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Research on the Influence of Tax Incentives on the Innovation Performance of Pharmaceutical Manufacturing Enterprises

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Abstract. Taking 28 listed companies in China's A-share pharmaceutical manufacturing industry from 2018 to 2021 as samples, with tax incentives as an explanatory variable, R&D investment intensity as an intervening variable, enterprise size, enterprise establishment time, return on total assets, debt-to-assets ratio, and fixed asset density as control variables, and innovation performance as explained variable, a multiple linear regression model is established, and descriptive statistics, correlation analysis, multicollinearity test, and robustness test are carried out to empirically analyze the influence of tax incentives on the innovation performance of pharmaceutical manufacturing enterprises. The results show that tax incentives have a significant positive impact on the innovation performance of pharmaceutical manufacturing enterprises, and tax incentives can promote pharmaceutical manufacturing enterprises to increase the intensity of R&D investment, and the intensity of R&D investment has a certain mediating effect and long-term influence on the relationship 1between tax incentives and innovation performance. Combined with the empirical results, the paper puts forward the strategy of improving enterprise innovation performance to enhance the core competitiveness of enterprises.

Keywords. Pharmaceutical Enterprises, Tax Incentives, R&D Investment Intensity, Innovation Performance

1.Introduction

Innovation is the internal driving force of enterprise development, the level of innovation performance is related to the sustainable development of enterprises. Tax incentives are the main means for the government to guide enterprise innovation. The government grants tax relief to specific taxpayers, taxpayers or taxpaying regions through tax means, which can effectively reduce the high tax burden of enterprises, and preferential tax policies allocate innovative resources through the market. Therefore, China has introduced a series of preferential tax policies such as income tax reductions

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and exemptions and super deduction of research and development expenses to support and encourage enterprises to innovate and develop.

domestic and foreign scholars have carried out extensive research on the impact of tax incentives on corporate innovation performance, and most scholars have verified the incentive effect of tax incentives on innovation performance through empirical research. For example, Wang and Schmidt (2002) added the dummy variable of the panel unit to the Tobit model, and concluded that the tax policy can have a positive incentive effect on the innovation output performance of technology-based enterprises [1]. Michael Peneder (2008) thought that the preferential tax policy expands the coverage, mobilizes more enterprises' enthusiasm for R&D and innovation, and then positively spills over to the whole society [2]. Hongxiang Tang and Yinchang Li (2020) conducted research on China's GEM industrial enterprises from 2015 to 2019 as sample companies, and found that there is a significant positive correlation between tax incentives and corporate innovation performance, and tax incentives can effectively improve corporate innovation performance [3]. Hui Xing et al. (2021) systematically conducted empirical research using methods such as DID and PSM, and the results showed that preferential tax policies promote substantial innovation of enterprises through three functions [4].

In addition, research on the ways in which tax incentives affect corporate innovation performance has also attracted much attention. Scholars believe that tax incentives can promote the R&D investment of enterprises, and the increase of R&D investment can stimulate the innovation motivation of enterprises to improve innovation performance, R&D investment can play a mediating effect in the relationship between tax incentives and innovation performance. Fabiani et al. (2014) found that tax incentives stimulate enterprises' R&D investment by reducing innovation costs through their research on private enterprises in Brazil [5]. Andrew C (2018) conducted an empirical study on the financial data of American technology companies and found that for every percentage point increase in the tax incentives enjoyed by companies engaged in technology research and development, their main R&D investment will increase by 2.8%-3.8%[6]. Jingyi Li et al. (2020) studied on the high-tech enterprises in the western region and found that the interaction between tax incentives and enterprise R&D investment can stimulate the innovation performance of enterprises [7].Congrong Li et al. (2021) pointed out that tax incentives have an effect on innovation performance by affecting R&D investment in their research on the impact of fiscal policy on the innovation performance of military-civilian integration enterprises [8].

Scholars mostly choose enterprises in high-tech industries as their research objects, and there are relatively few studies on the impact of tax incentives on innovation performance of enterprises in other industries. Based on this, this paper takes 28 listed companies in China's pharmaceutical manufacturing industry as samples, puts forward research hypotheses on the basis of domestic and foreign research results, and constructs a multiple regression model to empirically analyze the relationship between tax incentives, R&D investment and innovation performance of pharmaceutical manufacturing companies, so as to explore The impact mechanism and effect of tax incentives on the innovation performance of pharmaceutical manufacturing enterprises.

2.Research Design

2.1 Research Hypothesis

Because of its fair and transparent characteristics, preferential tax policies have become an important means to promote enterprise innovation, and they are widely used to encourage enterprise innovation. The implementation of tax incentives can greatly promote the innovation output and innovation efficiency of enterprises[9]. At the same time, tax incentives can subsidize the R&D expenses of enterprises through preferential tax rates and direct deductions, so as to achieve the purpose of improving the innovation performance of enterprises[10]. Therefore, this paper makes the following hypothesis :

Hypothesis 1: Tax incentives are positively correlated with enterprise innovation performance.

On the one hand, tax incentives can reduce the tax burden of beneficiary enterprises, which is equivalent to obtaining a sum of funds from the government for reinvestment. On the other hand, post-incentives such as super deduction of R&D expenses require enterprises to spend on R&D and innovation in the early stage, which can mobilize the enthusiasm of enterprises for R&D and increase the intensity of R&D investment. Junjiao Liang, Yuxi Jia (2019), Fenfen Miao(2021), etc. all believe that the promotion effect of tax cuts on R&D investment is more obvious [11][12]. Therefore, this paper proposes the following hypothesis :

Hypothesis 2: Tax incentives are positively correlated with R&D investment intensity.

According to the theory of technological innovation, enterprises can promote the smooth development of innovation activities by increasing R&D investment, so as to produce products with core competitiveness or improve their core technology level, thereby improving the innovation performance of enterprises. Yuchen Xiong and Yinguo Li (2019) 's research on Chinese technology companies shows that there is a significant correlation between their R&D investment and corporate innovation performance [13]. Dianchun Jiang and xiaowang Pan (2022) found that increasing R&D investment can bring more innovation output to enterprises [14]. Therefore, this paper proposes the following hypothesis :

Hypothesis 3:There is a positive correlation between innovation performance and R&D investment intensity.

Since policies are generally lagging, and the cycle of enterprise innovation is generally taking several years, this paper will deeply explore the impact of tax incentives and R&D investment on the innovation performance of pharmaceutical manufacturing companies under lagging conditions. Therefore, this paper proposes the following hypothesis :

Hypothesis 4: There is a time lag in the effect of R&D investment intensity on enterprise innovation performance.

2.2 Source of Sample Data

This paper selects the research samples of Shanghai and Shenzhen A-share listed companies in the pharmaceutical manufacturing industry, which is classified by China Securities Regulatory Commission. Referring to variable selection methods such as Qiulai Zhang(2018) and Mengyun Han(2020)[15][16],the number of invention patent applications, R&D expenses, business income, income tax expenses, total profit and other relevant raw data of sample companies from 2018 to 2021 were collected from CSMAR database, the official website of QiChaCha and Patentstar. Based on the integrity and accessibility of corporate financial information, data of 28 sample companies were obtained. EXCEL software was used to process the selected data, and then STATA software was used for empirical analysis.

2.3 Research Variables

a) Explained Variable

Innovation performance (PATENT) is measured as the natural logarithm of the number of invention patent applications. This index is used to measure an enterprise's ability to enhance the value of innovation results through technical solutions or methods and evaluate its innovation performance. The innovation performance of enterprises is growing as the number of invention patent applications is bigger.

b) Explanatory Variable

Tax incentives (TAX) are measured by the corporate income tax burden. This index is the ratio of the current income tax expense to the total income of the enterprise, which is negatively correlated with the level of tax incentives enjoyed by enterprises, that is, the smaller the corporate income tax burden is, the greater the level of tax incentives enjoyed by enterprises in the current year.

c) Intervening Variable

Research and development investment intensity (R&D) is measured by the ratio of R&D expenses to operating revenue. Enterprises support innovation activities through R&D expenditure. This index can eliminate the difference in the level of R&D investment caused by the different sizes of enterprises. The higher the ratio, the more importance enterprises attach to R&D.

d) Control Variables

Enterprise size (SIZE) is represented by the natural logarithm of the enterprise’s total assets at the end of the current period. It is generally believed that large enterprises have more innovative capabilities and resources and are relatively easy to obtain government innovation support.

The establishment time of the enterprise (YEAR) is represented by the statistical year minus the listing year of the enterprise plus one. The longer an enterprise is established, the more experience it has accumulated in carrying out innovation activities, which may influence the innovation research and development activities of the enterprise to a certain extent.

Return on total assets (ROA) is the ratio of net income after tax to total assets at the end of the period. The higher the ROA is, the stronger the enterprise is in terms of capital saving and income increase, and the better the profitability of the enterprise is, which is conducive to the enterprise investing more funds in R&D and innovation.

Debt-to-assets ratio (DAR) is the ratio of total ending liabilities to total ending assets. The smaller the DAR is, the easier it is for an enterprise to get external financial support, thus increasing R&D investment and accelerating the output of innovation achievements.

Fixed Asset Density (FAD) is the ratio of net fixed assets to total assets at the end of the period. The higher the FAD, the stronger the debt guarantee ability of enterprises, and the much more choices of innovative investment financing methods.

The specific research variables are introduced in Table 1:

Table 1. Introduction of Research Variables

Variable type	Variable identifier	Variable name	Calculating formula
Explained variable	PATENT	Number of invention patent applications	The natural logarithm of the number of invention patent applications
Explanatory variable	TAX	Corporate income tax burden	current income tax expense/total income
Intervening variable	R&D	Research and development investment intensity	R&D expenses/operating revenue
Control variables	SIZE	Enterprise size	The natural logarithm of the total assets of the enterprise at the end of the current period
	YEAR	Enterprise establishment time	Statistical year - the listing year of the enterprise + 1
	ROA	Return on total assets	Net income after tax/total ending assets
	DAR	Debt-to-assets ratio	Total ending liabilities/total ending assets
	FAD	Fixed Asset Density	Net fixed assets/total ending assets

2.4 Model Design

The following four multiple regression models are built for analysis according to the above assumptions.

To verify hypothesis 1: Tax incentives are positively correlated with enterprise innovation performance, Model 1 is constructed as Formula (1):

$$PATENTt_{i,t}=\alpha_0+\alpha_1*TAX_{i,t}+\Sigma\alpha_j*Control_{i,t}+\varepsilon_{i,t} \quad (1)$$

To verify hypothesis 2: Tax incentives are positively correlated with R&D investment intensity, Model 2 is constructed as Formula (2):

$$R\&D_{i,t}=\alpha_0+\alpha_1*TAX_{i,t}+\Sigma\alpha_j*Control_{i,t}+\varepsilon_{i,t} \quad (2)$$

To verify hypothesis 3: There is a positive correlation between innovation performance and R&D investment intensity, Model 3 is constructed as Formula (3):

$$PPATENT_{i,t}=\alpha_0+\alpha_1*R\&D_{i,t}+\Sigma\alpha_j*Control_{i,t}+\varepsilon_{i,t} \quad (3)$$

To verify hypothesis 4: There is a time lag in the effect of R&D investment intensity on enterprise innovation performance, Model 4 is constructed as Formula (4):

$$PATENT_{i,t}=\alpha_0+\alpha_1*R\&D_{i,t-n}+\Sigma\alpha_j*Control_{i,t}+\varepsilon_{i,t} \quad (4)$$

Control represents all control variables; i represents the i-th listed enterprise in the pharmaceutical manufacturing industry ($i\in[1, 28]$); t represents year ($t\in[2018, 2021]$); n represents the number of lag periods ($n\in[1, 2]$); $\varepsilon_{i,t}$ is the random error terms for the individual enterprise and time mix differences.

3.Empirical Test and Analysis

3.1 Descriptive Statistical Analysis

As can be seen in Table 2:

(1) The number of invention patent applications (PATENT). The minimum value, maximum value and average value of the number of invention patent applications of Chinese pharmaceutical manufacturing listed enterprises are 0.693, 5.056 and 2.505 after logarithm, indicating a low overall level. Its standard deviation is 1.002, indicating a large gap in innovation performance among sample enterprises in the pharmaceutical manufacturing industry.

(2) Corporate income tax burden (TAX). The minimum value, maximum value and standard deviation of the corporate income tax burden of sample enterprises are -0.00397, 0.237, and 0.0356, indicating data with high dispersion and negative value. The average tax burden of enterprise income tax is 0.111, indicating that the income tax burden of most enterprises is still within a reasonable range and enjoys a relatively high level of tax incentives, while only a few enterprises enjoy a significant difference in the level of tax incentives.

(3) Research and development investment intensity (R&D). The standard deviation of R&D investment intensity is 0.0379, the minimum value is 1%, the maximum value is 22.9%, and the mean is 3.8%, indicating that the overall competitiveness of Chinese pharmaceutical manufacturing enterprises is strong, but there are large differences in the R&D investment intensity among sample enterprises.

(4) Enterprise size (SIZE). Enterprise size’s minimum value is 20.64, the maximum value 24.39, and the mean 22.54, indicating a small gap.

(5) Enterprise establishment time (YEAR). The mean value, standard deviation, minimum value and maximum value of the establishment time of the pharmaceutical manufacturing sample enterprises are 15.18, 5.811, 5.167 and 29.18, indicating a large gap in the development stage of the pharmaceutical manufacturing sample enterprises.

(6) Return on total assets (ROA). The average value of return on total assets is 0.0962, and the maximum value is 47 times of the minimum value, showing the net income after tax per unit of assets created by different enterprises varies greatly.

(7) Debt-to-assets ratio (DAR). The standard deviation of ADR is 0.117, the minimum value is 0.0420, the maximum value is 0.482, and the mean is 0.270. It is generally believed that the reasonable DAR is no more than 50%, so it can be seen that the gap in debt level of all sample pharmaceutical manufacturing enterprises is relatively small and at a low-risk level.

(8) Fixed Asset Density (FAD). The difference between the mean, minimum and maximum of the FAD is small, and the standard deviation is 0.0926, indicating that the gap between most sample enterprises is small.

Table 2. Statistical Analysis Results of Variable Description

Variable name	Observed value	Mean	Standard deviation	Minimum value	Maximum value
PATENT	112	2.505	1.002	0.693	5.056
TAX	112	0.139	0.036	-0.004	0.237
R&D	112	0.061	0.038	0.010	0.229
SIZE	112	22.540	0.827	20.640	24.390
YEAR	112	15.180	5.811	5.167	29.180
ROA	112	0.096	0.057	0.007	0.340
DAR	112	0.270	0.117	0.042	0.482
FAD	112	0.216	0.093	0.057	0.521

3.2 Correlation Analysis

Before multiple regression analysis, correlation analysis can describe the degree of correlation between each explanatory variable and the explained variable, as well as the linear correlation between each explanatory variable.

Table 3. Correlation Analysis Results of Variables

	PATENT	TAX	R&D	SIZE	YEAR	ROA	DAR	FAD
PATENT	1.000							
TAX	-0.160***	1.000						
R&D	0.388***	-0.358***	1.000					
SIZE	0.472***	-0.057	0.362***	1.000				
YEAR	0.165***	-0.071	0.114*	0.470***	1.000			
ROA	0.160***	-0.016	0.027	0.358***	0.209***	1.000		
DAR	-0.192***	-0.026	-0.383***	0.052	0.070	-0.217***	1.000	
FAD	-0.218***	-0.175***	-0.130**	-0.282***	-0.038	-0.312***	0.188***	1.000

***, **, * means the correlation is significant in 1%, 5%, 10% level respectively

As shown in Table 3, corporate income Tax burden (Tax), R&D investment intensity (R&D), enterprise size (Size), establishment time (Year), return on total assets (ROA), debt-asset ratio (DAR), fixed asset density (FAD) are all significantly correlated with Patent applications at the level of 1%. Among them, the tax burden of corporate income tax (Tax) is significantly negatively correlated with the number of patent applications (Patent) and the intensity of R&D investment. The number of patent applications is significantly positively correlated with the intensity of R&D investment.. It shows that tax incentives can stimulate pharmaceutical manufacturing enterprises to increase R&D investment, and R&D investment and tax incentives can promote the improvement of innovation performance of them, which preliminarily verifies hypotheses 1, 2 and 3.

3.3 Multicollinearity Test

In order to avoid multicollinearity, tolerance and variance inflation factor (VIF) analysis were used, and the results were shown in Table 4. Combined with Table 3 and Table 4, it can be seen that the absolute values of all variable coefficients are between 0 and 0.48, and the VIF between non-explained variables are all less than 2, indicating that there is no serious problem with multicollinearity between explanatory variables and control variables, and empirical analysis can be conducted.

Table 4. Results of Multicollinearity Test

Variable name	VIF	Tolerance
SIZE	1.92	0.519924
YEAR	1.49	0.669300
ROA	1.40	0.712960
DAR	1.32	0.759977
FAD	1.29	0.774239
SIZE	1.25	0.797877

3.4 Regression Analysis

Multiple regression analysis is conducted on the four models constructed in this paper, as shown in Table 5. All four models constructed in this paper pass the F test, indicating that the four regression models are significant. Among them, Model 1 and Model 2 are significant at the 1% level, and Model 3 and Model 4 (lag period 1 and lag period 2, respectively) are significant at the 5% level

Table 5. Model Regression Analysis Results

Explained variable / Explanatory variable	PATENT	R&D	PATENT (current)	PATENT (lag period 1)	PATENT (lag period 2)
TAX	-4.254*** (-1.40)	-0.385*** (-3.37)			
R&D			5.190** (1.92)	6.081** (1.57)	6.811** (1.24)
SIZE	0.694*** (5.10)	0.021*** (5.52)	0.593*** (3.87)	0.580*** (3.24)	0.560** (1.24)
YEAR	-0.010 (-0.53)	-0.000 (-0.66)	-0.008 (-0.43)	0.002 (0.06)	-0.010 (-0.32)
ROA	-1.754 (-1.20)	-0.168*** (-3.68)	-0.822 (-0.52)	-0.430 (-0.22)	1.052 (0.41)
DAR	-2.135*** (-2.64)	-0.148*** (-5.97)	-1.376 (-1.54)	-1.718 (-1.51)	-0.353 (-0.27)
FAD	-1.048 (-0.98)	-0.023 (-0.76)	-0.739 (-0.71)	-0.420 (-0.33)	-0.319 (-0.17)
Constant	-11.567*** (-3.77)	-0.297*** (-3.79)	-10.586*** (-3.33)	-10.406*** (-2.84)	-10.328** (-2.23)
Observation	112	112	112	84	56
R-squared coefficient of determination/ goodness of fit	0.296	0.467	0.299	0.316	0.292
F test	0	0	0	0	0
r2_a	0.256	0.436	0.259	0.262	0.205
F value	21.70	20.84	19.34	14.51	10.53

***, **, * means the correlation is significant in 1%, 5%, 10% level respectively; The t value is in parentheses.

3.5 Robustness Test

In order to improve the accuracy of the empirical results, the method of shortening the research interval to 2019-2021 was adopted to test the robustness of the above regression model. The test results are shown in Table 6.

As can be seen from Table 6, the explained variables and explanatory variables of model 1 and model 2 are significantly negatively correlated at the significance level of 1%. The explained variables of Model 3 and Model 4 (lag period 1 and lag period 2, respectively) were significantly positively correlated with explanatory variables at the significance level of 5%. In addition, with the shortening of the research interval, the regression coefficient of explanatory variables increased from 4.472 to 4.901 with the increase in the lag period. Therefore, the empirical model and empirical results constructed in this paper are robust.

Table 6. Robustness Test Results

Explained variable / Explanatory variable	Patent	R&D	Patent (current)	Patent (lag period 1)	Patent (lag period 2)
TAX	-3.658*** (-1.04)	-0.389*** (-2.93)			
R&D			4.266** (1.45)	4.472** (0.90)	4.901** (0.37)
SIZE	0.738*** (4.65)	0.021*** (4.52)	0.662*** (3.77)	0.686*** (3.17)	0.727** (2.26)
YEAR	-0.015 (-0.65)	-0.000 (-0.43)	-0.014 (-0.61)	-0.006 (-0.20)	-0.040 (-0.84)
ROA	-2.441 (-1.40)	-0.1564*** (-2.02)	-1.755 (-0.94)	-1.672 (-0.65)	-0.951 (-0.22)
DAR	-2.476*** (-2.72)	-0.157*** (-5.14)	-1.777 (-1.74)	-2.589* (-1.86)	-1.166 (-0.61)
FAD	-1.257 (-1.05)	-0.025 (-0.72)	-0.967 (-0.83)	-0.703 (-0.48)	-1.409 (-0.51)
Constant	-12.445*** (-3.38)	-0.294*** (-3.01)	-11.818*** (-3.22)	-12.223*** (-2.75)	-12.826* (-1.98)
Observation	84	84	84	56	28
R-squared (coefficient of determination/goodness of fit)	0.317	0.455	0.319	0.338	0.307
F test	0	0	0	0	0
r2_a	0.264	0.413	0.266	0.257	0.209
F Value	24.78	15.96	20.06	13.54	10.03

Note: 1. ***, **, * represent at a significant level of 1%, 5% and 10%, respectively; 2. The t value is in parentheses.

The following conclusions can be drawn by combining Table 5 and Table 6:

(1) In Model 1, the regression coefficient of the corporate income tax burden (Tax) is -4.254 and significant, which is robust. This indicates that the smaller the tax burden of enterprise income tax is, or the higher the level of tax incentives enjoyed by enterprises, will lead to higher innovation performance of enterprises. Thus, hypothesis 1 is valid

(2) In Model 2, the regression coefficient of the corporate income tax burden (Tax) is -0.385, which is significant and robust, indicating that the intensity of R&D investment increases with the increase of the level of tax incentives enjoyed by enterprises. Thus, hypothesis 2 is valid.

(3) In Model 3, the regression coefficient of R&D investment intensity (R&D) is 5.190 and significant, which is robust, indicating that the improvement of R&D

investment intensity will improve the innovation performance of the enterprise in the current period. Thus, hypothesis 3 is true.

(4) In Model 4, R&D investment intensity (R&D) has a significant positive correlation with the innovation performance in the first and second lagging periods and is robust. Thus, hypothesis 4 is valid.

3.6 Analysis of Research Results

a) Tax incentives have a significant positive impact on the innovation performance of pharmaceutical manufacturing enterprises

Tax incentives play an important role in improving the innovation performance of pharmaceutical manufacturing enterprises. Meanwhile, the research results show that innovation performance is also affected by enterprise size, debt-to-assets ratio and other factors. Tax incentives can be differentiated according to the actual business situation of enterprises, to continuously improve the implementation effect of tax incentives on the innovation performance of pharmaceutical manufacturing enterprises.

b) Tax incentives have a significant impact on the R&D investment intensity of pharmaceutical manufacturing enterprises

Tax incentives play a positive role in improving the R&D investment intensity of pharmaceutical manufacturing enterprises. Through additional deduction of R&D expenses, reduction of corporate income tax, investment credit and other tax incentives, enterprises have more after-tax profits and external financing. Sufficient surplus funds guarantee the investment in R&D and innovation activities of enterprises, and reduce the cost and risk of R&D capital.

c) R&D investment intensity has the mediating effect between tax incentives and innovation performance of pharmaceutical manufacturing enterprises

Tax incentives can compensate for the positive externalities of enterprise innovation, reduce research and development costs, guide enterprises to increase investment in innovative research and development, so that enterprises can have more funds to build more professional scientific research teams, improve research and development efficiency, and improve the innovation performance of pharmaceutical manufacturing enterprises. Therefore, we should further improve the tax incentives for R&D and innovation activities.

d) R&D investment intensity has a long-term influence on the innovation performance of pharmaceutical manufacturing enterprises

The influence of R&D investment intensity on the innovation performance of pharmaceutical manufacturing enterprises has a time lag. Innovative R&D activities have strong periodicity and high input in the early stage. Tax incentive policies can be formulated for the early and intermediate stages of R&D innovation to guide pharmaceutical manufacturing enterprises to increase the intensity of R&D investment in order to continuously improve innovation performance.

4. Conclusion

On the basis of science, operability and comparability, this paper puts forward four theoretical hypotheses based on the research results of previous scholars on the theme of the impact of tax incentives on corporate innovation performance. The multiple linear regression model of variables such as tax incentives, R&D investment intensity, enterprise size, establishment time and innovation performance, using STATA software for empirical analysis, draws reliable conclusions about the impact path and effect of tax incentives on innovation performance of Chinese pharmaceutical manufacturing enterprises.. The results show that tax incentives have a significant positive impact on the innovation performance of pharmaceutical manufacturing enterprises. Tax incentives can promote the R&D investment intensity of enterprises, and R&D investment intensity has an intermediary effect between tax incentives and innovation performance, and its effect on innovation performance has a lag. This provides ideas for pharmaceutical manufacturing enterprises to improve their own innovation performance, and provides a reference for the government to introduce tax policies for innovation incentives. This paper selects the data of listed pharmaceutical manufacturing enterprises to study the impact of tax incentives on the innovation performance of enterprises, and the research scope is still relatively limited. In this paper, the number of patent applications is selected as an evaluation index for innovation performance, and in the future, we can start from the aspect of patent quality, establish a more detailed index system, and measure the innovation ability of enterprises more scientifically.

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