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## Research on evaluation of the level of tax and fee burden of private enterprises in China

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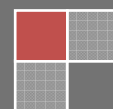
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### ABSTRACT

Although private enterprises make great contributions to the national economy and employment, tax and fee burden restricted their development and quality even erode their capital. Through analysis of private enterprises, state-owned enterprises and foreign enterprises tax burden differences, tax burden of private enterprises is heavy which can be summarized with methods of comparison, judgment and reasoning etc. Then select the data from 2008 to 2013, combine with the government expenditure optimal principle, and use Cobb - Glass model and regression analysis method to calculate China's macro tax burden level which is 15.29%. Finally, according to sales revenue, cost, expenses, value-added taxes etc, measure and verify that private enterprises reasonable tax and fee burden should be 14.7%-16.24%, which coincides well with the national macro tax burden level.

### KEYWORDS

Private enterprises; Tax and fee burden level; Measurement and evaluation.



## INTRODUCTION

With the expansion of private businesses, the private business sector in our country is becoming more and more full-fledged, and its position and influence is also greatly enhanced. According to estimation, tax revenue accounts for 16.01%. Private enterprises create RMB188318.683 billion's worth, while its tax contribution amounts to RMB40589.601 billion, which accounts for 21.55% of its GDP, 5.54 percentage points higher than that of the nation's average tax level. It can be concluded that the reason that private enterprises get caught in the vicious circle "easy birth, but hard survive". Therefore, studies on private tax policy are very important and have a realistic meaning.

### SITUATION OF PRIVATE ENTERPRISES' TAX AND FEE

#### Structure of private enterprises' tax and fee

Tax=private enterprises payable tax/ sales income (operating income)\*100%. The structure of tax and fee include turnover tax (value added tax (VAT), consumption tax and business/sales tax), income tax (not including individual income tax), taxable resources (taxable resources, land usage tax, and land appreciation tax), property tax (housing tax, real estate tax, vehicle and vessel tax, and) and specified tax (stamp tax, urban maintenance and construction tax). Besides, various fees levied by tax authorities, such as social security fees, education surtax, local education surtax, price adjusting fund and disabled person security fund.

Among the above-mentioned taxes and fees, although turnover tax and taxable resources are transferred in theory, but in reality they are still accomplished by companies. And therefore they still constitute the tax burden on enterprises. Income tax of private enterprises, taxation of property behavior and fees are direct tax which can not be transferred both theoretically and practically, so it is with all kinds of fees. According to Marx's community surplus distraction theory, tax and fee paid by private enterprises are all one company's net income, namely accumulation of capital and capital and property value transferred to governments freely, which become tax burden of private enterprises.

#### Comparison of tax and fee between different business bodies

With no consideration of the tax structure, different taxpaying stages, and other tax contributions made by public service organizations, social institutions and unregistered individual tax payers, and according to amount of tax contributions made by enterprises in the total tax revenue of the nation's industrial and commercial bodies, it is discovered that the respective tax contribution made by enterprise bodies of different ownership is like this:

**TABLE 1 : The Tax status of Chinese enterprises of different ownership (2008-2012)**

Year	China's tax revenue			Chinese state-owned enterprises		
	Total(100 Million Yuan)	Macro tax (%)	Growth rate(%)	Tax(100 Million Yuan)	proportion(%)	Growth rate(%)
2008	57861.80	17.30	-	10354.66	17.90	-
2009	63103.60	17.46	9.06	10169.58	16.12	-1.79
2010	77394.44	18.23	22.65	11973.61	15.47	17.74
2011	95729.46	18.97	23.69	13915.08	14.54	16.21
2012	106008	19.39	10.73	16141.49	15.23	16.0
Year	Foreign-invested enterprises			Private enterprises		
	Tax(100 Million Yuan)	proportion(%)	Growth rate(%)	Tax(100 Million Yuan)	proportion(%)	Growth rate(%)
2008	12118.92	20.94	-	8690.32	15.02	-
2009	13615.17	21.58	12.35	9037.38	14.32	3.99
2010	16389.71	21.18	20.38	11633.35	15.03	28.72
2011	19638.00	20.51	19.82	14203.95	14.84	22.10
2012	22261.68	21	13.36	19498.7	18.39	37.28

#### (1) Comparison of total tax

The growing rate of Chinese state-owned enterprises' total tax is lower than private enterprises'. Compared with total tax in 2008, in 2012 total tax of state-owned enterprises, Foreign-invested enterprises and private enterprises are increased by 1.56 times, 1.83 times and 2.2 times respectively. Obviously, the growth rate of private enterprises' total tax is the fastest. Increase of tax burden also leads to the result besides the fast development of private enterprises.

### (2) Comparison of tax contribution ratio

According to taxpayer's practical tax proportion in the national industrial and commercial tax revenue, tax contribution ratios of state-owned enterprises and private enterprises are always lower than macro tax burden level of China, only the ratio of foreign-invested enterprises is a little higher than the average level. Tax contribution of state-owned enterprises has decreased continuously, which dropped by 2.5 percentage points during five years. Meanwhile, Tax contribution of private enterprises has increased, which climbed by 3.3 percentage points. Though undergoing a tough development after being swept by the fierce storm of subprime crisis in America in the later half of 2008, the financial turmoil which has been continually fermented for three years, the tax contribution by private sectors was yet increased to 18.39% in 2012, which was the post-financial-crisis era, 3.37% higher than that of five years ago, and was 3.55% higher than that of 2011, ranking the first on the list of tax contributions made by various enterprise bodies.

### (3) Comparison of tax growth rate

Tax growth rate reflects tax growth rate of one company. Tax growth rate = tax (current fiscal year) - tax (previous fiscal year) / tax (previous fiscal year) \* 100%. As seen from the table, state-owned enterprises exhibited negative growth, while foreign-invested enterprises and private enterprises show positive growth. National tax increased by 150%, while tax growth rate of private enterprises is up to 620% sharply, surpassing by 10 times of foreign-invested enterprises. Private enterprises have made great contribution to national tax. Compared with the previous fiscal year, national tax growth rate multiplies by times, tax growth rate of state-owned enterprises declined by small margin; tax growth rate of foreign-invested enterprises descended by nearly 6.5 percentage points; tax growth rate of private enterprises mounted by 15 percentage points. It shows that private enterprises take heavy pressure of tax, approaching the point at which tax harms the capital of private enterprises.

## MACRO TAX BURDEN LEVEL OF CHINA

Financial expenditure demand is the basis of enterprises' payment tax. China's fiscal theory and policy 'control expenditure by payment'. To some extent, financial expenditure demands determine the scale and level of financial expenditure, which has been proved by practices since the reform and open up. So, financial expenditure demands (during a given period) decide macro tax burden level (the same period). To check the rationality of private enterprises' macro tax burden level, macro tax burden level of China should be measured in the light of financial expenditure demands.

### Selection of tax burden measurement model

Cobb - Glass model is used as tax burden measurement model to study private enterprises tax burden level measurement model. The formulation:

$$Y_t = A(t)K_t^\alpha L_t^\beta$$

Government purchases affect total production. Therefore, governmental expenditures should be included in the original formulation. The log of the formation:

$$\ln Y_t = \ln A(t) + \alpha \ln L_t + \gamma \ln G_t$$

$Y_t$  = total production (the real value of all goods produced in t year)

$K_t$  = capital stock

$L_t$  = labour input

$G_t$  = financial expenditure

$A$  = output elasticity of capital

$B$  = output elasticity of labor

$R$  = output elasticity of financial expenditure

### Data sources

According to China Statistical Yearbook published by National Bureau of Statistics of the People's Republic of China, 20 years' (1993-2012) data are chose to analyze.  $Y_t$  indicates GDP of the corresponding year;  $L_t$  is indicated by total number of person in business activity;  $G_t$  is indicated by national financial expenditure; there is no accurate number of  $K_t$ , so  $K_t$  is indicated by the social investment in fixed assets. GDP,  $K$  and  $G$  are treated using CPI of 1993 (selected as the base year). TABLE 2 shows the result of the index after the treatment.

### Correlation analysis

Elasticities of financial expenditure and output and macro tax burden level can be calculated in the light of regression analysis, while correlation analysis is the basis of regression analysis. Therefore, analyze data of TABLE 5 first, and then check correlation of each index, which is shown in TABLE 3.

**TABLE 2 : The result of the index after the treatment**

Year	lnY	lnK	lnG	lnL
1993	5.87	4.82	11.10	3.84
1994	5.96	4.92	11.12	3.84
1995	6.04	4.93	11.13	3.85
1996	6.11	4.98	11.14	3.92
1997	6.19	5.04	11.15	4.04
1998	6.27	5.18	11.19	4.21
1999	6.34	5.24	11.20	4.42
2000	6.44	5.33	11.21	4.60
2001	6.53	5.45	11.22	4.77
2002	6.63	5.61	11.23	4.93
2003	6.74	5.85	11.24	5.03
2004	6.86	6.05	11.25	5.14
2005	6.99	6.26	11.26	5.30
2006	7.13	6.46	11.27	5.46
2007	7.29	6.63	11.27	5.62
2008	7.40	6.81	11.25	5.79
2009	7.49	7.07	11.26	5.99
2010	7.62	7.26	11.27	6.13
2011	7.73	7.32	11.27	6.27
2012	7.80	7.48	11.28	6.39

**TABLE 3 : Pearson correlation**

	lnY	lnK	lnL	lnG
lnY	1	0.995**	0.911**	0.995**
lnK	0.995**	1	0.878**	0.989**
lnL	0.911**	0.878**	1	0.926**
lnG	0.995**	0.989**	0.926**	1

\*. The mean difference is significant at the 0.05 level, \*\*. The mean difference is significant at the 0.01 level.

The mean difference of China’s total production and capital stock is significant at the 0.01 level, demonstrating that more fixed assets, more total production is, which also means that putting large capital promotes the development of China’s economy. The mean difference of government financial expenditure and social gross output is significant at the 0.01 level which shows government financial expenditure input stimulates social gross output. The mean difference of labor input and social gross output is significant at the 0.01 level, indicating more economically active population is, more social gross output is. Social gross output and social fixed assets, government financial expenditure, and economically active population have significant correlation, so regression analysis can be used.

**Regression analysis**

The regression analysis for equation (3) by using spss17.0 returns following results:

**TABLE 4 : Model summery (b)**

Model	R	R2	R2 after adjustment	Allowed deviation for assessment	Adjust statistic			Sig. F after adjustment	Durbin-Watson
					R2 after adjustment	F after adjustment	df1 df2		
1	0.999a	0.997	0.996	0.03739	0.997	1775.521	3 16	0.000	1.075

a. Predictors :(constants), lnGt, lnLt, lnKt, b. Dependent variables: lnYt

The figures in the table shows a significant result, and after adjustment,  $R^2=0.996$ . Fitting effect is preferable.

**TABLE 5 : Coefficients(a)**

Model	Off-standardized coefficients		Trial standardized coefficients	t	Sig.
	B	Allowed deviation			
(Constant)	-9.443	5.562		-1.698	.109
1					
lnK <sub>t</sub>	.464	.083	.674	5.623	.000
lnL <sub>t</sub>	1.126	.506	.104	2.225	.041
lnG <sub>t</sub>	.161	.109	.233	1.543	.142

#### a. Dependent variables: lnY<sub>t</sub>

According to statistics in the table, following model could be built by way of regression analysis:

$$\ln Y = -9.443 + 0.464 \times \ln K + 1.126 \times \ln L + 0.161 \times \ln G$$

The result indicates that the elastic productivity for our capital is 0.464; that for labor is 1.126; for fiscal expenditure is 0.161. According to analysis above, when the structure of fiscal expenditure is best optimized, it should go in accordance with its elastic productivity. Under such circumstances, the relative fiscal expenditure should be 16.1%. To best optimizing the structure of the fiscal expenditure, the tax income should cover about 95% of our total revenue, and therefore the reasonable tax standard of macro tax level should be 15.29%.

### ASSESSING THE REASONABLE TAX LEVEL FOR PRIVATE ENTERPRISES

#### Items and parameters used for prefiguring out the tax level

Firstly, types of taxes and fees on private enterprises should be certified. They are: value added tax, income tax on corporations, city construction tax, education surtax, local education surtax, stamp duty, disabled guarantee fund (hereinafter referred to as "disabled premium"), and corporate pensions. Secondly, the basic cost on wage is based on the national average wage for employed workers in 2012, RMB19,731; period expenses of private enterprises can be measured with reference to actual situation, in which the ratio of administrative expenses can be measured in accordance with accounting experience, namely 10% of sales income, and the sales cost is estimated at 20% of sales income, and the expenses on advertising and publicity is about 15% of sales income which is prior income tax and with deductible costs excluded. With respect to the scale of catering and service sector, which is still relative small in comparison with other industries, and its sales cost relatively low, its cost can be set at 30% of their sales income. When such parameters are settled, the benchmark for measurement can be as follows:

If X stands for gross income, A for sales income, then the sales cost should be  $A(1-x)$ ; the percentage for cost on wages is about 10% (most private enterprises are labor intensive, their costs on wage are usually higher than this), then the total expenditure on wage could be  $0.1A-0.1Ax$ ; period expense is 30% A, of which 20% can be used for deductible VAT. Taxes and surcharges C includes stamp duty, urban construction tax, education, local education surcharge, disability insurance payments, etc. RMB19, 731 is taken as average income per capita. VAT rate is 17%, the income tax rate 25%, and the other parameters can be set according to actual circumstances.

#### Approaches for assessing tax level for private enterprises

##### Taxes on private enterprises

##### (1) Value added tax

The measuring of VAT for private enterprise is usually based on standard for general VAT taxpayers, and two aspects need to be considered in the process of calculation: staff salaries are part of sales cost and cannot be deducted from input VAT; some period expenses including fees for fuel, transportation and other expenses are deductible in input VAT.

$$\begin{aligned} \text{The value added tax} &= \text{output tax} - \text{input tax} \\ &= [\text{Sales} - \text{Cost of sales} \times (1 + \text{wage cost rate})] \times 17\% - \text{period expenses} \times \text{VAT deductible rate} \times 17\% \\ &= [AA(1-x) + A(1-x) \times 10\%] \times 17\% - A \times 30\% \times 20\% \times 17\% = 0.153Ax + 0.0068A \end{aligned}$$

##### (2) Income tax on enterprises

First, according to corporate profits, the amount of taxable income is assessed with appropriate consideration for accounting deviation. As there are usually no income items which do not need to pay tax or are tax-free items in private

enterprises, it is not needed to make adjustment for their income revenue. Under most circumstances, the prime cost and unduly losses in private enterprise are not allowed to be deducted and therefore the amount of taxable income should be increased. According to a survey, it is discovered that due to poor management of accounting bills and backward accounting methods, the amount and incidence of taxation usually needs great adjustment. In state-owned enterprise, the rate after adjustment is generally around 18% while that of private enterprises reaches the proportion of 25%.

$$\begin{aligned} \text{Corporate income tax} &= (\text{income} - \text{Costs} - \text{fees} - \text{taxes and additional charges} - \text{Loss}) \times (1 + 25\%) \times 25\% \\ &= [A - A(1-x) - 0.3A - C - 0] \times 1.25 \times 0.25 \\ &= 0.3125Ax - 0.08695A - 0.3125C \end{aligned}$$

### (3) Local taxes

In the consideration that property tax, vehicle and vessel tax, and land use tax have a very small impact on private enterprises, therefore they are not set as independent items, and are only included in an indirect way in the form of city construction tax. At the same time, stamp tax for accounting books of capital needs also to be included.

$$\text{City construction tax} = \text{VAT} \times 7\% = (0.153Ax + 0.0068A) \times 7\% = 0.01071Ax + 0.000476A$$

$$\text{Stamp tax} = A \times 0.15\% = 0.0015A$$

$$\begin{aligned} \text{The total amount of tax} &= 0.4655Ax - 0.08015A - 0.3125C + 0.01071Ax + 0.000476A + 0.0015A \\ &= 0.47621Ax - 0.078174A - 0.3125C \end{aligned}$$

Basing on previous analysis, the total tax rate of private enterprises =  $(0.47621Ax - 0.078174A - 0.3125C) / A \times 100\%$ .....①

### Assessing the burden of fees on private enterprises

$$\text{Educational Surtax} = \text{Actual VAT paid} \times 3\% = (0.153Ax + 0.0068A) \times 3\% = 0.00459Ax + 0.000204A$$

$$\text{Local Educational Surtax} = \text{Actual VAT paid} \times 2\% = (0.153Ax + 0.0068A) \times 2\% = 0.00306Ax + 0.000136A$$

On the part for social security fund, the payment is calculated according to the amount of staff salary. The basic old-age insurance contributions shall not exceed 20%, and for private enterprises, this can be set at a slight lower proportion of 10%. Basic medical insurance is accordingly set by local authorities at 6%, the unemployment insurance at 2%, and on-job injury insurance and maternity insurance are generally no more than 1%, housing fund at 6%. When summing up such figures, the total payment on the part of social security amounts to 26% of total wages. Besides, it is stipulated in most provinces that the disability insurance is 1.5% except some developed areas such as Beijing and Shanghai in which the rate is set at 1.7%.

$$\text{payment for social security fund} = (0.1A - 0.1Ax) \times 26\% = 0.026A - 0.026Ax$$

Fees on disability insurance = (the number of staff in the previous year  $\times$  1.5% - the number of disabled staff)  $\times$  the local average wage in the previous year

$$\text{The number of staff} = \text{the sum of wages/average salary} = (0.1A - 0.1Ax) / 19371$$

$$\text{Disability insurance cost} = (0.1A - 0.1Ax) / 19371 \times 1.5\% \times 19731 = 0.0015A - 0.0015Ax$$

The total amount of fees = Educational Surtax + Local Educational Surtax + fees for social security fund + disability insurance

$$\begin{aligned} &= 0.00459Ax + 0.000204A + 0.00306Ax + 0.000136A + 0.026A - 0.026Ax + 0.0015A - 0.0015Ax \\ &= -0.03515Ax + 0.02784A \end{aligned}$$

Basing on previous analysis, the total fee rate of private enterprises =  $(-0.03515Ax + 0.02784A) / A \times 100\%$ .....②

### (3) Assessment on the total burden of fees and taxes on private enterprises

According to above formulations, the sum of burden of fees and taxes on private enterprises is:

The sum total of fees and taxes contributed by private enterprises = ① + ② =  $(0.51136Ax - 0.050334A - 0.3125C) / A \times 100\%$

Assume the profit of private enterprises as zero, then there is:

$$\text{The sum of profits} = A - A(1-x) - 0.51136Ax - 0.050334A - 0.3125C - 0.3A = 0$$

Computation shows that the reasonable rate of the tax burden of private enterprises will be 15.47%, at which the business output equals the input and the enterprise is in a state of no profit. Theoretically speaking, to have a sound and health development for private capitals and businesses, the sum rate of burden of fees and taxes on private enterprises should be no more than 15.47%.

### Remarks on the reasonableness of rate of fees and taxes on private enterprises

#### Analysis on the influences of changing taxes on private enterprises

As being influenced by the fluctuation of revenue, no enterprises can pay the fees and taxes at a fixed rate as people expected. Therefore the appropriate deviation allowed for rate of taxes and fees on private enterprises is  $\pm 5\%$ , and deviation allowed for the sum total of tax contribution in proportion to its GDP is  $\pm 3\%$ . After such consideration, the results are as follows TABLE 6:

TABLE 6 : The results after consideration

The rate of fees and taxes	Deviation allowed	relevance to changes
15.47%	+5%	16.24%
15.47%	-5%	14.70%
16.24%	+3%	16.72%
16.24%	-3%	15.75%
14.70%	+3%	15.14%
14.70%	-3%	14.26%

### Conclusions on the reasonableness of rate of fees and taxes on private enterprises

Through analysis and computation, it is discovered that the reasonable rate of fees and taxes on private enterprises is between 14.7% and 16.24% when the profit is assumed as zero, which is in accordance with the level of the national macro tax burden of 14.26%-16.72%, and goes with the previous result of 15.29% in this paper. That is to say, the total tax contributions by private enterprises should be 14.7%-16.24%, and the reasonable proportion of its tax payment should be 14.26%-16.72% of its GDP. Theoretically, to best ensure the growth and sustainable development for enterprises, the taxes levied on private businesses should be no more than 15.14%, and even when under special circumstances which call for higher taxation, the rate should not go beyond the red line of 16.24%. On the part of national revenue, the rate of macro tax should be carefully measured and set on the basis of carefully collected statistics of private enterprises' GDP, and under normal circumstances, it is best to keep the rate of tax payment between 14.26% and 16.72% of its GDP. When the fiscal expenditure needs to be expanded, this should be no more than 16.72%. Only then, the normal operation of private businesses can be free of the burden of fees and taxes, and the private capitals can keep off erosion. But if the tax authorities collect taxes from private enterprises beyond the reasonable level of tax rate or beyond the amount taxable GDP of private enterprises, and force it to assume too much social responsibility such as payment for social insurance, housing fund, price-adjustment fund, flood control and security fees, payments for disability security, union dues and so on besides in addressing labor and employment problems, the private businesses will not only not getting any profits but will also have its capitals be eroded to various degrees. The vitality of its operation will be weakened and its life will gradually die off. This also shows that the present tax burden on private enterprises in our country is relatively heavy, and their needs for development are neglected and they are over taxed. Such way of taxation is "to kill the goose that lay the golden eggs" will not only hinder their development, but will also drain the possible tax resources which could probably be the most active, resourceful and have the greatest potential.

### REFERENCES

- [1] Lijing, Meng; An analysis on the relationship between the economic growth and fiscal expenditure in our country (1978-2009) [D], Hebei University of Economics and Business, (2007).
- [2] Xiaohong, Li; A study on the reasonableness of the macro tax burden in our country [D], *Zhejiang University of Finance & Economics*, (2012).
- [3] Ming, Guo; A study on the relationship between the scale & structure and the growth of economy in our country [D], Dongbei University of Finance and Economics, (2007).
- [4] Yanli, Song; A study on the reasonableness of the tax burden on private enterprises in China [D], *Heilongjiang Bayi Agricultural University*, (2014).