

Research on the New Round of Individual Income Tax Policy Reform

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Abstract. In order to analyze the reform effect of individual income tax policy in 2018, the income redistribution effect of various individual income tax collection schemes is compared through the tracking survey data of China Family Panel Studies. The research shows that the personal income tax reform has reduced the tax burden of taxpayers on the whole. Among the four reform measures, only the implementation of comprehensive income tax has a positive effect on the distribution effect. As the main beneficiaries are mainly high-income people, this round of reform has weakened the redistribution effect on residents' income. Therefore, measures such as adhering to the direction of comprehensive taxation, prudently reforming the basic reduction of fees and tax rates, subsidizing low-income people and strengthening the supervision of high-income people will help to enhance the redistribution effect of individual income tax.

1 Introduction

With the rapid development of economy and the improvement of national comprehensive strength in recent years, the gap between rich and poor has gradually become an obstacle to China's economic development and social harmony in the new era. According to the Chinese Household Survey Yearbook, since 2003, China's Gini coefficient has remained above 0.46 for a long time, far exceeding the international warning line of 0.4. At this stage, the main social contradiction in China has turned into "the contradiction between the people's yearning for a better life and unbalanced and insufficient development". It shows that we are paying more and more attention to fairness in the process of development. Therefore, how to better adjust the income distribution gap while maintaining quality and efficiency has become a major issue we are facing.

As one of the most favorable distribution tools, personal income tax plays an important role in regulating income and property distribution. It endows China with the mission of a new era of personal income tax. Based on this, on August 31, 2018, the Fifth Session of the 13th National People's Congress Standing Committee adopted a new round of individual income tax amendments.

The impact of individual income tax policy on income distribution has been the focus of domestic and foreign scholars. Wagstaff et al. discussed the progressiveness of individual income tax in 15 OECD countries.^[1] Pfähler analyzed the role and influence of tax base and tax rate in income distribution effect through the decomposition formula of Gini coefficient.^[2] Bird et al. pointed out that the personal income tax in

developing countries has hardly played a role in reducing inequality.^[3]

Chinese scholars also use different methods to study and analyze China's individual income tax policy. Yang Mo established a counterfactual research framework and found that the new personal income tax has little effect on the inequality of residents' wage income.^[4] Zhang Xuan et al. compared the redistribution effect index between China and some Latin American and European countries. And they pointed out that China's individual income tax is not only inferior to developed countries, but also inferior to many developing countries in narrowing the income gap.^[5] Hu Hua used CGSS2015 database to decompose three types of unfair effects and calculate the most equitable tax system.^[6] Wang Yu et al. measured the income distribution effect of individual income tax by calculating the MT index, and proposed that the reform of individual income tax should follow the principle of income neutrality.^[7] Hu Xianli pointed out that the comprehensive income tax rate of China's individual income tax is too low, leading to negative effects of the tax rate structure. And the low average tax rate leads to its negative effects that cannot be offset progressively.^[8] Yue Ximing also believed that the main reasons for limiting the income distribution effect of individual income tax were the reduction of average tax rate and the low scale of tax revenue.^[9] Lu Youhong et al. believed that the collection of property income was significantly weaker than that of wage income, which was an important factor contributing to the inequality of income distribution.^[10] Zhu Yuexu and Ning Fanglin found that the exemption amount has a "U" shaped relationship with household income distribution. Simply increasing the exemption amount will play a negative

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role in fairness and income distribution, and the exemption amount can cover the living cost of residents.^[11]

Based on previous studies, this paper uses data of China Family Panel Studies to simulate various individual income tax collection schemes. And then calculating and decomposing the Theil index of different schemes to analyze the income redistribution effects of the new round of individual income tax reform measures. The measures includes increasing basic deduction fees, expanding tax rate levels, implementing comprehensive income tax and special additional deduction. It also calculates the impact of the personal income tax reform on different income groups by groups according to individual income, which enriches the research on income redistribution in the personal income tax reform.

2 Methods and date

2.1 Theil index

Theil index is an indicator used to measure the income gap between individuals. Its biggest feature is that it can be decomposed to measure the contribution of intra group gap and inter group gap to the total gap. The calculation formula is as follows:

$$T = \frac{1}{n} \sum_{i=1}^n \frac{x_i}{\bar{x}} \ln\left(\frac{x_i}{\bar{x}}\right) \quad (1)$$

n is the total population, \bar{x} is the average income, and x_i is the after tax income of the individual. The more obvious the index is, the smaller the income gap after tax is, and the stronger the regulatory function of the tax system is.

2.2 Decomposition of Thiel Index

After decomposition, the Theil index can distinguish the structural impact of tax system adjustment among different income groups. According to the pre tax income, the overall sample is divided into five groups on average. Namely, Minimum income group, Low income group, Middle income group, High income group and Highest income group, represented by $j=1, 2, 3, 4$ and 5 . T_j is the internal income difference of group j , T_w is the intra group difference, and T_b is the inter group difference. The expression formulas are as follows:

$$T_j = \frac{1}{n_j} \sum_{i=1}^{n_j} \frac{x_i}{\bar{x}_j} \ln\left(\frac{x_i}{\bar{x}_j}\right) \quad (2)$$

$$T_w = \sum_{j=1}^m \frac{x_j}{x} T_j \quad (3)$$

$$T_b = \sum_{j=1}^m \frac{x_j}{x} \left[\ln\left(\frac{x_j}{x}\right) - \ln\left(\frac{n_j}{n}\right) \right] \quad (4)$$

n_j is the total population of group j , \bar{x}_j is the average income of group j , x_j is the total income of group j , and x is the total income of all individuals. The higher the index, the smaller the income gap between groups after tax.

For example, in formula (4), the data of each income group need to be calculated separately. Such as the

population in the Minimum income group is n_1 , the total income in the Minimum income group is x_1 , the average income is \bar{x}_1 . Substituting these data into the formula gives the index which named T_{b1} . After sorting out and calculating all the indexes of the five groups, adding the indexes of the five groups is T_b . The smaller its value, the smaller the income gap between groups.

2.3 Date

This paper uses the survey data of China Family Panel Studies in 2018(CFPS2018). CFPS database samples cover 25 provinces/municipalities/autonomous regions, representing 95% of China's population. This paper is based on personal database, family economic database and family member database of CFPS. We not only screened out the groups over 16 years old and not retired, but also eliminated the samples of full-time students and missing information. Finally, this paper confirmed 8050 valid personal data. This paper mainly examines income from wages and salaries, income from remuneration for services and income from business operations. On the one hand, the database does not publish information on income from remuneration and royalties. On the other hand, according to the national individual income tax sub item income in 2018 published in the China Tax Yearbook 2019, the proportion of individual income tax income from wages and salaries, labor remuneration and business operations reached 78.51%. It can better represent China's individual income tax collection situation.

3 Measurement of income distribution effect

In order to measure the distribution effect of the new round of individual income tax reform measures, we compared the results of different indexes under the new tax system, the old tax system and the four virtual tax systems. First, the virtual tax system I increases the basic deduction of expenses from 3500 yuan per month to 5000 yuan on the basis of the old tax system. On the basis of the old tax system, the virtual tax system II only applies to the tax rate level of the new tax system, with the basic deduction of expenses unchanged. Virtual tax system III implements comprehensive income tax on the basis of the old tax system. The tax rate is calculated on an annual basis according to the old tax rate level, with the basic deduction of expenses unchanged; Virtual tax system IV only implements special additional deduction on the basis of virtual tax system III.

3.1 Theil index and its decomposition

First of all, through vertical observation of the Theil index of each income group, we found that the highest income group has the largest Theil index, which is far greater than the other income groups. This shows that the internal income gap of the highest income group is the largest, while the internal income gap of other income

groups is smaller than that of the highest income group. Therefore, the focus of reducing the internal gap between the income groups of Chinese residents is the highest income group. A horizontal observation of the Theil index of each income group shows that three reform measures will narrow the internal income gap of the highest income group. The three reform measures are improving the basic deduction of expenses, implementing comprehensive income taxation and implementing special additional deductions. The implementation of comprehensive income taxation has narrowed the internal income gap of the middle-income group, while expanding the internal income gap of the low-income group.

Secondly, comparing the intra group and inter group gap Theil indexes horizontally. We can found that adjusting the tax rate level would increase the intra group gap, while the other three measures could reduce the intra group gap. The implementation of the

comprehensive income tax levy could reduce the inter group gap, while the other three measures would increase the inter group gap. By comparing the intra group gap Theil index and the inter group gap Theil index, the inter group gap Theil index under different tax systems is about twice the intra group gap Theil index. It illustrates that the inter group gap is the main factor causing the income gap in China. Therefore, reducing the gap between different income groups is the key to adjusting the income gap of our residents. China's individual income tax should adhere to the direction of comprehensive income taxation.

Finally, by observing the overall Theil index, it is found that measures to improve the basic deduction of expenses and expand the tax rate level are not conducive to narrowing the income gap of Chinese residents. While the implementation of comprehensive income taxation has a positive regulatory effect on narrowing the income gap.

Table 1. Theil index and its decomposition under different tax systems

| | The old tax system | Virtual tax system I | Virtual tax system II | Virtual tax system III | Virtual tax system IV | The new tax system |
|-------|--------------------|----------------------|-----------------------|------------------------|-----------------------|--------------------|
| T_1 | 0.111724 | 0.111724 | 0.111724 | 0.111841 | 0.111841 | 0.111841 |
| T_2 | 0.006899 | 0.006899 | 0.006899 | 0.006968 | 0.006968 | 0.006969 |
| T_3 | 0.005184 | 0.005325 | 0.005184 | 0.005153 | 0.005243 | 0.005301 |
| T_4 | 0.005878 | 0.006287 | 0.006165 | 0.005933 | 0.006162 | 0.006432 |
| T_5 | 0.242667 | 0.239254 | 0.250914 | 0.236572 | 0.234024 | 0.242066 |
| T_w | 0.122029 | 0.121411 | 0.127919 | 0.119014 | 0.118351 | 0.124675 |
| T_b | 0.234918 | 0.240203 | 0.244937 | 0.234380 | 0.237247 | 0.250747 |
| T | 0.356947 | 0.361614 | 0.372856 | 0.353395 | 0.355598 | 0.375422 |

3.2 Tax rate analysis

In order to further explore the impact of different reform measures on different income groups, the tax proportion of all samples is calculated. It can be seen from Table 2 that this individual income tax reform has reduced the overall resident tax rate from 49.63% to 22.76%. The overall effect of tax reduction is good. Among them, the tax rate of the high income groups dropped from 99.69% before the tax reform to 20.19%, which was the most affected. The second is the middle-income group, with the tax payment ratio dropping from 39.32% to nearly zero. The tax payment ratio of the minimum income group and the low income group has decreased to zero after the tax reform. It can be seen that the largest income group of the personal income tax reform is the middle income group and the high income group.

By observing the calculation results of the virtual tax system, we can find that all reform measures have reduced the tax rate, which is increasing the basic deduction of expenses, expanding the tax rate range, implementing the comprehensive income tax and adding special additional deductions. The main factors that affect the overall tax rate change are the two reform measures, which is increasing basic deductions and adding special additional deductions. These two reform measures are also the main reasons for the decline of the tax rate of the middle-income group and the high-income group. In addition, the implementation of comprehensive income taxation will, on the one hand, reduce the tax rate of the minimum income, low income groups and middle income groups. On the other hand, it increase the tax rate of the high income groups and the highest income groups to 100%.

Table 2. Tax rates of each income group under different tax regimes.

| | Minimum income group | Low income group | Middle income group | High income group | Highest income group | Total |
|------------------------|----------------------|------------------|---------------------|-------------------|----------------------|--------|
| The old tax system | 2.05% | 7.20% | 39.32% | 99.69% | 99.88% | 49.63% |
| Virtual tax system I | 2.05% | 7.20% | 9.57% | 56.77% | 99.57% | 35.03% |
| Virtual tax system II | 2.05% | 7.20% | 39.32% | 99.69% | 99.88% | 49.63% |
| Virtual tax system III | 0.31% | 0.56% | 34.10% | 100.00% | 100.00% | 46.99% |
| Virtual tax system IV | 0.31% | 0.56% | 16.15% | 77.95% | 98.94% | 38.78% |
| The new tax system | 0.31% | 0.56% | 0.62% | 20.19% | 92.11% | 22.76% |

reform measures, the distributive effect of this round of reforms is generally less optimistic.

4 Conclusions

The 2018 personal income tax reform improved China's existing tax system in many aspects. However, on the whole, the personal income tax reform has weakened the distribution effect on residents' income.

4.1 Three policies reduce the tax burden of taxpayers

The three policies of increasing the basic reduction of expenses, expanding the tax bracket and implementing special additional deductions have all reduced the tax payment ratio, which is conducive to stimulating consumption and promoting China's economic growth. However, it also weakens the equality of personal income tax and widens the gap between different income groups.

4.2 Special additional deduction does not play its due role

The original intention of the special additional deduction setting is to promote horizontal fairness effect. It applies different amounts of deduction for taxpayers with different family circumstances. However, since the income of most low-income groups does not meet the basic deduction standard, even if the special additional deduction conditions are met, they cannot actually enjoy this policy.

4.3 Comprehensive income taxation can enhance the distributional effect of national income

Comprehensive income taxation not only enhances the fairness of personal income tax, but also narrows the gap between groups and between groups. And it has a greater adjustment effect on middle- and high-income groups. However, due to the weakening effect of the other three

4.4 The beneficiaries of this round of personal income tax reform are inclined to high-income groups

At present, China's personal income tax revenue mainly comes from the working class, and the tilting body of this round of personal income tax reform is the high-income group. This has led to a widening of the gap between different groups, and the original effect of income distribution adjustment has not been realized. In addition, high-income groups have a stronger tendency to tax avoidance because they have more diverse incomes and pay higher taxes than low income groups. And their comprehensive and accurate income data is also more difficult to grasp.

5 Suggestions

5.1 Increase the basic fee deduction prudently and expand the tax rate hierarchy.

It is not advisable to simply and blindly increasing the basic deduction of expenses and expanding the tax bracket. It can not play an important role in the adjustment of income gap and the protection of tax equity. In the future, we should be cautious about its reform.

5.2 Improve the system of special additional deductions and pay attention to low-income groups.

In the next step, the conditions and standards of special additional deduction should be supplemented and refined. Low-income groups that meet the special additional deduction conditions but do not actually enjoy preferential policies should be accounted for. It can be

subsidized through additional deduction for other family members or financial subsidies.

5.3 Adhere to the direction of comprehensive income taxation and expand the scope of comprehensive income.

The future tax reform should continue to adhere to the direction of comprehensive income taxation. And gradually incorporate more other types of income into comprehensive income. For example, business income can be incorporated first, and property income can be incorporated into comprehensive income step by step later. So as to balance labor income and property income to the greatest extent, and strengthen the equality of individual income tax.

5.4 Strengthen data management of taxation and supervision over high-income groups.

The collection of comprehensive and accurate income information is a prerequisite for the effective adjustment of income distribution by individual income tax. We should establish a national unified personal information management platform to strengthen tax administration for high-income groups. To ensure the principle of tax fairness, we also ought to improve personal income reporting, property registration and tax credit.

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