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# Exploring the impact of tax cuts and fee reductions on general public revenue from the perspective of enterprises-- analysis based on Jiangsu Province

Fangyuan Zhou[1], Xiao Luo[2*]
[1]*Business School, University of Shanghai for Science & Technology*
[2]*SILC Business School, Shanghai University*
[*]*Corresponding Author*

***Abstract***
*Between 2016 and 2021, the Chinese government introduced a series of tax incentives and policy subsidies, including reductions in personal income tax, corporate income tax, and value-added tax. The government's tax cuts and fee reductions have released much vitality to the market. From the perspective of enterprises, it has become worthwhile to explore how the VAT tax cuts and corporate income tax cuts have impacted the general public budget revenue per capita. In this paper, we analyze how VAT and income tax cuts affect per capita general public budget revenue in Jiangsu Province from 2016 to 2020 using data on VAT and income tax cuts and some control variables and explore the impact of their geographical differences on the variables by dividing the sample into high-tech and non-high-tech zones in the heterogeneity analysis. The paper finds that both VAT tax cuts and corporate income tax cuts depress per capita public budget revenue in the current period, with the coefficient of the VAT counterpart variable being more significant. The lagged VAT reduction has a dampening effect on general public budget revenue, while the lagged CIT reduction boosts general public budget revenue. In the heterogeneity test between high-tech and non-high-tech zones, this lagged effect is more pronounced, with a minor dampening effect of VAT reduction and a more significant boosting effect of CIT reduction in high-tech zones.*

***Keywords:*** *China tax reform, VIT reduction, CIT reduction, High-tech enterprises, General public budget revenue*

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## I. Introduction

In recent years, China is experiencing a large-scale, substantial tax reduction process, the driving factors and background of which can be interpreted from two aspects. Domestically, China's economic development approach has gradually transformed from a high-speed quantitative development approach to a robust qualitative development approach, with the role of market decisions gradually increasing. The government needs to release more liquidity to the market. The 2020 epidemic has dramatically impacted the global economy from an international perspective. The unprecedented economic deterioration, the intensification of global competition for tax cuts and the increasingly complex external international trade pattern have led to more difficult economic challenges in China's transformation and upgrading, with the three significant demands of consumption, investment and exports falling back to a certain extent. The overall rate of economic growth is showing a downward trend. The government's large-scale efforts to reduce taxes and fees can play a counter-cyclical policy hedging role and substantially reduce the tax burden on SMEs to cope with the epidemic's impact, which is conducive to maintaining the market's stability while enhancing market confidence and ensuring stable economic development.

In May 2016, the policy was implemented nationwide. Since July 2017, the central government has reduced the VAT rate from four to three brackets, with the VAT rate for the manufacturing industry reduced from 17% to 16%. The VAT rate for the agricultural products industry was reduced from 13% to 11%. The VAT rate for transportation, construction and essential telecommunication services was reduced from 11% to 10%. In 2018, we continued implementing a wide range of tax and fee reductions, including tax exemptions and abolishing or suspending administrative fees. According to the Announcement on Policies Relating to the Deepening of VAT Reform, from April 2019, the tax rate has been adjusted to 13% for the original 16% tax rate and 9% for the initial 10% tax rate. Regarding corporate income tax, for the high-tech fields that the state supports, enterprises can enjoy preferential policies such as a 15% corporate income tax rate and a 75% additional deduction for R&D expenses. At the same time, to cope with the epidemic's impact, the state has

implemented preferential tax policies for service industries closely related to the lives of the masses to reduce enterprises' production and operation costs to help them resume work and production.

"Tax reduction" will undoubtedly significantly impact the macroeconomic operation and fiscal health as a fiscal policy measure that reduces the cost burdens of economic actors and promotes supply-side structural reform. This paper aims to determine the impact of VAT tax reduction and corporate income tax reduction on per capita general public budget revenue from the perspective of enterprises by building a panel data model with the fiscal revenue of cities in Jiangsu Province as the data sample.

## II. Literature Review

A country's fiscal revenue is closely related to its level of economic development. Therefore, to study how the governmental efforts to reduce taxes and fees affect the per capita general public budget revenue, we can take the theoretical development and application of taxation and social economy as the entry point [1]. The classical school of political economy laid the foundation of taxation theory in the middle of the 17th century. In the era of liberal capitalism, Adam Smith put forward the idea of taxation without heavy taxation. His view was that all taxes would reduce the income of all social classes and serve the fiscal revenue, affecting capital accumulation. By the twentieth century, the Keynesian school, from the point of view of aggregate demand management, emphasized tax cuts as a policy of camera choice due to the presence of price and wage rigidities in the downward phase of the economy and as a tool to cope with cyclical economic fluctuations [2]. In the stagflation crisis of the 1970s, the ideas of the supply school shone, which preferred permanent institutional tax cuts, arguing that the tax cut policy could adjust the resource allocation pattern between the government and the market in order to take advantage of the efficiency of the market, stimulate supply, and finally achieve the goal of increasing output. The theory can be illustrated by the "Laffer Curve" designed by its representative, Laffer, which shows that a high tax rate will negotiate the enthusiasm of microeconomic agents, weaken the vitality of producers and operators, and reduce enterprise income and thus affect the tax base. Therefore, reducing the burden for producers helps to reduce costs and increase supply and helps to expand the scale of production. Reducing taxes and fees leads to lower production costs and lays the foundation for producers to produce more [3].

The ideas of the supply school have laid the theoretical foundation for the tax system relief and reform in China. China's economic development approach of using labour cost advantages to expand exports and a high degree of factor inputs since the Economic Reform and Open-up has become unsustainable. The gradual loss of the demographic dividend means that China faces not a shortage of aggregate demand due to cyclical economic fluctuations but rather the development of potential productivity through innovation-driven development [4]. Wang (2005) uses government revenue to measure the macro tax burden level on a large scale to reduce the GDP growth rate by 0.02% for every 1% increase [5]. The government work to reduce taxes and fees was thus born, and the annual tax and fee reduction between 2018 and 2020 are more than 2 trillion yuan. During government work, scholars are very concerned about its impact on local government fiscal pressure and fiscal sustainability. Li and Long (2020) argue that in the context of unabated spending rigidity, tax and fee cuts will expand the fiscal gap of local governments and force them to raise debt [6], Guo (2019) also hold the same view [7].

Meanwhile, some scholars also point out that tax and fee reductions have significantly played a universal policy effect, greatly boosted market confidence, effectively improved market expectations [8], stimulated corporate investment and improved supply efficiency [9]. In a study by Liu, it was found that VAT rate reduction and expansion of VAT input credit could significantly stimulate business entry [10]. Although the tax reform will cause a reduction in state revenue, once the tax reduction effect is realized, the total tax revenue is bound to continue to grow in the future[11].

Combining the bottlenecks and problems China encountered during the economic transition period with the ideas of the supply school, the Chinese government proposed a government effort to reduce taxes and fees. The VAT tax cuts and corporate income tax cuts can facilitate the entry and output of firms. The extensive tax cuts have raised questions and concerns among scholars about the sustainability of fiscal revenues. The uncertainty of the transmission mechanism of tax cuts and fee reductions in the complex economic environment and the persistence of tax cuts make the policy effectiveness uncertain. Based on this, this paper chooses to analyze the impact of VAT tax reduction and corporate income tax reduction on per capita general public budget revenue by focusing on corporate tax reduction and further explore the difference between the two parts of tax cuts on per capita general public budget revenue in cities with high technology enterprises and cities with non-high technology enterprises and their lagged effects. The latter part is organized as follows: the first part empirically analyzes the impact of general public budget revenue by corporate VAT tax cuts and corporate income tax cuts and their lagged effects using provincial panel data. The second part analyzes the heterogeneity of high-tech companies and non-high-tech companies. Finally, the paper's main conclusions, shortcomings, and outlook are presented.

**Research Methodology and Data Selection**

In this paper, 65 observations are obtained by examining regional data from a data sample of 13 prefecture-level cities from 2016 to 2020. Among the variables concerning VAT reduction and corporate income tax, the financial data of all A-share listed enterprises in Jiangsu Province from 2016 to 2020 are selected for compilation and calculation in this paper. In order to avoid the influence of outliers, some samples with negative net profit and negative income tax expense, as well as data with apparent deviations in the calculation results, were excluded to ensure the integrity of data and reliability of results. After screening, the data of 2477 valid samples of A-share listed companies for each year were finally obtained. The data were obtained from China Statistical Yearbook, Jiangsu Statistical Yearbook 2016~2020, and the Wind database. Using descriptive statistics, we analyzed the data and determined how the explanatory variables influenced the explained variables. Then, the multiple cointegration test is used to determine whether there existed a strong correlation, and this phenomenon is removed to ensure the credibility of the model. Finally, a choice is made from the mixed OLS, fixed-effects, and random-effects models, followed by model estimation, which ultimately leads to the findings of this paper.

Table 1 Variable definition

| Variable Type | Symbols | Variable Meaning | Variable Description |
|---|---|---|---|
| Explained variables | GBRevenue_PC | General public budget revenue per capita | General public budget revenue of the region / resident population of the region |
| Explanatory variables | VAT_Re | VAT reduction | (17% - VAT paid by the enterprise / total revenue) *100, where VAT paid by the enterprise is the amount of taxes paid in the cash flow statement less the tax refunds received, less the measured corporate income tax |
| Control variables | CIT_Re | Corporate income tax reduction | (25%/15% - income tax expense/total profit) *100. |
| | Expense_PC | Per capita financial expenditure | General public budget expenditure of the region / resident population of the region |
| | GRP | Gross Regional Product | Gross Municipal Product |
| | Emp | Employment | Aged 16+, obtain labor remuneration |
| Dummy Variables | $\mu_i$ | Area | 1~13 |
| | $\nu_t$ | Year | 2016~2020 |

**Empirical Analysis**

The explanatory and explanatory variables are set for what we want to explore in this paper, along with references and theoretical foundations. Later, we will build an empirical analysis of the panel data model based on the set variables and their types.

$$GBRevenue\_PC_{it} = \alpha_0 + \alpha_1 VAT\_Re_{it} + \alpha_2 Expense\_PC_{it} + \alpha_3 InGBR_{it} + \alpha_4 InEmp_{it} + \mu_i + v_t + \varepsilon_{it}$$

$$GBRevenue\_PC_{it} = \alpha_0 + \alpha_1 CIT\_Re_{it} + \alpha_2 Expense\_PC_{it} + \alpha_3 InGBR_{it} + \alpha_4 InEmp_{it} + \mu_i + v_t + \varepsilon_{it}$$

$$GBRevenue\_PC_{it} = \alpha_0 + \alpha_1 VAT\_Re_{it-1} + \alpha_2 Expense\_PC_{it} + \alpha_3 InGBR_{it} + \alpha_4 InEmp_{it} + \mu_i + v_t + \varepsilon_{it}$$

$$GBRevenue\_PC_{it} = \alpha_0 + \alpha_1 CIT\_Re_{it-1} + \alpha_2 Expense\_PC_{it} + \alpha_3 InGBR_{it} + \alpha_4 InEmp_{it} + \mu_i + v_t + \varepsilon_{it}$$

In the above models, $\alpha_0$ represents the constant. $\alpha_i$ represents the coefficient of influence between the explanatory or control variables and the explained variables. *i* represents the ith prefecture-level city. *t* represents the year. $\varepsilon_{it}$ is the noise. $\mu_i$ represents the individual effect. $v_t$ represents the time effect.Model results can be improved by controlling the effect of the year. ln represents the natural logarithm, and since GRP and Emp are relatively large values, the natural logarithm processing will be performed to reduce the difference between the data.

Descriptive Statistics

Table 2 Descriptive statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| GBRevenue_PC | 65 | 0.8884 | 0.4384 | 0.3742 | 2.0245 |
| VAT_Re | 65 | 4.9597 | 1.2393 | 1.0852 | 8.0451 |
| CIT_Re | 65 | 4.7019 | 1.5453 | 1.0651 | 12.0741 |
| Expense_PC | 65 | 1.2009 | 0.2883 | 0.7232 | 2.1690 |
| lnGRP | 65 | 8.7099 | 0.5623 | 7.8145 | 9.9120 |
| lnEmp | 65 | 5.8521 | 0.3484 | 5.2694 | 6.6225 |

The number of numerical samples was all 65, the mean value of GBRevenue_PC was 0.8884, the standard deviation was 0.4384, the minimum value was 0.3742, and the maximum value was 2.0245, the mean

value of VAT_Re was 4.9597, the minimum value was 1.0852, and the maximum value was 8.0451. The mean value of CIT_Re was 4.7019. The minimum value was 1.0651, and the maximum value of 12.0741.

Correlation Analysis

The correlation analysis addresses the relationship between the two variables. Since other control variables are not added as references, the results of correlation analysis do not represent the regression results. However, they can be used as a preliminary judgment of the model's credibility. If the coefficient is more significant than 0.8, it is considered to have multicollinearity and the model needs to be corrected.

**Table 3** Correlation analysis

| Variables | GBRevenue_PC | VAT_Re | CIT_Re | Expense_PC | lnGRP | lnEmp |
|---|---|---|---|---|---|---|
| GBRevenue_PC | 1 | | | | | |
| VAT_Re | -0.7277*** | 1 | | | | |
| CIT_Re | -0.5674*** | 0.1978 | 1 | | | |
| Expense_PC | 0.9158*** | 0.064 | -0.0308 | 1 | | |
| lnGRP | 0.8220*** | 0.1601 | -0.044 | 0.7421*** | 1 | |
| lnEmp | 0.4937*** | 0.1813 | 0.0225 | 0.4012*** | 0.7140*** | 1 |

Significance Codes: 0.01 '***', 0.05'**', 0.1 '*',

The correlation coefficients of the explanatory variables VAT tax reduction and corporate income tax reduction and the explanatory variable per capita public budget revenue are -0.7277 and -0.5674, respectively, which have a significant correlation. The preliminary judgment is that the increase of VAT tax reduction and corporate income tax reduction will cause a decrease in per capita public budget revenue. The correlation coefficients of the control variables per capita fiscal expenditure, the regional GDP, the logarithm of regional employment and per capita public budget revenue are significant. The correlation coefficients between the control variables of fiscal expenditure per capita, the regional GDP's logarithm of regional employment and public budget revenue per capita are all significant. This indicates a proper selection of control variables. From the above table, we can find that the correlation coefficients are all less than 0.8. Therefore, we can initially judge that the data are not overly correlated.

Model Selection

This paper uses panel data, so the model used is determined by the F-test, LM-test and Hausman test values. Generally, we choose between the OLS model, fixed effects model and random effects model.

Table 4 Model test results

| | F test | | LM test | | Hausman test | |
|---|---|---|---|---|---|---|
| | Statistics | P value | Statistics | P value | Statistics | P value |
| Model1 | 22.03 | 0.0000 | 15.91 | 0.0000 | 31.29 | 0.0000 |
| Model2 | 24.59 | 0.0000 | 17.62 | 0.0000 | 31.55 | 0.0000 |
| Model3 | 16.18 | 0.0000 | 16.62 | 0.0000 | 22.70 | 0.0004 |
| Model4 | 18.18 | 0.0000 | 19.96 | 0.0000 | 21.92 | 0.0005 |

By judging the P-value of the F-test, we can choose the fixed-effects model. The judgment of the P-value of the LM test allows us to obtain the random effects model. Judgment of the P-value of the Hausman test allows us to choose the fixed-effects model. Thus, the fixed effects model is the model chosen for the study in this paper.

Using the same approach, models 2, 3, and 4 are estimated using a fixed effects model.

Regression analysis

A fixed-effects model with individual and year effects was used for estimation to ensure that the estimation results were accurate.

Table 5 Model 1, 2 results

| | (1) | (2) |
|---|---|---|
| Variables | GBRevenue_PC | GBRevenue_PC |
| VAT_Re | -0.3413*** | |
| | (-4.1265) | |
| CIT_Re | | -0.2286*** |

| | | |
|---|---|---|
| | | (-3.4653) |
| Expense_PC | 0.8623*** | 0.8681*** |
| | (13.2846) | (13.1553) |
| lnGRP | 0.4799*** | 0.4946*** |
| | (4.7004) | (4.6792) |
| lnEmp | -0.0930 | -0.0333 |
| | (-0.2524) | (-0.0866) |
| Constant | 4.5704** | 4.3338** |
| | (2.3268) | (2.2097) |
| Regional effects | YES | YES |
| Time effect | YES | YES |
| Observations | 65 | 65 |
| R-squared | 0.7937 | 0.7946 |
| Number of id | 13 | 13 |
| r2_a | 0.7250 | 0.7261 |
| F | 46.1762*** | 46.4192*** |

Significance Codes: 0.01 '***', 0.05'**', 0.1 '*',

The adjusted $R^2$ is 0.7250, which is relatively good. The P value of the F-test is 46.1762, significant at 99% confidence interval. The model passed the significance test in the overall. At this point, the impact coefficient of VAT reduction is -0.3413, significant at 99% confidence interval, and there is a significant negative impact. The per capita public budget revenue decreases with the increase of VAT reduction. Similarly, the regression results of model 2 show the coefficient of corporate income tax reduction is -0.2286, which also passes the test, indicating that the per capita general public budget revenue decreases with the increase of corporate income tax reduction. Each unit increase of corporate income tax reduction will cause the per capita public budget revenue to decrease by 0.2286 units. Each unit increase in corporate income tax cut causes an average decrease of 0.2286 units in public budget revenue per capita. The VAT cut and the corporate income tax cut will suppress the per capita public budget revenue in the current period, which aligns with our essential judgment.

Table 6 Hysteresis effect analysis

| Variables | (1)<br>GBRevenue_PC | (2)<br>GBRevenue_PC |
|---|---|---|
| L.VAT_Re | -0.1110*** | |
| | (-2.9472) | |
| L.CIT_Re | | 0.0817** |
| | | (2.2467) |
| Expense_PC | 0.8294*** | 0.8230*** |
| | (12.0185) | (12.1339) |
| lnGRP | 0.3936** | 0.3092* |
| | (2.6141) | (2.0157) |
| lnEmp | -0.5565 | -0.6769 |
| | (-1.3330) | (-1.5706) |
| Constant | 6.5226*** | 6.6023*** |
| | (2.9964) | (3.0695) |
| Region effect | YES | YES |
| Time effect | YES | YES |
| Observations | 52 | 52 |
| R-squared | 0.8258 | 0.8289 |
| Number of id | 13 | 13 |
| r2_a | 0.7461 | 0.7507 |
| F | 41.4757*** | 42.3950*** |

Significance Codes: 0.01 '***', 0.05'**', 0.1 '*',

As we can see, the coefficient of the one-period lag of VAT reduction is -0.1110, which has more than a 99% probability that the one-period lag of VAT reduction has a significant effect on the per capita public budget revenue. There is a significant adverse effect, which is reduced compared to the current period. The coefficient of 0.0817 for the lagged period of corporate income tax reduction is significant at 95%confidence interval, which means there is more than 95% probability that the lagged period of corporate income tax reduction has a positive effect on the current period of public budget revenue per capita, but the coefficient is low.

The number one source of tax revenue in China is VAT, and especially after the completion of the

"business tax to VAT" conversion, the proportion of VAT in tax revenue has further increased, which leads to a more obvious impact of the widespread VAT reduction on the per capita public budget revenue in the current period. In the process of VAT reduction, there is also the question of whether the transmission mechanism is smooth, depending on the industry. The reduction in the nominal VAT rate is theoretically good news for taxpayers. However, suppose companies sell goods in a buyer's market. In that case, it is easy for the tax reduction to be offset by price pressures from customers, which can lead to a disruption in the transmission mechanism and eventually to a transfer of benefits to the consumer.

Heterogeneity analysis

Since 2016, government efforts to reduce taxes and fees have also highly subsidized high-tech enterprises. Those that meet the criteria can enjoy preferential policies such as a 15% corporate income tax rate and a 75% additional deduction for R&D expenses. To investigate whether there is a significant difference in the effects of explanatory variables on the explanatory variables in high-tech zones (Suzhou, Lianyungang, Changzhou, and Wuxi) as well as in non-high-tech zones in other regions, the analysis is conducted as shown below.

Table 7 Heterogeneity analysis

| Variables | High-tech Zones GBRevenue_PC | Non-High-tech Zones GBRevenue_PC | High-tech Zones GBRevenue_PC | Non-High-tech Zones GBRevenue_PC |
|---|---|---|---|---|
| L.VAT_Re | -0.0899** | -0.1908*** | | |
| | (-2.1205) | (-3.8728) | | |
| L.CIT_Re | | | 0.1567*** | 0.0343* |
| | | | (3.7035) | (1.9243) |
| Expense_PC | 1.1409*** | 0.6887*** | 1.1478*** | 0.6979*** |
| | (18.0076) | (8.7968) | (17.9893) | (8.8102) |
| lnGRP | 0.3411* | 0.4208*** | 0.4056** | 0.4474*** |
| | (2.1315) | (3.8176) | (2.9218) | (3.9071) |
| lnEmp | -0.4430 | 0.2786 | -0.3336 | 0.3885 |
| | (-1.0585) | (0.5717) | (-0.8218) | (0.7558) |
| Constant | 5.4241*** | 1.9657 | 5.3298*** | 1.5196 |
| | (3.4152) | (0.6883) | (3.3017) | (0.5272) |
| Region effect | YES | YES | YES | YES |
| Time effect | YES | YES | YES | YES |
| R-squared | 0.9746 | 0.7107 | 0.9739 | 0.7139 |
| Number of id | 4 | 9 | 4 | 9 |
| r2_a | 0.9598 | 0.6022 | 0.9586 | 0.6067 |
| F | 115.0139*** | 19.6542*** | 111.7767*** | 19.9651*** |

Significance Codes: 0.01 '***', 0.05'**', 0.1 '*',

The table shows that the coefficient of the lagged VAT reduction in the high-tech zone is -0.0899, passes the test at 5% significance level. The lagged coefficient of VAT reduction in non-high-tech zones is -0.1908, which also passes the significance test. The negative impact of VAT reduction in non-high-tech zones is higher. The coefficient of the impact of corporate income tax reduction in high-tech zones with a lag of one period is 0.1567, which passes the significance test at a 1% level. The impact of corporate income tax reduction in non-high-tech zones with a lag of one period is 0.0343, which also passes the significance test. The positive impact of income tax reduction in high-tech zones is higher. In this government work of tax reduction, high-tech enterprises can enjoy more tax benefits and government subsidies, while the government has also made a significant corporate income tax reduction for SMEs. Since the object of this paper is the A-share listed companies, the data about high-tech enterprises will be more significant. From the data, we can find that cities with a high density of high-tech enterprises are more dynamic in tax reduction and fee reduction. Cities with high density of high-tech enterprises have less reverse disincentive effect of VAT reduction, which means that they can absorb the tax reduction faster and reinvest the tax reduction, such as in economic entities. At the same time, cities with a high density of high-tech enterprises have a more pronounced positive effect of tax cuts on fiscal revenues because more enterprises enjoy corporate income tax subsidies, which is gratifying.

Robustness tests

Robust-type tests are used to investigate whether the model in this paper has seen stability. Since the explanatory and explanatory variables are not suitable for replacement, this paper will not use the method of replacing explanatory and explanatory variables to conduct the robustness test. This paper will use sample replacement to perform the robustness test. In this paper, after presenting the 2020 data that may be affected by the epidemic, we will determine whether the model is stable by observing whether the effect of the explanatory variables on the explained variables is still consistent with the previous paper.

Table 8 Robustness test

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | GBRevenue_PC | GBRevenue_PC | GBRevenue_PC | GBRevenue_PC |
| VAT_Re | -0.3519*** | | | |
| | (-4.2372) | | | |
| CIT_Re | | -0.2747*** | | |
| | | (-3.6177) | | |
| L.VAT_Re | | | -0.1221*** | |
| | | | (-2.9140) | |
| L.CIT_Re | | | | 0.1053** |
| | | | | (2.4077) |
| Expense_PC | 0.9288*** | 0.9034*** | 0.6206*** | 0.6002*** |
| | (6.5120) | (6.0880) | (3.0203) | (2.9227) |
| lnGRP | 0.7055*** | 0.6631*** | 0.3815 | 0.3170 |
| | (3.9487) | (3.5092) | (1.1295) | (0.9159) |
| lnEmp | 0.5703 | 0.5172 | -0.1418 | -0.2641 |
| | (1.4778) | (1.3086) | (-0.2808) | (-0.5111) |
| Constant | 2.5601 | 2.5653 | 4.3069** | 4.4988** |
| | (1.2902) | (1.3091) | (2.2985) | (2.4595) |
| Region effect | YES | YES | YES | YES |
| Time effect | YES | YES | YES | YES |
| Observations | 52 | 52 | 39 | 39 |
| R-squared | 0.6153 | 0.6188 | 0.5724 | 0.5811 |
| Number of id | 13 | 13 | 13 | 13 |
| r2_a | 0.4394 | 0.4446 | 0.2615 | 0.2764 |
| F | 13.9949*** | 14.2059*** | 7.3637*** | 7.6293*** |

Significance Codes: 0.01 '***', 0.05'**', 0.1 '*',

The results are significant even when the sample of 2020 is removed, and therefore, the results of this paper are more stable and credible.

## III. Conclusion

From the analysis of the two-way fixed effects model shown above, it can be obtained that from the firm level, both VAT tax cuts and corporate income tax cuts show a dampening effect on the per capita public budget revenue in the current period. As the effect of tax reduction increases, the per capita public budget revenue decreases. The VAT, which accounts for the largest share of fiscal revenue, has a more significant dampening effect on per capita public budget revenue due to its broad tax base and coverage. According to the lagged effects analysis in the two-way fixed effects model, it is verified that there is a certain lag in the government's tax reduction project. That is, the tax reduction in the previous period have negative and positive effects on the per capita public budget revenue in the current period, respectively, with the suppression effect of VAT being more significant. By dividing the sample data into cities with high penetration of high-tech enterprises and cities with low penetration of high-tech enterprises and analyzing their heterogeneity, this paper finds that the former has more dynamism and potential in the growth of per capita public budget revenue. Its VAT tax reduction has a more minor suppressive effect on fiscal revenue compared to the former, while the corporate income tax will have a more pronounced boost on fiscal revenue.

The unclear transmission mechanism of tax cuts, fee reductions in the complex economic environment, and continuous tax cuts make the policy effectiveness uncertain. In this paper, we analyze the impact of two major tax reduction items in tax and fee reduction government efforts on per capita public budget revenue from the perspective of enterprises with a lagged test. To a certain extent, it fills the situation that there are fewer corresponding studies since the tax reform in 2018. The heterogeneity between high-tech and non-high-tech cities within the article provides supporting evidence for the federal tax incentives to encourage the development of high-tech enterprises. The economic transformation is facilitated by universal tax relief and policy preferences for high-tech enterprises, which is a feasible way to stimulate potential economic development. The government can continue to deepen the structural reform and clean up the current inefficient, fragmented and complicated tax incentives as soon as possible so that the tax relief process can be more streamlined and efficient. The government needs to ensure the relative stability of taxation under the premise of entirely giving

market vitality so that the positive lagging effect of tax relief on fiscal revenue can be better utilized.

**Limitation and futurity**

This paper has completed a relatively complete analysis of the panel data model with two-way fixed effects, but there are still shortcomings through reflection.

1. The processing of data is not the most accurate. China has introduced many tax relief policies and direct subsidies for enterprises from 2016 to 2020. Thus, it is difficult to obtain the exact amount of subsidies enterprises receive. The data processing can only be estimated by calculating the amount of taxes and fees by the listed segment and the content of the company's main business. The estimated data will affect the model's accuracy to a certain extent.
2. The government work of tax reduction and fee reduction was formally proposed in 2018, and the implementation effect is relatively short now. Thus, there will be less data under the premise of local data as the sample. Although Jiangsu Province is a typical province under analysis, it cannot represent the overall situation of the whole country. We will continue to study the impact of VAT exemptions and corporate on local per capita public budget revenue in the broader scope and more extended period in the future.
3. In discussing the tax cut and General public budget revenue per capita, there are many more causal chains. During the implementation of VAT reduction, there will be a situation in upstream and downstream factories, and distributors will squeeze profits because the market belongs to the buyers' market. Eventually, they cannot enjoy the tax reduction. There will also be a situation where the tax reduction policy is implemented without promoting increased consumer consumption due to price rigidity. These issues are also well worth discussing, and in future studies, we will incorporate these into these factors to make a more convincing model.
4. In judging whether a city is a high density of high-tech enterprises, the algorithm is rather crude, and more representative enterprises are selected. The determination coefficients can be incorporated later to assist the government in better planning for industrial layout.

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