

## Tax Reduction and Digital Transformation

### --Based on Enterprise Main Business Development

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#### Abstract

Digital transformation gives real enterprises new development momentum and promotes the high-quality development of their main businesses. This paper empirically examines the impact of tax and fee reduction on the development of the main business of real enterprises and the intrinsic mechanism based on the data of Chinese real listed companies from 2011 to 2020. The study finds that tax and fee reductions have a significant promotional effect on the digital transformation of enterprises; the mechanistic role analysis finds that the reduction of corporate tax burden will act on the digitalisation of enterprises from the path of promoting corporate R&D and innovation; the extension analysis shows that the financialisation of enterprises can be inhibited by tax and fee reductions on the financialisation of enterprises. Therefore, inhibiting excessive financialization of enterprises is important for promoting the digital transformation of enterprises and the high-quality development of China's economy. The conclusions of this paper clarify the path of the role of tax cuts and fee reductions on digital transformation and the necessity of curbing corporate financialisation, providing a theoretical basis for government departments to formulate corresponding policies that can better promote the high-quality development of China's economy.

#### Keywords

Tax Reduction and Fee Reduction; Digital Transformation; R&D Innovation; Financialisation.

#### 1. Introduction

The report to the 20th National Congress of the Communist Party of China points out that high-quality development is the primary task of building a modern socialist country in an all-round way. We should strive to raise total factor productivity, improve the resilience and safety of industrial and supply chains, keep the focus of economic development on the real economy, and move Chinese real enterprises and industries up the global value chain. To achieve effective improvement in economic quality and reasonable growth in quantity. The new phase of our economic development and the new requirements of the report will help alleviate the problems of financialization in the development of our real enterprises.

At present, Chinese real enterprises excessively pursue financial products with short period, strong liquidity and high returns, and their investment in financial products has increased substantially, leading to the phenomenon of "turning from real to virtual" to some extent, which not only increases the business risks of enterprises and infringes the long-term interests of corporate shareholders, but also may aggravate systemic financial risks and trigger financial crisis. Therefore, restoring the vitality of the real enterprises as soon as possible, curbing the "real to virtual" of the real enterprises, and guiding the rational investment of the real enterprises to focus on industry, is the focus of preventing major financial risks of enterprises

and building the modern economic system, and is also an important issue to promote the modernization of China's governance system and governance capacity.

Our country attaches great importance to the positive guidance role of the policy of tax reduction and fee reduction for the development and transformation of Chinese entities enterprises. The continuous change and update of the tax and fee reduction policy aims to reduce the tax burden of real enterprises, activate the market vitality, guide enterprises to carry out digital transformation, and promote the high-quality development of real enterprises. In fact, the tax burden of enterprises is not only related to the precautionary savings level formed by enterprises to alleviate the financing constraints, but also affects the unhealthy investment decisions of enterprises on "financial products" due to the synergistic resonance between the logic of lower tax flow and the reality of poor investment returns, guiding enterprises to carry out R&D and innovation, and shifting the focus of development from "financialization" to industrial "digitalization". Therefore, from the perspective of corporate tax burden, it is of great significance to study whether national tax reduction and fee reduction can inhibit the financialization of entity enterprises and effectively promote the digital transformation of enterprises.

This paper mainly studies the impact of tax and fee reduction on the development of enterprises and the internal mechanism. Taking corporate tax burden and digital transformation as the entry point, this paper conducts a research based on the data of Chinese listed entities from 2011 to 2020. The main innovations of this paper are as follows: first, it responds the impact of the national tax cut and fee reduction on the industrial transformation of the enterprise from the perspective of research of the tax burden, and enriches the research of economic consequences of reducing tax and fee in our country; Second, the research conclusion clarifies the mechanism of tax and fee reduction policies to promote the digital transformation of enterprises, and enriches relevant research on the effect of tax burden on the digital path. Thirdly, from the perspective of financialization, it studies the significance of restraining "excessive financialization" for the high-quality development of enterprises. Finally, the research results provide theoretical basis for Chinese government departments to formulate more targeted policies and promote high-quality development of our economy.

## **2. Research hypothesis**

### **2.1. Tax and fee cuts and enterprise digitization**

Current studies on tax cuts and fees mainly focus on the economic consequences at the enterprise level and the social level. From the enterprise level, the research mainly focuses on the improvement of capital efficiency of entity enterprises, enterprise innovation incentive of high-quality development, reduction of enterprise debt financing cost and enterprise value creation. At the social level, tax and fee cuts can effectively promote the economic development of real enterprises and increase social employment. Tax and fee cuts can reduce the tax burden of enterprises and become an effective tool to promote the high-quality development of Chinese economy.

The current research on digitalization is mainly reflected in the positive effect of digital transformation on the high-quality development of enterprises, which is mainly reflected in the digital transformation. By improving the innovation ability of enterprises, digital transformation promotes the integrated development of advanced manufacturing industry and modern service industry, and thus improves the total factor productivity of enterprises. Digital transformation can create new value for enterprises and improve their business performance and market position. With the accumulation of time, the dynamic ability of enterprises to obtain information by relying on digital technology is constantly improved, and the ability to integrate enterprise resources by using information technology is constantly optimized. In a word, digital

transformation provides advantageous conditions for enterprise value creation and helps enterprises develop in high quality.

On the one hand, tax and fee reduction and digital transformation are reflected in the guiding role of the government's fiscal policies. Based on the theory of policy usefulness, enterprises fully enjoy the dividend of government policies in the process of digital transformation, and obtain the government's tax and fund support. The transformation results can promote the efficient improvement of enterprises, and enterprises are more willing to further respond to policies when they enjoy the benefits. Thus forming a "virtuous circle" between government and enterprise; On the other hand, it is reflected in the liquidity of internal funds of enterprises. Tax reduction and fee reduction can reduce the tax burden of real enterprises, greatly improve the profit retention and cash flow level of real enterprises, provide more funds for the development of real enterprises to carry out innovative research and development and digital transformation, and further promote the high-quality development of the main business of real enterprises.

Based on the above analysis, the following hypotheses are proposed:H1: Tax and fee reduction has a significant promoting effect on the digitization of entity enterprises.

## **2.2. Transmission mechanism of tax and fee reduction to promote enterprise digitization**

Some scholars have found in empirical studies that tax and fee reduction policies can promote the innovation of private smes by reducing the tax burden of enterprises. The existing research confirms the positive effect of technological innovation activities on the development quality of enterprises. For example, technological innovation can improve enterprise performance; In addition, some scholars have explored the impact of government subsidies on the quality of enterprise development and found that the key to promoting high-quality development of enterprises is to stimulate the innovation enthusiasm of enterprises, and tax and fee reduction can well increase the cash flow of enterprises and provide financial support for the innovation and development of entity enterprises. Based on the above analysis, the following hypotheses are proposed:H2: Tax and fee cuts promote the digital transformation of brick-and-mortar enterprises by promoting enterprise innovation.

## **3. Data sources and research design**

### **3.1. Sample selection and data sources**

In order to reduce the impact of the repeated COVID-19 epidemic on business operation in 2021, this paper takes Chinese A-share listed companies from 2012 to 2020 as research samples. The original data were processed as follows: Data of financial and real estate listed companies, listed companies with ST and \*ST within the sample period, samples with missing key index values, and samples with asset-liability ratio greater than 1 were deleted. To ensure the continuity of the samples, data with sample size less than 3 years were deleted. Finally, a total of 17 503 observed values were obtained from the CSMAR database and WIND database. In addition, in order to eliminate the potential influence of outliers on the regression results, all variables were reduced at 1% above and below.

### **3.2. Measurement of variables**

#### **3.2.1. Explained variable**

Digitization transformation (DIG), referring to the measurement method of digitization transformation of existing researches, analyzes the text of annual reports of listed enterprises based on Python, extracts keywords, and measures the degree of digitization transformation

by using the frequency of digitization feature words in annual reports. The greater the DIG value, the better the effect of digitization transformation of enterprises.

**3.2.2. Explanatory variable**

Corporate Tax burden (Tax) is measured by the comprehensive actual tax burden of value-added tax, business tax, corporate income tax and other taxes. The greater the tax value, the greater the corporate tax burden pressure.

**3.2.3. Control variables**

Controls: In terms of company characteristics, we select company Size (Size), years on the market (Age), return on assets (Roa), financial leverage (Lev) and cash flow ratio (Caf). In terms of corporate governance, independent director governance (Indep), ownership concentration (Top1) and Dual are selected. At the same time, the variables of Year (Year) and industry (Ind) are controlled.

**Table 1:** Variable definitions

Type	Name	Symbol	Computation Method
Explained variable	Digital transformation	DIG	Digital feature word frequency
Explanatory variable	Corporate tax burden	Tax	(Pay all taxes - receive tax rebates)/revenue
Control variables	Company size	Size	Ln (total assets)
	Company age	Age	Ln (current year year of listing +1)
	Return on assets	Roa	Net profit/ending total assets
	Financial leverage	Lev	Ending liabilities/ending total assets
	Cash flow ratio	Caf	Net cash flow from operating activities/ending total assets
	Independent director governance	Indep	Total number of independent directors/directors
	Ownership concentration	Top1	Shareholding ratio of the largest shareholder
	Double duty	Dual	If the chairman and the general manager are the same person, the value is 1; otherwise, it is 0
	Year	Year	Year dummy variable
Industry	Ind	Industry dummy variable (CSRC 2012 code Level 2)	

**3.3. Model Construction**

In order to test the impact of entity enterprise tax burden level on enterprise digitization level, the following model is set up:

$$DIG_{i,t} = \alpha_0 + \alpha_1 Tax_{i,t} + Controls_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \tag{1}$$

In order to test the conduction mechanism of H2, this paper constructs the mediation effect model (2) and (3) on the basis of model (1) by referring to the mediation effect hierarchy method:

$$Test_{i,t} = \beta_0 + \beta_1 Tax_{i,t} + Controls_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \tag{2}$$

$$DIG_{i,t} = \gamma_0 + \gamma_1 Tax_{i,t} + \gamma_2 Test_{i,t} + Controls_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \tag{3}$$

In Model (2), the intermediate variable Test is R&D investment (R&D).

## 4. Empirical results and analysis

### 4.1. Descriptive Statistics

The mean value and maximum value of digitization transformation (DIG) were 0.01 and 0.06, indicating a large difference in digitization level among enterprises. The mean value of Tax burden (Tax) is larger than the median, which means that the sample is slightly skewed to the right, and there are large changes between the maximum value and the minimum value, indicating a large gap in tax burden among sample enterprises. In addition, the minimum value of Tax burden (Tax) is negative, which means that the tax refund or VAT deductible input tax of some samples is higher than the tax paid in the current year. In addition, the descriptive statistical results of the control variables in the model are basically consistent with the existing literatures.

**Table 2:** Descriptive statistical results

Variable	Sample size	Mean	Median	Min	Max
DIG	17 503	0.001	0.000	0.000	0.006
Tax	17 503	0.058	0.049	-0.053	0.263
Size	17 503	22.258	22.085	20.070	26.210
Age	17 503	2.888	2.944	1.946	3.497
Roa	17 503	0.056	0.046	0.002	0.220
Lev	17 503	0.402	0.394	0.055	0.841
Caf	17 503	0.056	0.054	-0.119	0.234
Indep	17 503	0.375	0.357	0.333	0.571
Dual	17 503	0.273	0.000	0.000	1.000
Top1	17 503	0.351	0.333	0.096	0.742

### 4.2. Benchmark Regression

Table 3 shows the regression results of hypothesis H1. Columns (1), (2) and (3) respectively correspond to the regression results of least square method (OLS) and double fixed effect (FE) model of Tax. It can be seen that with the adoption of double fixed effects and the addition of control variables, the goodness of fit (Adjusted R2) of the model in columns (2) and (3) is continuously enhanced compared with column (1). The corporate Tax burden (Tax) coefficient has a significant negative correlation (-0.001\*\*\*) at the 1% level, indicating that tax and fee reduction can effectively promote the digital transformation of enterprises. In summary, H1 is established.

**Table 3:** Results of baseline regression

Variable	(1)	(2)	(3)
	DIG	DIG	DIG
Tax	-0.001*** (-5.24)	-0.001*** (-6.79)	-0.001*** (-3.41)
Size		0.000*** (3.28)	0.000*** (5.12)
Age		-0.000*** (-3.23)	-0.000* (-1.78)
Roa		0.002*** (8.85)	0.001*** (4.54)
Lev		-0.000*** (-7.42)	-0.000*** (-4.18)
Caf		-0.001*** (-9.49)	-0.000*** (-3.76)
Indep		0.001*** (6.01)	0.001*** (4.57)
Dual		0.000*** (5.72)	0.000*** (4.58)
Top1		-0.001*** (-10.93)	-0.000*** (-3.07)
Constant	0.001*** (50.27)	0.000 (1.45)	-0.000 (-1.15)
N	17 503	17 503	17 503
Adjusted R2	0.002	0.028	0.367

Note: t value in parentheses; \*, \*\*, \*\*\* indicate the significance level of 10%, 5% and 1% respectively.

### 4.3. Mechanism test of R&D innovation

As can be seen from column (2), there is a significant negative correlation (-10.826\*\*\*) between corporate Tax burden (Tax) and enterprise innovation R&D investment (R&D), indicating that tax reduction and fee reduction are conducive to increase enterprise innovation R&D investment. In the results shown in column (3), there is a significant negative correlation between corporate tax burden, corporate innovation and R&D input and corporate digital transformation (DIG) at the 1% level (-0.001\*\*\*, -0.001\*\*\*), indicating that tax and fee reduction can promote corporate digital transformation by increasing corporate R&D input. So this is H2.

**Table 4:** Test results of innovation R&D mechanism

Variable	(1)	(2)	(3)
	DIG	R&D	DIG
Tax	-0.001*** (-3.41)	-10.826*** (-14.76)	-0.001*** (-2.90)
R&D			0.001*** (4.43)
Constant	-0.001 (-1.15)	-5.256*** (-6.32)	-0.001 (-0.94)
N	17 503	17 503	17 503
Adjusted R2	0.367	0.448	0.368

## 4.4. Robustness test

### 4.4.1. Replacing Major Variables

In order to eliminate the possible interference caused by variable setting error on empirical results, the explained variables in model (1) were replaced and re-tested. The specific replacement process is: the digitization word frequency number (DIG\_2) replaces the word frequency proportion (DIG). Column (1) in Table 5 is the regression result after principal regression model (1) replaces the explained variables. The test results show that the sign and significance of all core variables remain unchanged, and there is a significant negative correlation at the 1% level. The original hypothesis H1 is still valid.

### 4.4.2. Change the research interval

The original sample year interval was 20112020, during which there were changes in China's stock market in 2015, and the outbreak of the novel coronavirus in 2020, a large number of enterprises were affected by the financial crisis and the epidemic. Ignoring the discussion of such factors may cause some endogenous interference. Therefore, the regression test was conducted after excluding the data of stock market fluctuations in 2015 and the COVID-19 epidemic in 2020. The results are shown in column (2) of Table 5. After changing the sample interval, the impact of corporate tax burden on enterprise digital transformation is still significantly negatively correlated at the 1% level (-0.001\*\*\*). H1 still holds.

**Table 5: Robustness test**

Variable	(1)	(2)
	DIG	DIG_2
Tax	-20.185*** (-8.65)	-0.001*** (-2.97)
Constant	-14.235*** (-5.40)	-0.000 (-1.54)
N	17 503	13 664
Adjusted R2	0.315	0.369

## 5. Extensive research

In the case of frequent financial decisions of enterprises, can enterprises play the role of tax and fee reduction, promote the digital transformation of enterprises, and promote the steady and long-term development of enterprises' main business? In this paper, financial assets construct financialization variable (Fin). The larger the value, the higher the level of corporate financialization. Table 6 are the test results of the adjustment effect of enterprise financialization. In Table 6, the coefficient of the adjustment variable (Fin) is significantly negative (-0.001\*\*\*), and the coefficient of the interaction term (Tax×Fin) is significantly positive (0.004\*\*\*), indicating that financialization has a reverse adjustment effect.

**Table 6** :The moderating effects of financialization

Variable	DIG
Tax	-0.001*** (-3.83)
Fin	-0.001** (-2.39)
Tax×Fin	0.004*** (2.62)
Constant	-0.022 (-1.27)
N	17 503
Adjusted R2	0.368

## 6. Conclusion and Enlightenment

Based on the data of China's A-share entities listed companies from 2012 to 2020, this paper empirically tests the impact, mechanism and regulatory effect of tax and fee reduction on enterprises' industrial development. The study found that, first, tax and fee reduction significantly promoted the digital transformation of enterprises, after a series of robustness tests, this conclusion is still valid; Second, the mechanism test shows that enterprise R&D innovation plays a significant mediating role between tax reduction and fee reduction and enterprise digital transformation, that is, tax reduction and fee reduction can increase enterprise R&D innovation input and promote enterprise digital transformation. Thirdly, considering the problem of enterprise financialization, it is found that financialization has a negative moderating effect on tax and fee reduction and digital transformation, which affects the development of enterprises. Based on the above conclusions, this paper makes the following policy suggestions:

First, we should actively promote tax and fee reduction policies, support the economic development of real enterprises, and provide effective state fiscal policy support for high-quality economic development. As a non-encouraging enterprise investment behavior of government departments, it is necessary to pay more attention to the important role of enterprise investment flow to the main business of entity enterprises and digital transformation in the dimension of national policy formulation in curbing the financialization of entity enterprises. Specifically, the government should take tax reduction and fee reduction as the breakthrough to reduce the tax burden of enterprises, and try to avoid the tax highland in the process of industrial investment and industrial development. By releasing the dividend of tax and fee reduction policies, the tax pressure of enterprises can be eased, corporate profits can be increased, the "reservoir" behavior of enterprises can be weakened to a certain extent, and enterprises can return to industrial development.

Second, the heterogeneity among different enterprises may lead to policy deviation and distortion of investment behavior. The government departments should pay attention to the heterogeneity of enterprises and solve the different causes of difficulties in the development of enterprises one by one by starting from different points. The government should propose a more accurate tax system design according to the heterogeneity of enterprises, so as to continuously enhance the sense of acquisition and identity of enterprises to national tax policies.

Finally, government departments should strengthen tax monitoring and tax collection and management in the field of virtual economy. We will take effective measures against tax evasion

and tax avoidance loopholes that may exist in enterprises. At the same time, relevant government departments must strengthen detection and guard against bubble economy that may be caused by virtual economy, strictly prevent financial risks from affecting our real economy development, promote our country's finance to better serve our real economy, promote the balanced development of our virtual economy and real economy.

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## References

- [1] Zhang Chengsi, Zhang Butan. The mystery of the decline of China's industrial investment rate: from the perspective of economic financialization [J]. *Economic Research*, 2016,51 (12) : 32-46.
- [2] Ma Jinhua, Lin Yuan, Fei Kunjie. Analysis on the Effect of Tax Burden on High Quality Development of Economy: Evidence from Chinese Manufacturing Industry [J]. *Contemporary Finance and Economics*, 2021 (3) : 40-52.
- [3] Zhang Tianyang, Yang Wen, Zhang Yuanyuan. Do tax and fee cuts improve the capital efficiency of real enterprises? -- Sample data from Tritede from 2009 to 2019 [J]. *Finance and Accounting Communications*, 2022 (14) : 137-142+176.
- [4] Zhang Ruichen, Wen Lei, Song Minli. Tax and fee reduction, enterprise financialization and enterprise value creation [J]. *Economic Problems*, 2022 (8) : 79-85.
- [5] Li Qing, Fang Jianchao. The Impact of VAT Expansion on Provincial Government tax revenue: A Simulation based on input-output Table [J]. *Finance and Trade Economics*, 2013 (6) : 33-42.
- [6] Hu Yiming, Wang Xueting, Zhang Jin. Financial Asset Allocation Motivation: "Reservoir" or "Substitute"? Evidence from Chinese listed companies [J]. *Economic Research*, 2017,52 (1) : 181-194.
- [7] Yang C M. Tax and fee reduction: Effects, problems and path selection. *Finance and Trade Economics*, 2017,38 (9) : 5-17.
- [8] Xu Zhaohui, Wang Mansi. Research on the governance effect of digital Transformation on excessive financialization of real Enterprises [J]. *Securities Market Review*, 2022 (7) : 23-35.
- [9] Duan Shu, Liu Xia, Yin Rong, et al. Have tax and fee cuts enabled enterprises to develop in high quality? [J]. *Economic Problems*, 2022 (1) : 20-30.
- [10] Fan Yong, Wang Wei. Marketization Degree and Corporate debt tax Shield Effect: Empirical Evidence from Chinese Listed Companies [J]. *Finance and Trade Economics*, 2014 (2) : 44-55.
- [11] Du Yong, Xie Jin, Chen Jianying. The financial background of ceos and the financialization of real enterprises [J]. *China Industrial Economics*, 2019 (5) : 136-154.
- [12] Liu Qi-ren, HUANG Jian-zhong. How corporate tax burden affects resource allocation efficiency [J]. *World Economy*, 2018,41 (1) : 78-100.

- [13]Wen Zhonglin, Ye Baojuan. Mediation effect analysis: Development of methods and models [J]. Advances in Psychological Science, 2014,22 (5) : 731-745.
- [14]Shi Shaobin, Zhang Xiaodan. The economic effect of tax reduction and fee reduction: Based on the analysis of high quality development dimension [J]. Journal of Shanxi University (Philosophy and Social Sciences Edition), 2022,45 (5) : 51-61.
- [15]Ji Yun, Wang Zhen. Does the tax burden discourage innovation? Evidence from the third phase of "Gold Tax Project" [J]. South China Economy, 2019 (3) : 17-35.
- [16]Zhao Yan, Lin Jiabin, Chen Yimei. From virtual to real: Research on the development path of tax reduction incentive to empower real enterprises [J]. Journal of Dalian Maritime University (Social Sciences Edition), 2023, 22 (2) : 103-111.