management Science*, *6*, 21-22.

CHEN, Weimin (2009). Discussion on Technological Innovation and Regional Economic Development. *Modern Economic Information*, (3), 81.

YANG, Yanping (2007). Function and Improvement of the Regional Technology Innovation Services Network. *Enterprise Vitality*, (1), 64.

Yang, F. (2007). Foreign Direct Investment with Our Country Advance in Technology. *Fujian Forum* (Humanities Social Sciences Version), *5*, 24-25.

YANG, Jiming (2010). Research on Human Resource Allocation and Effectiveness of Regional Innovation ---Technology Absorptive Capacity Perspectives. *Study on Scientific Management*, (1), 95.

YANG, Jitao (2010). Research on Regional Industry Technology Innovation Alliance and Coordinated Development of Industrial Clusters. *Development of Scientific and Technological Information and Economic*, (14), 152.

GUO, Hongling & ZHAO, Yong (2003). Small and Medium Enterprises Development Strategy Model of. *Journal of Southwest Jiaotong University (Social Sciences Edition)*, (1), 33-35.

Guo, K. (2000). The Foreign Direct Investment to Chinese Industrial Structure Influence Studies. *Management World*, *2*, 37-38.

XIE, Chaowu & ZHENG, Xiangmin (2002). Information Technology and Reconstruction of the Competitiveness of Small and Medium Enterprises. *Economist*, (5), 42-43.

