

The construction of "patent box" tax system in China

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ABSTRACT. *With the "The Belt and Road" process advancing and China's economy entering a new normal, innovation cooperation network construction has become an important channel for countries to promote innovation. "Patent box" tax system as a beneficial to the patent technology transfer and increase regional attractive tax preferential system widely used in European countries, our country enterprise income tax preferential tax system also frequently appear in the "class patent box" the shadow of the tax system, however, our country enterprise R&D intensity is still only at the upstream, innovative attractive and main innovative countries there is a big gap. Therefore, this paper deeply analyzes the connotation of "patent box" tax system in typical foreign countries, analyzes and analyzes the "patent box" tax system in China, and constructs the "patent box" tax system in China based on the latest fiscal and tax reform trend in China, in order to provide relevant Suggestions for promoting the construction of innovation cooperation network in China at the present stage.*

KEYWORDS: *"Patent box" tax system; Innovation cooperation network; Technology transfer*

1. Introduction

With the new round of global scientific and technological revolution and industrial transformation, innovation has become the main engine of economic and social development. By the end of 2018, scientific and technological progress had contributed more than 50 percent of global economic growth, and some innovative countries had even contributed more than 70 percent. At the recent two sessions of the National People's Congress in 2019, premier Li Keqiang proposed that further promoting the supply-side structural reform should rely on innovation. In the context of the new era of "The Belt And Road", China attaches equal importance to bringing in and going global, and emphasizes the establishment of an open pattern that links the mainland and the sea as well as the east and the west, so as to further enhance innovation capacity and open cooperation. Therefore, the construction of high-level innovation network in China is an important theoretical and realistic proposition that needs to be answered urgently at the present stage.

In the construction of high-level innovation cooperation network, tax incentives, as a kind of financial leverage, can effectively promote the input of enterprises' R&D expenses and the transformation and circulation of R&D results. As an important financial incentive means, they are often widely used by developed countries. In recent years, China's invention patent applications also continues to grow, in terms of 2017, China has reached 1.382 million pieces of invention patent applications, the world's first, compared with patent applications, however, China's patent conversion rate is only about 10%, far below the level of developed countries, in addition, the multinational enterprises in our country's patent application rate is far lower than developed countries. Therefore, the most patents in the "idle" state in our country, the system environment is not very good at this stage to attract international advanced patent technology, on the one hand that led to a core technology in our country and the patent business transformation and Europe and the United States developed countries there is a big gap, also further reduce the construction of the national network of innovation cooperation between the enthusiasm.

Therefore, this article analyzes the connotation of the typical European countries "patent box" system, combining with the relevant "patent box" analysis our country present stage preferential tax system and tax reform trends, latest "patent box" tax system in our country, further construction in under the background of "area" strategy to further speed up the construction of innovation cooperation network in our country.

2. An analysis on the "patent box" tax system in typical countries

Europe was the first region to propose a "patent box" tax system. As of December 31, 2018, 13 European countries have implemented the patent box tax system. Among them, Belgium, France, Hungary, Luxembourg, the Netherlands, Spain and Britain the seven national patent "box" tax system implementation time, early experience and effect have also been a long time of practice examination, "patent box" tax system in these countries on a global scale to attract multinational enterprise group, improve the innovation ability played an important role. Therefore, table 1 selects and compares the "patent box" tax systems of these seven typical European countries.

As can be seen from table 1, the "patent box" tax system of these countries clearly specifies the scope of preferential patent, the mode of preferential treatment, the scope of preferential income, the amount of preferential treatment and other contents, but there are differences in the degree of preferential treatment in the scope of application, preferential tax rate, tax basis and other aspects. In terms of the scope of patent, each country contains patents and other intellectual property rights, among which Spain and Hungary have a wide range of preferential policies, including technical secrets, trademarks, Copyrights, etc. The difference in the scope of other intellectual property rights among countries is mainly due to the different composition of technology transfer methods in different countries. In terms of applicable income categories, most countries not only include patent transfer income,

but also include patent licensing income and patent embedded income into the scope of the preference, in which consideration of patent embedded preference not only encourages transfer of patented technologies between enterprises, but also encourages enterprises to commercialize on their own. In terms of the applicable tax rate, most countries have less than 50 per cent of the ordinary tax rate and the preferential effective tax rate is generally less than 10 per cent. In terms of income calculation, there are two types: total income and net income. Net income is calculated according to the preferential tax rate, and total income is calculated according to the ordinary tax rate. Because the preferential tax rate is lower than the ordinary tax rate, the "patent box" tax system calculated by total income has a better incentive effect.

As a result, there are subtle differences in the details of patent-box tax systems, but the overall approach is similar. Through the detailed design of "patent box" tax system, countries have greatly reduced the cost of enterprise patent technology transfer, Shared the innovation risk of enterprises, promoted the innovation vitality of enterprises and enhanced the regional innovation attraction.

3. China's current stage of relevant preferential tax system review

3.1 China's "patent box" tax system

Compared with the foreign experience, the present our country has not specialized patent "box" tax system, but since June 2008 "the intellectual property strategy compendium" issued by the state council, China has gradually established a relatively perfect intellectual property rights, including patents, the preferential tax system, and is suitable for the transfer of patent and application of relevant preferential mainly includes two aspects of technology transfer income and a high and new technology enterprise preferential, covers the thought of "patent box" tax system, is a "class box" patent system of our country.

1) Preferential treatment for technology transfer

Technology transfer income preferential terms, relevant preferential policies in China are mainly distributed in the intellectual property strategy compendium, the state administration of taxation on technology transfer income reduction of enterprise income tax related issues notice ", "the statement on technology transfer income reduction of enterprise income tax" and "the ministry of finance, state administration of taxation on resident enterprise technology transfer notice on the problem of corporate income tax policy and other regulatory documents.

At the present stage, China's tax law stipulates that, in a tax year, resident enterprises shall be exempted from enterprise income tax for the part of the transfer of technology ownership that does not exceed 5 million yuan. For the part exceeding 5 million yuan, the enterprise income tax shall be levied in half. The scope of technology transfer shall include the transfer by resident enterprises of patented technologies, computer software Copyrights, integrated circuit layout-design rights,

new plant varieties, new biomedical varieties, non-exclusive license rights for more than 5 years (including), and other technologies determined by the ministry of finance and the state administration of taxation.

Technology transfer income related enterprises preferential policies to some extent, promoted the enterprise patent technology transfer and transformation, improve the enthusiasm of the enterprise into R&D but related tax system, the patent technology transfer income is only considered the two main means of the marketization of patent licensing and autonomous behaviors excluded from the scope of tax incentives, lead to income tax preferential policy face is too narrow, reduce the breadth of preferential policies. On the other hand, the policy also excludes "technical secrets", the main mode of technology transfer in China, from the scope of preferential income from technology transfer, further narrowing the scope of preferential income tax for Chinese enterprises.

2) Preferential treatment for high-tech enterprises

In addition to the preferential tax policies for income from technology transfer, there are preferential tax provisions for high-tech enterprises in the enterprise income tax law of China. In accordance with the provisions of article 28 of the enterprise income tax law, the state levies the enterprise income tax at a reduced rate of 15% for the new and high technology enterprises that need major support.

Similar to the preferential treatment for technology transfer, the preferential tax system is designed to reduce the tax burden of innovative enterprises, enhance the level of commercial application of innovative results, and promote the flow of research and development results. The preferential tax policies, however, the shortcomings of high and new technology enterprise, Ministry of Science and Technology, Ministry of Finance and state administration of taxation in 2016 revision of the "measures for the administration of the recognition of hi-tech enterprises in transformation of scientific and technological achievements for the enterprise's ability to judge according to the score, evaluation basis is the scientific and technological achievements into products, services, processes, samples, etc., the main assessment of enterprises in transformation of scientific and technological achievements of the average of nearly three years for the formation of the product, service, process, sample and prototype technology achievements transformation, transformation of marketization effect after qualitative requirement not make that clear. The standard of weight but not quality is easy to mislead the enterprise to focus on the quantity of achievement transformation and ignore the technical level and marketization effect, which is not conducive to the improvement of the overall innovation ability and scientific and technological level of China's high-tech enterprises.

3.2 New trends in China's relevant tax reform

At present, China's economy has entered a new normal of medium-low growth. The government has been committed to reducing the tax burden on enterprises to promote innovation and entrepreneurship, facilitate transformation and upgrading,

and boost supply-side structural reform. On April 25, 2018, the executive meeting of the state council decided to introduce seven tax reduction measures. The annual taxable income limit for small and micro businesses that enjoy the preferential policy of halving corporate income tax will be raised from 500,000 yuan to 1 million yuan. The restriction that no additional deduction shall be allowed for overseas R&D expenses entrusted by enterprises shall be abolished; Measures will be taken to extend the period for carrying forward losses of new and high technology enterprises and small and medium-sized science and technology enterprises from 5 years to 10 years. On September 20, the Ministry of Finance, tax administration, Ministry of Science and Technology jointly issued (2018) NO. 99 about improving the research and development expenses claim additional deduction pre-tax proportion of notice, claim additional deduction the enterprise research and development costs by 50% to 75%, increasing the input tax incentives, this a series of measures have reflected the government departments to reduce the cost of enterprise innovation and entrepreneurship, the determination of the power enterprise development, will contribute to the development of the enterprise innovation ability, advance the construction of innovation cooperation network in our country.

4. Problems in China's "patent box" tax system

4.1 The patent preferential tax system is difficult to grasp, reducing its attractiveness to foreign enterprises

Through policy review, it is found that China's preferential tax treatment for the transfer of patent technology is scattered in the provisions of articles 27, 28 and 30 of the enterprise income tax law (2007), and the provisions of articles 90, 93 and 95 of the regulations for the implementation of the enterprise income tax law (2007). And the state administration of taxation on technology transfer income reduction of enterprise income tax related issues notice (2009), the ministry of finance, state administration of taxation on the enterprise income tax policies resident enterprise technology transfer notice (2010), the state administration of taxation on technology transfer income reduction of enterprise income tax related issues notice (2013) and the state administration of taxation about permission access technology transfer income of enterprise income tax related issues notice (2015) the policies and other normative documents In terms of the provisions, the internal connection of these normative documents is relatively loose, with a large time span, scattered and lack of system, which makes it difficult for enterprise taxpayers and professionals to correctly understand and master relevant policies in practice. For enterprises, it is difficult to master these preferential terms systematically, which limits the application of the preferential tax system to a large extent. On the one hand, it reduces the innovation power of enterprises, and also reduces the attractiveness of relevant tax systems to foreign advanced enterprises.

4.2 The scope of the preferential treatment for technology transfer is too narrow, reducing its scope of application

The preferential benefits for technology transfer in China include the transfer of patented technology, computer software copyright, integrated circuit layout-design right, new plant varieties, new biological medicine varieties, non-exclusive license right for more than 5 years (including), and other technologies determined by the ministry of finance and the state administration of taxation. Technology transfer contract constitute by table 2. 2016, the transfer of technology in our country is the biggest two accounted for in the contract constitute the technical secrets and patent licensing a transfer, but our country does not transfer the technical secret contract into the scope of preferential, at the same time for the transfer of patent licensing, combined with the "five years (including) above the monopoly of the constraints, this greatly narrowed the scope of preferential technology transfer income. However, most of the "patent box" tax systems in European countries include the transfer of technical secrets into the preferential scope, and there are no restrictions on the transfer of patent exploitation license. The reduction of the scope of application of preferential treatment is not conducive to the flow of innovation resources among enterprises, which is not conducive to the development of enterprises' own innovation capacity. On the other hand, too small preferential scope also leads to a decrease in the attraction of foreign innovation resources, which is not conducive to the inflow of innovation resources from other countries, and further hinders the construction of China's innovation cooperation network.

Table 2. China's technology transfer contract composition in 2016

Types of technology transfer contracts	Number	Amount/ billion yuan	Proportion
Transfer of technical secrets	6094	62.741	39%
Transfer of patent exploitation license	1862	38.617	24%
Transfer of patent right	2522	8.506	5%
Transfer of computer software copyright	740	4.081	3%
Transfer of layout-design rights for integrated circuits	25	2.384	2%
Transfer of new plant variety rights	385	1.944	1%
Transfer of new biological and medical variety rights	375	2.652	2%
other	553	39.863	24%
total	12556	160.789	100%

4.3 Preferential tax rates are still high and there is not enough incentive for technology transfer between enterprises

At present, the enterprise income tax rate in China is 25%. The part of the income from technology transfer exceeding 5 million yuan shall be taxed in half, that is, the part of the income less than 5 million yuan shall be exempted, and the part of the income exceeding 5 million yuan shall be taxed at 12.5%. According to the 2017 annual report of China's technology market statistics, the total value of technology transfer contracts in China is 160.7 billion yuan, of which the value of major technology transfer contracts with a turnover of more than 10 million yuan is 144.1 billion yuan, accounting for 89.67%. Therefore, the preferential tax rate of about 12.5% is applicable to most of the technology transfer contracts in China, while the preferential tax rate applied to the "patent box" tax system in most European countries is no more than 10%, and some countries may even be as low as zero tax rate. Therefore, compared with the "patent box" tax system of European countries, China's tax incentives on the part of the income from technology transfer exceeding 5 million yuan are not strong, which reduces the attractiveness of China to foreign technology-based enterprises. This deficiency limits the implementation effect of China's preferential treatment for technology transfer, resulting in insufficient incentives for technology transfer among Chinese enterprises, insufficient activation of the development of enterprises' innovation capacity, and insufficient attraction of innovation resources into China.

5. The construction of "patent box" tax system in China

In the 2018 two sessions, president Xi Jinping stressed the need to promote institutional innovation in an all-round way, promote the free flow and concentration of innovation elements, and make innovation a powerful driver of high-quality development. To cooperate with the implementation of innovation-driven development strategy and further promote the construction of China's innovation cooperation network, China should learn from the relevant experience of European countries' "patent box" tax system, establish a good tax ecosystem through China's tax system innovation, so as to form a "two-wheel drive" of tax system innovation and scientific and technological innovation.

5.1 Integrate relevant policies and establish a systematic patent innovation tax law

Compared with the "patent box" tax system in European countries, the biggest defect of China is the lack of systematic policies on patent R&D and commercialization. Technology transfer income for enterprises in our country high-tech the preferential discount and exists in the enterprise income tax law, and for the recognition of hi-tech enterprises exist in the condition of the high and new technology enterprise management method ", at the same time for some favorable conditions for modification and exists in hair several times after the notification, the dispersion of preferential file is not conducive to enterprise grasp, raise the cost of

the taxpayer compliance. Therefore, China needs to integrate the current tax incentive policies and regulations related to patents and other intellectual property rights, construct and form China's own "patent box" tax system, so as to establish uniform regulations to promote patent innovation, and provide legal guarantee for encouraging enterprises to conduct independent research and development and patent achievements transformation. It also lays a good foundation for cultivating a group of world-class high-tech enterprises and industries and improving China's technological innovation ability, which is conducive to the construction of China's innovation cooperation network.

5.2 A more preferential tax rate shall be applied to the portion of income from technology transfer exceeding RMB 5 million yuan

European countries vary in "patent box" preferential tax rates, of which the nominal lowest is the 5% preferential tax rate of the Netherlands, and generally, most countries do not exceed 10%. China's preferential treatment for technology transfer will levy half of the enterprise income tax on the part over 5 million yuan. When the income from technology transfer exceeds 5 million yuan and the amount is larger, the actual preferential tax rate of enterprises is close to 12.5%. Compared with the preferential tax rate of most European countries, which is less than 10%, China's preferential tax rate of 12.5% is not very attractive to enterprises. At present, our country continues to improve the ability of independent innovation, strive to build an innovative country, therefore our country should draw lessons from European countries with low preferential tax, in finance, to the extent permitted might even consider the Netherlands 5% preferential tax, transfer of technology to the enterprise income more than 5 million yuan parts instead of half payment of more than 5 million yuan for the preferential rate of 5%, so as to maximize the support for enterprise innovation, promote the transformation of the scientific and technological achievements, and further enhance patent technology to promote economic development.

5.3 The transfer of technical secrets, the transfer of patent exploitation license and the income from patented products shall be included in the preferential scope

More mature European patent "box" tax system, the present stage our country related preferential tax applicable scope is small, can consider to cancel more than 5 years of an exclusive license to use the "five years" and "exclusive" conditions, the transfer of patent licensing of all into the scope of preferential, to encourage enterprises to technology transfer technology license to non-affiliated companies. At the same time, according to the situation that the transfer of technical secrets in China is the main mode of patent technology transfer, the transfer of technical secrets can be included into the scope of preferential application. In addition, patent products also should be classified into the scope of preferential, encourage enterprises to patent technology to commercialization, the "qualified technology transfer income" changed to "conform to the conditions of technology transfer

income, licensing and the patent products", so to ensure that patent comprehensive incentive preferential tax system on the patent market behavior. At the same time, we should also ensure that the income related to the patent is related to the actual behavior of the enterprise in the application and development of the patent, so as to prevent some enterprise taxpayers from applying this clause to evade the tax liability.

5.4 The patent quality assessment standard shall be added to the recognition standard of new and high technology enterprises

The recognition of hi-tech enterprises now contains a number of quantitative index and the lack of relevant quality inspection, some enterprises for qualification for the low quality of patent applications, only value regardless of the number of patents and patent quality, and low quality of the patent is difficult to translate into substantial economic benefits, side patent market conversion rate is low in our country. In order to change this situation, it is necessary to strengthen the recognition of hi-tech enterprises in the process of considering the quality of intellectual property rights, more effectively reflect the inherent of "high-tech", change the present situation of the quantitative index as evaluation standard, only in this way can better guide the enterprise value is the number of patents and value the quality of the patent, can effectively improve the effect of the marketization of patent at the same time enhance the strength of science and technology innovation, will be more high quality patent to be able to "go out", construction innovation cooperation network better.

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Table 1. Comparison of EU Patent Box Regimes

Tax Factors	Belgium	France	Hungary	Luxembourg	Netherlands	Spain	UK
Nominal tax rate	6.8%	15%	9.5%	5.76%	5%	15%	10%
Year enacted	2007	2001	2003	2008	2007	2008	2013
Qualified IP	Patent and supplementary patent certificates	Patents, extended patent certificates, patentable inventions, and Industrial fabrication processes	Patents, know-how, trademarks, business names, business secrets, and copyrights	Patents, trademarks, designs, domain names, models, and software copyrights	Patented IP or R&D IP	Patents, secret formulas, processes, plans, models, designs, and know-how	Patents, supplementary protection certificates, regulatory data protection, and plant variety rights
Qualified income	Patent income less cost of acquired IP	Royalties net of cost of managing qualified IP	Royalties	Royalties	Net income from qualified IP	Gross patent income	Net income from qualifying IP
Acquired IP?	Yes, if IP is further developed	Yes, subject to specific conditions	Yes	Yes, from non-directly associated companies	Yes, if IP is further self-developed	No	Yes, if further developed and actively managed
Cap on benefit?	Deduction limited to 100% of pretax income	No	Deduction limited to 50% of pretax income	No	No	Yes, six times the costs incurred to develop the IP	No
Includes embedded royalties?	Yes	No	No	Yes	Yes	No	Yes
Includes gain on sale of qualified IP?	No	Yes	Yes	Yes	Yes	No	Yes
Can R&D be performed abroad?	Yes, if qualifying R&D center	Yes	Yes	Yes	Yes for patented IP; strict conditions for R&D IP	Yes, but must be self-developed by the licensor	Yes