Analysis of the Development Pattern and Characteristics of Government Support Policies for Small Technology Enterprises in China

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Abstract. The development of modern science and technology market has led to science and technology-based SMEs becoming a major contributor to national economic development, however, because of their own developmental inherent deficiencies, many domestic science and technology-based SMEs are unable to overcome the difficulties encountered in the initial stage of business, and therefore need government support policies. In this regard, this paper analyzes the role of China's science and technology-based small and medium-sized enterprises, and emphasizes the necessity of the state's financial support for them. Combined with the current domestic development situation, this paper further analyzes the laws and characteristics of our government's support policies, including financial subsidies, procurement support subsidies and tax subsidies, in order to provide some reference for the follow-up development.

Keywords: science and technology enterprises · subsidies · policy laws · development

1 Introduction

As a carrier of economic innovation in the modern market economy system, science and technology SMEs have an important contribution in promoting the economic development of national regions and building commercialization of their achievements. As early as the 1980s, small and medium-sized science and technology enterprises have been the object of attention and support of governments and are an important part of the national economy [1]. In recent years, our government has also been paying attention to the development of small and medium-sized science and technology enterprises, and has continuously introduced various support policies to improve the core competitiveness of science and technology-based SMEs. From the perspective of actual development, the current resources for the development of small and medium-sized science and technology enterprises in China still have certain limitations. For example: insufficient financial R&D funds, unclear brand building, generally low market acceptance, etc. However, compared to large science and technology enterprises, China's small and medium-sized

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science and technology enterprises have a stronger desire for scientific and technological innovation, and in varying degrees reflects a higher level of science and technology. In order to seek survival and development in the cracks of large technology enterprises, technology-based SMEs generally have a stronger sense of competition, and they are eager to achieve competitiveness through continuous technological transformation and enhanced production efficiency. Therefore, domestic small and medium-sized technology enterprises tend to be more versatile and flexible in their operations and decisions, they dare to take risks and responsibilities, and make decisive corporate innovation plans, which also make them more responsive to market demand and their technological achievements have higher practicality [2].

Compared to the purely financial and technical issues, the improvement of the survival environment is fundamental to the survival of domestic small and medium-sized technology enterprises. Especially, the current economic market in China has not fully accepted the small and medium-sized enterprises, and it is inevitable that the government's mandatory intervention and vigorous promotion are needed to ensure the positive development of China's science and technology-based SMEs [3]. In this regard, today, in the great development of high strength technology, China's government departments should also create good development opportunities for the many domestic small and medium-sized science and technology enterprises, helping them to be able to stand firm and make a big show in the free market and market economy system, and build a balanced model in line with their own development rules through different levels of development carriers and effective publicity. Relevant departments should take the development of science and technology SMEs as a long-term economic development strategic task, and open up a new fiscal policy path for them on the basis of a full understanding of the internal structure of small and medium-sized science and technology enterprises [4].

2 The Economic Analysis Behind the Financial Support for Technology-Based SMEs

With the development of China's socialist economic system changes, science and technology SMEs as a core economic group, its own economic development is bound to be closely related to the current market mechanism. However, because China's current market economy system still has certain problems, and SMEs themselves have certain competitive disadvantages, so it is difficult to achieve reasonable economic allocation of various resources by the market economy system alone, which also causes small and medium-sized science and technology enterprises in the early stage of development will inevitably encounter various difficulties. The above factors seriously restrict the development and growth of small and medium-sized science and technology enterprises, so government departments should constantly correct the economic problems of small and medium-sized science and technology development caused by market defects to ensure the development needs of small and medium-sized science and technology enterprises [5].

Firstly, it is assumed that there are two interest bodies in the whole science and technology market that is, science and technology SMEs and other enterprises. The two firms maintain a complete free flow of resources as shown in the figure below.

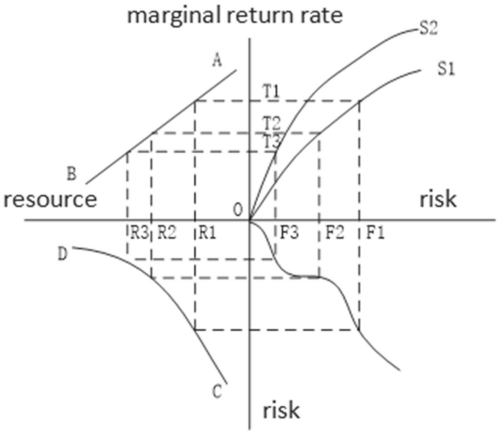

Fig. 1. Economic analysis of investment risk

In the above Fig. 1, The upper part of the vertical axis represents the marginal rate of return, and the lower part of the vertical axis represents the risk situation. The two lines AB are the marginal returns to resources for technology-based SMEs. As the amount of resources continues to rise, the marginal returns will continue to decrease. And CD is the investment risk resource line of technology SMEs, through the trend of this line, it can be seen that the lower the risk of technology SMEs, the higher the amount of enterprise resource possession which is the subsequent investment. OS1 and OS2 are the yield risk curves, generally speaking risk and return are proportional to each other. In the initial period, the amount of resources in the technology-based SME sector is R1, and the marginal return is T1 and the risk is F1. Because of government financial support (generally various kinds of preferential policies), the yield risk of technology-based SMEs will change from OS1 to OS2, which means that the yield corresponds to a lower risk if the return is the same. For the sake of subsequent analysis, we can assume that the current yield-risk curve of the technology-based SME sector is the same as that of other enterprises, but the technology-based SMEs are at the peak of risk and return, while other enterprises are at the low risk. According to the graph, the marginal rate of return T1 becomes F2 at this point, and the marginal rate of return decreases as the resource share of the technology-based SMEs increases. This is repeated until all marginal rates of return on resources are equal in both sectors [6].

The above analysis is only a theoretical reference; the reality is that technology-based SMEs have a smaller share of resources and other types of enterprises have a larger share of economic resources. In such a situation, the marginal revenue of technology-based SMEs increases and greater gains may occur. Such gains include both upfront and future gains, while the marginal gains of other economic types of enterprises are much smaller than those of technology-based SMEs. In general, the government's fiscal revenue comes from a part of social resources, and fiscal expenditure needs to consider the allocation of social resources, so the government generally uses the following two ways to guide the proportion of resource application: one is to guide the policy proportion with preferential measures; the other is to optimize the resource allocation of market enterprises directly

through the financial resources held by the government. Although the economic cost of small and medium-sized technology enterprises in the initial period is not consistent with the maximization of the total efficiency of social resources with other enterprises. But through the above two types of strategies can further adjust the number of social resources and flow direction of the strategy to achieve the optimization of resource allocation. In addition, the inflow of resources from low-yielding sectors to high-yielding sectors generally requires automatic market regulation of the complete, but because of the differentiation of information and irrational reasons of investment risk, it is likely to lead to the transaction market variation, so it is difficult to achieve the equilibrium and balance of resources and yield, coupled with the problem of resource transfer limitations, which will directly affect the overall flow of resources, so the government needs to intervene Reallocation of resources. In general, the government's financial policy support system for technology-based SMEs mainly includes financial subsidies, government orders, and tax policies [7].

3 Research on Financial Subsidy Support Policies for Science and Technology-Based SMEs

Financial subsidies can be seen as a form of subsidy given by the government to the market economy without compensation, and a kind of benefit redistribution. Commonly speaking, it means that the government directly gives part of its income to part of the people for free to achieve the purpose of support. The government's financial subsidies to science and technology-based SMEs are also a part of the funds they occupy given to the enterprises free of charge to help them complete their business research and development activities, which has the same short-term and long-term effects as the investment behavior. From the short-term perspective, this investment is a demand performance, mainly used to increase the social demand of science and technology-based SMEs, which can help science and technology-based SMEs get out of economic difficulties in deflation as soon as possible; while the long-term investment is realized as a supply-demand effect, through the financial subsidies to science and technology-based SMEs with development prospects, expanding the future supply-demand structure of society, thus promoting national economic Development. Combined with the situation of each region, the government subsidies for science and technology-based SMEs in China are mainly in the following ways:

3.1 Investment Guidance Type Subsidy Policy

Technology-based SMEs generally have high risk expectations in the process of entrepreneurial development, specifically the risk of uncertainty in technological development including speed and final results. Usually, new technological products and services are not in line with the regular market demand, so technology-based SMEs own operation and management can be risky, in addition to the reaction measures used by competitors can also lead to a certain degree of market risk rate. It is because of the above risks that many investors are not optimistic about SME investments, so in this case, the government needs to take certain subsidy measures to guide capital injection.

(1) Loss-making subsidies. For small and medium-sized enterprises of science and technology in line with the national industrial development policy and identified by professional evaluation agencies, if it is determined that their research and development projects belong to the type of high-tech industries, the government can allot a certain amount of capital equity entrepreneurial subsidies for those who invest in shares, which can improve the capital of the enterprise on the one hand, and maintain the investment enthusiasm of investors on the other.

(2) Entrepreneurial investment subsidies. This type of subsidy is mainly for technology-based small and medium-sized enterprises in the early stage of business, after authoritative certification, for investors engaged in high-tech development industry type, the government can allocate a certain amount of funds as a start-up subsidy to improve the capital of the enterprise.

(3) Matching subsidies. This type of subsidy is mainly to match the national support policy to improve the local financial subsidies for small and medium-sized enterprises, the main object is the national technology-based entrepreneurship and innovation funds project.

(4) Loan subsidies. This type of subsidy is mainly the financial credit funds given to small and medium-sized technology enterprises by the central government or each regional government. By waiving or partially waiving the interest, small and medium-sized technology enterprises can enjoy interest-free loans for a certain period of time. Loan-based subsidies are the most common and most important way to support small and medium-sized science and technology enterprises, the specific amount of strength needs to be market-oriented, and give priority to the selection of advantageous small and medium-sized enterprises to actively support, give full play to the role of loan regulation and guidance to help small and medium-sized science and technology enterprises to improve the utilization rate of funds, to stimulate their enthusiasm for scientific research.

3.2 Technology Guidance Class Subsidy Policy

(1) Technology development subsidies. The government can determine the direction of enterprise R&D and regional innovation based on specific regional information resources as well as market economic and technological development orientation, and grant financial subsidies to such small and medium-sized technology enterprises. In addition, the relevant government departments need to be responsible for the specific financial organization and implementation, and complete the follow-up supervision and management work, and increase or decrease the amount of subsidies according to the actual situation of the project.

(2) Subsidies for scientific and technological talents. Government departments can use the influence of large science and technology colleges, research institutes and other technical research institutions in their own regions to encourage high-tech technical talents to work in small and medium-sized technology enterprises, and the government can bear a series of costs if necessary. For example, the government could introduce regulations that allow senior technical personnel who sign labor contracts with designated technology-based SMEs to lead a certain R&D allowance for a fixed period of time.

3.3 Information Guidance Class Subsidy Policy

Information lag and occlusion are important obstacles in the development of technology-based SMEs. The government should encourage technology-based SMEs to continuously improve their information reception channels, such as participating in multi-party technical consulting, business management consulting, market information and legal consulting, etc. To this end, the government can provide a series of subsidized fees to help small and medium-sized technology-based enterprises collect information equipment and rent information sites, etc.

4 Research on Procurement Support Policies for Technology-Based SMEs

Government procurement support policy mainly refers to a series of commodity resource allocation by the government relying on fiscal revenue to purchase goods and services from specific enterprises. This kind of resource allocation by government action can compensate for the deficiencies of market resource allocation to a certain extent. In traditional Western countries, under normal circumstances, the amount of funds procured by the central government accounts for about 30% of the country's financial output and about 15% of the gross national product, not counting the amount of procurement by local governments. So procurement by the entire national government sector is an important component of the total social demand for economic services. Through the government procurement policy, national resource allocation can be realized, which can effectively promote the development of small and medium-sized technology enterprises.

Through the study, it is found that the current production survival problem of science and technology SMEs in China is mainly the lack of market demand, which makes it difficult for enterprises to achieve mass production and future development. Government procurement policy is a protective support, which can effectively increase the market share occupied by technology SMEs and achieve the development purpose. Combined with the actual situation in China, the government can start from the following aspects to effectively support the development of SMEs through government procurement policy.

4.1 Increase the Standardization and Transparency of Government Procurement

At present, some domestic science and technology-based small and medium-sized enterprises have their own product production capacity and meet the requirements of government procurement, but they cannot effectively and timely understand the government procurement information and obtain the same status and qualification treatment as large enterprises, and finally they can only stop at government procurement and cannot participate in fair bidding. Therefore, the relevant government departments should standardize and make the procurement information transparent, publicly release the bidding information in a fixed time area, standardize the bidding procedures, and at the same time develop a strict evaluation system for government procurement, and make the results public, so as to continuously improve the procurement bidding environment for small and medium-sized technology enterprises.

4.2 Expand Overseas Procurement Market

Since China's accession to the World Trade Organization, the current domestic market has been connected with overseas, the realization of two-way open. In other words, China's science and technology SMEs cannot only face the domestic market, but also participate in the overseas market competition bidding. According to past experience, small and medium-sized technology enterprises can occupy a certain share of the foreign market, the main reason is the diversified service forms of small and medium-sized technology enterprises themselves, in addition to some large technology enterprises are often not interested in small orders. Therefore, China's small and medium-sized science and technology enterprises can start from this aspect, to participate in international government procurement behavior, of course, this can not be separated from the government's information and policy support.

4.3 Construct Moderately Inclined Procurement Policy

Relevant government departments can determine government-supported science and technology enterprises according to the direction of China's industrial development, and formulate meticulous procurement support policies by combining the enterprises' own characteristics. Government departments can take care of some small and medium-sized science and technology enterprises in terms of price, quantity and standard of procurement, for example, under the same price, specification and quality, priority will be given to the purchase of small and medium-sized products, and to a certain extent, such as the deadline, transportation and other aspects of the system to be tilted.

5 Technology-Based Small and Medium Enterprises Tax Support Policies

Through tax support policies, the government can consider the development needs of small and medium-sized enterprises in the context of the overall domestic economic development and reflect the fair distribution of socialism.

5.1 Sound and Standardized Tax Preferential Policies

It is also the regular practice of countries to support small and medium-sized technology enterprises by giving certain preferences to them in taxation. In China, when supporting small and medium-sized science and technology enterprises in taxation, we should also build a unified and perfect taxation preferential policy, whose items mainly include: to optimize the taxation of production projects and related investment direction for small and medium-sized science and technology enterprises, to give a more favorable corporate income tax ratio for small and medium-sized enterprises and appropriately extend the taxation year, to enjoy preferential VAT policy for taxpayers of small and medium-sized science and technology enterprises and to refund a part of VAT after achieving certain After achieving certain research results, a part of VAT will be refunded. For investment projects of science and technology-based SMEs, tax can be collected only for the investment project.

5.2 Tax Policy on Technology Achievement Transformation

Experimental data show that the transformation speed of technological achievements directly affects the productivity of enterprises, so the current technology-based SMEs are taking enterprise technology transformation and product development as the core of enterprise development. Therefore, relevant government departments, strengthening the tax incentives for the transformation of technological achievements of small and medium-sized science and technology enterprises, can be an important means of enterprise support [8].

(1) For units that have reached technology transfer or related technical consulting services with science and technology-based SMEs, the business tax as well as the personal income tax of the enterprises can be appropriately reduced. (2) For technology transfer to science and technology-based SMEs, and related industrial information development units, they can be exempted from business tax, including their income from data development and technical consulting related to technology services can be exempted from personal as well as corporate income tax for a certain period of time. (3) For large scientific research institutions such as research institutes, large universities and colleges to serve small and medium-sized technology enterprises after the technical achievements and income, can be exempted from certain income tax; (4) for the science and technology research and development experimental funds from the relevant science and technology departments and government administrative departments, as long as they are used for the research and development of science and technology-based small and medium-sized enterprises, can be less or exempted from corporate income tax; (5) for science and technology departments (6) for the high and new technology entrepreneurial services or project incubation enterprises recognized by the science and technology department, after paying the business tax, property tax and corporate income tax, they should be refunded within a certain period of time after the approval of the relevant taxation department. In addition, the relevant government departments can also set a special tax payment to reward the enterprise organizations that create high-tech projects.

5.3 Tax Policy of Technology Development

Because the initial stage of technology development is more risky, but the income is lower, so enterprises will be more cautious in making technology investment, and if the tax pressure is too great at this time, it will easily affect the determination of enterprises in technology development. At present, there are few preferential policies for technology development in China, so it is necessary to help enterprises plan their experimental expenses and technology development expenses reasonably through enterprise tax subsidies and other forms to train employees and reduce expenses.

5.4 Tax Policy for Technical Services

From the point of view of the world market, competition in science and technology has long been the theme of world development, and scientific and technical personnel are the direct participants of competition as well as the guarantee of productivity. The state and the government want to encourage scientific and technical personnel to actively

participate in the competition of scientific research and go to the service of small and medium-sized scientific and technical enterprises, they should let the scientific and technical personnel get the remuneration that matches their ability. Therefore, for the tax revenue received from the development of science and technology work services, certain tax incentives should be given, not only to mobilize the enthusiasm of scientific and technological personnel, but also to effectively improve the scientific and technological resources at home and abroad. At present, China's science and technology tax preferential policies are mainly concentrated in the field of personal income tax, for which the relevant departments can further expand the scope of the scale to encourage enterprises to invest in technology and attract high-tech talent.

6 Conclusion

To sum up, supporting the rapid development of China's SMEs in the new situation has an important role for the domestic economy, science and technology innovation. At present, the domestic government's support policy is still in a low and stable development stage. The above content analyzes the main features of the current government support policy from the direction of finance, procurement, subsidies, etc. The future can be based on this deepening, building a more reasonable policy for the development of small and medium-sized science and technology enterprises, optimizing the reform of the economic system, and improving the social service system. Under the premise of following the law of market economy development, the government's intervention function can be given full play to help SMEs get rid of their difficulties and develop in a stable and healthy way.

In essence, the support for medium-sized technology enterprises is mainly due to the inherent limitations of China's traditional financial market, the more difficult financing for small and medium-sized technology enterprises, and the imperfect market service system. These problems have not been solved for a long time, there is not sustainable. This paper circumvents the limitations of traditional enterprise support theory and puts forward the following recommendations:

(1) Increase the financial and tax benefits for small and medium-sized enterprises

Our government departments should further increase the efforts to improve the fiscal policy support for small and medium-sized technology enterprises in the future to promote the development of SMEs. The first is to resolutely implement the existing fiscal and economic preferential policies, market response is the direct way to determine the effectiveness of the current fiscal and tax policies; the second is to focus on improving the core competitiveness of small and medium-sized technology enterprises. Although most regions in China have begun to reduce the burden of small and medium-sized science and technology enterprises from the embodiment of taxation, but in practice, there is not enough policy tilt. Small and medium-sized technology enterprises are different from general small and medium-sized enterprises, the center of the early stage lies in research and development and innovation, therefore, the government should treat the tax policies of small and medium-sized technology enterprises in the region differently and give them really affordable policies.

(2) Strengthen the industrial guidance for small and medium-sized technology enterprises

The growth of small and medium-sized technology enterprises is very difficult and tortuous, according to the reality of China's small and medium-sized technology enterprises development analysis report in 2021, only five years in China's small and medium-sized technology enterprises entrepreneurial success rate of no more than 20%, most enterprises in the business within three years of closure, which shows that the current domestic market of small and medium-sized technology enterprises entrepreneurship is still facing a lot of difficulties. Specifically, the government can base on the current conditions and try to establish a perfect business service information center, which includes images of technology, policies, laws and other aspects needed for the development of technology enterprises in the market. If necessary, a deeper cloud platform of big data can be constructed to provide more convenient conditions for the initial market development of enterprises.

(3) Continue to strengthen the financial support for small and medium-sized technology enterprises

In recent years, China's financial policies for innovation and entrepreneurship have been introduced, and the financial environment for small and medium-sized technology enterprises has improved significantly. But with the continuous complication of domestic and international economic forms, government agencies should take more initiatives to deepen the development of science and technology enterprises. For example, set up a professional small and medium-sized loan platform, refer to the support policies of Japan and Germany for small enterprises, set up professional commercial banks, solve the financing problems of small and medium-sized technology enterprises, and strengthen the investment of funds to establish a new financial docking channel.

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