

Research of the fiscal and tax policies of High - tech industry in Northeast China

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Abstract. In recent years, the high-tech industry has become an important driving force for economic development, and it has become an important subject to study the fiscal and tax policies suitable for the development of local high-tech industry. This paper constructs a fixed-effects linear regression model with unbalanced panel data by selecting data related to high-tech industries listed in China in three northeastern provinces to empirically test the effects of fiscal subsidies and tax incentives on innovation inputs, outputs and economic benefits of enterprises. The result show that fiscal policies mainly motivate the development of high-tech industry R&D and innovation output, and the tax policies motivate the development of high-tech industry R&D and economic benefit. The fiscal and tax policies have different effect to different enterprises, private enterprises will develop better than state-owned enterprises. To motivate the development of high-tech industry, government should formulate fiscal and tax programs according to the effects of fiscal and tax policies in different stages of the industrial chain, determine the leading methods, adjust the content of the existing fiscal and tax policies according to the characteristics of enterprises. The innovation point of this paper is to analyze the relationship between innovation R&D input, innovation output and revenue and fiscal policy related to high-tech industry from the perspective of complete industrial chain, and systematically compare the effect of existing fiscal policy and tax policy in three northeastern provinces, which provide a reference for future research related to the development of regional high-tech industry.

1 Introduction

The importance of scientific and technological innovation to economic development has gradually increased, and the innovation-driven high-tech industry has become an important driving force for economic development. In the context of slowing economic growth, many countries have introduced plans and fiscal and tax policies to develop high-tech industries, such as China's "Made in China 2025", the United States' "Advanced Manufacturing Partnership Program", and France's ANVAR plan.

The central government uses fiscal and tax policies to guide high-tech industries to carry out technological innovation, such as the central financial science and technology expenditure plan, advanced manufacturing investment fund, preferential government procurement, additional deduction of research and development costs and accelerated depreciation, etc. The northeastern provinces (Heilongjiang province, Jilin province and Liaoning province) have actively introduced local fiscal and tax policies to support local high-tech industries.

The fiscal and tax policies are the main methods of government to develop industry, many domestic and foreign scholars research the government's fiscal and tax

policies on high-tech industries, the research can be mainly divided into the impact of fiscal and tax policies on R&D input of high-tech industries, the impact of fiscal and tax policies on R&D output and benefits and the comparison of the effect of fiscal and tax policies. The conclusions on the effect of fiscal and tax policies on high-tech industries are not entirely consistent.

In the study on the impact of R&D input, Scott J Wallsten (1999) and Clausen (2009) analyzed that government subsidies would crowd out part of private R&D funds, forming a substitution effect ^{[1][2]}. Chen Yuanyan (2016) found that while supplementing the R&D funds of enterprises, financial subsidies drive enterprises to use additional self-owned funds to develop new and high technologies, effectively increasing the total R&D investment of enterprises ^[3]. Gan Xiaowu, An Yonghua, and Cao Guoqing (2020) analyzed Chinese listed companies as samples and concluded that the deduction policy has a promoting effect on R&D investment of high-tech enterprises, and the larger the enterprise scale and the higher the return on equity, the more obvious the effect ^[4].

In the analysis of the impact on R&D output and benefits, Sissoko (2011) found that government support for high-tech industries promoted the increase of enterprises' economic benefits by reducing the fixed cost and marginal cost of new technologies ^[5]. Giuseppe and

Claudio (2014) believed that technology spillover caused by tax incentives promoted the improvement of innovation outputs and total factor productivity, and thus improved profitability^[6]. Xue Gang (2019) found that the R&D deduction policy has a positive effect on the total factor productivity of industrial enterprises, but it is not conducive to the transformation of enterprises' innovation achievements. There are conflicts between existing tax incentives, which may weaken the effect of the policy^[7]. Kim (2020) found that fiscal policies promote innovation and help enterprises to produce improved products and new products, but have little impact on the transformation of innovation achievements into real income^[8].

In the comparative analysis of fiscal and tax policies, Guellec et al (2003) compared the effect of fiscal and tax policies on promoting enterprise innovation activities based on the data of OECD member countries, and found that both of them had a positive incentive effect, and fiscal subsidies played a more obvious role in the short term^[9]. Chen Yuanyan, He Mingjun, and Zhang Xinyuan (2018) found through empirical analysis that both fiscal subsidies and tax incentives had a positive impact on the number of patents granted, and tax incentives had a greater positive impact on patent output, but neither fiscal subsidies nor tax incentives had a significant impact on the number of patents granted for inventions^[10]. Ju Hualei and Wang Shengli (2020) compared the effects of government subsidies, income tax deduction and R&D deduction on innovation input, output and income from the perspective of innovation chain, and found that in general, the three policies had a positive impact on each link of the high-tech industrial chain, but their effects were different. Among them, the incentive effect of income tax preferential policies on the input end was the most significant. The incentive effect of R&D deduction is most significant on the output and the income^[11].

Summarizing past literatures, most domestic and foreign literatures focus on the promotion effect of fiscal and taxation policies on enterprises' R&D input. Some literatures focus on the direct and indirect impact of fiscal and taxation policies on the innovative output of high-tech industries and their approaches. Only a few literatures study the impact of fiscal and taxation policies on high-tech industries from the perspective of the overall development level and economic benefits of high-tech industries. Ignoring the guiding role of fiscal and tax policies to the development environment and carrier construction of the industry, the research lacks of comprehensiveness. As for research methods, there are a large number of theoretical studies, normative studies and quantitative studies, scholars put forward optimization suggestions based on the heterogeneity. However, there are few systematic comparative analyses of fiscal and tax policies in the existing literature.

According to the results, different economic development environments, government functions and the characteristic of enterprises will influence the effect of the policies. In order to understand the impact of local fiscal and tax policies on high-tech industries in the

process of implementation, we must start to study their characteristics.

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In view of existing studies, this paper draws on the studies of Ju Hualei, Wang Shengli (2020) and other scholars to make a comparison of the impact of fiscal and tax policies on the high-tech industry in Northeast China^[11]. Constructing a fixed-effects regression model with unbalanced panel data by selecting data related to high-tech industries listed in China in three northeastern provinces to empirically test the effects of fiscal subsidies and tax incentives on innovation inputs, outputs and economic benefits of enterprises. To analyze the relationship between innovation R&D input, innovation output and revenue and fiscal policy related to high-tech industry from the perspective of complete industrial chain, and systematically compare the effect of existing fiscal policy in three northeastern provinces, which provides a reference for future research related to the development of regional high-tech industry. Comparing the effect of policies to the input, output and income, and explores the plan to optimize the existing fiscal and tax policies supporting the high-tech industry of three provinces in Northeast China.

2 Theoretical analysis and research hypothesis

2.1 The mechanism of fiscal and tax policies to promote the capital investment in high-tech industry

The current fiscal policy mainly influences the R&D capital investment of high-tech industry through the following paths: firstly, it increases the initial investment amount of R&D capital through direct financial support and drives the industry's own R&D investment; secondly, it helps high-tech industry save money in the development process through fiscal policy and has sufficient cash flow for development and reproduction activities; thirdly, it gives social signals through fiscal policy support and attracts private investment in the society with the government. The third is to give social signals through fiscal policy support, and attract private investment in the society with the government's credit as the backing. The current fiscal policy for high-tech industry provides financial support for the cycle of development, production, profit making and redevelopment of high-tech industry through various ways to help realize the capital cycle.

2.2 The mechanism of fiscal policy to promote the improvement of human capital in high-tech industry

Human resource is one of the important conditions for the development of high-tech industry, and the development of high-tech industry needs a large amount of high quality human capital. The current fiscal policy mainly affects the human capital of high-tech industry from two aspects. On the one hand, it affects the demand for human capital in high-tech industry. The support of fiscal and tax policies makes high-tech industry improve the quantity and quality requirements of human capital, prompting high-tech industry to increase the investment in human capital. On the other hand fiscal and tax policies influence the wind direction of human capital in the market and promote the upgrading of human capital in the whole society, which in turn improves the existing human capital of high-tech industry in disguise.

2.3 The mechanism of the influence of fiscal policy on the positive externality of technology spillover

The positive externality caused by technology spillover has the effect of promoting the development of high-tech industry and even the society, but technology development itself is a high-risk activity with uncertain returns, and in the case of uncertain future returns, relatively few practitioners in high-tech industry are engaged in technology development. The first is to ensure the funds required for technology development activities to reduce the risk of technology development activities, and the second is to ensure the economic benefits of technology achievements through various technology transformation policies. The fiscal policy increases the willingness to engage in technology development in terms of both risk reduction and guaranteed future benefits, which in turn promotes the success of technology development activities and brings positive technology spillover externalities to the high-tech industry.

2.4 Hypothesis

Fiscal and tax policies reduce the cost of R&D activities and R&D risks, especially financial subsidies directly provide financial support for innovation activities and provide sufficient financial liquidity for enterprises. At the same time, the inclination of government resources to a certain extent stimulates the intrinsic motivation of enterprises to carry out innovative activities. On the other hand, the government's resource tilt is equivalent to a signal of trust from the government, which is conducive to raising investors' expectations of the enterprise and improving financing efficiency.

H1: Government fiscal policy has an incentive effect on R&D investment in high-tech industry

H2: Government fiscal policy has an incentive effect on the output of science and technology innovation in high-tech industry

H3: Government fiscal policy has an incentive effect on the benefits of high-tech industry

3 Fixed-effects multiple linear regression model design based on panel data of listed companies

In order to verify the impact of fiscal policy on the input, output and benefit of high-tech industry, this paper explores the impact of government financial subsidies and tax incentives on the innovation input, innovation output and benefit of enterprises respectively, referring to the study of Bi Pengbo (2021) [12], and constructs the following fixed-effects panel model.

$$RD_{it} = \beta_0 + \beta_1 \times \text{subsidy}_{it} + \beta_2 \times \text{tax}_{it} + \sum \beta_k \times \text{controls}_{it} + \mu_\phi + Y_h + \lambda_t + \varepsilon_{it}, \text{ (H1)}$$

$$\text{Innovation}_{it} = \beta_0 + \beta_1 \times \text{subsidy}_{it} + \beta_2 \times \text{tax}_{it} + \sum \beta_k \times \text{controls}_{it} + \mu_\phi + Y_h + \lambda_t + \varepsilon_{it}, \text{ (H2)}$$

$$NPI_{it} = \beta_0 + \beta_1 \times \text{subsidy}_{it} + \beta_2 \times \text{tax}_{it} + \sum \beta_k \times \text{controls}_{it} + \mu_\phi + Y_h + \lambda_t + \varepsilon_{it} \text{ (H3)}$$

In this paper, we examine the role of fiscal policy in terms of R&D investment (RD), innovation output (Innovation) and effectiveness (NPI). subsidy and tax represent government subsidies and tax incentives, respectively, and controls include other possible control variables. The subscripts *i* denote different firms, *t* denotes different years, and *h* denotes different regions. y_h denotes regional fixed effects, λ_t denotes time fixed effects, and ε_{it} is a random disturbance term.

3.1 Sample selection and data sources

In this paper, the data related to listed companies in three northeastern provinces are sourced from the CSMAR and Wind financial terminal database of listed companies in China from 2016-2021, China Statistical Yearbook and the annual reports of listed companies in Shanghai and Shenzhen. In order to make the sample data accurate, the following treatments were applied to the sample data: (1) excluding the missing observations of key indicators; (2) excluding the sample with total assets smaller than net fixed assets or current assets; (3) excluding the data of tobacco manufacturing industry, accommodation and catering industry, wholesale and retail industry, real estate industry, leasing and business service industry, and entertainment industry; (4) excluding the data with extreme values of key indicators.

3.2 Explained variable

High-tech Input Indicators. The innovation input variable (RD) is selected with reference to the general practice of previous literature, and the ratio of R&D investment to total assets in the year of the enterprise's annual report is selected to measure the intensity of the enterprise's R&D investment to reflect the level of the enterprise's investment.

High-tech innovation output indicators. The innovation output variable (Innovation) is measured by the number of patents granted to measure the innovation

output of high-tech industry, which is obtained by matching the Cathay Capital CSMAR patent database with the enterprise code and taking the natural logarithm after adding 1 to the number of patents with reference to the practice of previous literature.

High-tech economic efficiency indicators. Innovation benefit variable (NPI). This paper uses the product revenue of enterprises in their main R&D activity areas to reflect the benefits of high-tech industry, and confirms their related main product revenue according to their annual reports.

3.3 Explanatory variable

Fiscal policy support index. The support of fiscal policy to high-tech industry is mainly reflected in government subsidies to enterprises, considering the difficulty of data acquisition and quantification, the fiscal subsidy variable (subsidy) is used as an indicator to measure the strength of fiscal policy support, referring to previous literature practices on the impact of fiscal subsidies, the amount of subsidies under the item of non-operating income in the notes of annual reports of listed enterprises (and take logarithm processing) is used as proxy variable for financial subsidies.

Tax policy preference indicator design. Tax preference variable (tax) In this paper, with reference to previous literature, the corresponding indexes are designed by using $R\&D \text{ expenses plus deduction and income tax preference to get tax} = \text{plus deduction ratio} \times R\&D \text{ expenses} + (\text{nominal tax rate} - \text{effective tax rate}) \times \text{total profit}$, the nominal tax rate is the national standard corporate tax rate of 25%, and the effective tax rate refers to the applicable tax rate in the annual report of enterprises. The final results are logarithmically processed.

3.4 Control variables

In order to measure the actual impact of fiscal policy support and tax incentives on the innovation results of high-tech industries, this paper draws on the common approach of scholars to select the following intra-

individual factors that may affect the explanatory variables.

Enterprise size. Enterprise size (size) represents to a certain extent the financial strength and risk resistance of an enterprise, so a larger enterprise size can ensure the stability of the enterprise when engaging in high-tech industrial activities. However, large enterprises may also be too large to communicate efficiently, affecting internal cooperation and reducing efficiency. In this paper, we choose to add enterprise size to the control variables and use the natural logarithm of total assets to measure enterprise size.

Profitability. A good profitability of an enterprise can ensure the stability of the capital chain and ensure a stable cash flow when conducting R&D activities, so that R&D activities can be maintained. In this paper, we adopt the return on assets (roa) to represent the profitability of an enterprise, using the ratio of net profit to total assets at the end of the year to express it.

Enterprise's indebtedness. The level of indebtedness and solvency of enterprises reflect the business attitude of enterprises. A low gearing ratio means that enterprises tend to operate conservatively, which will affect their innovation activities to a certain extent. In this paper, the gearing ratio is chosen to represent the level of corporate indebtedness gearing ratio (lev), which is expressed using the ratio of total corporate liabilities to total assets.

Nature of enterprise property rights. The property right nature (pr) of the enterprise may affect the enterprise's enthusiasm for innovation activities, and the business strategies of state-owned enterprises and private enterprises are different. In this paper, we choose the column of property right nature in the enterprise's annual report to represent the dummy variable design, which is 1 for state-owned enterprises and 2 for other enterprises.

Enterprise age. Enterprise age (age), the output and innovation capacity of enterprises in different development stages may differ. In order to measure the impact of enterprise development stage on output and efficiency, the number of years of operation from the establishment of the enterprise to the sample period is used to measure the age of the enterprise.

The variables in this paper are defined as shown in Table 1 below

Table 1. Variable definitions

Variable	Mean	Definitions
RD	R&D investment intensity	R&D investment /Total assets
Innovation	Innovation Outputs	Ln(number of patents granted by the enterprise in the year + 1)
NPI	Innovation Benefits	Revenue from operating products in the enterprise's main R&D areas
subsidy	Financial subsidy	Natural logarithm of government subsidies received as disclosed in the annual report
tax	Tax benefits	Ln(add-on deduction ratio x R&D expenditure + (nominal tax rate - effective tax rate) x total profit)
size	Business Size	Ln (total assets at year-end)
roa	Profitability	Net profit / total assets at year-end
lev	Debt level	Liabilities/total assets at end of year
pr	Ownership	Dummy variable, 1 for state-owned enterprises, 2 for the rest
age	Age	Number of years of continuous operation of the enterprise

4.1 Descriptive Statistics Analysis

The descriptive statistics of the sample of explanatory and explanatory variables involved in this paper are shown in Table.2.

4 Empirical results and analysis of the impact of fiscal policies on high-tech industries

Table 2. Descriptive statistics

	Sample size	Min	Max	Average	Standard deviation
subsidy	662	8.794825	20.658548	16.41417913	1.542635552
tax	662	11.771621	21.790603	17.45796005	1.665957860
RD	662	.000004	.101452	.01807076	.016611158
Innovation	662	.000000	5.402677	.25613606	.823900814
NPI	662	32445771	180372000000	6427699892	17407416887

Note: Data sourced from CSMAR database and Wind Financial database

4.2 Basic correlation analysis

The model regression results are shown below.

Table 3. The impact of government fiscal and tax policy on industries in northeast China

Variables	RD	Innovation	NPI
Constant	0.075	1.77	-177155
size	-0.009***	-0.154*	7914.03***
roa	-0.0000626	-0.001	46.54
lev	-0.0000004266	-0.003*	-14.54
age	0*	0.004	-32.53
pr	-0.002*	0.12	-862.78
tax	0.007***	-0.104	1677.02***
subsidy	0.001**	0.041***	-934.81*
F	107.08***	5.858***	51.075***
Model	R	R ²	Adjusted R ²
RD	.753b	0.567	0.562
Innovation	.259b	0.067	0.056
NPI	.620b	0.385	0.377

*Significant at 0.05 level

**Significant at 0.01 level

***Significant at 0.001 level

From the significance analysis of linear regression results, the significance test coefficients of government fiscal policies represented by fiscal subsidies on all three aspects of listed companies in the three northeastern provinces are less than 0.05, which have significant effects on R&D input intensity, innovation output and innovation benefits, with positive promotion effects on R&D input and innovation output and slight negative effects on realizing innovation benefits; tax policies represented by tax concessions on The significance test coefficients of R&D input intensity and innovation benefits of listed companies in the three northeastern provinces are all less than 0.05. A unit of tax concessions has a greater incentive effect on R&D input and the realization of innovation benefits than a unit of financial subsidies, but tax policies have no significant effect on science and technology innovation output and fail to play an incentive role on science and technology innovation output.

Enterprise size has a significant effect on R&D input intensity, innovation output and innovation benefit, and enterprise size shows a negative correlation on R&D input intensity and innovation output, which means that small and medium-sized enterprises engaged in high-

tech industries in the region are more dynamic in scientific research and innovation and are the main technology development activity bearers of the future high-tech industries in the region, but larger enterprises can more effectively turn scientific and technological achievements into economic benefits, which reflects the marketing ability of large enterprises. The level of corporate debt has a significant negative impact on the innovation output of enterprises, and enterprises with excessive debt may be forced to spend less on R&D activities due to operational pressure, which affects the development of related R&D activities. Helping enterprises to relieve the pressure of debt can help them to re-engage in R&D activities. The profitability of enterprises has no significant effect on all three aspects of high-tech industry development. The nature of enterprise ownership has a more significant effect on the intensity of R&D investment, and state-owned enterprises are less willing to conduct R&D activities compared to non-state-owned enterprises. The age of the enterprise has a significant positive effect on the intensity of R&D investment, and the longer the enterprise has been in business, the more inclined it is to undertake R&D activities.

4.2 Analysis of heterogeneity

Table 4. The result of analysis of heterogeneity

Variables	RD		Innovation		NPI	
	SOE	non-SOE	SOE	non-SOE	SOE	non-SOE
pr						
size	-0.008***	-0.001***	-0.208***	-0.118*	10324.07***	5314***
roa	0	-0.0000364	0.017	-0.002	-46.22	77.53
lev	-0.0000.428	0.00000217	-0.001	-0.003	-120.92	28.55
age	0	0	-0.011***	0.007	320.30	-64.96
tax	0.007***	0.007***	0.057*	0.03	3747.34***	144.65***
subsidy	0.001*	0.001*	0.076***	0.075*	-2766.65	395.99**
R ²	0.588	0.573	0.128	0.045	0.481	0.259
F	50.196***	76.825***	5.165***	2.706**	32.509***	19.966***

*Significant at 0.05 level

**Significant at 0.01 level

***Significant at 0.001 level

Considering the nature of property rights in the three northeastern provinces is relatively prominent this paper heterogeneity analysis will be grouped according to the nature of enterprise property rights regression.

In the model of R&D investment intensity, both explanatory variables are significant with non-standard coefficients of 0.007 and 0.001. There is no significant difference between SOEs and non-SOEs in the incentive effect of R&D investment intensity, but SOEs are more influenced by the asset size factor than non-SOEs.

In the model of innovation output, the coefficients of the two explanatory variables are not significantly different, but SOEs are negatively affected by enterprise size and enterprise age more seriously, the larger the

asset size the longer the operating life the less innovation output of the enterprise.

In the model of innovation benefits, state-owned enterprises in the three northeastern provinces have a stronger ability to turn high-tech into economic benefits than non-state-owned enterprises, and tax preferences significantly promote state-owned enterprises to turn innovations in high-tech industries into economic benefits, but financial subsidies have a significant negative impact on innovation benefits of state-owned enterprises, but have a good promotion effect on non-state-owned enterprises.

4.3 Robustness test

In this paper, Robust regression method is used to test the robustness of the empirical results. The results are presented in the following table.

Table 5. The result robustness test

Variables	RD	Innovation	NPI
Constant	0.071**	0.000**	-98388355865.0**
subsidy	0.001*	0.0001**	-609202252.641**
tax	0.007**	0.000**	585614896.944**
size	-0.008**	-0.000**	4782310913.260**
roa	-0.000	-0.000	36132914.959*
lev	0.000	-0.000**	-1519676.744
age	0.000	0.000**	-42392495.537
pr	-0.002**	-0.000	-1470021331.376**

*Significant at 0.05 level

**Significant at 0.01 level

***Significant at 0.001 level

From the above table, the original sample was subjected to Robust regression analysis (M estimation method) and the regression coefficient value of financial subsidies was 0.001 ($t=2.533$, $p=0.011<0.05$), implying that there will be a significant positive influence relationship on R&D input intensity.

The regression coefficient value of tax incentives is 0.007 ($t=28.912$, $p=0.000<0.01$), implying that there will be a significant positive influence relationship on R&D investment intensity.

The stability test results of the explanatory variables of the other two models are also basically consistent with the original regression results, and after testing the original model has stability

5 Conclusion

5.1 Research Results

After going through the corresponding analysis, it can be concluded that fiscal policy has different effects on each link of the local high-tech industrial chain in the three northeastern provinces, the size of enterprises and the level of indebtedness have interference effects on the policy implementation effect, tax policy has significant positive effects on two links of R&D input and realized income, but the incentive effect on innovation output is not significant, fiscal policy has significant positive effects on the first two links, and in the third The impact of fiscal policy depends on the characteristics of

enterprises, and fiscal policy obtains better results on non-state enterprises compared to state-owned enterprises.

By conducting a comparative analysis of the future development trend of fiscal policy for high-tech industries in the three northeastern provinces, emphasis should be placed on fostering SMEs to engage in high-tech industries, formulating reasonable fiscal programs based on the effects of fiscal policy at different stages of the industrial chain, determining the dominant approach, and adjusting the content of existing fiscal policy based on enterprise characteristics to better locally promote the development of high-tech industries.

5.2 Optimization suggestions

First, improving systematic fiscal and taxation policy system. Integrating fiscal policies according to the high-tech industry chain to improve the existing fiscal policy system of high-tech industry and coordinating the cooperation between policies according to the difference of the effect of fiscal and tax policies.

Second, Improving and refining the content of existing fiscal policies. Government departments should strictly control the evaluation standards of technicality. When conducting financial support there are certain technical requirements for the scientific and technological innovation output of the object, financial support planning according to the object results, and support should be abandoned for products or technologies that do not meet the requirements, and patent quality requirements, literature results requirements, and product process hard index requirements should be set up in the evaluation system with the assistance of experts and industry-related personnel, and financial support should be given to the corresponding level according to the degree of index completion. Tax policy can refer to the integrated circuit enterprises in accordance with different process level products to set up multi-level tax incentives, the key development of high-tech industries built different product level standards, to give the corresponding level of preferential treatment. In the three northeastern provinces, the two attributes of large-scale enterprises and state-owned enterprises will interfere with the policy play, then the policy should be appropriately tilted to small enterprises and non-state-owned enterprises, financial support is divided into levels according to the scale of enterprises from small to large, support is gradually reduced, and only the minimum level of support is maintained after a certain scale, and innovation needs to be set up for state-owned enterprises.

Third, optimizing the actual implementation methods of existing fiscal policies. The government should strengthen active supervision and inspection capacity building on the basis of strict implementation of the original management system, actively unite personnel with knowledge related to high-tech industry and financial personnel to conduct regular inspections of financial science and technology expenditures, add more quantifiable evaluation indicators, evaluate the use and

performance of financial funds, reduce unnecessary financial science and technology expenditures, and conduct regular flow of subsidy funds use. Carry out spot checks by expert groups and audit teams, re-evaluate the corresponding qualifications for enterprises, research institutes and other units that have problems in the spot checks, cancel the corresponding preferences, and appropriately reduce the support for enterprises that perform poorly in performance management. Form effective supervision through the cooperation of the independent declaration system and active inspection capabilities. Focus on inter-regional coordination, the implementation of differentiated policies.

Finally, the three northeastern provinces and provinces, city and county regions should cooperate with each other, jointly formulate fiscal policies during the exchange process, consider the development characteristics of themselves and neighboring regions, cooperate if they have the same advantageous high-tech industries, develop their own advantageous industries separately if they have different advantageous high-tech industries, and not blindly develop other industries through fiscal policies to avoid wasting funds on high-tech industries that have no advantage or foundation. industry.

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