

# Research on the Influence of Anti-corruption on the Performance of the Private Enterprises

Xuan Zhou<sup>1, a, \*</sup>

<sup>1</sup>College of Economics, Jinan University, Guangzhou 510000, China

<sup>a</sup>Corresponding author e-mail:zhoux361@163.com

## Abstract

**Rent-seeking is the performance of the enterprise undefines corruption. The paper uses the excess overhead as the agent variable of the rent-seeking expense. The research finds that the rent-seeking cost is positively related to the government subsidy, and the key industry and the enterprises with high degree of corruption are more prominent, but the government subsidy has no significant effect on the performance of the enterprise. Furthermore, this paper takes the introduction of anti-corruption policy since the 18th National Congress of the Communist Party of China as a natural experiment, and uses the method of double difference to test the impact of government subsidies on enterprise performance before and after anti-corruption. The results show that after anti-corruption, government subsidies promote the growth of enterprises, and the positive effect of enterprises with high degree of rent-seeking is greater than that of enterprises with low degree of rent-seeking, but there is no evidence that government subsidies have a significant impact on the profitability of enterprises after anti-corruption.**

## Keywords

**Anti-corruption; government subsidy; rent-seeking; enterprise performance; double difference.**

## 1. INTRODUCTION

Since the 18th National Congress of the Communist Party of China (CPC), the central government has promulgated a series of strong anti-corruption policies, which has set off an unprecedented anti-corruption storm of "tigers and flies fighting together." There has been a lot of attention about the impact of corruption on society and economy, but people ignore the fact that corruption is on both sides, and some people pay bribes when they are corrupt. As a result, anti-corruption measures have hit bad officials who use power for personal gain, as well as speculators who bribe them. In that case of corruption, collusion between the government and the government is very common. The reason is that corrupt officials use the right to set up the rent, and the enterprise may obtain the fund, land, administrative approval procedures or other resources which owned the government through rent-seeking, and the government subsidies are one of them.

The private enterprise is the main pillar of the national economy. In recent years, the state has strongly supported the development of the private enterprises. But research has shown that, as state-owned enterprises have a natural-related relationship with the government, they can always get more government subsidies than private enterprises (Kong Dongmin et al.,2013) [1]. Similarly, private enterprises face a more difficult financing environment because of their lack of government shelter and the uneven size and quality of private enterprises. In this case,

private enterprises are more motivated by rent-seeking to obtain government subsidies than state-owned enterprises. It is necessary to pay attention to the effect of government subsidies on the performance of private enterprises in that case. In 2018, the total amount of government subsidies for A-share listed companies was 152.738 billion yuan, and the net profits of 125 listed companies changed from profit to loss after deducting government subsidies, 19 of which lost more than 100 million yuan after deducting government subsidies, according to data released jointly by Dabao and the China Institute of listed companies. We can see, from this, that the scale of government subsidies is huge, and even used by listed companies as a means of retouching profits. The incentive for companies to seek government subsidies is likely to backfire.

The introduction of anti-corruption policy had been no doubt a strong blow to the enterprise rent-seeking activity, so whether such a policy can eliminate the bad government subsidy source through the elimination of the enterpriseundefineds rent-seeking atmosphere, so that the efficiency of the government subsidy is improved? In recent years, many scholars have been concerned about the impact of anti-corruption on the macro-economy, and the impact of anti-corruption on the microeconomy has also started. In the literature concerned about the impact of anti-corruption on microeconomy, a few scholars began to explore the impact of anti-corruption on enterprises, but few people pay attention to the government subsidy of private enterprises may also be one of the influencing channels. Therefore, this paper attempts to use the natural experiment of anti-corruption policy to explore its impact on the performance of private enterprises, which opens up a new way of thinking for the study of the impact of anti-corruption on micro-enterprises. The arrangement of the rest of this paper is as follows: the second part is literature review and research hypothesis, the third part is research design and data explanation, the fourth part is empirical results and analysis, the fifth part is robustness test, and finally the conclusion and policy recommendations.

## 2. RESEARCH ASSUMPTIONS

### 2.1. The Corruption of the Private Enterprises and the Government Subsidy

Shleifer and Vishny (1994) [24] believe that bribery is a mechanism for the re-establishment of resources between politicians and enterprises. The essence of the bribery is that the enterprises adopt rent-seeking behavior, buy the inefficient decision-making of the government departments, and further improve the economic efficiency of the enterprise. The government subsidy is an important means of the state intervention market, and it is also an important capital supplement to the enterpriseundefineds innovative investment. The government subsidy is a limited resource, not all the enterprises can receive government subsidies, and the government subsidies from all the enterprises can receive the same government subsidies. Kwaja et al. (2005) [25], using the loan data of Pakistan 1996-2002, found that a company with political contact can get more than 45% of the loans, and this special treatment only occurs in the state-owned enterprises, and the private enterprise does not have political support, so it is difficult to obtain the loan. Li Xueling et al. (2012) [2] found that in the formal system, the more the legal and financial environment of the country is, the more active the rent-seeking activity is. The private enterprise is more serious in the financing environment.

Today, the research on corporate corruption and government subsidies mainly focuses on whether the establishment of political ties is conducive to obtaining government subsidies. Many studies have shown that companies with political ties receive more government subsidies (Yu Minggui et al., 2010) [4]. This paper argues that enterprises that establish political ties do not necessarily carry out rent-seeking activities, but as a means for private enterprises to seek political protection under the imperfect market (Luo Danglun, Tang Qingquan, 2009) [5], of course, it is also a manifestation of rent-seeking behavior of enterprises. Regardless of whether

the enterprise has established political ties or not, the rent-seeking activities of enterprises are usually manifested in banquets, gifts or direct bribery of officials, which constitute the corrupt act of "collusion between government officials and businessmen". Therefore, this paper only studies the rent-seeking behavior of private enterprises.

In order to modify abnormal rent-seeking expenses, the managers of enterprises often use the expense items of financial statements to cover up. The management expenses in the enterprise profit statement include the daily sales expenses, business hospitality expenses, travel expenses, office expenses and so on, which are very suitable for hiding rent-seeking expenses (Huang Jiuli, Li Kunwang, 2013) [6]. In private enterprises, this phenomenon is more obvious. The managers of private enterprises generally have greater control rights, and the problem of on-the-job consumption is not prominent. Therefore, the surge in management costs is likely to be a manifestation of rent-seeking activities. From the perspective of the enterprise, rent-seeking expenses can be classified into many detailed subjects of management expenses. The management expenses that exceed the normal expenses of the enterprise reflect the abnormal expenses of the enterprise. Refer to Du Xingqiang et al. (2010) [7], this article uses the excess management expenses of the enterprise as rent-seeking. Cost proxy variable. Based on the above analysis, this article proposes Hypothesis 1:

H1: Rent-seeking helps companies to obtain government subsidies, and it is more obvious for companies with a high degree of rent-seeking level.

## 2.2. Government Subsidies and Corporate Performance

Companies are likely to get more government subsidies through rent-seeking, but there is no consensus on how this works. The research on the effects of government subsidies mainly focuses on the aspects of corporate performance, corporate financing, and corporate R & D investment and innovation output. Some scholars believe that government subsidies obtained by enterprises through rent-seeking activities promote corporate performance. For example, Du Xingqiang (2010) [7] found that the real performance of enterprises is significantly positively related to political connections, and this political connection is the result of rent-seeking. Deming Yang et al. (2017) [8] believe that rent-seeking activities are a "lubricant" for private enterprises to improve performance, but a "stumbling block" for the performance of state-owned enterprises.

However, more studies have found that such government subsidies do not improve the performance of enterprises in general. For example, Tzelepis (2004) [26] research on Greece found that the absence of investment subsidies does not improve the efficiency and profitability of enterprises, but only a large inflow of own cash. It has improved the debt repayment ability of the enterprise, and has a positive impact on the growth of the enterprise. Tang Qingquan and Luo Danglun (2007) [5] argue that government subsidies have not enhanced the economic benefits of listed companies. Government subsidies are scarce resources. If they are not used scientifically, they will distort the efficiency of resource allocation and reduce the overall level of social welfare (Yu Minggui et al., 2010) [4]. For enterprises, if they are keen to obtain important resources through rent-seeking, their rent-seeking costs will even exceed the benefits brought by rent-seeking in the long run, resulting in insufficient investment in production and research and development. Cai et al. (2011) [23] used business entertainment and travel expenses (ETC) as variables to measure corporate corruption. The study found that corporate entertainment and travel expenses are used to obtain better government services. Disadvantages, only part of which can make the company obtain positive benefits. Zhao Can et al. (2015) [10] found that companies with poor profitability tended to obtain government subsidies through negative earnings manipulation, while companies with better profitability tended to obtain government subsidies through rent-seeking, but both weakened. Performance of subsidized companies; Wei Zhihua et al. (2015) [11] found that rent-seeking helps listed

companies, especially private listed companies, to get more government subsidies, but financial subsidies have not improved the growth of listed companies. For investors, due to information asymmetry, a company that receives government subsidies is equivalent to being "recognized" by the government (Zheng, 2008), but the actual effect after the investment is not satisfactory, which will affect the entire social investment. The healthy development of the environment will, in turn, cause companies to "circle money" without thinking about progress, reducing the investment efficiency of enterprises (Shen Yu et al., 2016) [12]. Therefore, this article proposes Hypothesis 2:

H2: Government subsidies obtained by private enterprises through rent-seeking have no significant impact on the growth and profitability of the enterprises.

### 2.3. Anti-Corruption and Business Performance

The above analysis shows that government subsidies obtained by enterprises under rent-seeking situations may not have a significant effect on the development of enterprises, and may even reduce the overall social benefits. However, in previous studies, government subsidies under normal circumstances are helpful to corporate performance or R & D innovation (Xie Weimin et al., 2009; Bai Junhong, 2011; Lu Guoqing, etc., 2014) [13-15]. The research focus of this article is that if the government subsidies obtained by rent-seeking companies are efficient or inefficient, will the effect of government subsidies be improved after anti-corruption? Anti-corruption has a national impact and is a powerful policy change from top to bottom. Such anti-corruption efforts on the one hand have allowed officials to converge rent-setting behavior, and have also greatly increased the opportunity cost of corporate rent-seeking activities. However, the impact of anti-corruption on enterprises is obviously multi-faceted. At present, there is not much literature on the impact of anti-corruption on enterprise performance, and few people pay attention to this channel of government subsidies.

After anti-corruption, the supervision of various industries has become stricter, and the accounting quality of enterprises can also be improved, especially in high-corruption areas (Wang Maobin, Kong Dongmin, 2016) [16]. The improvement in the accounting quality of enterprises also means that the irrational expenditures have dropped significantly, and enterprises can use the capital expenditures that were originally used for rent-seeking expenses for R & D investment. In addition to improving the quality of corporate accounting, Zhong Qinlin et al. (2016) [18] believe that anti-corruption can promote the improvement of corporate performance by accelerating the company's capital turnover rate, shortening business cycles and improving corporate investment efficiency, and the effect of this improvement is severely affected by government intervention. The area is more obvious. Because anti-corruption policies are both comprehensive and targeted, regions or individuals with high levels of corruption receive greater impact. In the past, companies that obtained government subsidies through rent-seeking activities had to converge, and by continuously improving their operating levels and innovation capabilities, focusing on the long-term development of enterprises, they could stand out from the competition in government subsidies.

Further, anti-corruption can optimize the efficiency of social investment, coupled with the improvement of the company's own internal governance, the information sent by government subsidies to social investors can truly reflect the level of the enterprise, forming a positive effect of a continuous spiral. This article therefore proposes Hypothesis 3:

H3a: After anti-corruption, the government subsidies obtained by private enterprises can promote the growth of enterprises, and the promotion effect of enterprises with high rent-seeking degree is greater.

H3b: After anti-corruption, the government subsidies obtained by private enterprises can promote the profitability of enterprises, and the promotion effect of enterprises with a high degree of rent-seeking is greater.

### 3. METHODOLOGY

#### 3.1. Basic Model Settings

##### 3.1.1 Test the relationship between rent-seeking costs and government subsidies

In order to test Hypothesis 1 and verify the relationship between the rent-seeking costs of enterprises and government subsidies, this article sets model (1) as follows:

$$\text{Sub} = \beta_0 + \beta_1 EOH + \beta_2 CR + \beta_3 \text{size} + \beta_4 \text{listage} + \beta_5 CFFOF + \beta_6 F1Sharehold + \beta_7 \text{growth} + \beta_8 \text{deficit} + \beta_9 \text{market} + \lambda \text{ind} + \eta \text{year} + \varepsilon \quad (1)$$

Among them, the explained variable is government subsidy, and the main explanatory variable is excess management cost (EOH), which is a proxy variable for rent-seeking costs. The other variables are all control variables, including current ratio, enterprise size, business life of the company, cash flow from operating activities, shareholding of the largest shareholder and growth rate of operating income to measure the growth of the company. In addition to the government subsidies issued under the national macro policy, there are some government subsidies that are under the control of local finances. Therefore, the strength of local finances affects, to a certain extent, the breadth and depth of inclusive business benefits provided by local government policies. Therefore, on the basis of controlling the general corporate variables, we add macro variables to the model (1), which mainly include the provincial fiscal deficit at the provincial level and the market index at the city level. The industry and year fixed effects are controlled in the model.

##### 3.1.2 Government subsidies and firm performance

Based on the analysis and research of the above model, the focus of our research is drawn, that is, whether the government subsidies obtained by private enterprises using rent-seeking can promote the improvement of corporate performance? In order to test Hypothesis 2, this paper designs a model (2) to study whether the government subsidy obtained by private enterprises through rent-seeking will help the company's growth and profitability.

The explained variable is corporate performance, including two aspects. One is the growth of the company. With reference to the existing literature, this article uses Tobin Q to measure the growth of the company. The calculation method is the ratio of the market value of the company to the total assets at the end of the period. The other is the profitability of the enterprise, which is measured by the return on total assets (ROA). The explanatory variable is a government subsidy, so in the regression model, focus on the coefficient  $\beta_1$ . Other control variables are consistent with model (1).

$$\text{TonbinQ / ROA} = \beta_0 + \beta_1 \text{Sub} + \beta_2 CR + \beta_3 \text{listage} + \beta_4 CFFOF + \beta_5 F1Sharehold + \beta_6 \text{growth} + \beta_7 \text{size} + \beta_8 \text{market} + \beta_9 \text{deficit} + \lambda \text{ind} + \eta \text{year} + \varepsilon \quad (2)$$

##### 3.1.3 Anti-corruption, government subsidies and business performance

---

1 For the sake of brevity, the variables in the basic model in this paper have omitted the individual index  $i$  and the time index  $t$ .

Further, the above hypothesis tests are all based on the analysis of rent-seeking by enterprises. This article attempts to use the natural experiment of anti-corruption policy to verify whether anti-corruption can curb the rent-seeking phenomenon of enterprises. After anti-corruption, how does government subsidy affect corporate performance? In order to test Hypothesis 3, this paper designs a double difference model to examine the impact of anti-corruption policies on government subsidies and corporate performance. With reference to the research method of Dang Li et al. (2015) [17], considering that the double difference model cannot control the year fixed effect, this paper also uses a two-way fixed effect for regression analysis.

DID model:

$$\text{TonbinQ /ROA} = \beta_0 + \beta_1 \text{Sub} \times \text{Rent} \times \text{Anticorr} + \beta_2 \text{anticorr} \times \text{Sub} + \beta_3 \text{Sub} + \beta_4 \text{Rent} \times \text{Sub} + \beta_6 \text{Contorls} + \lambda \text{ind} + \varepsilon \quad (3)$$

Two-way fixed effect model:

$$\text{TonbinQ /ROA} = \beta_0 + \beta_1 \text{Sub} \times \text{Rent} \times \text{Anticorr} + \beta_2 \text{Rent} \times \text{Sub} + \beta_3 \text{Sub} + \beta_6 \text{Contorls} + \lambda \text{ind} + \eta \text{year} + \varepsilon \quad (4)$$

Among them, "Rent" represents grouping variables, including processing groups and control groups; "Anticorr" represents policy variables, and "Contorls" represents control variables. According to the principle of double difference, the sample is divided into a processing group and a control group firstly. The grouping method in this paper is: The first step is to group according to the year and industry to calculate the median excess management cost of each industry in each year. The second step is to set the enterprise with excess management expenses higher than the median excess management expenses of the industry in the year to 1, and vice versa. Therefore, this article sets the enterprise with "Rent" = 1 as the processing group and the group with "Rent" = 0 as the control group.

As mentioned earlier, the central government has promulgated anti-corruption measures such as the "Eight Provisions" at the end of 2012. Therefore, we set 2012 as the policy shock point, so the sample after 2012 is the policy implementation. Years before (including 2012) are before the implementation of the policy, then "Anticorr" = 0. The definition of the rest control variables are consistent with the aforementioned model. What is slightly different from the general double-difference model is that the interaction terms "Sub × Rent × Anticorr" of government subsidies and grouping variables and policy variables are added in this paper. In this expansion model, if  $\beta_1$  is significantly positive, it can be explained that after anti-corruption, the government subsidy of companies with a high degree of rent-seeking has a greater positive impact on corporates' performance than the company with a low degree of rent-seeking.

### 3.2. Data Source and Variable Interpretation

In order to examine the impact of anti-corruption on private enterprises, taking into account that corporate financial data usually takes three consecutive years as a stable and continuous financial period, this article selects the financial data of private listed companies from 2010 to 2015. The basic information of the company involved in the empirical research, the company's operating income, shareholder data, Tobin's Q value, and regional fiscal data in macro variables are all derived from the CSTA database. In addition, the marketization index at the provincial

level comes from the marketization index report of provinces in China compiled by Fan Gang and others (Fan Gang and others, 2016) [19].

**Explained variable.** The most important explanatory variables in this article are corporate performance, including the Tobin's Q that measures growth and the total return on assets (ROA) that measures corporate profitability. ROA and Tobin Q values come from the analysis of financial indicators in the CSMAR database. In the regression process, this article divides Tobin Q values by 100 to get a clearer regression coefficient.

**Explanatory variables.** The main explanatory variable in this article is government subsidy, which is also one of the explained variables. The government subsidy data comes from the notes section of the financial statements in the CSMAR database. This article removes the portion of the government subsidy data that is part of the VAT refund and divides it by the current operating income to standardize it to avoid errors caused by differences in business revenue scale. The explanatory variables involved in the above model also include excess management costs (EOH). This paper draws on the method of calculating excess employees by Zeng Qingsheng et al. (2006) [21], and extends it to the calculation method of excess management costs (Shen Yu et al., 2015) [20], using excess management costs as proxy variables to measure the degree of rent-seeking of enterprises.

The calculation method of excess management expenses is as follows: First, the actual management expenses of the enterprise are returned based on factors that may affect the normal management expenses of the enterprise. After the regression, we will get the fitted value of enterprise management expenses, which is the theoretical value of enterprise management expenses. Then the actual management costs incurred by the enterprise minus the fitting management costs obtained by the regression can reach the excess management costs. The specific model is as follows:

$$\text{Overhead} = \alpha_0 + \alpha_1 \text{revenue} + \alpha_2 \text{CR} + \alpha_3 \text{size} + \alpha_4 \text{listage} + \alpha_5 \text{CFFOA} + \alpha_6 \text{F1Sharehold} + \alpha_7 \text{growth} + \alpha_8 \text{empnum} + \alpha_9 \text{Presmn} + \alpha_{10} \text{m\_age} + \lambda \text{ind} + \eta \text{year} + \varepsilon \quad (5)$$

The main independent variable is revenue, and the model takes the natural logarithm of revenue. In the daily business activities of an enterprise, management expenses account for a large part of the expenses.

First of all, considering that the longer the company is established, the larger the scale, the greater the impact on the company's daily business transactions and expenses, so the model size (Size) and the time interval from the company to the sample period (Listage). The scale of the enterprise is measured by the logarithm of the total assets of the enterprise. Secondly, the management fee of an enterprise is a daily expense. Therefore, it is necessary to add the company's cash flow to examine the management expense of the enterprise. The current ratio (CR) and net cash generated from operating activities (CFFOA) are added to the model. A large part of the management expenses is business entertainment expenses, which is one of the daily expenses of corporate service customers. Different from Shen Yu et al. (2015), this article considers that the business entertainment fee is related to the business development of the enterprise and the number of employees, especially the number of sales staff. Therefore, the model includes the number of employees (Empnum) and the growth rate of the company's operating income (Growth).

Finally, the internal control of the enterprise is an important guarantee to ensure that the company can open source and reduce expenditures. If the leader of the enterprise does not arrange the management expenses scientifically and reasonably, it will also cause the management expenses to overrun or shrink. Therefore, the model also includes variables

related to the company's internal control, including the shareholding ratio of the largest shareholder (F1Sharehold) and the concurrent appointment of chairman and general manager (Presmn). If there is a part-time situation, the value is set to 1, otherwise it is set to 0, which reflects to some extent whether the company has an agency problem. The average age of executives is represented by m\_age, which controls both industry and year fixed effects.

After using the model (5) to estimate the management costs, the coefficients of each variable are obtained, and the model is calculated again to obtain the estimated value of the overhead. The estimated value is then substituted into the following model (6) to obtain the excess management cost EOH, which is the proxy variable for the rent-seeking cost of the enterprise.

$$EOH = \text{Overhead} - \widehat{\text{Overhead}} \quad (6)$$

Control variables. The main control variables of d in the model include: ①current ratio (CR), which is the ratio of the company's current assets and current liabilities, which reflects the short-term debt repayment ability of the enterprise; ②enterprise size (the natural ratio of the company's total assets at the end of the period) number; ③Net cash flow from operating activities (CFFOA), that is, the difference between the inflow and outflow of cash flows from the daily business activities of enterprises, obtained in the basic information of private enterprises; ④The largest shareholder's shareholding ratio (F1Sharehold) Reflect the concentration of equity in the company; ⑤The growth rate of the company's operating income. This article uses the annual growth rate of operating income to indicate that the larger the growth rate of income, the more financial support the company needs; ⑥macro variables include the city-level fiscal deficit rate). And provincial level marketization index (market). In this paper, different control variables will be appropriately selected according to different dependent variable settings in different models. At the same time, all models control industry and year fixed effects, and use enterprise-level clustering robust standard error.

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

Variables	Num	Max	Mean	Min	SD
ROA	3980	0.201	0.050	-0.127	0.041
tobinqa	3980	11.948	2.596	0.314	1.828
Sub	3980	0.222	0.027	0	0.033
Overhead	3980	0.413	0.105	0.013	0.065
lrevenue	3980	23.838	20.847	18.597	1.007
CR	3980	25.404	3.395	0.529	3.437
size	3980	24.072	21.492	19.914	0.807
CFFOA	3980	0.536	0.072	-0.537	0.133
listage	3980	22.159	5.431	0.766	4.529
F1Sharehold	3980	69.750	33.449	8.980	13.161
m_age	3980	58.308	47.418	37.154	2.997
empnum	3975	10.594	7.374	2.197	0.950
growth	3980	2.100	0.201	-0.389	0.307
market	3980	10.737	8.280	3.630	1.432
deficit	3980	3.869	0.372	-0.095	0.546



### 3.3. Variable Descriptive Statistics

In the process of sample selection, ① companies that belong to the financial industry are excluded; ② are sampled by ST or \* ST during the sample period; ③ the main variables are missing; ④ belong to the state-controlled company when listed. It became a sample of private enterprises only after the shareholding system reform. In order to eliminate the influence of extreme values on the empirical results, all continuous variables used in the regression samples in this paper were subjected to Winsor processing of 1% before and after, and 3980 unbalanced panel data samples were obtained after processing. The specific statistics of the variables are shown in Table 1.

Variable name    Quantity    Maximum    Mean    Minimum    Standard deviation

## 4. RESULTS AND DISCUSSION

### 4.1. Rent Seeking in Private Enterprise and Government Subsidies

In order to use the excess management cost of the company as an agent variable for the degree of rent-seeking of the enterprise, we can implement the calculation process of the excess management cost by estimating the residual of the model (4) in the measurement process. In this paper, panel (4) is used to calculate the model (4) using the fixed-effect regression method, and a total of 3974 excess management cost regression samples are obtained.

Considering that government subsidy policies differ in different industries, before regression on model (1), first group samples by industry. With reference to the existing literature, this article uses the industry classification codes of listed companies disclosed by the China Securities Regulatory Commission to mark the industry. Except for the manufacturing industry, which retains the first two digits of the industry code, all other industries retain the first digit of the industry code, and a total of 21 industries are obtained.

On May 30, 2012, the State Council discussed and approved the "Twelfth Five-Year Plan National Strategic Emerging Industry Development Plan", which proposed energy conservation and environmental protection, next-generation information technology, biology, high-end equipment manufacturing, new energy, new materials, and new energy. The key development directions and main tasks of the seven strategic emerging industries such as automobiles. The promulgation time of this policy is close to the promulgation time of the Anti-Corruption New Deal, which has a certain impact on the research of this paper. Therefore, in this regression sample, the companies belonging to the above seven areas are grouped into key industry groups, and other sample companies are grouped into general industry groups.

Table 2 reports the regression results of model (1). The first and second columns show the results of the full sample regression. The regression results show that the coefficients of excess management costs are significantly positive, indicating that in general, rent-seeking activities can promote enterprises to obtain government subsidies. This is in line with Yang Deming et al. (2017) the results of the research are consistent, and preliminary hypothesis 1 is proved. The third to sixth columns are the results of group regression. The coefficient of EOH in the third column is 0.2095, and it is significant at a significance level of 1%. The coefficient of EOH in the fourth column is -0.01, but it does not pass the significance test. This shows that under the same conditions, companies with a high degree of rent-seeking are more likely to obtain government subsidies, which proves Hypothesis 1. The coefficient of EOH in the fifth column is 0.2204 and passed the significance level test of 1%, while the results in the sixth column are not significant. This shows that rent-seeking companies in key industries have a positive effect on receiving government subsidies, but this phenomenon does not occur in general industries. The possible explanation is that competition in government subsidies in key industries is more intense and

the average input of government subsidies is higher. Therefore, the effect of rent-seeking activities in key industries is more obvious.

**Table 2.** Relationship between rent-seeking costs and government subsidies

Independent variables	(1) Full sample	(2) Full sample	(3) High level	(4) Low level	(5) Key industries	(6) General industries
EOH	0.1413*** (0.0197)	0.1689*** (0.0228)	0.2095*** (0.0338)	-0.0100 (0.0474)	0.2204*** (0.0295)	0.0063 (0.0241)
CR		0.0011*** (0.0003)	0.0012*** (0.0003)	0.0007** (0.0003)	0.0016*** (0.0004)	0.0005* (0.0003)
size		- 0.0040*** (0.0011)	- 0.0052*** (0.0016)	0.0006 (0.0015)	-0.0042** (0.0018)	-0.0007 (0.0013)
CFFOA		0.0086* (0.0052)	0.0143* (0.0081)	0.0036 (0.0054)	0.0169** (0.0076)	0.0004 (0.0060)
F1Sharehold		-0.0001* (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0002* (0.0001)	-0.0001 (0.0001)
growth		-0.0039** (0.0016)	-0.0016 (0.0027)	- 0.0055*** (0.0018)	-0.0032 (0.0023)	-0.0029 (0.0020)
listage		0.0011*** (0.0002)	0.0010** (0.0004)	-0.0002 (0.0003)	0.0010*** (0.0003)	0.0001 (0.0003)
deficit		-0.0008 (0.0012)	-0.0041** (0.0020)	0.0001 (0.0013)	-0.0018 (0.0019)	-0.0000 (0.0014)
market		- 0.0020*** (0.0006)	-0.0023** (0.0009)	-0.0016** (0.0007)	- 0.0033*** (0.0011)	-0.0008 (0.0006)
_cons	0.0358*** (0.0061)	0.1281*** (0.0247)	0.1519*** (0.0353)	0.0316 (0.0326)	0.1294*** (0.0383)	0.0504* (0.0277)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	3974	3974	2020	1954	2270	1704
R2	0.1608	0.2066	0.2958	0.0848	0.2213	0.1343

Note: \*, \*\*, and \*\*\* indicate the significance levels of 10%, 5%, and 1%, respectively. The regression uses the enterprise-level clustering robust standard error, and the bracketed values of the two-tailed t under the standard error.

In addition, an interesting result can be found in Table 2. Except for the general industry sample group, the marketization index market has significant negative coefficients for other group samples. That is, when the marketization index is higher, the government subsidies received by enterprises have decreased significantly. The possible explanation is that the higher the degree of local marketization, the market-oriented method can be used to solve the financing dilemma of private enterprises to a certain extent, and they no longer rely too much on the government's "tangible hand" to help enterprises.

#### 4.2. Government Subsidies, Enterprise Growth and Profitability

According to the estimation of model (1), it can be found that the rent-seeking activities of enterprises have a significant positive impact on their government subsidies. Then, can government subsidies obtained through this channel promote the development of enterprises or improve the performance of enterprises? In the model (2), we use the fixed effect method for regression. In the regression results, we focus on the sign of  $\beta_1$ . Table 3 reports the regression results of model (2). It can be found that the coefficient of government subsidies is not significant in both the full sample and the group regression. influences. It can be seen from the coefficient of government subsidies that government subsidies for high rent-seeking and key industries have even shown negative numbers, indicating that the more government subsidy subsidies the high rent-seeking group receives, the lower the investment value of their enterprises. The government subsidies obtained through rent-seeking have not brought enough benefits to the enterprise to offset the rent-seeking expenses. Although it did not pass the significance test, this article concludes that after the anti-corruption policy was introduced, the rent-seeking behavior of enterprises was cracked down, which reduced the rent-seeking costs of enterprises, and government subsidies could promote the growth of enterprises.

**Table 3.** Government subsidies and corporate growth (Tobin Q)

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	Full sample	Full sample	High level rent-seeking	Low level rent-seeking	Key industries	General industries
Sub	-0.0011 (0.0105)	0.0030 (0.0109)	-0.0075 (0.0179)	0.0078 (0.0140)	-0.0006 (0.0134)	0.0176 (0.0181)
CR		-0.0001 (0.0001)	-0.0002 (0.0002)	-0.0000 (0.0002)	-0.0002 (0.0002)	-0.0001 (0.0002)
size		-0.0109*** (0.0014)	-0.0120*** (0.0024)	-0.0095*** (0.0019)	-0.0086*** (0.0017)	-0.0139*** (0.0022)
CFFOA		0.0027 (0.0021)	0.0016 (0.0033)	0.0008 (0.0027)	0.0034 (0.0029)	0.0033 (0.0025)
F1Sharehold		0.0001 (0.0001)	0.0002 (0.0001)	0.0001 (0.0001)	0.0002 (0.0001)	0.0001 (0.0001)
growth		0.0037*** (0.0009)	0.0047*** (0.0014)	0.0019* (0.0012)	0.0030*** (0.0010)	0.0033** (0.0015)
listage		0.0021*** (0.0004)	0.0014*** (0.0005)	0.0027*** (0.0006)	0.0017*** (0.0005)	0.0025*** (0.0005)
market		0.0019*** (0.0007)	0.0028*** (0.0010)	0.0010 (0.0011)	0.0024** (0.0009)	0.0016 (0.0009)
deficit		0.0012 (0.0012)	0.0025 (0.0018)	0.0003 (0.0014)	0.0033* (0.0018)	-0.0006 (0.0015)
_cons	0.0422*** (0.0032)	0.2491*** (0.0303)	0.2488*** (0.0495)	0.2159*** (0.0382)	0.1904*** (0.0364)	0.3065*** (0.0467)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	3980	3980	2026	1954	2274	1706
R2	0.4223	0.4586	0.4670	0.4802	0.5033	0.4316

Note: \*, \*\*, and \*\*\* indicate the significance levels of 10%, 5%, and 1%, respectively. The regression uses the enterprise-level clustering robust standard error, and the bracketed values of the two-tailed t under the standard error.

Next, this article continues to observe the impact of government subsidies on corporate profitability. In model (2), the explanatory variable is replaced by ROA. The regression results

are shown in Table 4. It can be seen from Table 4 that the government subsidies obtained by enterprises through rent-seeking generally have no significant impact on corporate performance. The government subsidy coefficient in the fourth column is 0.0728, which is significant at a significance level of 5%, indicating that government subsidies obtained by enterprises through normal channels are conducive to improving the profitability of enterprises. The regression results of other subgroups are consistent with the regression results of Table 3. Similarly, the government subsidy coefficients of the high rent-seeking group and key industry groups are negative, indicating that government subsidies obtained by rent-seeking companies have a negative impact on corporate performance.

From the regression results of government subsidies on corporate growth and profitability, it can be found that the government subsidies obtained by rent-seeking companies do not significantly promote the growth and profitability of enterprises in general. This is in line with Wei Zhihua et al. (2015) the results are consistent and prove the hypothesis 2.

**Table 4.** Government subsidies and business performance (ROA)

Independent variables	(1) Full sample	(2) Full sample	(3) High level rent-seeking	(4) Low level rent-seeking	(5) Key industries	(6) General industries
Sub	-0.0096 (0.0274)	0.0067 (0.0272)	-0.0134 (0.0372)	0.0728** (0.0360)	-0.0109 (0.0337)	0.0498 (0.0442)
CR		0.0013*** (0.0003)	0.0010*** (0.0004)	0.0011** (0.0005)	0.0014*** (0.0004)	0.0011*** (0.0004)
size		-0.0019 (0.0030)	-0.0015 (0.0049)	-0.0015 (0.0040)	-0.0011 (0.0040)	-0.0049 (0.0047)
CFFOA		0.0345*** (0.0059)	0.0510*** (0.0094)	0.0172** (0.0072)	0.0374*** (0.0078)	0.0308*** (0.0088)
F1Sharehold		0.0005*** (0.0002)	0.0002 (0.0002)	0.0005** (0.0002)	0.0006** (0.0003)	0.0003 (0.0002)
growth		0.0224*** (0.0021)	0.0240*** (0.0029)	0.0207*** (0.0034)	0.0229*** (0.0025)	0.0221*** (0.0037)
listage		-0.0033*** (0.0009)	-0.0035** (0.0015)	-0.0034*** (0.0012)	-0.0039*** (0.0011)	-0.0027** (0.0013)
market		0.0010 (0.0016)	-0.0005 (0.0026)	0.0020 (0.0023)	-0.0002 (0.0020)	0.0028 (0.0025)
deficit		0.0020 (0.0032)	-0.0042 (0.0069)	0.0053 (0.0036)	0.0033 (0.0048)	0.0009 (0.0041)
_cons	0.0401*** (0.0079)	0.0447 (0.0637)	0.0754 (0.1018)	0.0214 (0.0838)	0.0613 (0.0863)	0.1075 (0.0960)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	3980	3980	2026	1954	2274	1706
R2	0.0974	0.1747	0.1978	0.1451	0.2063	0.1492

Note: \*, \*\*, and \*\*\* indicate the significance levels of 10%, 5%, and 1%, respectively. The regression uses the enterprise-level clustering robust standard error, and the bracketed values of the two-tailed t under the standard error.

### 4.3. Further Discussion: Anti-Corruption, Government Subsidies and Corporate Performance

In the above analysis of rent-seeking costs, government subsidies, corporate growth, and corporate performance, it can be found that, in general, government subsidies obtained by rent-seeking companies have not significantly affected the growth and performance of companies, and have high corruption Government subsidies received by enterprises are not even conducive to the development of enterprises. Therefore, this paper further discusses whether large-scale anti-corruption campaigns can correct the efficiency of government subsidies based on the regression results of model (3).

In order to study the difference between government subsidies before and after anti-corruption, the product of government subsidies and double-difference interaction terms is added to the regression. Therefore, this paper focuses on the coefficient of  $\beta_1$  in model (3).

Table 5 reports the regression results. The first three columns are the results of DID regression, and the last three columns are the results of two-way fixed-effect regression. In the regression of DID model, the coefficient of "Anti  $\times$  Rent  $\times$  Sub" of the first column of interaction terms is 0.1597, which is significant at the significance level of 1%. In addition, the Anti  $\times$  Sub coefficients in the second and third columns are significantly positive, indicating that compared to before anti-corruption, government subsidies after anti-corruption promote the promotion of enterprise investment value, which is consistent with the inferences in the previous article. In the two-way fixed effect model regression, the coefficient of Anti  $\times$  Rent  $\times$  Sub is significantly positive regardless of whether the control variable is added or not. The coefficient of this interaction term in the sixth column is 0.0407, which is significant at the significance level of 5%. This shows that, compared to companies with low levels of corruption, government subsidies received by corrupt companies after anti-corruption promote the growth of enterprises, further supporting Hypothesis 3a.

Then observe the impact of anti-corruption on corporate profitability through the government subsidy channel, set the explanatory variable in model (3) to ROA, and perform double difference and two-way fixed effect regression. The regression results are shown in Table 6.

**Table 5.** Anti-corruption, government subsidies and corporate growth (Tobin Q)

Independent variables	DID			Two-way fixed effect		
	(1)	(2)	(3)	(4)	(5)	(6)
Anti $\times$ Rent $\times$ Sub	0.1597*** (0.0168)	0.0353 (0.0324)	0.0185 (0.0309)	0.0267* (0.0150)	0.0423** (0.0165)	0.0407** (0.0166)
Anti $\times$ Sub		0.1429*** (0.0262)	0.1510*** (0.0256)			
Rent $\times$ Sub		0.0573*** (0.0202)	0.0429** (0.0203)		-0.0308** (0.0151)	-0.0351* (0.0198)
Sub		- 0.0767*** (0.0173)	-0.0806*** (0.0174)			0.0118 (0.0141)
Controls			Yes			Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year				Yes	Yes	Yes
N	3980	3980	3980	3980	3980	3980
R2	0.1446	0.1543	0.2839	0.4234	0.4246	0.4608

Note: \*, \*\*, and \*\*\* indicate the significance levels of 10%, 5%, and 1%, respectively. The regression uses the enterprise-level clustering robust standard error, and the bracketed values of the two-tailed t under the standard error.

Regression results show that, in the DID model, whether the control variable is added or not, the coefficients of Anti × Rent × Sub fail the significance test. In the two-way fixed effect model, the coefficients of the Anti × Rent × Sub interaction terms in the fifth and sixth columns did not pass the significance test. Only the coefficients in the fourth column are significant at the significance level of 10%, but because they do not control other variables and are significant only at the significance level of 10%, they are not representative. Therefore, in general, there is no evidence that government subsidies of corrupt companies have not had a more positive impact on corporate profitability after anti-corruption. Assume that 3b is not true, and that half of 3 is true and half is not true.

**Table 6.** Anti-corruption, government subsidies and corporate profitability (ROA)

Independent variables	DID			Two-way fixed effect		
	(1)	(2)	(3)	(4)	(5)	(6)
Anti × Rent × Sub	0.0529 (0.0350)	0.0352 (0.0550)	-0.0080 (0.0537)	-0.0717* (0.0371)	-0.0448 (0.0428)	-0.0375 (0.0429)
Rent × Sub		0.1730*** (0.0483)	0.0244 (0.0444)		-0.0903** (0.0423)	- 0.1171*** (0.0425)
Anti × Sub		- 0.1102*** (0.0403)	-0.0611 (0.0410)			
Sub		-0.0529 (0.0407)	-0.0042 (0.0366)		(0.0423) (0.0352)	0.0833** (0.0343)
Controls			Yes			Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year				Yes	Yes	Yes
N	3980	3980	3980	3980	3980	3980
R2	0.0393	0.0491	0.2136	0.0994	0.1012	0.1798

Note: \*, \*\*, and \*\*\* indicate the significance levels of 10%, 5%, and 1%, respectively. The regression uses the enterprise-level clustering robust standard error, and the bracketed values of the two-tailed t under the standard error.

This article believes that the possible reason is that government subsidies have no short-term impact on the profitability of enterprises. The profitability of enterprises is not only related to their cost control but also to their sales performance. After anti-corruption, due to the clean-up of various industries, the original customer relationships of some enterprises were cut off, which had a negative impact on the profitability of enterprises in a short period of time.

From the regression results in Tables 5 and 6, it can be seen that after anti-corruption, the government subsidies obtained by private enterprises have promoted the improvement of the investment value of enterprises. Further, the coefficient of the interaction term Anti × Rent × Sub is significantly positive, indicating that after anti-corruption, the government subsidy received by the high-corruption company has a greater effect on promoting the growth of the

company than the low-corruption company. But there is no evidence that government subsidies have the same positive effect on corporate profitability after anti-corruption.

## 5. CONCLUSION AND SUGGESTION

This paper uses excess management costs as a proxy variable to measure rent-seeking costs of enterprises. The study found that government subsidies obtained by private enterprises for rent-seeking did not significantly promote the growth of the company and the profitability of the company.

On this basis, this article uses a series of anti-corruption activities since the 18th National Congress of the CPC as a natural experiment, and uses a double difference method to analyze the relationship between anti-corruption, government subsidies, and corporate performance. Research shows that after anti-corruption, government subsidies help improve the growth of enterprises, and companies with a higher degree of rent-seeking are more effective than those with a lower degree of rent-seeking. This article believes that this is because the introduction of anti-corruption policies has discouraged private enterprises from seeking rent and increased the opportunity cost of rent-seeking. Therefore, anti-corruption actions not only purify the atmosphere of government organizations, but also greatly converge the "collusion between government and business" behavior, promote the healthy development of enterprises from the side, and improve the efficiency of the use of government subsidies.

The results of this study provide a theoretical basis for the source and effect of government subsidies. From the perspective of enterprises, rent-seeking activities do help companies get more government subsidies. However, government subsidies obtained through such channels are generally not good for the development of enterprises. In the long run, they may even worsen the investment environment of the entire society. Technology innovation is a necessary condition for the long-term development of an enterprise. Private enterprises should increase investment in new technologies and new knowledge, while improving internal control, scientifically and reasonably arranging expenses, and improving accounting quality to achieve long-term development.

From the perspective of the government, the private enterprise's access to government subsidies is a policy-oriented result. At the same time, the government's choice has virtually released an authoritative signal to social investment. Therefore, government subsidies should be distributed to the high-quality enterprises. In the case of enterprises with potential for development and lack of funds, government subsidies are undoubtedly a charity.

First, the relevant departments should improve the review mechanism for government subsidies, and special subsidies should establish a special evaluation team to evaluate pre-subsidized enterprises. The right to grant subsidies should not be concentrated in the hands of a certain person or department, but a multi-faceted approval system should be established. Secondly, establish and improve the tracking and supervision mechanism for the after-effects of government subsidies. If necessary, enterprises that use government subsidies improperly conduct verification and education. Finally, establish a reward and punishment system for companies that have received government subsidies. After receiving government subsidies, companies that continue to perform well can continue to receive government subsidies or even additional rewards. Enterprises that use improperly or fail the assessment and acceptance should stop issuing government subsidies and give appropriate warning.

## REFERENCES

- [1] D. Kong, S. Liu, Y. Wang (2013). Market competition, property rights and government subsidies. *Economic Research Journal*, vol.48, no.02, p.55-67.

- [2] X.L. Li, Y. Zhang, Z. Liu and D. Chen (2012). Institutional environment and rent-seeking activities: an empirical study derived from World Bank data . *China Industrial Economics*, no.11, p.84-96.
- [3] J. Wang and H.K. Yuan (2019). Government Subsidies, Financing Constraints and Innovation of Private Enterprises——Empirical Evidence from Chinese A-Share Listed Companies . *Finance and Economy*, no.03,p.47-52.
- [4] M.G.Yu, Y.F. Hui, H.B.Pan(2010). Political connection, rent seeking and the effectiveness of local government financial subsidies. *Economic Research Journal*, vol. 45, no.03, p.65-77.
- [5] D.L. Luo, Q.Q.Tang(2009). Research on Institutional Environment and Performance of Chinese Private Listed Companies. *Economic Research Journal*, vol.44, no.02, p.106-118.
- [6] J.L.Huang, K,W.Li(2013). Food and Drink, Corruption and Enterprise Orders . *Economic Research Journal*, vol.8, no.06, p.71-84.
- [7] X.Q.Du, Y.H.Chen, Y.J. Du (2010). Rent-seeking, Political Connections and "Real" Performance——Empirical Evidence Based on Private Listed Companies. *Financial Research*, no.10, p.135-157.
- [8] D.M.Yang, C.Zhao, W.Cao (2017). Rent-seeking and corporate performance: "stumbling block" or "lubricant" . *Finance and Economics*, vol.38, no.1, p.130-145.
- [9] Q.Q.Tang and D.L.Luo(2007). Empirical Research on the Motivation and Effect of Government Subsidies——Empirical Evidence from Chinese Listed Companies. *Financial Research*, no.06,p.149-163.
- [10] C.Zhao, Z.Q.Wang, D.M.Yang and Cao Wei (2015). Research on Enterprise Catering Behavior and Government Subsidy Performance——Analysis Based on Different Profit Situations of Enterprises. *China Industrial Economy*, no.07,p.130-145.
- [11] Z.H.Wei,Y.H.Wu,A.M. Zeng (2015). Rent-seeking, financial subsidies and company growth——Empirical evidence from listed companies in the concept of new energy. *Economic Management*, vol.37, no.01,p.1-11.
- [12] Y.Shen,J.M.Zhao (2016). The Gain and Loss of Food and Drink Expenses——A Study Based on the Investment and Financing Efficiency of Listed Companies. *Financial Research*, no.03,p.140-156.
- [13] W.M.Xie, Q.Q.Tang, S.S.Lu (2009). Government R & D funding, corporate R & D expenditure and independent innovation: empirical evidence from Chinese listed companies. *Financial Research*, no.06,p. 86-99.
- [14] J.H.Bai (2011). Is China's government R & D funding effective? Empirical evidence from large and medium-sized industrial enterprises . *Economics (Quarterly)*, vol.10, no.04, p.1375-1400.
- [15] G.Q.Lu, Z.Wang, C.Y.Zhang (2014). A Study on the Performance of Government Innovation Subsidies for China's Strategic Emerging Industries. *Economic Research*,vol.49, no.07, p.44-55.
- [16] M.B.Wang, D.G.Kong (2016). Anti-corruption and Corporate Governance Optimization in China: A Quasi-Natural Experiment. *Financial Research*, vol.0 ,no.8, p. 159-174.
- [17] L.Dang, R.L.Yang, J.D.Yang(2015). Anti-Corruption and Enterprise Innovation: An Explanation Based on Political Connections. *China Industrial Economics*, no.07,p.146-160.
- [18] Q.L.Zhong, Z.F.Lu, C.Yuan(2016). Anti-corruption, corporate performance and channel effects: A study based on the anti-corruption construction of the 18th National Congress of the Communist Party of China. *Financial Research*, no.9,p.161-176.
- [19] X.L.Wang ,G. Fan,J.W.Yu(2016), *Marketization Index Report by Provinces in China* , Social Science Literature Publishing House.
- [20] Y.Shen, L.L.Fu,J.M. Zhao (2015). An Empirical Study on the Impact of the Change of Secretary of the Municipal Party Committee on Enterprise Rent-seeking. *China Industrial Economy*, no.09,p.37-52.



- [21] Q.S.Zeng,X.Y. Chen (2006). State holdings, excess employees and labor costs . Economic Research Journal, no.05, p.74-86.
- [22] H.Z.Hu, X.Huang (2016). Rent-seeking, government subsidy and performance of private enterprises. Research on Financial and Economic Issues, vol.0, no.9,p.107-112.
- [23] Cai,H., et al (2011). Eat, Drink, Firms, Government: An Investigation of Corruption from the Entertainment and Travel Costs of Chinese Firms,The Journal of Law & Economics, vol.54,no.1,p.55-78.
- [24] Shleifer, A, Vishny, R. (1994). Politicians and firms,Quart. J. Econ. no.109, p.995–1025.
- [25] Khwaja,I.A.,A.Mian (2005).Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market, Quarterly Journal of Economics, vol.120,no.4,p.1371-1411.
- [26] Tzelepis,D., D.Skuras (2004).The effects of regional capital subsidies on firm performance: an empirical study,Journal of Small Business and Enterprise Development, vol.11,no.1,p.121-129.
- [27] Zheng,Y.,Z.Yuande (2013 ).Bank lending incentives and firm investment decisions in China, Journal of Multinational Financial Management, vol.23,no.3,p.146-165.
- [28] Anne,O.,Krueger(1974).The Political Economy of the Rent-Seeking Society, The American Economic Review,vol.64,no.3,p.291-303.