ADVANCED INTERNATIONAL JOURNAL OF BUSINESS, ENTREPRENEURSHIP AND SMES (AIJBES)

www.aijbes.com

RESEARCH ON THE INCENTIVE EFFECT OF ADDITIONAL DEDUCTION FOR R&D EXPENSES ON CAPITAL: A REVIEW

Wu Shuangshuang[1*], Mohd Nor Hakimin Yusoff[2]

[1]   Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Malaysia
     Neusoft Institute Guangdong, Guangdong, China
     Email: 844100755@qq.com
[2]   Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Malaysia
     Email: Hakimin@umk.edu.my
*   Corresponding Author

Article Info:

Abstract:

In recent years, in order to promote the improvement of the Chinese overall strength in scientific and technological innovation, the Chinese government has implemented preferential tax policies for scientific and technological enterprises to deduct R&D expense, to reduce the tax burden, to reduce costs and expenses, to increase enterprise cash flow, and to encourage enterprises to increase investment in R&D expense. The article is based on the theory of tax regulation, to review the Chinese government's preferential tax policy of additional deduction for R&D expenses in scientific and technological enterprises. With different empirical models, this article is made an empirical analysis and research on the incentive effect of additional deduction for R&D expenses on the capital investment of scientific and technological enterprises from multiple perspectives. A comprehensive demonstration of the positive incentive effect of preferential tax policies is of great significance for the Chinese government to regulate scientific and technological investment, to enhance the competitive advantage of science and technology by tax policies, to realize science and technology self-reliance.

Keywords:

R&D Expense, Additional Deduction, Incentive Effect, Heckman Two-step Model, Dual-difference Model

Introduction

Problem Statement

As an endogenous driving force for economic development, science and technology are playing an increasingly prominent role in driving economic growth. While upgrading traditional demands, science and technology are also creating new demands, opening up new paths for economic growth. As a result, many countries in the world have drawn up strategies to promote the formation and development of science and technology capital, so that it can play a leading and central role in economic development. In recent decades, China's scientific and technological level has developed rapidly. During the 40 years of Reform and Opening-up, China's scientific and technological level has achieved remarkable achievements in the world, and a large number of leading enterprises in specific fields have been born.Such as Huawei, DJI, BYD, Fuyao Glass and so on. Why have Chinese companies risen so fast? Why has China's scientific and technological level surpassed that of Western developed countries in some fields for several decades?

Research Background

Based on the successful experience of China's economic development over the past 40 years of Reform and Opening-up. Zhou Wen (2021) believes that the success of China's path is based on a series of special and important systems, and the Chinese government has to some extent found a way to actively play the role of *Helping Hand* while trying to avoid the influence of *Grabbing Hand*. In recent decades, major developed countries in the world have continuously increased investment in basic research, especially increased tax incentives in the field of basic research, and China is no exception. In order to support scientific and technological research, the Chinese government has invested a large amount of funds to support universities and research institutions to carry out scientific and technological research, and introduced a large number of preferential tax policies to support enterprises to carry out scientific and technological research. According to Fan Yixia & Xu Jie (2021), according to OECD statistics, basic research accounted for 5.54% of China's total R&D expenses in 2018. Among the total basic research expenditure, universities accounted for 54.10%, governments and non-profit organizations for 42.83%, and enterprises for 3.07%, up 1.44% from 1.63% in 2009. Of the total basic research expenditures in the United States, universities accounted for 48.28%, governments and non-profit organizations for 24.56%, and enterprises for 27.17%. The proportion of R&D expenses of enterprises is relatively lower. Based on Thomas's Theory of Tax Regulation, in order to catch up with the scientific and technological level of developed countries as soon as possible, the Chinese government has issued a series of tax policies and fiscal policies to encourage enterprises to innovate in science and technology, to develop new technologies and to improve scientific and technological capabilities. Especially in terms of preferential tax policies, the Chinese government directly or indirectly encourages enterprises to develop their scientific and technological level and guides them to increase their R&D capital investment.

Research Significance

Due to the spillover effect, enterprises cannot obtain all the benefits of innovation in carrying out innovation activities. Zhang Yong (2021) made a detailed analysis on the government's preferential tax policies to encourage enterprises' scientific and technological innovation. Peng Tao, Huang Fuguang and Sun Lingxia (2021) proposed that a possible channel for tax incentives to affect start-up technology investment is to increase the risk-taking of investment funds. In equilibrium, tax preference increases the return of investment funds in start-up

technology enterprises, and the expected return difference increases accordingly, which enhances the risk-taking level of investment funds.

Research Questions

The preferential tax policy of the state has played an important role in the investment of scientific and technological research, but there are still quite a few doubts.

I. In the process of implementing preferential tax policies in China, does the preferential tax policy only have a positive incentive effect on capital investment without a negative reverse effect?

II. Under what circumstances should the government implement specific preferential tax policies?

III. Within what range can the tax preference have the greatest incentive effect?

Many Chinese and foreign scholars have done a lot of research work on this. They are the basic principle of implementing preferential tax policies, the research model of the effect of preferential tax policies on science and technology investment, the effect achieved by the Chinese government in the preferential tax policy of additional tax deduction for R&D expenses, and how to continue to implement the preferential tax policy of additional tax deduction for R&D expenses in the future.

The Principle Analysis of the Incentive Effect of Preferential Tax Policy

Tax is an important economic regulation of the country. The influence of preferential tax policies on the economy mainly includes tax adjustment theory and the relationship theory between the government and the market.

Tax Adjustment Theory

The development of tax adjustment theory has gone through different stages of development, shifting between the two themes of fairness and efficiency. In the initial period of mercantilism, the tax adjustment theory represented by Thomas Mann advocated that taxpayers pay taxes to the state, and the state maintains the normal economic order at home and protects the property of its own people abroad, which is similar to the taxpayer purchasing national security services based on the theory of exchange of value. In the later period, Keynesian school and New Cambridge School were representative. The Keynesian school believes that preferential tax policies can increase the aggregate demand of society and thus promote economic growth. The main tax theory of Keynesianism is as follows: firstly, tax is a means to stimulate demand; Secondly, compensation tax policy; The lastly is the automatic stabilizer. Through the implementation of specific tax reduction policies, enterprises can increase the supply of certain products, so that consumers can increase the demand for certain products, thus promoting the development of this industry. The New Cambridge School also accepts this view, and holds that appropriate tax incentives can narrow the gap between the rich and the poor. When using tax incentives to increase effective demand, it is necessary to consider whose tax burden is reduced.

Relationship Theory Between Government and Market

The theory of the relationship between government and market holds that the market is an "invisible hand" that can automatically adjust the economic order. The government uses fiscal,

tax and monetary means to regulate demand and investment, intervenes in the market, and advocates the combination of government purchases, transfer payments, tax policies and monetary policies to achieve stable economic growth. The relationship between government and market is as follows: firstly, market needs government; Secondly, the government can produce; Thirdly, the government can regulate income distribution.

Whether it is the Theory of Tax Regulation or the Theory of the Relationship Between the Government and the Market, when discussing the influence principle of the effect of preferential tax policies, the essence is analyzed from two aspects:

The first is the influence principle of preferential tax policies on the investment in science and technology; The second is the principle of the impact of preferential tax policies on scientific and technological output.

Li Jingyi (2020) believed that the enthusiasm of enterprises in R&D needs to be mobilized by the government. Qian Tao (2023) believes that preferential tax policies are policy tools that can significantly improve the level and intensity of R&D investment. Diversified tax incentive policies can retain sufficient free cash flow and retained earnings for endogenous financing of enterprises, provide financial guarantee for enterprises' investment in science and technology, and also serve as a Risk Reserve for R&D failure.

Regulation Principle of Preferential Tax Policies
The ways in which preferential tax policies regulate scientific and technological input are as follows: tax base regulation, tax rate regulation and tax amount regulation. Tax base adjustment refers to reducing the tax base to achieve the purpose of reducing the tax burden of enterprises, so as to guide enterprises to increase investment. Tax rate adjustment means that taxpayers who meet certain conditions pay taxes at a lower tax rate than normal, such as levying enterprise income tax at a reduced tax rate of 15% for high-tech enterprises that meet the recognized qualifications. Tax adjustment refers to the direct reduction or reduction of tax payable for taxpayers who meet certain conditions. In general, the principle of the impact of tax incentives on the effect of science and technology investment is that the government gives financial funds to enterprises, and enterprises will use these financial funds to continue to invest in science and technology R&D activities, forming a virtuous circle and improving productivity.

If the principle of the influence of tax incentives on the effect of investment in science and technology is shown in the figure below, when the total amount of capital flow of enterprises is constrained, the funds of enterprises are divided into R&D funds and other funds, and the relationship between capital input and enterprise output is shown in the following figure 2-1:
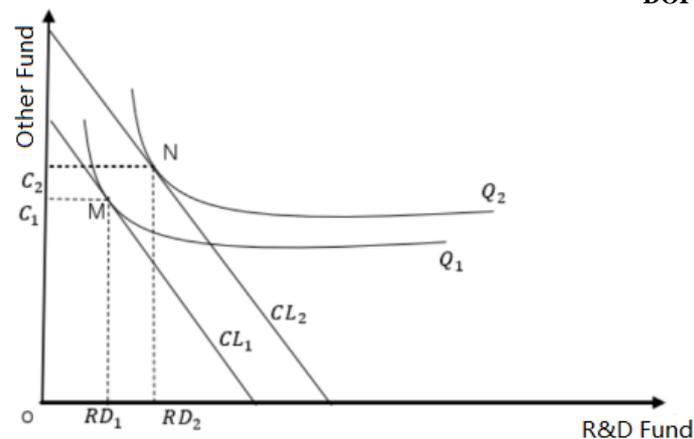
Figure 1: Influence of Tax Incentives on R&D Investment

The illustration is as follows:
CL_1 - The financial constraint line before a business receives a tax benefit
CL_2 - The financial constraint line after an enterprise receives a tax incentives
Q_1, Q_2 - equal output line
Tangent point M, N - optimal fund mix point
RD_1, RD_2 - Amount of R&D fund investment

As can be seen from the figure, the R&D input RD_2 after the implementation of the preferential tax policy is higher than the RD_1 before the implementation, the corresponding output Q_2 is greater than Q_1, and the optimal capital mix point N is better than point M. The preferential tax policy has increased the amount of R&D capital investment of enterprises, and increased the output, and the production capacity of enterprises has increased.

The Basic Clues on the R&D Expense Additional Deduction Policy
The main body of the implementation of preferential tax policies is the government, and the object of implementation is the enterprise. Under the established tax system, no matter what kind of preferential tax policies are used, the tax burden of enterprises that meet the requirements will be reduced. Under normal circumstances, the tax burden of enterprises will affect the production and operation behavior of enterprises, so that production resources will gradually converge to the departments with higher productivity, thus optimizing the economic structure.

According to the different preferential links, preferential tax policies can be divided into direct tax incentives and indirect tax incentives.

The so-called direct tax preference refers to the reduction of the original tax payable by the taxpayer, which is the benefit transfer of the state after the initial distribution, and the tax preference link is after the initial distribution. For example, the interest income from national debt is exempt from enterprise income tax, and the income tax of high-tech enterprises is subject to a preferential tax rate of 15%. Indirect tax preference refers to the adjustment or reduction of the taxable income amount when calculating the taxable income amount, and the tax preference link is before the initial distribution. For example, additional deduction of R&D expense and calculation of accelerated depreciation of fixed assets. Under the strategic background of scientific and technological innovation-driven development, the Chinese

government's preferential tax policies that have a greater impact on enterprises' scientific and technological investment mainly include additional deduction of R&D expense and preferential tax rates for high-tech enterprises. Since enterprises need to invest a lot of funds in the early stage of scientific and technological research and development, and the uncertainty of transforming R&D fund investment into results is high, it is difficult for enterprises to enter the profitable state in the early stage, and they rarely enjoy the reduction and exemption of the preferential tax rate of enterprise income tax. Therefore, the additional deduction of R&D expense can better enable enterprises to enjoy the tax support of the state. The preferential tax policy for additional deduction of R&D expenses has become the core means to encourage enterprises to invest in science and technology and promote the fairness and efficiency of policy dividends. According to the *China Science and Technology Statistical Yearbook 2022*, the tax deduction and deduction policy for R&D expenses in 2019 was 187.2 billion yuan, exceeding for the first time the deduction amount of the preferential tax policy for high-tech enterprises (184.4 billion yuan), and becoming the most important tax incentive policy for enterprises to stimulate scientific and technological innovation.

The following table shows the tax policies implemented by the Chinese government in recent years in relation to additional deductions for R&D expenses.

Table 1: Detailed Policy for Additional Deduction of R&D Expenses

Date	Name of Announcement	Core Concepts
1/1/2008	Enterprise Income Tax Law of the People's Republic of China Dispensation regulations	The expenses incurred in the development of new technologies, new products and new processes may be deducted in the calculation of taxable income
1/1/2008	Administrative measures for pre-tax deduction of R&D expenses of enterprises	If no intangible assets are included in the current profit or loss, an additional 50% of the actual amount will be deducted before tax. If intangible assets are formed, 150% of the cost of intangible assets shall be amortized before tax
1/1/2017	Notice on Increasing the proportion of pre-tax Deduction for R&D expenses of small and medium-sized enterprises in Science and technology	If no intangible assets are included in the current profit or loss, an additional 75% of the actual amount will be deducted before tax. If intangible assets are formed, 175% of the cost of intangible assets shall be amortized before tax
1/1/2021	Announcement on further improving the policy of pre-tax deduction of R&D expenses	If no intangible assets are included in the current profit or loss, an additional 100% of the actual amount will be deducted before tax. If intangible assets are formed, 200% of the cost of intangible assets shall be amortized before tax
1/1/2022	Announcement of the State Taxation Administration on matters related to preferential policies for enterprises to pre-pay and declare to enjoy	When enterprises pre-pay and declare enterprise income tax during the October levy period, they can independently choose to enjoy the additional deduction of R&D expenses in the first three quarters in advance

additional deduction of R&D
expenses

Source: Data collected via the website of the State Taxation Administration of China

As can be seen from the above table, the policy of additional deduction of R&D expenses has the following two characteristics: the scope of deduction has been gradually expanded to cover R&D expenses incurred by overseas R&D activities; The rate of additional deductions has been significantly increased, from 50% to 100%, and enterprises have enjoyed greater tax incentives.

Research Methods on the Incentive Effect of Additional Deduction Policy for R&D Expenses

Introduction
In the process of scientific and technological innovation, enterprises need to break the original pattern and to invest a lot of human, material and financial resources to explore unknown fields, which makes enterprises to face great risks. Schumpeter believed that the main entity of scientific and technological innovation is entrepreneurs. Galasso A. & Simcoe T. S. believed that the higher the enterprise's risk preference is, the higher the risk tolerance is, and the stronger the willingness of scientific and technological innovation is. In order to improve the overall economic development, the government implements fiscal and tax policies to reduce the risk of enterprise innovation and to stimulate the willingness of enterprise innovation. As a preferential tax policy specifically for R&D activities of enterprises, the additional deduction policy for R&D expenses can increase the after-tax net profit of enterprises and reduce the financial risk caused by the failure of R&D activities.

So, does the preferential tax policy of additional deduction of R&D expenses act as an incentive for enterprises to innovate in science and technology? How much of an incentive is generated? What are some of the other influencing factors? According to the changes in various relevant data of enterprises since the implementation of the additional deduction policy for R&D expenses, it is necessary to evaluate them through certain models. Many Chinese and foreign scholars have conducted in-depth studies.

Data Collection
In the research on the effect of the preferential tax policy of additional deduction of R&D expenses on science and technology investment, since there are a large number of science and technology R&D companies enjoying tax incentives in China, in order to obtain objective data, researchers usually select listed companies as the research objects and collect the required information and data from the audited and published financial statements and notes of each company.

Qian Tao, Zhan Yutao and Pan Shiyuan (2023) selected the annual reports of listed companies from 2014 to 2018, and obtained the tax preferential data of listed companies actually enjoying the policy of additional deduction of R&D expenses during this period, and finally obtained 7,275 observation samples of 2,836 companies.

Li Hui and Chen Xuesha (2023) selected A-share listed companies in Shanghai and Shenzhen Stock markets from 2013 to 2020 as research samples in their study on the impact of the policy of additional deduction for R&D expenses on corporate performance. After excluding the samples of financial enterprises, ST enterprises and samples with missing values, we finally

get 11 832 observed values of 1 479 listed companies.4.1 Treatment effect model of Heckman two-step method.

Analysis of Data

In the study of the effect of the policy of additional deduction of R&D expenses on R&D capital investment, a certain factor under study is usually taken as the explained variable, and relevant influencing factors are taken as explanatory variables.

Treatment Effect Model of Heckman Two-step

Under the research of Qian Tao, Zhan Yutao and Pan Shiyuan (2023), It is assumed that when a company applies for a patent in a patent category that has not been applied for in the past four years, it is considered to have entered a new technology category, that is, opened up a new innovation direction. The model is based on the influence effect of R&D expense additional deduction on the number of patent applications (NewRDdirection). The explained variable is the number of patent applications in the new direction (NewRDdirection), which represents the number of innovation outputs in the new innovation direction of the enterprise. A set of factors affecting patent applications is taken as the explanatory variable. λ is the time trend variable, γ is the industry fixed effect variable, and u is the error term. Deduction is the indicator variable, indicating whether the enterprise is entitled to the additional deduction policy for R&D expenses. Its model is

$$NewRDdirection = \alpha_0 + \beta_1 Deduction + \Sigma \beta_K X_{IJ} + \lambda_t + \gamma_j + u_{ij} \quad (1)$$

According to the actual amount of the preferential policy enjoyed by the enterprise to judge whether the enterprise has enjoyed the policy. If the enterprise has enjoyed the R&D expense deduction policy, the value is 1, otherwise the value is 0.

By constructing IMR deviation coefficient, IMR was added for the second regression.

$$NewRDdirection = \alpha_0 + \beta_1 Deduction + \Sigma \beta_K X_{IJ} + \rho \sigma IMR + \lambda_t + \gamma_j + \varepsilon_{it} \quad (2)$$

According to the results of two regressions, β_1, which is not correlated with ε, is an unbiased estimator. At the same time, the significance of IMR can be used to determine whether there is selection bias. If it is significant, it means that there is self-selection bias, and Heckman processing effect model should be used.

Investigate the impact of the R&D expense additional deduction policy on the number of applications for invention patents, utility model patents and design patents in the new direction from three aspects. The explained variables were the number of applications for invention patents in a new direction (IIPC), utility model patents in a new direction (UIPC), and design patents in a new direction (DLOC).

The empirical results of the samples show that the R&D expense additional deduction policy has a significant incentive effect on the application of invention patent, utility model patent and design patent. The coefficient of utility model patent application is the largest (3.279), followed by invention patent (1.776) and design patent (1.198). It shows that technological progress is a process of gradual accumulation, and in the process of opening up new fields, easy and difficult

coexist, and the number of invention patents and utility model patents applied by enterprises in the new direction has increased significantly.

Dual-difference Model (DID)

Li Hui and Chen Xuesha (2023) established a did-difference (DID) model based on the purpose of investigating the impact of R&D expense deduction policy on enterprise performance:

$$\text{Tobin\_Q}_{it} = \alpha_0 + \alpha_1 \text{Treat}_{it}\text{Period}_{it} + \gamma \text{control}_{it} + \varphi_{it} \qquad (3)$$

Among them, Tobin_Q_{it} is the explained variable, and its meaning is the Tobin Q value of listed company i in year t, which is used to measure the enterprise performance level. Treat_{it} is the dummy variable of whether listed company i is entitled to additional deduction policy in 2016. If listed company i is entitled to preferential policy from 2016, the value is 1; otherwise, the value is 0; Period_{it} is the period dummy variable, if t is in 2016. For previous years, the value is 0; otherwise, the value is 1. The interaction between the two is the core explanatory variable of this paper. Control_{it} are other control variables that have an impact on the performance of listed companies, φ_{it} are error values.

This paper mainly studies the impact of R&D expenses additional deduction on enterprise performance after the expansion of the scope of policy subjects. Therefore, the core explanatory variable reveals the net effect of the policy with the result of the interaction term of Treat and Period. In this paper, the sample is divided into two groups based on whether the sample company starts to enjoy the policy after the expansion of the subject scope of the policy in 2016. If the sample company starts to enjoy the additional deduction policy in 2016, the control group is 1, and the Treat value is 0; otherwise, the experimental group is 0. Before 2016, the value of Period is 0, and after 2016, the value is 1. The selected explained variable is enterprise performance, and the measurement index of enterprise performance is Tobin's Q value. Tobin's Q value avoids the influence of human manipulation to a certain extent, and is relatively comprehensive in reflecting the actual performance of listed companies compared with other indicators. Considering the influence of other factors on enterprise performance, six variables were selected as control variables, including Return on Equity, Enterprise Scale, Asset-liability Rtio, Age of Listing, Executive Compensation and Executive Shareholding Ratio.

From the empirical analysis results, the R&D expense additional deduction policy has played a promoting role in improving the performance of Chinese enterprises and promoting the benign development of enterprises. By observing the relationship between the control variable and the dependent variable, it can be seen that the return on equity and the dependent variable are positively correlated, and the improvement of the return on equity has a promoting effect on the performance level of enterprises, but the impact is not significant. The results of firm size are significant at the level of 1%, reflecting that firm size will have a significant impact on the operating efficiency of the firm. The coefficient of asset-liability ratio is positive, but it has no significant effect on enterprise performance in this sample. There is a significant positive correlation between the listing age and firm performance, indicating that the listing age and firm performance in the sample range are positively promoting. There is also a positive relationship between executive compensation and corporate performance, indicating that executive compensation can promote the improvement of corporate performance. The shareholding ratio of senior executives has a significant negative impact on corporate performance, which is in line with the research findings of Morok et al. (1988) : when the

shareholding ratio of senior executives is between 5% and 25%, the shareholding ratio of senior executives is not conducive to the improvement of corporate performance.

Summary of Research on the Incentive Effect of Additional Deduction Policy for R&D Expenses

Conclusion

The research results of Qian, Zhan and Pan (2023) show that preferential tax policies can significantly promote enterprises' scientific and technological R&D, and they will engage in high-quality scientific and technological R&D activities in new research fields. Tax incentive policies can reduce the R&D expenses of enterprises and also bring in cash flow. Scientific and technological R&D activities are characterized by high risks and high rewards. It manifests itself in the following three ways:

I. The policy of additional deduction of R&D expenses can effectively reduce the R&D costs and risks of enterprises, which can effectively promote enterprises to explore new scientific and technological development directions.

II. The cash flow support and the improvement of after-tax profit margin brought by preferential tax policies are important ways to promote enterprises to explore new directions.

III. The additional deduction policy of R&D expenses has a more significant incentive effect on the R&D activities of strategic emerging industries.

Research Limitations

While many scholars at home and abroad have conducted multi-dimensional studies on tax incentives and additional deduction policies for R&D expenses, there are many shortcomings in these studies.With many domestic and foreign scholars have conducted multi-dimensional studies on tax incentives and R&D expense additional deduction policies, there are many shortcomings in these studies.

Firstly, there is a lack of mechanism analysis of the impact of preferential tax policies on the competitiveness of scientific and technological enterprises. The existing domestic and foreign literature has studied a certain role of tax policy and the necessity of developing high-tech industries, but there is no systematic derivation of the mechanism of preferential tax policy affecting the scientific and technological competitiveness of enterprises, that is, how the preferential tax policy affects the scientific and technological competitiveness of enterprises and what links the preferential tax policy affects the economic activities of enterprises.

Secondly, internal control factors were not adequately considered in the study of the relationship between tax incentives and investment in science and technology. While generating an incentive effect, preferential tax policies may become a channel for some enterprises to earn policy dividends.

Thirdly, tax incentives are not considered in conjunction with different types of businesses and different life cycles of businesses..Following the announcement of the preferential tax policy, it is applicable to all eligible enterprises, regardless of the fact that different enterprises are at different stages of their life cycle and can enjoy significantly different degrees of preferential treatment. From this point of view, tax incentives are inefficient.

Future Outlook

Due to the non-exclusivity, indigestibility and uncertainty of scientific and technological innovation, the income from R&D investment of enterprises cannot be fully internalized, and the equilibrium level of private R&D investment generally fails to reach the social optimal level. Most studies show that the reduction of after-tax R&D costs can effectively encourage enterprises to increase R&D investment. With the increase in cash flow brought about by the decrease in after-tax R&D costs, the investment scale and the number of projects of enterprises will also increase accordingly, and tax incentives obviously provide an important financial guarantee for enterprises to explore the direction of innovation.

The future concerns of the incentive effect of preferential tax policies on R&D investment are suggested as follows:

I. In the fields involving major strategic technologies, the government should adopt differentiated strategies in terms of the intensity of additional deduction for R&D expenses of enterprises, so as to effectively promote enterprises' FDI. The research investment of strategic emerging enterprises with large scale, strong profitability and strong technological strength in major strategic technology fields should be further increased and deducted to speed up technological breakthroughs.

II. The government should design the policy of additional deduction for R&D expenses according to the innovation degree and investment scale of enterprises, give full play to the incentive effect of additional deduction for R&D expenses on scientific and technological R&D of enterprises, and improve the quality and efficiency of R&D investment.

III. For enterprises that produce breakthrough scientific research achievements in new fields, such as those whose output achievements fill the domestic and international gaps, the government should give a higher proportion of additional deduction after the fact.

With the increasing prevalence of additional deductions of R&D expenses, the government should implement differentiated tax preferential policies to achieve more effective incentive effects.

Acknowledgements

References

Ahuja G. & Lampert C. M.. Entrepreneurship in the Large Corporation: A Longitudinal in a Study of How Established Firms Create Breakthrough Inventions, *Strategic Management JournaT*.

Balsmeier B., Kurakina M.&Fleming L., R&D Tax Credits: Mechanisms of Private and Public Value, *https://siepr.stanford.edu/system/files/lee_flemming_siepr.pdf*, 2023.02.

Bernanke B.S.. Irreversibility, Uncertainty, and Cyclical Investment, *https://doi.org/10.3386/w0502*, 2023.

Chen Dong, Xing Ishmanian. Tax Iincentives and Firm R&D Investment: A Perspective of Internal Control. *Discussion on Modern Economy*, 2020(12):11.

Chen Yu, Liu Yuhuan. Research and Development Expense deduction and enterprise innovation performance. *Business Research*, 2021,28 (05):46-58.

China Statistical Yearbook of Science and Technology, 2013-2022.

Fan Yixia, Xu Jie. New trend and enlightenment of income tax R&D incentive policy in developed countries. *Economic Review*, 2021(01):111-121.

Gross Domestic Expenditure on R&D by Sector of Performance and Type of R&D, *https://stats.oecd.org*.

He Lingyun, Tao Dongjie. Tax Administration, Institutional Environment and Enterprise Innovation Input. *Science Research Management*, 2019, 41(09):42-50.

Liang Junjiao, Jia Yuxi. The Impact of Corporate Income Tax Incentives on Corporate Innovation: An Empirical Analysis Based on Panel Data of Listed Companies. *Journal of Central University of Finance and Economics*, 2019(9):13-23.

Li Hui, Chen Xuesha. The Impact of R&D Expense Deduction Policy on the Performance of Listed Companies, *Business Accounting*, 2023(18):65-68.

Peng, T., Huang, F. & Sun, L. Whether Tax Incentives Incentivize Venture Capital: Evidence from a Quasi-natural Experiment, *Management World*, 2021, 37(01):33-46

Qian Tao, Zhan Yutao, Pan Shiyuan. The Impact of R&D Expense Deduction on Innovation Direction: Evidence From Listed Manufacturing Companies in China, *Journal of Zhejiang University*, 2023 (12) : 131-150.

Wu Qiusheng, Li Guanhui. Additional Deduction, Cost Control and Enterprise Innovation Input Growth. *Journal of Shanxi University of Finance and Economics*, 2022, 44(03):114-126.

Xie Lin-hai, Li Yi-fan, Zheng Ming-gui. The impact of fiscal and tax incentive policies on the innovation performance of new energy industry: the mediating effect of research and development investment. *Journal of Management Modernization*, 2020, 42:53-57.

Xu Haifeng, Feng Lihong, Zhang Mengting. Research on the implementation mechanism and mode of the policy of additional deduction for R&D expenses. *Scientific Management Research*, 2020, 40(04):61-68.

Zhang Yong. Can Good Faith Tax Payment Promote R&D Investment of Enterprises: Evidence Based on Tax Credit Rating Disclosure of Listed Companies in China. *Journal of Shanxi University of Finance and Economics*, 2021, 43(09):70-85.

Zhou Wen. Why Nations Rise and Fall: China's Road in History and World Vision, *China Renmin University Press*, 2021.9, Preface.