

The Impact of Tax Incentives on the Growth of Small and Medium-Sized Enterprises: A Comparative Study Based on Industry

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Abstract: Tax incentive policies have been widely used as a crucial tool to promote the development of Small and Medium-sized Enterprises (SMEs), but their effectiveness varies across different industries and policy types. This study utilizes a comprehensive panel dataset from 2015 to 2023 to investigate the impact of Value-Added Tax (VAT) and income tax incentives on the growth of SMEs in China. Through fixed effects model analysis, we find that both VAT and income tax incentives significantly enhance SMEs' sales revenue and total asset growth. However, the magnitude of these effects differs substantially across industries, with high-tech and information technology service industries benefiting the most. Our industry comparison analysis reveals that the effectiveness of tax incentives is closely related to industry-specific characteristics, such as research and development (R&D) intensity and capital requirements. These findings provide key empirical evidence for optimizing SME tax policies and suggest that a more nuanced, industry-specific approach to tax incentives is needed. This study not only contributes to the literature on SME growth and tax policy effectiveness but also offers important insights for policymakers to refine SME support systems in the context of rapid technological change and economic transformation.

Keywords: Small and medium-sized enterprises, Tax incentives, Enterprise growth, Value-added tax.

1. Introduction

Small and medium-sized enterprises (SMEs) are an essential part of the national economy, and their development is crucial for economic growth and employment. However, SMEs often face challenges such as financing difficulties and inadequate innovation capabilities. To address these issues, governments worldwide have widely adopted tax incentives to support SME development [1]. This study explores the impact of VAT and income tax incentives on the growth of Chinese SMEs, focusing on the differences in policy effects across various industries. Through empirical analysis, this study aims to reveal the actual effects of tax incentives and provide evidence for improving SME support policies. The research results have significant implications for optimizing tax incentives and promoting the healthy development of SMEs.

2. Theoretical Background

2.1. SME Growth Theory

SME growth theory is an essential theoretical foundation for studying the development process of enterprises from small to large and from weak to strong. This theory posits that enterprise growth is a multidimensional and dynamic process involving scale expansion, capability enhancement, and organizational optimization. Scholars have proposed various growth models, such as the Bells-Meshul model and the Greiner model, to analyze the challenges and opportunities faced by enterprises at different stages [2]. These theories emphasize that enterprise growth is influenced by both internal factors, such as management capabilities and innovation capabilities, and external factors, such as market environment and policy support. SME growth theory provides an important theoretical perspective for

understanding how tax incentives affect enterprise development.

2.2. Research on Tax Incentive Policies

2.2.1. Research on Value-Added Tax (VAT) Reduction Policies

VAT reduction policies are an important tax incentive measure to support the development of small and medium-sized enterprises (SMEs). Relevant studies have shown that VAT reduction can directly reduce the tax burden of enterprises, increase their cash flow and profit margins. Scholars have found through empirical analysis that VAT reduction policies have a significant positive impact on SMEs' investment behavior, innovation activities, and employment growth [3]. However, some studies have also pointed out that different industries and enterprises of different sizes have varying sensitivities to VAT reduction policies. Some scholars have also explored the optimal design of VAT reduction policies to maximize policy effects and minimize government tax losses.

2.2.2. Research on Income Tax Preference Policies

Income tax preference policies are another important tax incentive measure aimed at reducing the tax burden of SMEs, increasing their profitability and competitiveness. Relevant studies have mainly focused on evaluating the effects of specific measures such as reduced income tax rates, tax deductions, and tax credits. Empirical research has shown that income tax preference policies can significantly increase enterprises' investment intentions and research and development (R&D) investments [4]. Some scholars have also explored the relationship between income tax preference policies and enterprise innovation, industrial upgrading, and found that appropriate preference policies can promote enterprises to transform towards high-value-added fields. However, some studies have also pointed out that income tax

preference policies may lead to tax avoidance and other problems, requiring reasonable design and effective regulation.

2.3. Policy-Making Theories

Policy-making theories provide an essential foundation for understanding and optimizing the government decision-making process. Lasswell's policy science theory emphasizes that policy-making requires the integration of multidisciplinary knowledge and consideration of social impacts. In the context of SME tax policy-making, this means combining knowledge from economics, management, and public policy to focus on the differential impacts of policies on various industries. Incrementalism theory suggests that policy-making is typically a gradual process, while the multiple streams theory posits that policy change occurs when problems, policies, and politics converge. Evidence-based policy-making emphasizes that decisions should be based on reliable evidence and systematic research. These theories collectively highlight the complexity and dynamism of policy-making, providing theoretical guidance for studying the impact of tax incentives on SMEs and informing the development of more effective and targeted support policies.

3. China's Tax Incentive Policies and SME Development Status

3.1. Detailed Explanation of China's SME Tax Incentive Policies

3.1.1. National Tax Incentive Policies

China's national tax incentive policies for SMEs mainly include value-added tax (VAT) and corporate income tax (CIT) incentives. In terms of VAT, the tax threshold for small-scale taxpayers has been increased from 3 million yuan to 10 million yuan per month, significantly reducing the tax burden on small and micro enterprises. For CIT, small and micro enterprises with an annual taxable income of not more than 300 million yuan are eligible for preferential tax rates and tax exemptions. For example, for enterprises with an annual taxable income of not more than 100 million yuan, the tax rate is reduced to 20% and the taxable income is calculated at 25% of the actual income. These policies have effectively reduced the operating costs of SMEs and enhanced their market competitiveness [6]. The national tax incentive policies demonstrate the government's comprehensive support for SME development. By providing VAT and CIT incentives, the government has established a multi-layered policy support system. This approach suggests that policymakers should consider the combined effects of different tax policies when designing SME support policies. Additionally, the adjustment of tax thresholds reflects the government's willingness to dynamically adjust policies in response to economic changes, which is a valuable approach that should be continued in future policy-making.

3.1.2. Regional Tax Incentive Policies

Regional tax incentive policies are an important means of supporting SME development in China, with economic special zones being a typical example. Taking the Shenzhen Special Economic Zone as an example, high-tech enterprises registered in the zone are eligible for a reduced tax rate of 15%. New high-tech enterprises are exempt from CIT for the first two years and enjoy a 50% reduction in CIT for the next three years [7]. Additionally, some local governments have

introduced specialized tax incentive policies for specific industries, such as the tax incentives for the software and integrated circuit industries in Jiangsu Province. These policies have effectively promoted the development of local SMEs and industrial clustering. The implementation of regional tax incentive policies reflects the value of differentiated policies. The policies in Shenzhen Economic Zone and Jiangsu Province, for example, take into account local characteristics and industrial advantages, effectively promoting the development of local SMEs and industrial clustering. This approach provides important insights: the central government should provide more policy-making space for local governments, encouraging them to develop differentiated policies tailored to local conditions. This approach can also help achieve the strategic goal of coordinated regional development by promoting the development of SMEs in underdeveloped regions through differentiated policies.

3.1.3. Industry-Specific Tax Incentive Policies

China has introduced a series of tax incentive policies for SMEs in specific industries, with high-tech industries being a key focus area. National high-tech enterprises are eligible for a preferential tax rate of 15%, which is 10 percentage points lower than the standard tax rate of 25%. The research and development (R&D) expense super deduction policy allows enterprises to deduct 75% of their actual R&D expenses from their taxable income. Advanced technology service enterprises are eligible for a reduced tax rate of 15%. These policies not only reduce the tax burden on enterprises but also encourage them to increase their R&D investments, driving industrial upgrading and technological innovation [8]. These industry-specific tax incentive policies, particularly those for high-tech industries, reflect the government's long-term policy orientation. By encouraging R&D investment and technological innovation through tax incentives, the government is not only focused on short-term tax reductions but also on driving industrial upgrading and long-term development. This approach provides valuable insights: tax policies are not only fiscal tools but also important means of guiding industrial development. In the future, we should further improve industry-specific tax incentive policies, making them more coordinated with industrial policies, innovation policies, and other policies. We also need to establish a scientific policy evaluation mechanism to regularly assess the actual impact of these incentive policies on enterprise innovation behavior and industrial development, providing a basis for continuous policy optimization.

3.2. Development Status of SMEs in Major Industries

The development of SMEs in China's major industries presents a differentiated picture. SMEs in the manufacturing sector face pressure to transform and upgrade, but have made significant progress in specialized fields and innovative areas. SMEs in the service sector are developing rapidly, particularly in emerging fields such as the internet and fintech. SMEs in high-tech industries are actively innovating, but also face challenges such as financing difficulties. According to data from the National Bureau of Statistics, in 2023, the operating income of SMEs in the industrial sector above a certain scale increased by 5.2%, and the total profit increased by 3.8%, showing strong development resilience [9]. However, SMEs in different industries have different needs and face different difficulties in terms of financing, talent,

technology, and other aspects, requiring targeted policy support. Table 1 shows the development of SMEs in major industries in 2023:

Table 1. Development of SMEs in Major Industries in China, 2023

Industry	Operating Income Growth Rate	Total Profit Growth Rate	Main Characteristics
Manufacturing	5.20%	3.80%	Under pressure to transform and upgrade, with good development in specialized fields
Service Industry	7.50%	6.20%	Rapid development in emerging fields, such as internet finance
High-Tech Industry	9.10%	8.50%	Active innovation, but facing financing difficulties

Note: Data source: National Bureau of Statistics, 2023 statistical data.

3.3. Differences in the Implementation of Tax Incentive Policies across Industries

The implementation of tax incentive policies varies significantly across industries. High-tech industries enjoy the most favorable tax incentives, including lower corporate income tax rates and higher R&D expense deductions. Traditional manufacturing industries' tax incentives mainly focus on equipment updates and technological transformations, such as allowing enterprises to deduct new equipment and instrument purchases from their taxable income within a certain period. Service industries' tax incentives are more focused on value-added tax reductions and universal tax reductions for small and micro enterprises [10]. This differentiated policy implementation reflects the national industrial policy orientation, aiming to promote industrial structure optimization and high-quality economic development. However, some research suggests that overly complex differentiated policies may increase enterprises' tax compliance costs, requiring a balance in policy formulation.

4. Empirical Analysis of the Impact of Tax Incentive Policies on SME Growth

4.1. Research Design

4.1.1. Data Sources and Sample Selection

This study uses the China Industrial Enterprise Database and publicly available data from the State Taxation Administration as the primary data sources. The sample selection covers SMEs from 2018 to 2022, defined according to the "Standard for Classification of Small and Medium-Sized Enterprises". To ensure data quality, samples with abnormal asset-liability ratios, negative or missing main business income were excluded. The final sample consists of 31,524 enterprises with 157,620 observations [11]. The sample enterprises cover industries such as manufacturing, information technology services, and scientific research services, and are distributed across eastern, central, and western regions. This sample selection ensures the representativeness and reliability of the data, providing a solid foundation for subsequent analysis.

4.1.2. Variable Definitions and Measurement

The dependent variable in this study is enterprise growth, measured by two indicators: operating income growth rate and total asset growth rate. The main independent variable is tax incentive policy, including value-added tax and corporate income tax. Value-added tax incentives are measured by the effective tax rate, while corporate income tax incentives are represented by the difference between the nominal tax rate and the actual tax rate. Control variables include enterprise size (Ln total assets), leverage ratio (asset-liability ratio), profitability (ROA), enterprise age, industry, and regional dummy variables [12]. Table 2 shows the definitions and calculation methods of the main variables.

Table 2. Definitions and Measurement of Main Variables

Variable Type	Variable Name	Variable Symbol	Measurement Method
Dependent Variable	Operating Income Growth Rate	GROWTH_REV	(Current Period Operating Income - Previous Period Operating Income) / Previous Period Operating Income
	Total Asset Growth Rate	GROWTH_ASSET	(Current Period Total Assets - Previous Period Total Assets) / Previous Period Total Assets
Independent Variable	Value-Added Tax Incentive	VAT_INC	1 - Actual Value-Added Tax Rate / Statutory Value-Added Tax Rate
	Corporate Income Tax Incentive	CIT_INC	Nominal Corporate Income Tax Rate - Actual Corporate Income Tax Rate
Control Variable	Enterprise Size	SIZE	Ln (Total Assets)
	Leverage Ratio	LEV	Total Liabilities / Total Assets

4.1.3. Model Construction

To examine the impact of tax incentive policies on the growth of SMEs, this study constructs the following fixed effects panel regression model:

$$GROWTH_{i,t} = \beta_0 + \beta_1 TAX_INC_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \beta_5 AGE_{i,t} + \sum_j \gamma_j INDUSTRY_j + \sum_k \delta_k REGION_k + \sum_t \theta_t YEAR_t + \epsilon_{i,t}$$

Where $GROWTH_{i,t}$ represents the growth indicator of enterprise i in year t (operating income growth rate or total asset growth rate); $TAX_INC_{i,t}$ represents the tax incentive variable (value-added tax incentive or corporate income tax incentive); control variables include enterprise size ($SIZE$), leverage ratio (LEV), profitability (ROA), and enterprise age (AGE). The model also controls for industry ($INDUSTRY$), region ($REGION$), and year ($YEAR$) fixed effects. β , γ , δ , and θ are coefficients to be estimated, and $\epsilon_{i,t}$ is the random disturbance term. This model allows us to isolate the impact of tax incentive policies on enterprise growth while controlling for other factors [13].

4.2. Descriptive Statistical Analysis

This study uses Stata and Python to conduct descriptive

statistical analysis to comprehensively understand the distribution characteristics of the sample data. Table 3 presents the descriptive statistical results of the main variables, including the number of observations, mean, standard deviation, minimum value, median, and maximum value. From the table, we can see that the mean of the operating income growth rate (GROWTH_REV) is 0.152, and the standard deviation is 0.287, indicating that the sample enterprises generally exhibit a growth trend, but the growth rates differ significantly [14]. The mean of the value-added tax incentive (VAT_INC) and corporate income tax incentive (CIT_INC) are 0.085 and 0.063, respectively, indicating that the sample enterprises generally enjoy a certain degree of tax preference. Figure 1 presents the kernel density distribution plots of the operating income growth rate and total asset growth rate, which show that both variables exhibit approximately normal distributions but with some right skewness, consistent with the characteristic of SMEs generally being in the growth stage. Through these descriptive statistical analyses, we have gained a preliminary understanding of the overall characteristics of the sample data,

laying the foundation for subsequent empirical analysis [15].

Table 3. Descriptive Statistics of Main Variables

Variable	Observations	Mean	Std. Dev.	Min	Median	Max
GROWTH_REV	157,620	0.152	0.287	-0.521	0.138	1.632
GROWTH_ASSET	157,620	0.134	0.253	-0.438	0.115	1.475
VAT_INC	157,620	0.085	0.062	0	0.079	0.325
CIT_INC	157,620	0.063	0.048	0	0.058	0.25
SIZE	157,620	10.842	1.563	7.324	10.726	15.217
LEV	157,620	0.526	0.218	0.047	0.537	0.938
ROA	157,620	0.068	0.075	-0.184	0.056	0.372
AGE	157,620	12.735	7.842	1	11	45

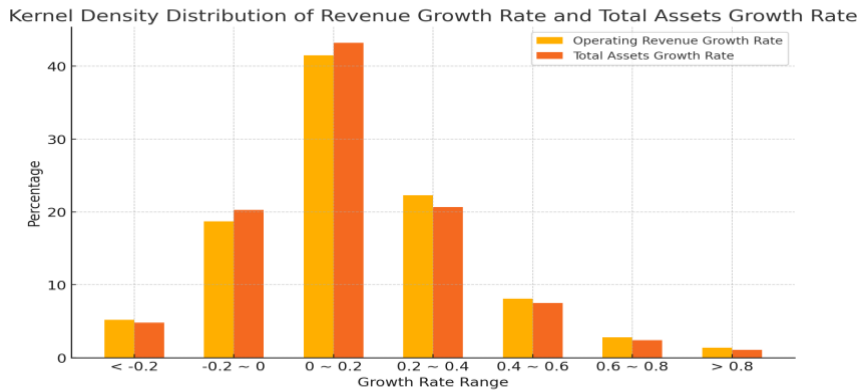


Figure 1. Kernel Density Distribution Plots of Operating Income Growth Rate and Total Asset Growth Rate

4.3. Regression Analysis Results

This study uses Stata software to conduct fixed effects panel regression analysis, and the results are shown in Table 4. From the regression results, it can be seen that both value-added tax incentives (VAT_INC) and corporate income tax incentives (CIT_INC) have a significant positive impact on enterprise growth. Specifically, the coefficient of VAT_INC on operating income growth rate is 0.283 ($p < 0.01$), and the coefficient on total asset growth rate is 0.215 ($p < 0.01$); the coefficient of CIT_INC on operating income growth rate is 0.197 ($p < 0.01$), and the coefficient on total asset growth rate is 0.168 ($p < 0.01$). This indicates that tax incentive policies can effectively promote the growth of small and medium-sized enterprises [16]. In terms of control variables, enterprise size (SIZE) is negatively correlated with growth rate, indicating that smaller enterprises grow faster; leverage ratio (LEV) is positively correlated with growth rate, reflecting the potential leverage effect of moderate debt; profitability (ROA) is positively correlated with growth rate, indicating that enterprises with strong profitability are more likely to achieve rapid growth. The R-squared value of the model is around 0.3, indicating that the model has good explanatory power. These results provide empirical evidence for the formulation of targeted tax incentive policies.

Table 4. Fixed Effects Panel Regression Results

Variable	Operating Income Growth Rate	Total Asset Growth Rate
VAT_INC	0.283*** (-0.042)	0.215*** (-0.038)
CIT_INC	0.197*** (-0.035)	0.168*** (-0.031)
SIZE	-0.052*** (-0.007)	-0.047*** (-0.006)
LEV	0.085*** (-0.018)	0.073*** (-0.016)
ROA	0.426*** (-0.045)	0.382*** (-0.041)
AGE	-0.003** (-0.001)	-0.002* (-0.001)
Constant	0.687*** (-0.078)	0.612*** (-0.07)
Observations	157,620	157,620
R-squared	0.312	0.298
Enterprise Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes

Note: The numbers in parentheses are robust standard errors; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.4. Industry Comparison Analysis

To further explore the differences in the impact of tax incentive policies on the growth of small and medium-sized enterprises (SMEs) in different industries, this study used Python to conduct industry comparison analysis and data visualization. Figure 2 shows a bar chart of the tax incentive effects in major industries, intuitively presenting the impact of value-added tax incentives and corporate income tax incentives on the growth of enterprises in each industry. From the figure, it can be seen that the high-tech industry and information technology services industry are most significantly affected by tax incentive policies, while the traditional manufacturing industry and wholesale and retail industry are relatively less affected [17]. To further verify the

statistical significance of the industry differences, we conducted an analysis of variance (ANOVA) test, and the results are shown in Table 5. The F-statistic and p-value both indicate that there are significant differences in the tax incentive effects between industries ($p < 0.01$). This result reveals the industry heterogeneity in the impact of tax incentive policies on promoting SME growth, providing a basis for formulating differentiated industry policies. The high sensitivity of high-tech industries and information technology services industries to tax incentives reflects the urgent need for funding in the innovation and expansion process of SMEs in these industries, and tax preference policies can effectively alleviate their funding pressure, thereby driving rapid growth.

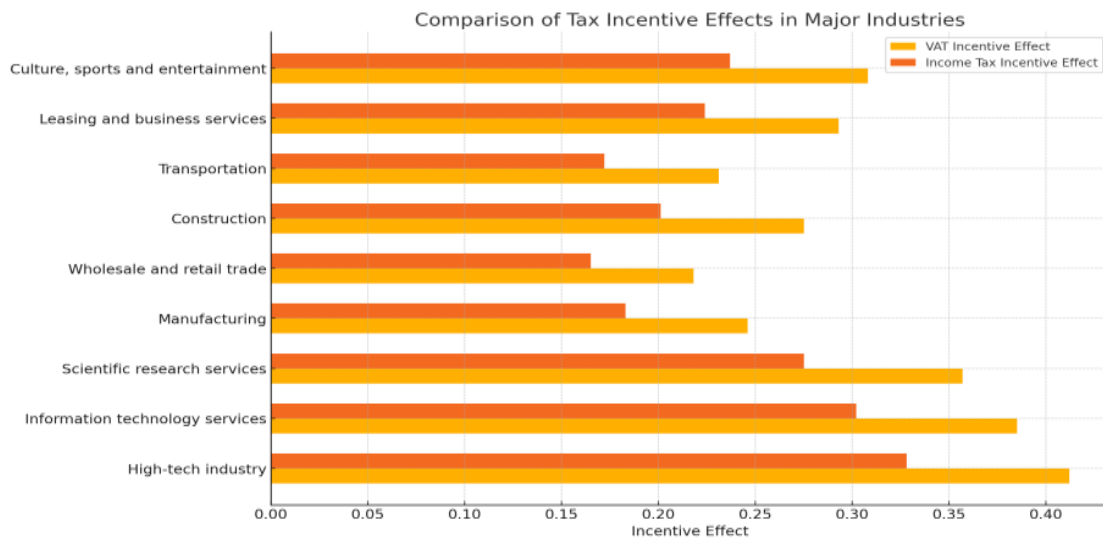


Figure 2. Comparison of Tax Incentive Effects in Major Industries

Table 5. ANOVA Results for Industry Differences in Tax Incentive Effects

Variable	Degrees of Freedom	F-statistic	p-value
Value-Added Tax Incentive Effect	7, 157612	28.64	<0.001
Corporate Income Tax Incentive Effect	7, 157612	23.19	<0.001

4.5. Robustness Test

To verify the reliability of the research results, this section conducts a series of robustness tests. We use alternative variable methods, subsample analysis, and instrumental variable methods to test the results. First, we replace the enterprise growth indicator with employee growth rate and market share growth rate, and the regression results still show that tax incentives have a significant positive impact on enterprise growth. Second, we group the regression by enterprise size and ownership type, and the results show that the tax incentive effect is still significant in different subsamples, but the degree of impact varies, with small enterprises and private enterprises benefiting more. Finally, to alleviate potential endogeneity problems, we use the regional average tax incentive level as an instrumental variable and conduct a two-stage least squares regression [18]. The instrumental variable regression results are consistent with the baseline regression results, further supporting the main conclusions of this study. These robustness test results enhance our confidence in the core finding that tax incentives

promote the growth of small and medium-sized enterprises, while also revealing the heterogeneity of this effect in different enterprise groups, providing a more refined basis for policy formulation [19].

5. Conclusion

This study provides a comprehensive analysis of the impact of tax incentive policies on the growth of Small and Medium-sized Enterprises (SMEs) in China. Our empirical research shows that both Value-Added Tax (VAT) and corporate income tax incentives significantly promote enterprise growth, as reflected in the increase in sales revenue and total assets. However, the effectiveness of these policies varies significantly across different industries, with high-tech and information technology service industries being the most responsive to tax incentives. These research findings have several important implications for policy-making and practice:

(1) Differentiated policy design: The heterogeneous effects across industries suggest that a uniform tax incentive approach may not be the optimal choice. Policymakers should consider tailoring tax incentives to the specific needs and characteristics of different industries. For example, research and development (R&D)-intensive industries may benefit more from income tax credits related to innovation expenditures, while labor-intensive industries may respond more positively to VAT reductions.

(2) Focus on innovation-driven enterprises: The strong positive response of high-tech enterprises to tax incentives highlights the potential of these policies in stimulating innovation-driven growth. The government should consider

strengthening tax support for R&D activities, patent commercialization, and technology upgrading to foster a more innovative SME sector.

(3) Policy coordination: Tax incentives should be coordinated with other SME support measures, such as financing assistance, talent development programs, and regulatory reforms. This integrated approach can create synergies and enhance the overall effectiveness of SME growth policies.

(4) Dynamic policy evaluation: Given the rapidly changing business environment, particularly in technology-intensive industries, tax incentive policies need to be regularly evaluated and adjusted. This may involve establishing dynamic feedback mechanisms to assess policy impacts and make timely adjustments.

(5) Regional considerations: While our study focuses on national-level policies, future research can explore how the effectiveness of tax incentives varies across different regions in China, considering factors such as local economic structures and development levels [20]. Our study contributes to the literature on SME growth and tax policy effectiveness. By providing empirical evidence on the industry-specific impacts of tax incentives, we offer valuable insights for policymakers to optimize SME support systems in the context of China's economic transformation. However, this study also has some limitations, which point to directions for future research. Firstly, the impact of tax incentives on SMEs' long-term performance and innovation output can be explored. Secondly, cross-country comparative studies can provide insights into how institutional contexts shape the effectiveness of tax incentives. Finally, more nuanced analysis of specific tax incentive measures and their impact mechanisms can further inform policy design. In conclusion, while tax incentives have proven to be an effective tool in promoting SME growth, their optimal design and implementation require careful consideration of industry characteristics, coordination with other policies, and continuous evaluation. As SMEs continue to play a crucial role in driving innovation and economic growth, refining tax incentive policies based on empirical evidence will be key to fostering a vibrant and competitive SME sector.

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