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Research on Effects of Chinese Current Tax System Adjustment on Income Distribution of Urban Residents

UNE RECHERCHE SUR LES EFFETS DU REDRESSEMENT DE L'ACTUEL SYSTÈME FISCAL CHINOIS SUR LA RÉPARTITION DES REVENUS DES RÉSIDENTS URBAINS

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Abstract:. This article analyzes the adjustment effect of Chinese current tax system on income gap among urban residents, using statistical and econometric research methods, and a series of the Gini coefficient, income equality index and etc. to calculate and compare income disparity of urban residents in the existing tax system. The research result shows that the existing tax system has hardly any effect on income distribution of urban residents. Thus the last part of this article puts forward some suggestions to the government on how to reform currently tax system in order to improve people's livelihood, and promote harmonious development.
Key words: Tax system; Income gap; Adjustment effects

Résumé: Cet article analyse l'effet de l'ajustement de l'actuel régime fiscal chinois sur l'écart des revenus entre les habitants urbains, en utilisant des méthodes de recherche statistique et économétrique, ainsi qu'une série de coefficients de Gini, l'indice de l'égalité des revenus afin de calculer et de comparer les disparités de revenus des résidents urbains dans la l'actuel régime fiscal. Le résultat de la recherche montre que le système fiscal actuel n'a guère d'effet sur la répartition des revenus des résidents urbains. Ainsi, la dernière partie de cet article met en avant quelques suggestions au gouvernement sur la façon de réformer l'actuel système fiscal en vue d'améliorer la vie du peuple, et de promouvoir un développement harmonieux.
Mots clés: Système fiscal; Écart des revenues; Effets d'ajustement

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INTRODUCTION

As a major governmental means of regulating income distribution of urban residents and narrowing income gap, taxation has its unique importance and can not be replaced by other policies. Therefore, all countries especially developed countries use taxation as fair policies and tools of regulating excessively high incomes and shrinking the income gap. However, in the process of China's economic reform and development, the regulatory function of taxation on the income distribution has been weakened , relatively absent ,even regulated reversely for a long time. The existence of these problems is not conductive to economic growth and social harmony and deserves attention and attention.

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1. MEASURE OF ADJUSTİNG EFFECTS OF TAXATİON ON İNCOME GAP AMONG URBAN RESİDENTS

1.1Measure of Adjusting Effects of Taxation on the Overall Income Gap Among the Urban Residents

Gini coefficient and income equality index are the indicators that reflect the overall income situation between urban residents. By calculation and comparison of these indicators in the situation of pre-tax and after-tax value, this article reveals the effects of the income gap in the current tax system.

1.1.1 Regulation effects from measurement and comparison of Gini coefficient

Gini coefficient is the most commonly used indicator for measuring income gaps. Calculation methods may vary according to different given prerequisites. This article uses the "extreme method" to calculate and compare the pre-tax and post-tax Gini coefficient of urban residents in China with the formula of

$$G = \frac{10000 - S}{10000},$$

here $S = \sum_{i=1}^{n} p_i \times V_i \quad (i = 1,2,\cdots,n)$

$$V_t = U_{i-1} + U_i$$

$$U_i = \sum_{i=1}^{i} y_i$$

$$p_1 + p_2 + \cdots p_n = 100,$$

$$p_i = \frac{P_i}{\sum_{i=1}^{n} P_i}$$

$$y_1 + y_2 + \cdots y_n = 100$$

$$y_i = \frac{Y_i}{\sum_{i=1}^{n} Y_i}$$

In the formula, n stands for quantities of groups or strata, y_i stands for revenue proportion of the group i（%）, u_i stands for cumulative downward revenue proportion of the group i.

p_i stands for population proportion of group I, P_i and Y_i respectively stands for population and revenue of group i. According to the formula, the procedure of computing Gini coefficient is that, according to per capita income ,divided by n groups(random group), and compute population（P_i）,revenue（Y_i）, population proportion（p_i）and revenue proportion（y_i）in every group, (1)first, compute cumulative percentage of revenue of every group（U_i）;（2）according to income level , compute the sum of the cumulative percentage of revenue between except the first group ;(3) multiply the number of every group by corresponding population percentage, then add the results together（S）;（4）subtract previous results from 10000, and then divided it by 10000, the final result is Gini coefficient.

According to revenue data of urban residents by class from China Statistical Yearbook, seen total income as pre-tax income and disposable income as after-tax income[3], we can compute total income Gini coefficient of urban residents Jpre-tax and disposable income Gini coefficient $J_{after\text{-}tax}$, as Table 1 shows:

Table 1: Comparison about Gini Coefficient of Urban Residents in China

Year	1994	1996	1998	2000	2002	2004	2005	2006	2007
$J_{pre\text{-}tax}$	0.2106	0.2039	0.2255	0.2448	0.3090	0.3261	0.3344	0.3225	0.3238
$J_{after\text{-}tax}$	0.2149	0.2083	0.2261	0.2451	0.3068	0.3233	0.3221	0.3232	0.34234

Source: China Statistical Yearbook 1995-2008

[3]Hao Chunhong: Multiple objective constrained optimization of China's tax system_ Theory and Evidence, China financial and economic publishing press, 2005, p153-154.

Compared with Gini coefficient released by the National Bureau of Statistics, the results are relatively small, especially Gini coefficient is much smaller than that released by the National Bureau of Statistics before 2002. Perhaps the discrepancy is due to the deviation which is from the alternative indicator——disposable income as after-tax income. But the purpose of calculating the Gini coefficient is not to describe the size of the income gap, but to measure the income distribution effect on tax. Alternative indicators' impact on the Gini coefficient is the same. Therefore , alternative indicators can be used to measure and describe the income distribution effect on tax.

1.1.2 Measurement and comparison from the income equality index and the moderating effects revealed

Income equality index is an important indicator which is used to measure the overall income gap of residents, and measure the distance between the average income share of each income group and the whole sum of the average share of income.

$$k = \sqrt{\frac{n}{n-1}}\sqrt{\sum_{i=1}^{n}\left(y_i - \bar{y}\right)^2} \quad \text{（i=1,2,3…..n）}$$

N stands for number of income groups, y_i stands for the proportion of all groups' income to total revenue, $\bar{y}$ stands for proportion's average of all groups' income to total revenue.

By using average disposable income of urban residents in 1990—2008, we calculate the pre-tax and after-tax income equality index . As Table 2 shows:

Table 2: Comparison about Equality İndex of Urban Residents in China

Year	1994	1996	1998	2000	2002	2004	2005	2006	2007
Kpre-tax	0.187	0.181	0.199	0.217	0.276	0.293	0.287	0.285	0.280
Kafter-tax	0.191	0.184	0.200	0.217	0.274	0.292	0.285	0.282	0.279

Source: China Statistical Yearbook1995-2008

1.2 Income moderating effect measurement of different income groups on tax

By calculation and analysis of pre-tax Gini coefficient,after-tax Gini coefficient and income equality index, taxation fails to control the overall situation of residents' income distribution. Through the analysis of Wow Aruba Australia Index and revenue proportion of high-income groups, further analysis can be done about how taxation controls urban residents' income distribution of all groups.

1.2.1 The controlling effect of taxation on high-income groups

Regulating effects of tax on income distribution, which prominently reflected in lowering the excessively high incomes, are usually measured by the decreased level of high-income group accounting for total income share. Using Gpre-tax and Gpost-tax to represent the pre-tax and post-tax share of revenue index of the top 10% highest income group respectively, the measuring results have shown that in China the post-tax share of the top 10% highest income group changed slightly compared with that of the pre-tax since 1994. It even didn't decrease, but increase in some years. This kind of reverse regulating effect didn't improve until 2000, but the regulating effect was still weak.

Table 3: The Share of 10% Urban High-Income Residents

Year / Indicator	1994	1996	1998	2000	2001	2002
Gpre-tax	0.1672	0.1677	0.1757	0.1802	0.1877	0.2176
Gafter-tax	0.1688	0.1692	0.1759	0.1801	0.1877	0.21740
	2003	2004	2005	2006	2007	
Gpre-tax	0.2308	0.2415	0.2461	0.2432	0.2379	
Gafter-tax	0.2295	0.2395	0.2446	0.2414	0.2365	

Source: China Statistical Yearbook 1995-2008

1.2.2 The regulation effects of tax on low-income groups

Wow Aruba Australia index reflects the proportion of 40% of the income of the lowest income group of the total income, up to 0.4. The smaller the index, the worse the situation of low-income groups is. According to income of urban residents under the seven levels of statistical data, We calculate Wow Aruba Australia index of pre-tax income of urban residents and after-tax in China, as Table 4 shows:

Table 4: The Wow Aruba Australia Index of Urban Residents

Year / Index	1994	1996	1998	2000	2001	2002
$A_{pre\text{-}tax}$	0.2869	0.2888	0.2752	0.2661	0.2595	0.2267
$A_{after\text{-}tax}$	0.2839	0.2855	0.2747	0.2658	0.2591	0.2284
	2003	2004	2005	2006	2007	
$A_{pre\text{-}tax}$	0.2227	0.2177	0.2166	0.2186	0.2215	
$A_{after\text{-}tax}$	0.22243	0.2194	0.218	0.220	0.222	

Source: China Statistical Yearbook 1995-2008

Draw a picture of Wow Aruba Australia index, its pre-tax change and after-tax change, which clearly shows the tendency of the income share of low-income groups and regulation situation of taxation. As figure 1 shows:

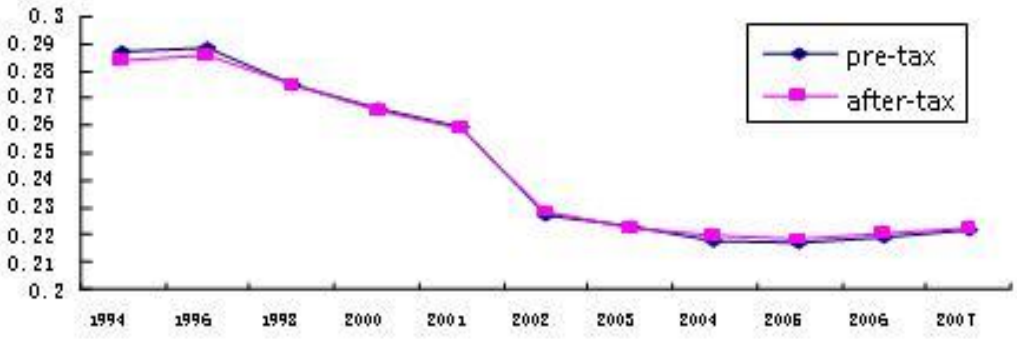

Figure 1: The Wow Aruba Australia Index of Urban Residents

According to the results, we can see two obvious features, the first is that 40% of urban residents in low-income share is below 30%; the second is tax regulation effect on low-income groups is minimal, the share of 40% lowest income groups is no significant improvement, and in some years the after-tax disposable income is much worse than pre-tax.

1.3 The Measurement of Tax Moderating Effect on Urban Residents' İncome Polarization

The negative income index is ratio of 20% share of high-income class to 20% share of low-income class. Negative income index investigates the extent of polarization of income distribution. The bigger the index, the stronger the extent of income polarization, the more severe the situation of income distribution is. Therefore, more countries focus on the change between pre-tax negative index of income and after-tax negative index of income, adjustment, control and improvement of income distribution. Negative income index has been increased since 1994. Taxation has no moderating effect on urban residents' negative income index.

Table 5: Comparison of Negative İndex of İncome

Year	1994	1996	1998	2000	2002	2004	2005	2006	2007
Bpre-tax	3.94	3.77	4.40	5.00	7.99	8.91	9.25	9.00	8.69
Bafter-tax	4.11	3.91	4.43	5.02	7.89	8.87	9.18	8.96	8.74

Source：China Statistical Yearbook 1995-2008

2. THE ANALYSES OF MAIN CONCLUSIONS

Tax on income distribution of effects of multi-dimensional, multi-level measurement results show that tax moderates residents' revenue not like western countries, such as United States andGermany. Tax Gini coefficient has a more significant reduction than pre-tax Gini coefficient. Revenue of high-income groups has decreased more than pre-tax revenue, and the extent of polarization has been improved. But the total effect has been weakened, and has reverse moderating effect to a degree. Specific conclusions and analysis include the following aspects:

(1) From tax moderating total effects of income gap, either the results of Gini coefficient or the calculation of income equality index, tax moderating effect is very weak, and to some degree, is reverse.

(2) Tax moderating effects on different groups fails to directly regulate income share of high-income groups, and has reverse regulation to low-income groups to some degree. Due to tax failing to positively regulate high-income groups, and having reverse regulation to low-income groups to some degree, our current tax system on income distribution between various groups lacks targeted system design and policy implementation, which should be strengthened.

(3) From the results comparison of negative index of income, we see that either pre-tax negative index of income or after-tax negative index of income has the same tendency of change. That is, tax not only did not make the polarization improved, but intensified, and the degree of change was significantly enhanced. This indicates that our current tax system and tax reform measures, scope and variety in recent years should be further studied.

3. SUGGESTIONS

Weakness of income gap in China's tax regulation, or even "reverse regulation" is the main source of the tax system and the policy function of the macro positioning, and the tax system is not scientific, imperfect and unreasonable. Therefore, the following suggestions are proposed.

(1) Tmphasizing fair function of the tax system

Fair function of tax should be emphasized, to sustain economic growth and development of the relative independence of the fair tax policy with other policies and measures to promote efficiency and complementarity, and promote development and harmony, social stability and economic growth of the times.

(2) Strengthening the dominant position of income tax, and optimizing the tax structure

China should speed up the process of tax reform, to increase the proportion of income tax, reduce the proportion of turnover tax, ensure the implementation of the tax system on income distribution controlling function, and promote the further achievement of social justice and equity.

(3) Introducing new taxes in time, improving the tax controlling system, and forming the regulation for tax on the income distribution

China's economic and social development should be based on the specific national conditions, lack of timely introduction of taxes, such as social security tax reform ,property tax, so as to form a more coordinated taxes, taxes to match the main and auxiliary, to achieve the same effect, in order to effectively enhance the status and role of tax system in the promotion of equitable income distribution and building a harmonious society.

(4) Promoting the reform of personal income system, and highlighting the regulatory function of income distribution

We should change the current model of collection and management of the classification to the comprehensive income tax system. With a wide range of income levels increasing, moderately increasing the threshold of personal income tax, to avoid tax adjustment range on low-income groups, tax effectively plays a regulationing role on high-income groups, and thus contributes to regulation and improvement of the polarization of income.

In addition, China should also strengthen support for the implementation of the external environment. For example, China should pay attention to income-oriented reform, enhance and improve electronic income system, and also build the external environment, enhance the support and maintenance of tax collection from related institution of law and public opinions.

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