Research Article

Tax Incentive Policy and Enterprise Innovation: From Enterprise Heterogeneous Perspective

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In the study, data of Chinese listed companies in city Hangzhou, Ningbo and Wenzhou from 2012 to 2019 are used for detailed analysis. According to the data analysis, we have got several results: (1) the tax incentive policy has a significant promoting effect on the innovation activities of enterprises. (2) For such microlevel data, we also can get more detailed conclusion by enterprise heterogeneity. Heterogeneous factors do affect the effect of tax incentives on enterprise innovation input. Based on these findings, we can provide well-directed suggestions for future actions of enterprises and policy makers.

1. Introduction

Innovation is the core of competitiveness in changeable market. But how can innovation help society to develop sustainably? It is a heated question concerned by policy makers and researchers. Among the policy instruments, tax policy is one of the common incentive tools related to technological innovation. Tax tools can be used as flexible policy instruments to participate in government support and guide enterprises to carry out innovation. Giving the role of market players, different tax policy tools can provide targeted support to key developing industries and effectively promote the steady development of innovation and entrepreneurship. It is of great applicable significance that we clarify the influence mechanism between tax incentive policy and enterprise Innovation.

In China, the conventional corporate income tax rate is 25%, but high-tech enterprises can enjoy a preferential tax rate of 15%. In addition to preferential tax rates, R&D expenses can be extradeducted, which also reflects the encouragement of tax policies for enterprises’ innovative behaviors. Different from the crowding-out effect that direct government subsidy may bring to enterprise innovation, tax incentive, as a postincentive, can effectively improve the effectiveness of policy tools and bring crowding-in effect to improve enterprise innovation efficiency [1]. Similarly, in Europe, there are special “patent boxes” in which profits generated by patents receive special tax benefits. Studies have shown that such “patent box” policy can indeed promote R&D investment of enterprises, even if such tax advantages are sometimes not fully reflected [2]. In addition, front-end tax policy and back-end tax policy have different functions. Front-end tax incentive policy is more likely to promote patent acquisition, while back-end tax policy is more likely to promote patent trading [3].

Although there is a long history of literature on the impact of policy instruments on firm innovation activities, but previous studies on this topic mostly used yearbook data of region or industry [1] to discuss it at the macro level, also some comparative studies at the national level [3, 4]. The purpose of the study is to bridge the research gap of microlevel on the topic. In this study, enterprise data of city Hangzhou, Ningbo and Wenzhou were adopted, since these cities are located in a very innovative district of China. In this way, the study could be deeply explored from the perspective of enterprise heterogeneity, and the conclusions obtained would have more practical significance and guiding value for policy making, which is the main contribution of the study.

Next, the study will be expanded from the following parts: the second part is the literature review and hypothesis;
In the fourth part, empirical analysis is conducted to test whether tax incentive policies have a promoting effect on enterprises’ innovation activities, and what the specific influence mechanism is, from the direction of overall sample and heterogeneity of different enterprises. The last part is the conclusion and discussion, which provides suggestions for enterprise management and policy makers according to the research conclusions of the study.

2. Literature Review and Hypothesis Development

In the short run, innovation can have a negative impact on corporate profits, but innovation-related tax incentives can offset this negative effect [5]. In addition, cheaper R&D directly stimulates R&D because of the tax-saving capacity of R&D activities [6]. In this way, a benign closed loop is formed. Similarly, R&D and import are also complementary. R&D can promote the increase of enterprise income and profit, while reducing cost and increasing profit through import can further promote R&D investment. Both R&D and import are aimed at reducing costs [6]. And control tax rate rise, also be the effective way that controls cost for the business [7, 8].

In this way, we propose:

H1: tax incentive policies can promote the innovation input of enterprises.

On the contrary, some scholars believe that, compared with solving financing constraints and creating a good IP right protection environment, tax policy is not an efficient means to promote innovation. Stronger creditor rights and more generous R&D tax credits have a negative differential relation with R&D in more innovative industries [9, 10]. Sometimes in a small range and in a short term, it may not reflect the obvious promotion effect of tax policies on innovation and entrepreneurship [11]. However, more often than not, we still believe that tax policies can effectively promote the innovation of enterprises. Although tax may seem expensive relative to other policy tools, it is still a sustainable policy support in a time of public spending cuts [12, 13]. In addition, the degree to which enterprises are closely connected with other enterprises in the social network will also affect the effect of tax incentive policies [14]. Meanwhile, for young knowledge-based firms, subsidies are a more direct support to start innovation compared with tax incentive [15]. However, some studies think that compared with subsidies’ selectivity towards the company’s productivity, there is no selectivity from tax policy [16]. Sometimes, however, tax policies introduced by governments seeking short-term stabilization will stifle innovation and economic development [17]. It also illustrates the risks posed by policy uncertainty. Moreover, if companies receive multiple R&D policy supports (for example, both subsidies and tax incentives) at the same time, the efficiency of policy support will be reduced [18].

Then, we propose the following:

H2: tax incentive policies can promote the innovation output of enterprises.

The effect of tax incentive policies is also different in different situations, which reflects the influence of heterogeneity on the effect. Even if tax policies can promote enterprise innovation, they still have different effects on different enterprises [19]. For example, for enterprises of different sizes [20], the effects of policies are different [21]. For example, enterprises that receive more preferential treatment have more obvious effects on promoting innovation [22]. For example, in technology-intensive industries, enterprises will enjoy more tax incentive policies, thus increasing the positive external effects of innovation input and output [4]. Those enterprises that truly establish themselves in the market through innovation will continue to take advantage of tax incentives, but not just for short-term benefits [23]. However, the influence of tax incentive policies on non-high-tech enterprises or enterprises without innovation profits is not obvious [24]. When enterprises are poorly managed and innovative activities are diversified, tax policies are hard to play the expected role of incentive [25].

Then, we propose:

H3: heterogeneous factors (H3a: property right nature, H3b: high-tech enterprise, H3c: industry type, H3d: district) will affect the effect between tax incentive policies and enterprise innovation input.

3. Data and Methodology

3.1. Data Sources. In this study, the data of Chinese listed companies in city Hangzhou, Ningbo and Wenzhou from 2012 to 2019 are collected from CSMAR (China Stock Market and Accounting Research) database. After eliminating the missing values, 1037 valid samples are obtained.

3.2. Variable Measurement

3.2.1. Dependent Variable. Innovation Input: Innovation investment is mainly capital investment, measured by research and development costs [26].

Innovation Output: innovation output can be measured both quantitatively and qualitatively. The most common way to measure innovation output is the number of patents of an enterprise, while the quality of innovation is generally measured by invention patents [27].

3.2.2. Independent Variable. Tax incentive policy: in this paper, the tax policy tool is represented by tax incentives. The actual income tax rate is obtained by (income tax expense/the total profit of the enterprise), and then the tax incentive enjoyed by the enterprise is obtained by (the conventional enterprise income tax rate of 25%-actual income tax rate) [28].

3.2.3. Control Variable. The R&D activities of an enterprise are also affected by the size of the enterprise (usually larger enterprise has more economic power and strategic insight
for R&D), asset-liability ratio and the return on total assets (these two factors are tightly related the enterprise’s financial performance, which is the foundation of R&D investment) [29]. Therefore, these indicators are also put into the model as control variables.

3.3. Model Set. According to the second part of the theoretical foundation and the hypothesis proposed, we know that tax incentive policies, on the one hand will affect the enterprise’s innovation input, on the other hand may also affect the innovation output of the enterprises. And the enterprise heterogeneity factors (such as the property rights, industry, district) will affect the tax incentive policy effect on enterprise innovation investment. On this basis, we draw the following theoretical frame, and establish the analysis model in Figure 1.

Firstly, a model of the impact of tax incentive policies on enterprise innovation input is established. In order to eliminate heteroscedasticity, logarithmic transformation is taken for enterprise innovation input. In Model 1, ordinary mixed regression was used for testing. Since the sample data is unbalanced panel data, fixed-effect model was also used for further verification in Model 2.

\[
\ln RD_{i} = \alpha + \beta_{1}taxincen_{i} + \beta_{2} \ln asset_{i} + \beta_{3}assetliab_{i} + \beta_{4}ROA_{i} + \epsilon_{i},
\]

where \( \alpha \) is the intercept that does not change with individuals; \( \beta \) is the parameter to be estimated; \( \epsilon \) is the error term subject to normal distribution.

\[
\ln RDp_{i} = \alpha + \beta_{1}taxincen_{i} + \beta_{2} \ln asset_{i} + \beta_{3}assetliab_{i} + \beta_{4}ROA_{i} + \epsilon_{i},
\]

Then we examine the impact of tax incentive policy on enterprise innovation output. Since the dependent variable is a counting variable, model 3 first adopts mixed Poisson regression to test, and then adopts ordinary mixed regression for the robustness.

\[
\text{Invention/Patent}_{i} = \alpha + \beta_{1}taxincen_{i} + \beta_{2} \ln asset_{i} + \beta_{3}assetliab_{i} + \beta_{4}ROA_{i} + \epsilon_{i},
\]

where \( i \) is each sample Chinese enterprise; \( t \) is each year, \( t = 2012, 2013, \ldots, 2019 \); \( \ln RDexp \) is the logarithm of innovation capital input; Invention/Patent is the innovation output; taxincen represents the tax incentive policy the sample enterprises applied; \( \ln asset, assetlib \) and ROA, respectively, is the logarithm of enterprise asset, asset-liability ratio and the return on total assets as control variables. \( \alpha \) is the intercept that does not change with individuals; \( \beta \) is the parameter to be estimated; \( \epsilon \) is the error term subject to normal distribution.

4. Results

4.1. Descriptive Statistics. Descriptive statistics of main variables are shown in Table 1. It can be found that there is a huge gap in the sample enterprises’ application of tax incentive policies. Some enterprises can apply very low tax rates after enjoying tax incentive policies, while others hardly enjoy any tax incentive policy at all. In terms of enterprise innovation input, there is a huge difference between enterprises with least investment and those with most investment, and the difference is more than millions of times. Therefore, in terms of innovation output, some enterprises may have no innovation achievements, while others have very fruitful innovation achievements. Such huge differences among major variables require subsequent data models to reveal the influence mechanism.

4.2. Correlation Analysis. Through the correlation analysis showing in Table 2, it is found that there is a significant correlation between the main independent variable tax incentive and the dependent variable R&D input, which lays a good foundation for the next regression analysis.

4.3. Regression Analysis. Firstly, according to model1 and model2, mixed regression and panel regression with fixed effect were respectively used to test the relationship between tax incentive policy and enterprises’ innovation input. In Table 3, the results show that, under the two models, tax incentive policies both had a promoting effect on enterprises’ innovation input, but there were some differences in the degree of influence and significance. Under the mixed regression model, the promotion effect of tax incentive policy on innovation input is more obvious and significant. It might be that the sample data is unbalanced panel data. After considering the time effect and individual effect, the influence mechanism of tax incentive policy on enterprise R&D input has slightly changed. However, the conclusion is consistent from the overall direction, and the robustness of the conclusion is also proved. Hypothesis 1 is verified.

Then based on model 3, we test the relationship between tax policy and innovation output from two aspects, innovation quantity and innovation quality. Since innovation output is a counting variable, Poisson mixed regression and ordinary mixed regression are performed for verification respectively. In Table 4, the results show that both innovation quantity and innovation quality are significantly affected by tax incentive policies positively. However, the result of Poisson mixed regression and mixed regression is a little bit different. Under Poisson mixed regression, tax incentive policy has a more significant effect on the quantity than the quantity of enterprises’ innovative output. While under ordinary mixed regression, tax incentive policy has a more significant effect on the quantity of enterprises’ innovation output. However, from all aspects, tax incentive policies can effectively promote the innovative output of enterprises, and hypothesis 2 is supported.

The heterogeneous factors of enterprises provide different application scenarios for the tax incentive policies, and the influence mechanism is inevitably different. Now, to test hypothesis 3, the study considers the effect of heterogeneous factors on tax policy and enterprise innovation input.

In terms of property right, we classify the ownership types of the sample firms as private and other. Zhejiang Province of China, where the sample enterprises located, is an area where
private enterprises flourishing. Private enterprises accounted for 87 percent of the sample data. We marked the private enterprises in the sample as 1 and the nonprivate enterprises as 0, and conducted grouped mixed regression based on the model 1. The results in Table 5 shows, tax incentive policies can significantly promote innovation input of enterprises whether they are private enterprises or not. However, the promotion effect of nonprivate enterprises is more obvious, but the model fitting of private enterprises is better. After all, the survival of the enterprise is still profit oriented, but R&D costs are huge and may not be profitable in the short term. For private enterprises, the contradiction of abandoning immediate profits for future development may be more prominent than that for

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**Table 1: Descriptive statistics of main variables.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>sd</th>
<th>min</th>
<th>p50</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxincen</td>
<td>0.119</td>
<td>0.0589</td>
<td>0.000424</td>
<td>0.114</td>
<td>0.250</td>
</tr>
<tr>
<td>RDexpense</td>
<td>1.446e+08</td>
<td>3.624e+08</td>
<td>26269</td>
<td>5.745e+07</td>
<td>5.484e+09</td>
</tr>
<tr>
<td>Patent</td>
<td>43.70</td>
<td>83.50</td>
<td>0</td>
<td>20</td>
<td>882</td>
</tr>
<tr>
<td>Invention</td>
<td>14.90</td>
<td>28.70</td>
<td>0</td>
<td>6</td>
<td>407</td>
</tr>
</tbody>
</table>

**Table 2: Correlation analysis of main variables.**

<table>
<thead>
<tr>
<th>lnRDexp</th>
<th>lnRDexp</th>
<th>Taxincen</th>
<th>Lnasset</th>
<th>Asset-liab</th>
<th>ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxincen</td>
<td>0.061**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lnasset</td>
<td>0.647***</td>
<td>−0.101***</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset-liab</td>
<td>0.0500</td>
<td>0.041***</td>
<td>0.0130</td>
<td>0.0329***</td>
<td>1</td>
</tr>
<tr>
<td>ROA</td>
<td>0.135***</td>
<td>−0.299***</td>
<td>0.0130</td>
<td>−0.329***</td>
<td>1</td>
</tr>
</tbody>
</table>

_T-statistics in parentheses:*** p<0.01, ** p<0.05, * p<0.1._

**Table 3: Tax incentive policies-innovation input model.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Mixed</th>
<th>(2) FE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxincen</td>
<td>3.973***</td>
<td>0.754*</td>
</tr>
<tr>
<td>Lnasset</td>
<td>0.782***</td>
<td>0.892***</td>
</tr>
<tr>
<td>Asset-liab</td>
<td>−0.290</td>
<td>−0.172</td>
</tr>
<tr>
<td>ROA</td>
<td>2.389***</td>
<td>0.007</td>
</tr>
<tr>
<td>Constant</td>
<td>0.356</td>
<td>−1.564</td>
</tr>
</tbody>
</table>

_T-statistics in parentheses:*** p<0.01, ** p<0.05, * p<0.1._

**Table 4: Tax incentive policies-innovation output model.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Poisson Patent</th>
<th>(2) Mixed Patent</th>
<th>(3) Poisson Invention</th>
<th>(4) Mixed Invention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxincen</td>
<td>1.314***</td>
<td>94.175</td>
<td>3.573***</td>
<td>64.315***</td>
</tr>
<tr>
<td>Lnasset</td>
<td>0.583***</td>
<td>30.510***</td>
<td>0.588***</td>
<td>10.404***</td>
</tr>
<tr>
<td>Asset-liab</td>
<td>0.103**</td>
<td>−5.074</td>
<td>0.054</td>
<td>−2.055</td>
</tr>
<tr>
<td>ROA</td>
<td>5.038***</td>
<td>262.513***</td>
<td>4.640***</td>
<td>88.536***</td>
</tr>
</tbody>
</table>

_T-statistics in parentheses:*** p<0.01, ** p<0.05, * p<0.1._

**Table 5: Tax incentive policies-innovation input (property right) model.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>(5) Other Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxincen</td>
<td>6.736***</td>
</tr>
<tr>
<td>Lnasset</td>
<td>0.335***</td>
</tr>
<tr>
<td>Asset-liab</td>
<td>0.110</td>
</tr>
<tr>
<td>ROA</td>
<td>5.503***</td>
</tr>
</tbody>
</table>

_T-statistics in parentheses:*** p<0.01, ** p<0.05, * p<0.1._

---
other types of enterprises [19]. Therefore, under the influence of tax incentive policies, the enthusiasm for innovation input of private enterprises will be correspondingly reduced. When it comes to enterprise innovation investment, high-tech enterprise is an enterprise type that we cannot ignore. Under the guidance of many innovation incentive policies, in recent years, enterprises have been paying more attention to R&D investment to meet the evaluation standards of high-tech enterprises, so as to further obtain more preferential policies. Therefore, we classify sample enterprises according to whether the enterprise is high-tech enterprise or not. From the number of observation of the two sample groups in Table 6, it can be seen that non-high-tech enterprises account for a higher proportion. The model results show that, both for high-tech and non-high-tech enterprises, the tax incentive policy have a significant promotion effect on enterprise innovation investment. Even non-high-tech enterprises have a more obvious promotion effect, which is different from the hypothetical expectation, the model fitting degree of high-tech enterprises group is better and the result is more convincing. It might be that high-tech enterprises have enjoyed tax incentive policies for many years [30], and the marginal effect of policy facilitation is degraded. And the non-high-tech enterprises need to make full use of the tax incentive policy to obtain more benefit, so the effect of the tax incentive policy will be more obvious on non-high-tech enterprises.

The inspection of high-tech enterprise finished, followed by the further inspection according to the classification of industries. After the model analysis of all industries involved in the sample, the two industries with the largest sample size, manufacturing industry (777/1037) and technical service industry (109/1037), were selected for the results display in Table 7. The analysis results show that tax incentive policies have significant positive correlation with enterprise innovation input in both manufacturing and technical service industries, and the promotion effect is more obvious in technical service industries. It is inseparable from the fact the technology services industry enjoys more tax incentive policies. Besides, from Table 7, we can also see that among the listed enterprises, manufacturing enterprises account for the largest proportion. Therefore, the research on promotion effect of tax incentive policy on enterprise innovation investment for the manufacturing enterprises appears to be of practical significance.

Finally, we look at the effect of the heterogeneity factor district on the model influence mechanism (Table 8). From the geographical point of view, the number of listed companies in Hangzhou area is the most, Ningbo followed, Wenzhou the least. In city Hangzhou group, tax incentive policy has a significant promoting effect on enterprise innovation input, but in city Ningbo group and city Wenzhou group, there is promoting effect, but not significant. It may be related to the small number of enterprises in the sample group, or due to the regional policy difference. We know that city Hangzhou, as the provincial capital of the district, naturally has some advantages in the development and implementation of regional policies. Therefore, there will be more innovation incentive policies for enterprises in city Hangzhou to attract high-tech enterprises to enter, so as to stimulate the innovation vitality of the city, which is the administrative regional advantage that city Ningbo and City Wenzhou does not have as an ordinary city.

**5. Conclusion and Discussion**

5.1. Conclusion. From the above data analysis, it can be seen that, for the listed companies in city Hangzhou, Ningbo and Wenzhou, the tax incentive policy has a significant promoting effect on the innovation activities of enterprises. All the hypothesis are be supported (Table 9). On the one hand, it can promote the innovation input of enterprises, consistent with previous studies [31, 32], which support the hypothesis one; on the other hand, it can also promote the innovation output of enterprises, no matter the quantity or quality of the innovation output, which support the hypothesis two and enrich the current research [23]. At the same time, heterogeneous factors do affect the effect of tax incentives on enterprise innovation input, which support the hypothesis three [29], but different from (Martinsson, 2017). By the property, the tax incentive effect on the innovation
activities of the private enterprise and non-high-tech enterprise is more evident. By the industry, manufacturing and technology industry, as top 2 industries with more industrial strength on economics and innovation, affected by tax incentives more than other industries. And by the district, the effect is more significant in the listed companies in Hangzhou, which is the capital of the district with more political resource [22].

5.2. Discussion. In this way, we can find that the targeted expectation of tax incentive policies can effectively promote the innovation input of enterprises, so as to further improve the innovation out of enterprises. And we can provide some suggestions to management of enterprise management and policy-makers.

For the enterprise management, in order to achieve the sustainable development for the future, continuous innovation is the strategic direction that must be chosen. In this way, huge innovation investment is also an important cost factor that enterprises need to consider. As a result, it is an effective way for enterprises to reduce the innovation cost if they can take advantage of the tax incentive policies from the aspects of preferential tax base and preferential tax rate. On the one hand, the increased innovation investment can enable enterprises to enjoy preferential tax base policies (additional deduction of R&D expenses). On the other hand, abundant innovation outputs can also help enterprises meet the standards of high-tech enterprises, so as to enjoy the preferential tax rate exclusive by high-tech enterprises. No matter the enterprise is a private enterprise, in a high-tech industry or located in a big city, continuous innovation will inevitably become an effective tool to enhance its competitiveness in the future.

For the policy maker, targeted policies need to be designed to guide enterprise innovation activities according to specific conditions. First of all, tax incentives can be carried out differently for different kind of enterprises, due to the property right. Compared with state-owned enterprises and foreign-owned enterprises, private enterprises pay different priorities, which also need to be considered in policy guidance. For example, the innovation of private enterprises is more likely to affected by financing constraints, which need to be taken into consideration when planning tax incentive policies. Secondly, for manufacturing enterprises and high-tech enterprises, we can carry out focused innovation guidance through tax incentive policies. Since these two industries are the foundation of China. Especially for the traditional manufacturing industry, technological innovation may have no urgent demand compared with other high-tech industries. But innovation is essential to seek longer development and enter a broader market. Then, policy makers can use tax incentive policies to guide the innovation activities of the huge manufacturing industry, providing strong support for the national development strategy. For example, tax incentives can be given according to the increased innovation investment of enterprises, but attention should be paid to avoid enterprises who deliberately whiten the innovation investment in order to get the tax incentive [24]. In addition, flexible and autonomous regional policies should be constructed according to specific regions. Although tax regulations at the national level are important, the different characteristics of regional market environment should be considered when

<table>
<thead>
<tr>
<th>No. of hypothesis</th>
<th>Hypothesis description</th>
<th>Support or not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1</td>
<td>H1: tax incentive policies can promote the innovation input of enterprises.</td>
<td>YES</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>H2: tax incentive policies can promote the innovation output of enterprises</td>
<td>YES</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>H3: heterogeneous factors (H3a: Property right nature, H3b: high-tech enterprise, H3c: Industry type, H3d: district) will affect the effect between tax incentive policies and enterprise innovation input.</td>
<td>YES</td>
</tr>
</tbody>
</table>

Table 8: Tax incentive policies-innovation input (district) model.

<table>
<thead>
<tr>
<th>Variables</th>
<th>HZ</th>
<th>NB</th>
<th>WZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxincen</td>
<td>4.980*** (9.11)</td>
<td>1.408 (1.11)</td>
<td>0.231 (0.16)</td>
</tr>
<tr>
<td>Lnasset</td>
<td>0.786*** (24.58)</td>
<td>0.685*** (11.20)</td>
<td>0.952*** (11.04)</td>
</tr>
<tr>
<td>Asset-liab</td>
<td>0.065 (0.32)</td>
<td>-0.662* (-1.66)</td>
<td>-0.716 (-1.03)</td>
</tr>
<tr>
<td>ROA</td>
<td>2.709*** (6.74)</td>
<td>3.275*** (2.86)</td>
<td>-0.089 (-1.15)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.147 (0.22)</td>
<td>2.613* (1.97)</td>
<td>-2.843 (-1.60)</td>
</tr>
<tr>
<td>Observations</td>
<td>622</td>
<td>327</td>
<td>88</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.577</td>
<td>0.308</td>
<td>0.657</td>
</tr>
</tbody>
</table>

$^\text{t-statistics in parentheses}^{***} p < 0.01, ^{**} p < 0.05, ^{*} p < 0.1.$
specific implementation. Therefore, it is necessary to set supplementary policies for support at the regional level. Such stratified and classified tax policy formulation can more actively and effectively guide enterprises to carry out innovative activities and improve their innovation strength.

Data Availability

The data that support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare no conflicts of interest.

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