Chapter: Understanding Your Local Economy: to Identify and Analyse Regional Trends

EFFECT OF CHINESE PERSONAL INCOME TAX ADJUSTMENT ON INCOME DISTRIBUTION BASED ON GENERAL EQUILIBRIUM

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Annotation. Personal income tax is the most important tax type to regulate the distribution of residents' income in China, but how the redistributive effect of personal income tax, the existing literature lacks an in-depth analysis based on general equilibrium. To explore the impact of personal income tax on resident income distribution, drawing on general equilibrium theory, a Computable General Equilibrium (CGE) model of taxation was constructed, the Social Accounting Matrices (SAM) based on the four issues of China's Input-output Table published in the past decade were compiled, the effect of personal income tax on resident income distribution was comprehensively measured and vertically compared from income effect and consumption effect. Results show that: (1) levying personal income tax narrows the income gap among urban, rural, and national residents, indicating a progressive nature of taxation. Chinese personal income tax taxpayers are mainly concentrated in high-income groups, which is the main reason for the progressive nature of Personal income tax. (2) Across time, the redistributive effect of the personal income tax increased period by period before the 2018 tax reform, and then weakened after the tax change. The conclusions provide reference significance for further reforming China's tax system and improving the income distribution pattern.
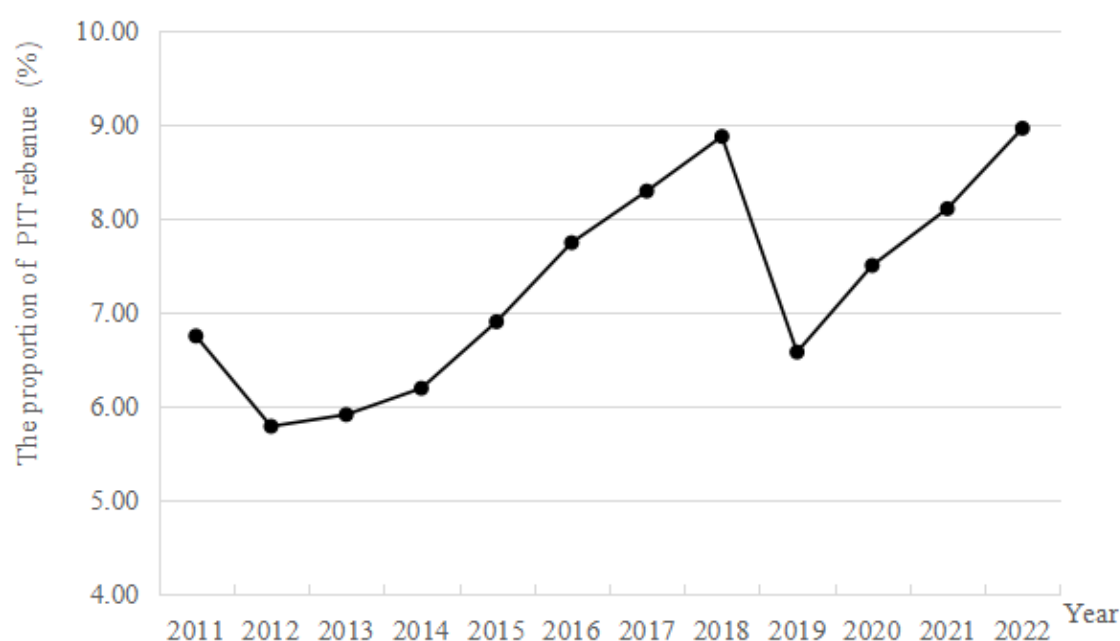
Keywords: personal income tax, income distribution, income effect, consumption effect, Computable General Equilibrium (CGE) model.

JEL classification: C68, D31, D63, H23, H25.

Introduction

After the financial crisis in 2008, income and wealth inequality increased in many countries around the world (Piketty, 2015; Choczyńska, 2024). The gap between the rich and the poor, which is related to social fairness and justice, belongs to a social problem, and it is an economic problem since it is associated with demand expansion and sustainable economic development. Taxation has the function of

regulating income redistribution, which is an important means to achieve social equity. Therefore, many countries have re-distributed income by increasing personal income tax rates (Serrano-Puente, 2020). According to the data released by the National Bureau of Statistics, although China's Gini coefficient has declined after reaching a peak of 0.49 in 2008, it has been raising year by-year rebound since 2016 and has remained above 0.46, far exceeding the international warning line of 0.40 and being higher than that of most OECD member countries. In China's tax structure, about 90% of taxes are paid by enterprises, and these tax burdens are mostly passed on to consumers, so the role of regulating income distribution is limited. The main type of tax paid by individuals is personal income tax, whose tax revenue accounts for less than 9% of China's total tax revenue over the years (as shown in *Figure 1*), and the number of taxpayers accounts for a very low percentage of the population. In 2011, the increase in the deduction for personal income tax expenses from CNY 2000 to CNY 3500 resulted in a lower personal income tax percentage in 2012. In 2018, personal income tax was reformed again, raising the expense deductions from CNY 3500 to CNY 5000, expanding the scope of application of the low tax rates, and adding new special additional deductions, resulting in another decline in the share of personal income tax in 2019. The personal income tax burden is not easily transferable, and it is the most important tax type to regulate income distribution. Studying the regulatory effect of personal income tax on income distribution is of great practical significance for evaluating and promoting China's current tax system's ability to regulate income distribution, and achieving social equity.

Source: authors' own results.

Figure 1 **The Proportion of Personal Income Tax Revenue to Total Tax Revenue in China from 2011 to 2022**

Judging from the existing literature, the current research carried out by scholars on the income distribution effect of personal income tax is mainly based on partial equilibrium analysis such as measurement economic analysis and input-output analysis. Only a few scholars (Poblete, 2011; Amir *et al.,* 2013; Serrano-Puente, 2020; Dizon, 2021; Nguyen, Duong, 2022; Malicka, 2023) studied the

incidence of personal income tax burden in Chile, Indonesia, Spain, Philippines, and other countries based on general equilibrium. According to the study of China's personal income tax re-distribution effect, the existing literature mainly follows two paths to study: First, based on the personal income and tax data of the years, using the measurement economic analysis method to analyze the vertical development and changes of the income distribution effect of personal income tax. The second is based on the input-output table data, considering the direct impact of taxation on taxpayer's income, and analyzing the redistribution effect of personal taxes. However, there is a lack of in-depth analysis of the redistributive effect of personal income tax in China using the general equilibrium model. Therefore, this study aimed to further explore the redistributive effect of China's personal income tax from the perspective of general equilibrium theory.

Drawing on general equilibrium theory, this study constructs a tax Computable General Equilibrium (CGE) model to explore the effects of China's personal income tax in regulating the income distribution of urban, rural and national residents. Based on the findings in previous unofficial study (Li *et al.*, 2024), This study further reinforced the analysis of empirical results, and the findings of current study has been further enriched from a theoretical perspective. Compared with existing literature, the marginal contribution of this study is as follows: firstly, by constructing a computable general equilibrium (CGE) model for taxation, the adjustment effect of personal income tax on urban, rural and national residents, income distribution is estimated from two aspects of income effect and consumption effect, which makes the research more comprehensive. Second, by compiling four social accounting matrices (SAM) based on the four issues of the Input-Output Table released by China in the past ten years, the effect of personal income tax on residents, income distribution is vertically compared and analyzed, which makes the research more in-depth. Third, by dividing the industry as detailed as possible, the social accounting matrix of 65 departments is compiled, which makes the research more accurate.

The structure of the following study is arranged as follows: Section 1 is a literature review. Detailed combing of foreign mainstream research on personal income tax regulation of income distribution, Chinese scholars on the issue of the relevant research situation and conclusions, refining the existing literature in the research perspective, research methodology and other aspects of the shortcomings of the research, put forward the research ideas of this study. Section 2 is the methodology. Firstly, a Chinese tax CGE model covering heterogeneous residents is constructed based on the standard CGE model. Then, the corresponding tax SAMs are compared according to the four periods of input-output tables released in China in the recent decade to illustrate the methodology of parameterization and macro closure. One more time, the indexes used to measure the adjusting effect of personal income tax on resident income distribution are determined. Section 3 is the result analysis. The moderating effect of personal income tax on the income distribution of urban, rural, and national residents is measured from two aspects: income effect and consumption effect. Section 4 is the discussion, in which the analysis results are discussed combining the existing literature. Section 5 is the conclusions and implications. Based on the analysis results, provide the conclusion of this study and propose managerial implications accordingly, pointing out the limitations of this study and future directions.

1. Literature Review

The research methods of personal income tax re-distribution effects mainly include measurement economic analysis, input-output analysis, and general equilibrium analysis (Víghová *et al.,* 2024). Some scholars use time sequence data to conduct an empirical analysis of the income distribution effect of personal income tax in various countries and regions by constructing a measurement model. For

example, the research on the differential treatment of personal income tax in OECD countries had a much smaller impact on income redistribution than longitudinal redistribution caused by progressiveness (Torregrosa-Hetland, Sabaté, 2022), the higher the progressive rate of personal income tax, the lower the output volatility (Rieth *et al.*, 2016). Baldini (2021) believed that personal income tax in Italy was more redistributive than 40 years ago, with a slight increase in progressiveness. Bird and Zolt (2005) examined the characteristics of tax systems in developing countries and concluded that personal income tax had a limited role in regulating income distribution. Nyamongo, Schoeman (2007) studied the progressiveness of personal income tax in South Africa from 1989 to 2003 and found that the degree of progressiveness varied across different stages. Técnico and Novas (2017) found that completely exempting dividends reduces the progressive rate of personal income tax in Brazil. Ma *et al.* (2015) found that although the progressive nature of personal income tax in China had increased since 2006, the average tax rate had also decreased, thereby weakening the income redistribution effect of personal income tax.

More scholars use the input production method to calculate the income distribution effect of personal income tax. Stephenson (2018) examined the progressive degree of the unified tax rate structure and progressive tax rate structure for personal income tax in five EU countries: Belgium, Bulgaria, Germany, Lithuania, and Poland. Hassan, Bogetić (2010) found that personal income tax in Bulgaria was progressive, with urban dwellers bearing more of the tax burden. Di Paolo (2020) used geometric segmentation techniques to extend the decomposition of the Reynolds Smolensky index and studied the income redistribution effect of personal income tax in Italy using this method. Badenes and Buenaventura-Zabala (2017) argued that the personal income tax reform in Spain in 2015 promoted the fairness of income distribution. Lopez-Laborda *et al.* (2022) measured by the Reynolds-Smolensky index and found that the imposition of personal income tax in Spain increased the income distribution effect by 1.1%. Chou and Fu (2022) found that the personal income tax reform of Taiwan in 2016 helped improve fairness in income distribution, but the effect was limited. Du and Zhang (2018) examined the redistribution effect of personal income tax in China based on the generalized entropy index and found that personal income tax effectively reduced inequality within high-income groups. Yue *et al.* (2012) and Du (2015) examined the income redistribution effect of the 2011 personal income tax reform and found that the tax reform reduced income distribution inequality. Scholars such as Zhan *et al.* (2019), Wang *et al.* (2019), Li (2019), Yang (2019), Fei *et al.* (2020), Li and Niu (2022) had studied the income redistribution effect of the 2018 personal income tax reform and found that the reform had worsened the income distribution situation among Chinese residents. However, research by Wan, Xiong (2019), and Zhang, Yue (2021) found that the 2018 personal income tax reform improved the redistribution effect of personal income tax income. Hu (2015) believed that the regulatory effect of Personal income tax depended on four factors: exemption amount, minimum marginal tax rate, maximum marginal tax rate, and the minimum income limit applicable to the maximum marginal tax rate. Li *et al.* (2015) found that to achieve the optimal income tax system, subsidies should be provided to low-income groups in China, raising the tax threshold and reducing the maximum marginal tax rate. Some scholars have also studied the redistribution effects of certain specific policies on personal income tax. Liu, Kou (2019) found that the special deduction of personal income tax to some extent weakens the effect of Personal income tax redistribution. Hao, Wang (2019) used input-output theory to construct an "Input-output Tax Price Model" and calculated the income distribution effect of tax attribution under the standard change of "expense deduction" in personal income tax. Tian *et al.* (2022) constructed a tax system simulation model and the measurement results show that canceling the year-end bonus tax preferential policy can reduce China's Gini coefficient by 0.78%, increasing the income redistribution effect of personal income tax. Wu (2022),

Kong, Liu (2023) conducted a study on the special additional deduction policy for personal income tax on the care of infants and young children under the age of 3 launched in China in 2022. They found that the policy did not have a positive income redistribution effect, but rather slightly widened the income gap among residents.

Some scholars have studied the redistribution effect of personal income tax based on general equilibrium. Harberger (1962) pioneered the construction of a static general equilibrium model with two sectors and two elements in a closed economy, which was widely regarded as a precedent for the application of the general equilibrium model in the field of tax burden incidence, and improvement and upgrading have been made on this basis in most subsequent studies. Poblete (2011) found through a recursive dynamic computable general equilibrium model that increasing income tax had a limited impact on improving income distribution in Chile. Amir *et al*. (2013) found that scaling back the level of personal income tax led to increased income inequality in Indonesia. Serrano-Puente (2020) used general equilibrium to analyze whether the personal income tax in Spain was at the optimal progressive level. Dizon (2021) based on a general equilibrium study found that the tax reform in the Philippines boosted the disposable income of the population. To sum up, the existing literature mainly focuses on measurement economic analysis and input-output analysis on the income distribution effect of personal income tax, while relevant research based on general equilibrium in China is still lacking. As we all know, the partial equilibrium analysis is mainly based on the backward assumption, which assumes that the personal tax burden is fully borne by residents, which is not completely consistent with the actual situation. Levying personal income tax not only affects the income level of residents due to bearing the tax burden but also affects the prices of labor and capital factors, as well as the prices of various commodities according to the general equilibrium theory. The prices of labor and capital factors directly affect the income level of residents, while commodity prices indirectly affect the income level of residents through the purchasing power of money. Therefore, the collection of personal income tax on the one hand, through the payment of taxes, labor and capital factor price changes to produce income effects affecting residents' income, on the other hand, through changes in commodity prices to produce consumption effects affecting residents' income.

Therefore, compared to local equilibrium research, the general equilibrium analysis is based on hybrid assumptions. The individual tax negative will be transferred to consumers before the price of the product, and the labor and capital element owners will be transferred through labor and capital prices. Tax re-distribution research is more comprehensive and more in line with reality. Therefore, this study explores the re-distribution effect of China's personal income tax based on the general equilibrium method and strives to make research more comprehensive, deeper and more accurate. Therefore, compared with the partial equilibrium study, the general equilibrium analysis is based on the mixed transfer assumption that the personal income tax burden will be passed to consumers before commodity prices and to owners of labor and capital factors after labor and capital prices. The tax re-distribution study of general equilibrium is more comprehensive and more in line with reality. Therefore, based on the general equilibrium method, this study studies the re-distribution effect of China's personal income tax, trying to make the study more comprehensive, deeper and more accurate.

2. Methodology

2.1 Setting of the CGE Model

This study constructs a tax CGE model based on the standard CGE model (Zhang, 2017), combined with the characteristics of China's tax system structure. This model comprehensively describes the decision-making behavior of enterprises, residents, governments, and imports and exports, as well as the relationships between their physical flow, capital flow, and tax flow. Due to space limitations, this study only introduces the production module, residential module, and government module.

2.1.1 Production Module

Production input includes intermediate input and added value, where the latter consists of labor and capital. Therefore, the production model is described by a two-layer nested CES production function to describe the production behavior of manufacturers. The total output QX_i of department i in the first-layer production model includes the added value QVA_i and intermediate input $QINT_i$, and the added value QVA_i of department i in the second-layer production model is composed of labor factor input QLD_i and capital factor input QKD_i. The prices of $QINT_i$, QVA_i, QLD_i and QKD_i are respectively expressed by $PINT_i$, PVA_i, WL and WK. For each department, substitutability is observed between QVA_i and $QINT_i$, QLD_i and QKD_i, with shares of β_i^a and $1-\beta_i^a$, β_i^{va} and $1-\beta_i^{va}$. The scale parameters of the two layers of the function are λ_i^q and λ_i^{va}, the elasticity of substitutability is ε_i^q and ε_i^{va}, respectively, and the parameters of elasticity of substitutability are ρ_i^q and ρ_i^{va}, respectively.

The taxes in the production process mainly include indirect taxes such as value-added tax, consumption tax, urban construction tax, land value-added tax, resource tax, urban land use tax, property tax, vehicle and vessel tax, arable land occupation tax, tobacco tax, an environmental protection tax, et al, among which value-added tax and consumption tax are the main types of taxes. Therefore, this study divides indirect taxes into value-added tax, consumption tax, and other indirect taxes. Value-added tax is levied on the added value ($WL \times QLD_i + WK \times QKD_i$), and the actual tax rate is obtained by the ratio of the value-added tax collected by the department i to the added value of the industry. Consumption tax and other indirect taxes are usually levied on the sales of commodities. For the convenience of research, it is assumed that consumption tax and other indirect taxes are extra-price taxes, and the consumption tax rate $tcoms_i$ and other indirect tax rates $toth_i$ are the ratios of the consumption tax revenue and other indirect tax revenue collected by the depart i to tax-free sales ($PVA_i \times QVA_i + PINT_i \times QINT_i$), respectively.

The quantity and price expressions under the optimization conditions of the two-layer production function are:

$$QVA_i = \frac{1}{\lambda_i^q}(\frac{\beta_i^q}{PVA_i})^{\varepsilon_i^q}\left[(\beta_i^q)^{\varepsilon_i^q} \cdot PVA_i^{1-\varepsilon_i^q} + (1-\beta_i^q)^{\varepsilon_i^q} \cdot PINT_i^{1-\varepsilon_i^q}\right]^{\frac{-1}{\rho_i^q}} \cdot QX_i$$

(1)

$$QINTA_i = \frac{1}{\lambda_i^q} (\frac{1-\beta_i^q}{PINT_i})^{\varepsilon_i^q} \left[(\beta_i^q)\varepsilon_i^q \cdot PVA_i^{1-\varepsilon_i^q} + (1-\beta_i^q)\varepsilon_i^q \cdot PINT_i^{1-\varepsilon_i^q} \right]^{\frac{-1}{\rho_i^q}} \cdot QX_i$$

(2)

$$PX_i \cdot QX_i = (1+tcoms_i + toth_i)(PVA_i \cdot QVA_i + PINT_i \cdot QINT_i)$$

(3)

$$QLD_i = \frac{1}{\lambda_i^{va}} (\frac{\beta_i^{va}}{WL})^{\varepsilon_i^{va}} \left[(\beta_i^{va})^{\varepsilon_i^{va}} \cdot WL_i^{1-\varepsilon_i^{va}} + (1-\beta_i^{va})^{\varepsilon_i^{ya}} \cdot WK^{1-\varepsilon_i^{ya}} \right]^{\rho_i^{ya}} \cdot QVA_i$$

(4)

$$QKD_i = \frac{1}{\lambda_i^{va}} (\frac{1-\beta_i^{va}}{WK})^{\varepsilon_i^{va}} \left[(\beta_i^{va})^{\varepsilon_i^{va}} \cdot WL_i^{1-\varepsilon_i^{va}} + (1-\beta_i^{va})^{\varepsilon_i^{va}} \cdot WK^{1-\varepsilon_i^{va}} \right]^{\frac{-1}{\rho_i^{ya}}} \cdot QVA_i$$

(5)

$$PVA_i \cdot QVA_i = (1+tva_i)(WL \cdot QLD_i + WK \cdot QKD_i)$$

(6)

2.1.2 Residents Module

The shares in the total labor factor supply QLA and total capital factor supply QKA of resident h are sf_{hl} and sf_{hk}, respectively. Resident h acquires labor income $WL \times sf_{hl} \times QLA$ by providing labor for the factor market, acquires capital income $WK \times sf_{hk} \times QKA$ by providing capital, and acquires government transfer payment tf_{hg}, so the income expression for resident h is:

$$YH_h = WL \cdot sf_{hl} \cdot QLA + WK \cdot sf_{hk} \cdot QKA + tf_{hg}$$

(7)

Corporate income tax should be levied on the capital income of resident h at a tax rate of ti_{ent}, and personal income tax should be levied on his/her total income at a rate of t_{ih}, so the after-tax disposable income is $(1-t_{ih}) \times (YH - ti_{ent} \times sf_{hk} \times QKA)$. The consumption QH_{ch} of commodity c is decided by the Cobb-Douglas utility function, the consumption share parameter of resident h for commodity c is $shrh_{ch}$, the marginal propensity to consume is mpc_h, and the optimal consumption need of resident h for commodity c is:

$$PQ_c \cdot QH_{ch} = shrh_{ch} \cdot mpc_h \cdot (1-ti_h) \cdot (YH - ti_{ent} \cdot WK \cdot sf_{hk} \cdot QKA)$$

(8)

2.1.3 Government Module

Government revenue *YG* mainly includes various tax revenues and transfer payments tf_{gr} from abroad. Government expenditure EG mainly includes purchasing public goods and administrative expenses $PQ_c \times QG_c$, transfer payments to residents tf_{hg}, and transfer payments to foreign countries tf_{rg}. The government's income and expenditure balance is government savings *GASV*.

$$YG = \sum_i tva_i(WL \cdot QLD_i + WK \cdot QKD_i) + \sum_i \frac{tcom_i + toth_i}{1 + tcom_i + toth_i} \cdot PX_i \cdot QX_i$$
$$+ ti_h \cdot (YH - ti_{ent} \cdot WK \cdot QKSA) + ti_{ent} \cdot WK \cdot QKSA + tf_{gr} \tag{9}$$

$$EG = \sum_c PQ_c \cdot QG_c + \sum_h tf_{hg} + tf_{rg} \tag{10}$$

$$GSAV = YG - EG \tag{11}$$

2.2. Data Sources, Parameter Setting, and Macroscopic Closure

2.2.1 Data Source

The CGE model is based on the Social Accounting Matrix (SAM). According to the input-output tables released by China in 2012, 2017, 2018, and 2020 in the recent decade, four periods of SAMs were compiled specifically through the residual equilibrium method (Li 2020). To make the analysis results more accurate, the Input-output table is meticulously matched with the industries in the tax yearbook, and the SAM is divided into 65 departments. Then, the input-output data and tax revenue data of each tax category are distributed among the 65 departments. Divide urban and rural residents into 5 groups on average based on their income levels, namely low-income group, middle low-income group, middle-income group, middle high-income group, and high-income group. Referring to the research methods of Wan and Xu (2020), and following the income and expenditure situation of urban and rural residents in the "China Rural Household Survey Yearbook" and "China Price and Urban/Rural Household Income and Expenditure Survey Statistical Yearbook", the labor income, capital income, and consumption expenditure of residents in the input-output table are reasonably distributed among each group. The official has not yet announced the number of individuals paying personal income tax in China. Experts have different opinions, but overall, it does not exceed 100 million people, accounting for a very low proportion of the total population. In this study, the number of residents in the group of urban high-income households (h10) exceeded 140 million over the years, so for the sake of convenience, the residents in h10 group are assumed to bear all personal income tax.

2.2.2. Parameter Setting and Macroscopic Closure

The study of tax incidence and income distribution regulation is sensitive to the setting of some parameters (Freebairn, 2015). In the CGE model, the share and scale parameters in the total production function, value-added production function, export function, and import function are obtained by data calibration in the SAM table. The elastic parameter of each function is mainly exogenously given. In this study, the elastic parameters are calculated mainly by reference to the relevant data of Wang, Lou (2017).

This study studies the issue of personal income tax regulating household income distribution in China over the past decade. The factor market structure adopts a Neoclassical Macro-closure, assuming that labor and capital supply is fixed, and all prices (including factor prices and commodity prices) are endogenous. Keynes's macroeconomic closure is mainly applicable during periods of economic depression, where factor prices and commodity prices are fixed, and the supply of labor and capital is endogenous. The Neoclassical macroeconomic closure is a standard setting that reflects the normal

economic state and is more in line with the actual situation of the Chinese economy over the past decade.

2.3 Indicators of Measuring Income Distribution Effects

According to the general equilibrium theory, the supply, demand and price of various commodities and factors interact and influence each other, and the collection of personal income tax will affect the supply and demand balance and equilibrium price of various commodities, labor and capital factors. The collection of personal income tax affects the income of residents from three aspects: (1) the tax makes the income of taxpayers decrease due to the payment of tax. (2) Taxation causes the price changes of capital and labor factors, so it will lead to the income changes of each group of residents. (3) Taxation changes the prices of various commodities, resulting in changes in the income of each group of residents. The influence of the first two aspects will lead to the change in the income of each group of residents at the source of income, so it is collectively called the income effect. The influence of the third side will affect the change in the income of residents at the end of consumption expenditure, which is called the consumption effect. The income obtained by residents in case of no collection of personal income tax is assumed to be marketing income, which is expressed by Y_m, and the Gino coefficient reflecting the income gap of residents is G_m; the income obtained by residents with the collection of personal income tax is actual income, which is denoted as Y_a with a Gino coefficient of G_a; the difference between G_a and G_m is MT_{am}, which reflects the influence of the collection of personal income tax on the income distribution of residents from the income source side, i.e., the income effect of personal income tax in regulating residents' income distribution. After the collection of personal income tax, the change in the price of various commodities will lead to a change in residents' consumption expenditure to affect the real purchasing power of residents' actual income, so the income after adjusting the actual income according to the change in consumption expenditure can be defined as real income, denoted as Y_r, with a Gini coefficient of G_r, and the difference between G_r and G_a is MT_{ra}, which reflects the influence of personal income tax on residents' income distribution from the consumption expenditure side, i.e., the consumption effect of personal income tax in regulating residents' income distribution. The difference MT_{rm} between G_r and G_m is the sum of income effect and consumption effect, which embodies the overall effect of personal income tax in regulating residents' income distribution. MT_{am}, MT_{ra}, and MT_{rm} are calculated as per Formulas (12)-(14):

$$MT_{am} = G_a - G_m \tag{12}$$

$$MT_{ra} = G_r - G_a \tag{13}$$

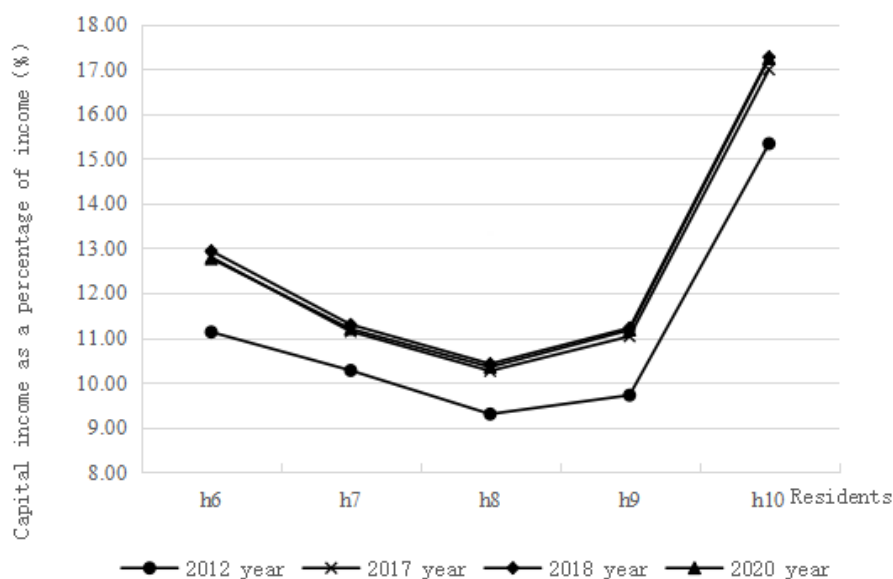$$MT_{rm} = G_r - G_m \tag{14}$$

3. Results Analysis

3.1 The Income Effect of Personal Income Tax on Adjusting Resident Income Distribution

According to the CGE model and the four period SAMs of China, it was found through GAMS software-based calculation that due to the collection of personal income tax, the capital factor price would decline relative to the labor factor price, and the decrease amplitude was 1.17%, 1.54%, and 1.58% in 2012, 2017, and 2018, respectively, and it decreased to 1.20% in 2020, which was related to the decline of personal income tax revenue in two years after personal income tax reform in 2018.

Residents in the urban high-income household group (h10) were the main undertakers of personal income tax, and their after-tax actual income Y_a would drop most compared with the pre-tax market income Y_m after taxation. In the meanwhile, the collection of personal income tax would lead to a relative decline in the capital factor price, affecting the real income of all residents.
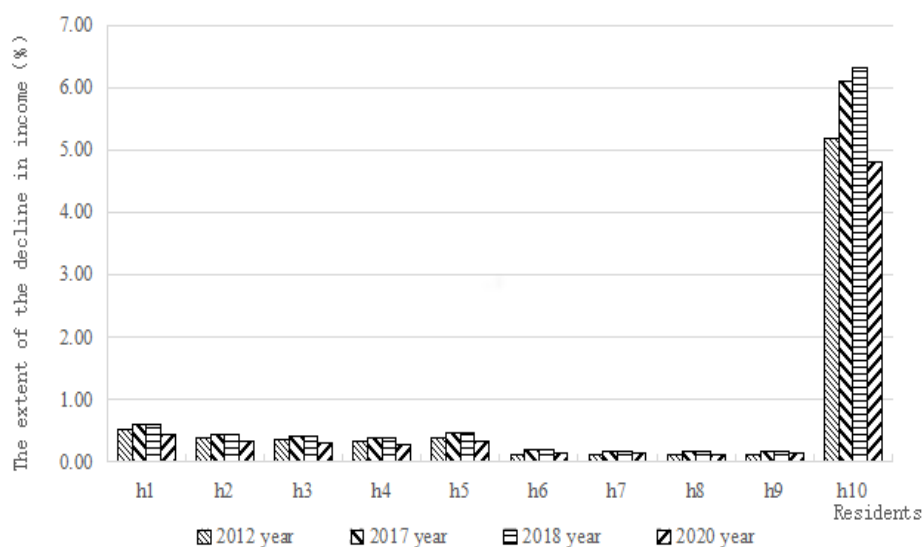
The specific situation of the decline of residents' after-tax income is as follows(as shown in *Figure 1*): First, from different periods, the average decline of the nationwide residents' real income was 0.76%, 0.91%, 0.93%, and 0.71% in 2012, 2017, 2018, and 2020, respectively, and the decrease amplitude first rose and then fell. Second, from an urban-rural perspective, the average income decline of rural residents was lower than that of urban residents. In 2020, the average income of rural residents decreased by 0.34%, and that of urban residents by 1.07%. Third, from within the urban and rural population, the residents in rural low-income household group (h1) showed the highest dependence on land income, and the decline in the capital factor price after taxation led to a relatively greater decline in the income of this group, reaching 0.44% in 2020, while the income of residents in high-middle-income household group (h4) exhibited the smallest decline, only 0.29% in 2020; among urban residents, the residents in the high-income household group (h10) were the main payers of personal income tax, and their capital income accounted for the highest proportion, so their income experienced the largest decline, reaching 4.81% in 2020, while the income of residents in the middle-income household group (h8) went through the smallest decline, only 0.12% in 2020.

In terms of the income distribution gap among rural residents, the actual income of residents in the rural low-income household group (h1) decreased the most relative to the market income, and the income distribution gap of rural residents widened. As shown in *Table 1*, in 2020, the Gini coefficient calculated by market income Y_m was 0.321999, and the Gini coefficient calculated by actual income Y_a was 0.322055, so the Gini coefficient increased by 0.000056 after taxation. The indix of MT_{am} for rural residents in 2012, 2017 and 2018 was 0.000108, 0.000093 and 0.000088, respectively, all greater than 0. Therefore, the collection of personal income tax would slightly widen their income gap from the perspective of the source of income for rural residents, showing a regressive nature.

Source: authors' own results.

Figure 2. **The Decline in the Income of Residents at the Source of Income after the Imposition of Individual Income Tax**
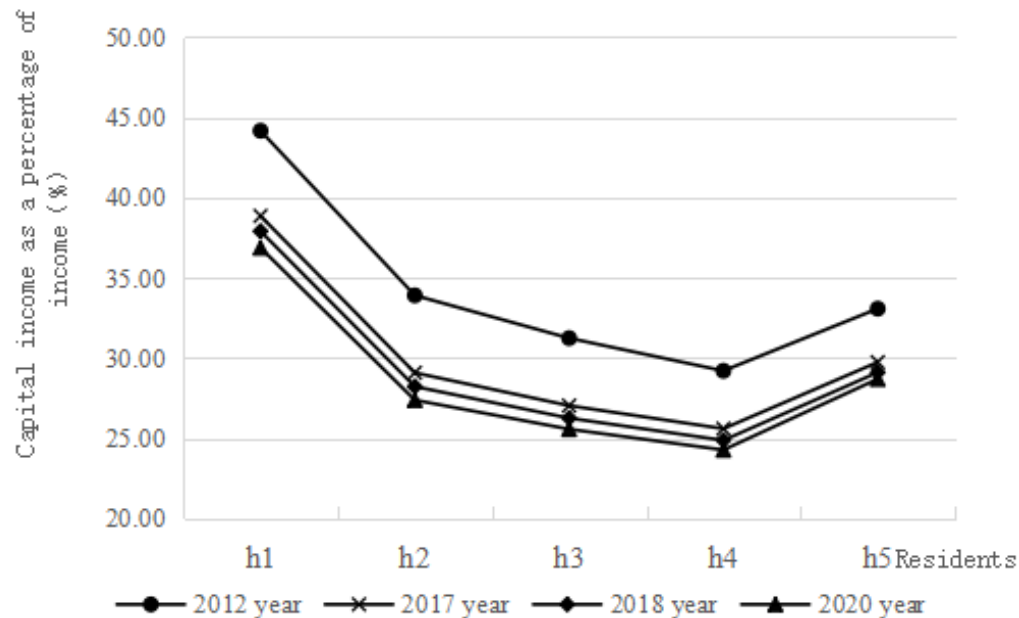

Source: authors' own results.

Figure 3. **Proportion of Rural Residents' Capital Factor Income to Total Income in Each Period**

From the income distribution gap of urban residents, the actual income of urban high-income households (h10) decreased the most after taxation, and the income distribution gap of urban residents narrowed. In 2020, the Gini coefficient calculated by market income was 0.330919, and the Gini coefficient calculated by actual income was 0.321683, so the Gini coefficient decreased by 0.009236 after

taxation. The MT_{am} index of urban residents was -0.009984, -0.011633, and -0.012044 in 2012, 2017, and 2018, respectively, all less than 0. Therefore, from the perspective of urban residents' income sources, the collection of personal income tax would greatly narrow their income gap and the tax would be progressive.

Source: authors' own results.

Figure 4. **Proportion of Urban Residents' Capital Factor Income to Total Income in Each Period**

Table 1. Calculation of the income effect of personal income tax on adjusting resident income distribution
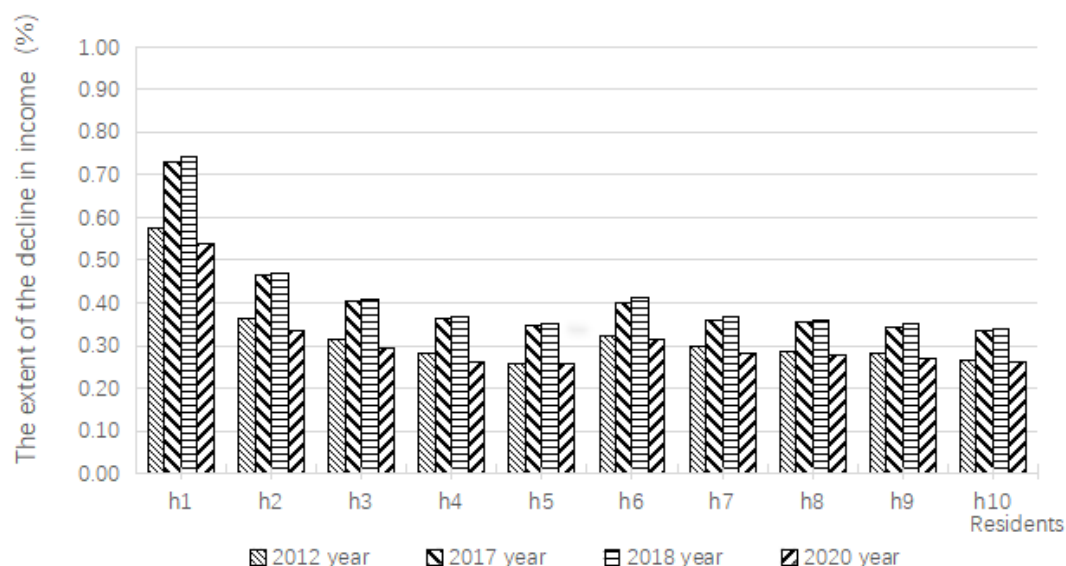
Year	Residents	Gini coefficient G_m	Gini coefficient G_a	Income effect MT_{am}
2012	Rural residents	0.326676	0.326784	0.000108
	Urban residents	0.334949	0.324965	-0.009984
	National residents	0.447026	0.440188	-0.006838
2017	Rural residents	0.323453	0.323546	0.000093
	Urban residents	0.332035	0.320402	-0.011633
	National residents	0.435751	0.427436	-0.008315
2018	Rural residents	0.323192	0.323280	0.000088
	Urban residents	0.333117	0.321073	-0.012044
	National residents	0.432665	0.424015	-0.008650
2020	Rural residents	0.321999	0.322055	0.000056
	Urban residents	0.321819	0.321683	-0.000136
	National residents	0.419336	0.419517	0.000181

Source: authors' own results.

Judging from the income distribution gap of nationwide residents, residents in the urban high-income household group (h10) were the main undertakers of personal income tax, and the income decline after collection was much higher than that of other residents. In 2012, 2017, 2018, and 2020, the MT_{am} index was -0.006838, -0.008315, -0.008650, and -0.006647, respectively, all less than 0. Therefore, from the perspective of income effect, the collection of personal income tax relatively narrowed the income gap of nationwide residents, and the tax was progressive.

3.2 The Consumption Effect of Personal Income Tax on Adjusting Resident Income Distribution

According to the CGE model and the four-period SAMs of China, it was found through GAMS software-based calculation that the equilibrium prices of various commodities have slightly decreased after the collection of personal income tax, and the decrease amplitude was within 1%. The collection of personal income tax will increase the cost of various goods, resulting in a decrease in supply. The collection of this tax will also lead to a decrease in the disposable income of residents, resulting in a decrease in demand at the same time. Supply and demand jointly determine the equilibrium price of goods, and the equilibrium price of various goods shows a slight decrease after taxation, indicating that the decrease in demand caused by taxation has a greater impact on the market equilibrium price compared to the decrease in supply.
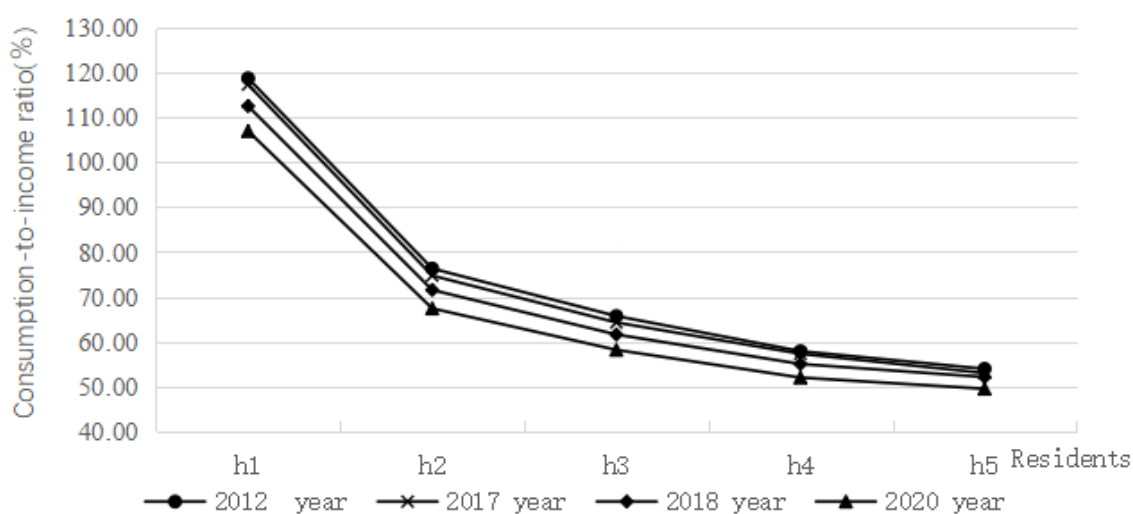

Source: authors' own results.

Figure 5. **The Increase in the Income of Residents' Consumption Expenditure after the Imposition of Individual Income Tax**

Due to the price decline of various commodities after tax collection, residents' consumption expenditure decreased somehow under the fixed consumption quantity, and thus the real income Y_r rose relative to actual income Y_a. Given the relatively small decrease in prices of various commodities, the increase in real income of residents is also not significant, with the magnitude all within 0.8%. The specific

manifestation is as follows: Firstly, from different periods, the increase amplitude of real income firstly increased and then declined; the average increase amplitude of nationwide residents' income was 0.32%, 0.41%, 0.42%, and 0.31% in 2012, 2017, 2018, and 2020, respectively. Secondly, from an urban-rural perspective, the average increase amplitude of rural residents' real income was higher than that of urban residents (as shown in *Figure 5, Figure* 6). In 2020, the average income increase of rural residents was 0.34% and that of urban residents was 0.28%. Thirdly, from within the urban and rural population, the real income increase of urban and rural residents decreases monotonically with the increase of income level from the perspective of urban and rural residents. In 2020, the real income of residents in the rural low-income household group (h1) increased by 0.54% and that of residents in the high-income group (h5) was 0.26%; the real income of residents in the urban low-income household group (h6) increased by 0.32% and that of residents in the high-income household group (h10) was 0.26%.

Source: authors' own results.

Figure 6. **The Proportion of Rural Residents' Consumption Expenditure in Total Income in Each Period**

After tax collection, the real income of residents in rural and urban low-income household groups (h1, h6) increased the most, while that of residents in high-income household groups (h5, h10) increased the least, and the income distribution gap of rural and urban residents was narrowed, respectively. As shown in *Table 2*, the MT_{ra} index of rural residents was -0.000366, -0.000432, -0.000435, and -0.000314 in 2012, 2017, 2018, and 2020, respectively, and the MT_{ra} index of urban residents was -0.000083, -0.000085, -0.000091, and -0.000065, respectively. Therefore, from the perspective of consumption expenditure, the collection of personal income tax would slightly narrow the income gap between rural and urban residents, respectively.

From the income distribution gap of nationwide residents, the MT_{ra} index was -0.000128, -0.000198, -0.000203, and -0.000123 in 2012, 2017, 2018, and 2020, respectively, which were all less than 0. From the aspect of consumption effect, therefore, the income gap of nationwide residents would be relatively narrowed due to the collection of personal income tax, and the tax was progressive.

Table 2. Calculation of the consumption effect of personal income tax on adjusting resident income distribution

Year	Residents	Gini coefficient Ga	Gini coefficient Gr	Consumption effect MT_{ra}
2012	Rural residents	0.326784	0.326418	-0.000366
	Urban residents	0.324965	0.324882	-0.000083
	National residents	0.440188	0.440060	-0.000128
2017	Rural residents	0.323546	0.323114	-0.000432
	Urban residents	0.320402	0.320317	-0.000085
	National residents	0.427436	0.427238	-0.000198
2018	Rural residents	0.323280	0.322845	-0.000435
	Urban residents	0.321073	0.320982	-0.000091
	National residents	0.424015	0.423812	-0.000203
2020	Rural residents	0.322055	0.321741	-0.000314
	Urban residents	0.321683	0.321618	-0.000065
	National residents	0.419517	0.419394	-0.000123

Source: authors' own results.

3.3 The Overall Effect of Personal Income Tax on Regulating Resident Income Distribution

As shown in *Table 3,* for rural residents, levying personal income tax increased the Gini coefficient from the income effect and decreased it from the consumption effect, and the consumption effect was greater than the income effect. Hence, the Gini coefficient decreased from the perspective of overall effect. The MT_{rm} index of rural residents was -0.000258, -0.000339, -0.000347, and -0.000258 in 2012, 2017, 2018, and 2020, respectively. In general, the income gap of rural residents was slightly narrowed after the collection of personal income tax.

Table 3. Calculation of the overall effect of personal income tax on regulating resident income distribution

Year	Resident	Income effect MT_{am}	Consumption effect MT_{ra}	Overall effect MT_{rm}
2012	Rural residents	0.000108	-0.000366	-0.000258
	Urban residents	-0.009984	-0.000083	-0.010067
	National residents	-0.006838	-0.000128	-0.006966
2017	Rural residents	0.000093	-0.000432	-0.000339
	Urban residents	-0.011633	-0.000085	-0.011718
	National residents	-0.008315	-0.000198	-0.008513
2018	Rural residents	0.000088	-0.000435	-0.000347
	Urban residents	-0.012044	-0.000091	-0.012135
	National residents	-0.008650	-0.000203	-0.008853
2020	Rural residents	0.000056	-0.000314	-0.000258
	Urban residents	-0.009236	-0.000065	-0.009301
	National residents	-0.006647	-0.000123	-0.006770

Source: authors' own results.

For urban residents, the collection of personal income tax reduced the Gini coefficient from both the income effect and consumption effect, and the income effect was far greater than the consumption

effect, so the Gini coefficient decreased from the overall effect. The MT_{rm} index of urban residents was -0.010067, -0.011718, -0.012135, and -0.009301 in 2012, 2017, 2018, and 2020, respectively. Therefore, after levying personal income tax, the overall income gap among urban residents has significantly narrowed.

For nationwide residents, the collection of personal income tax reduced the Gini coefficient from both the income effect and consumption effect, so the Gini coefficient decreased greatly from the overall effect. In 2012, 2017, 2018, and 2020, the MT_{rm} index of nationwide residents was -0.006966, -0.008513, -0.008853, and -0.006770, respectively. Therefore, on the whole, the income gap of nationwide residents was relatively narrowed after the collection of personal income tax, that is, from the overall effect, personal income tax was progressive.

4. Discussions

From the analysis of the results, it can be seen that the levying of personal income tax has slightly widened the income gap of rural residents from the source of income, and narrowed the income gap between urban and national residents; from the consumption expenditure side, the levying of the tax has led to a slight decrease in the prices of all kinds of commodities, and an increase in the real income of the residents, and at the same time narrowed the income gap among rural, urban and national residents. In terms of the overall effect, the levying of the tax has narrowed the income gap among rural and urban residents, and at the same time narrowed the income gap of national residents. The specific discussion is as follows:

This study analyzes not only the direct impact of taxation on residents' income, but also the indirect impact of commodity prices, labor and capital price changes on residents' income after taxation. Residents in China's urban high-income household group (h10) are the main bearers of personal income tax, and their incomes fall the most after the imposition of personal income tax, reaching 6.31% in 2018; the capital factor price declined compared with the labor factor price due to taxation, thus triggering the general decline of residents' income in different groups, but the decrease amplitude did not exceed 0.60%; the price of various commodities declined slightly due to taxation, so residents' real income rose somehow, but the increase amplitude remained below 0.74%. Therefore, through comparison, it is found that taxation has the largest impact on the income decline caused by tax payment, and has the largest effect on the adjustment of residents' income distribution pattern, which is also the most direct and effective. The changes in commodity prices, labor and capital prices after taxation have a certain impact on residents' income, and also play a role in adjusting the pattern of residents' income distribution, but this role is indirect and auxiliary. This study argues that China's personal income tax has played a significant regulating role in residents' income distribution, which is consistent with the conclusion of most existing literature (Du, 2015; Zhan *et al.*, 2019; Wang *et al.*, 2019; Li, 2019; Yang, 2019; Fei *et al.*, 2020; Li and Niu, 2022). The difference is that this study not only analyzes the direct impact of personal income tax on residents' income, but also analyzes its indirect impact, so the research is relatively more comprehensive and more in line with the reality. Kuang (2021) calculated and found that during the period from 2003 to 2010, the difference in the Gini coefficient of residents' income was negative, and personal income tax had a reverse adjustment effect on residents' income distribution. During the period from 2011 to 2019, the difference in the Gini coefficient of resident income was positive, and personal income tax fully played a positive regulating role. In fact, the number of personal income taxpayers in China is not more than 100 million, accounting for a relatively low proportion of the total population of

1.4 billion, and personal income taxpayers should belong to the middle and high-income classes. After the personal income tax is levied, the income of middle and high income class residents will decrease, but the income of middle and low-income class residents will not be affected, so the personal income tax should not have a negative impact on income distribution. Kuang (2021) calculated and found that personal income tax had an adverse adjustment effect on income distribution during the period from 2003 to 2010, indicating that the calculation method or data processing method in this study was wrong.

From the perspective of different periods, before the 2018 tax reform, the effect of personal income tax on adjusting residents' income distribution increased year by year, while the re-distribution effect of personal income tax weakened after the tax reform. In 2018, the proportion of personal income tax revenue in total tax revenue was 8.87%, and the proportion in 2019 and 2020 will be 6.58% and 7.50% respectively after the tax reform. After the tax reform, the proportion of personal income tax revenue decreased, resulting in a decrease of income distribution adjustment ability. The results of this study are consistent with those of Zhan *et al.* (2019), but contrary to those of Wan and Xiong (2019), Zhang and Yue (2021). The findings of Wan and Xiong (2019), Zhang and Yue (2021) are different from those of this study and most related studies, which may be related to the different data sources, data processing methods and measurement indicators selected.

Conclusions and Implications

Main Findings

In this study, four periods of China's SAM in recent decades were compiled, and a tax CGE model was constructed to analyze the effect of personal income tax in regulating residents' income distribution from two aspects: income source side and consumption expenditure side. Finally, the following conclusions were drawn: (1) the internal income gap of urban and rural residents was narrowed thanks to the collection of personal income tax, which, moreover, narrowed the income gap of nationwide residents, and the tax was progressive. The progressivity of personal income tax is mainly derived from the collection of income for high-income groups, and the changes in the price of labor and capital factors and the changes in the price of various commodities caused by taxation have also played a certain role in regulating the income distribution of residents. (2) From different periods, the redistribution effect of personal income tax was gradually enhanced period by period in 2012, 2017, and 2018, while that in 2020 was weakened somehow due to the personal income tax reform in 2018.

Managerial Implications

Personal income tax is the most important tax to adjust the income distribution of residents in China. In this study, it is found that although the personal income tax can effectively narrow the income gap between rural and urban residents and that of nationwide residents, since personal income tax income is less than 10% of the total tax revenue, the regulating effect remains insufficient. Hence, it is necessary to further reform and improves the personal income tax system, strengthen its efforts to regulate the income distribution of residents and improve the income distribution pattern.

(1) Tax collection and management should be strengthened to increase the proportion of the personal income tax revenue. The small scale of personal income tax revenue in China is the main reason that limits its income distribution effect. Therefore, increasing the income scale of personal income tax is the main way to improve its income distribution effect. Efforts should be made to strengthen the tax collection and management of high-income industries and high-income groups, reduce tax losses, and

enlarge the scale of personal income tax. In addition, the taxation of capital gains of high-income groups can be strengthened to enhance the ability of personal income tax to adjust property income.

(2) Further efforts should be made to improve the comprehensive personal income tax system. China's personal income tax has long implemented a classified taxation system, and the income is taxed separately according to 11 categories. During the personal income tax reform in 2018, the income from wages and salaries, the income from labor remuneration, the income from manuscript remuneration, and the income from royalty payment were included in the scope of comprehensive income, for which a progressive tax rate was adopted; However, for other types of income, a fixed proportional tax rate is still adopted. Due to the significant proportion of property and capital income in the income of high-income groups, non-comprehensive income items such as property and capital income should gradually be included in the scope of comprehensive income collection. Next, a personal income tax declaration system with families as the unit should be established, including taxpayers' family factors into the system improvement of personal income tax so that it can conform to the ability-to-pay principle of taxation more and the redistribution effect of personal income tax can be enhanced.

Limitations and Future Directions

Based on the heterogeneity of residents' income and expenditure, this study analyzes the effect of personal income tax on adjusting the income distribution of rural residents, urban residents and national residents from the perspective of income effect and consumption effect. Due to limited data, this study assumes that the personal income tax is fully borne by high-income urban residents, but the actual situation may be different. China has a vast territory and a large population, so the personal income tax burden of residents in different regions is different, and the adjustment effect of personal income tax on the income distribution of residents in different regions will be different. In view of the existing problems of the personal income tax system and the proposed direction of tax reform, the redistribution effect of personal income tax was further analyzed under the next possible tax reform plan. These are the limitations of this study but also need to be further studied.

Literature

Amir, H., Asafu-Adjaye, J., Ducpham, T. (2013), "The impact of the Indonesian income tax reform: a CGE analysis", *Economic Modelling,* Vol. 31, pp.492-501.

Badenes-Pl, N., Buenaventura-Zabala, J.M. (2017), "The Spanish income tax reform of 2015: analysis of the effects on poverty and redistribution using micro-simulation tools", *Public Sector Economics,* Vol. 41, No 3, pp.315-333.

Baldini, M. (2021), "Redistribution and progressivity of the Italian personal income tax, 40 years later". *Fiscal Studies,* Vol. 42, No 2, pp.345–366.

Bird, R.M., Zolt, E.M. (2005), "The limited role of the personal income tax in developing countries", *Journal of Asian Economics,* Vol. 16, No 6, pp.928-946.

Choczyńska, A. (2024), "Intersectional digital inequality in Indonesia", *Insights into Regional Development*, Vol. 6, No 3, pp.11-22. https://doi.org/10.70132/a2853658265.

Chou, J.T., Fu, C.H. (2022), "Which families benefited from the recent personal income tax reform in Taiwan: evidence from the administrative data", *Journal of Family and Economic Issues,* Vol. 43, pp.433-451.

Di Paolo, C. (2020), "Decomposing personal income tax redistribution with application to Italy", *The Journal of Economic Inequality,* Vol. 18, No 1, pp.113–129.

Dizon, R. (2021), "Tax incidence of Philippine tax reform: poverty and distributional effect", *Journal of Asian Finance Economics and Business,* Vol. 8, No 2, pp.281-288.

Du, L. (2015), "The tax adjustments and the redistribution effects of China's individual income tax system", *Statistical Research,* Vol. 32, No 4, pp.36-42.

Du, L., Zhang, Z.X. (2018), "Measuring the redistributive effects of China's personal income tax", *Asia & the Pacific Policy Studies,* Vol. 5, No 2, pp.220-234.

Fei, M.Q., Yang, Z., Zhou, K.Q. (2020), "The evaluation of the new round reform of individual income tax in China from the perspective of equality", *Finance & Economics,* No 7, pp.66-78.

Freebairn, J. (2015), "Who pays the Australian corporate income tax?", *Australian Economic Review,* Vol. 48, No 4, pp.357-368.

Hao, C.H., Wang, L. (2019), "Research on the taxation incidence of income distribution effect of tax livelihood deduction for individual income tax: General equilibrium analysis based on input-output tax price model", *Public Finance Research,* No 11, pp.115-128.

Harberger, A.C. (1962), "The Incidence of the corporation income tax", *Journal of Political Economy,* Vol. 70, No 3, pp.215-240.

Hassan, F.M.A., Bogetić, Ž. (2010), "Effects of personal income tax on income distribution: example from Bulgaria", *Contemporary Economic Policy,* Vol. 14, No 4, pp.17-28.

Hu, H. (2015), "A study of the relationship between the four elements of personal income tax and income disparity", *Journal of Central University of Finance & Economics,* No 8, pp.3-11.

Kong, H., Liu, M.H. (2023), "A study of the income redistributive effects of the special additional deduction for personal income tax for the care of infants and young children under 3 years old", *Sub National Fiscal Research,* No 1, pp.68-77.

Kuang, H.Y. (2021), "Individual income tax, income structure and redistribution adjustment: Empirical test based on provincial panel data", *Reform of Economic System,* No 4, pp.158-165.

Li, B.F. (2020), "Research on the effects of taxation regulation of residents' income distribution based on CGE model", *Beijing: Economic Science Press,* pp.78-92.

Li, B.F., Zhang, X.R., Chen, T. (2024), "Research on the effect of personal income tax adjustment on income distribution based on general equilibrium", *Research Square*, available at, https://doi.org/10.21203/rs.3.rs-4194940/v1

Li, C., Li, J., Lin, S. (2015), "Optimal income tax for China", *Pacific Economic Review,* Vol. 20, No 2, pp.243-267.

Li, J., Niu, X. H. (2022), "A study of the revenue distribution effects of individual income taxes based on income structure", *Macroeconomics,* No 2, pp.16-26.

Li, W. (2019), "Equity or efficiency: On effects of personal income tax reform in China in 2019", *Finance and Trade Research,* Vol. 30 No 4, pp.41-55.

Liu, R., Kou, X. (2019), "Calculating the impact of special expense deduction on income distribution", *Finance & Trade Economics,* Vol. 40, No 5, pp.39-51.

López-Laborda, J., Marín, C., Onrubia, J. (2022), "The removal of tax expenditures from Spanish personal income tax: impact on tax collection and income distribution", *Public Budgeting & Finance,* Vol. 42, No 2, pp.221-254.

Ma, G., Xu, J., Li, S. (2015), "The income redistribution effect of China's personal income tax: What the microdata say?", *Contemporary Economic Policy*, Vol. 33, No 3, pp.488–498.

Malicka, L. (2023), "Co-moves of Sub-national and Central Government Tax Revenues in European Countries", *Montenegrin Journal of Economics*, Vol. 19, No 2, pp.85-95. DOI: 10.14254/1800-5845/2023.19-2.7.

Nguyen, V.D., Duong, T.H.M. (2022), "Corruption, Shadow Economy, FDI, and Tax Revenue in BRICS:A Bayesian approach", *Montenegrin Journal of Economics*, Vol. 18, No 2, pp.85-94. DOI: 10.14254/1800-5845/2022.18-2.8.

Nyamongo, M.E., Schoeman, N.J. (2007), "Tax reform and the progressivity of personal income tax in South Africa", *South African Journal of Economics,* Vol. 75, No 3, pp.478-495.

Piketty, T. (2015), "About capital in the twenty-first century", *American Economic Review,* Vol. 105, No 5, pp.48‑53.

Poblete, C.M. (2011), "Evaluating tax reforms in Chile with a CGE model", *Estudios de Economia,* Vol. 37, No 2, pp.243-284.

Rieth. M., Checcherita-Westphal, C., Attinasi, M.G. (2016), "Personal income tax progressivity and output volatility: evidence from OECD countries", *Canadian Journal of Economics,* Vol. 49, No 3, pp.161-174.

Serrano-Puente, D. (2020), "Optimal progressivity of personal income tax: a general equilibrium evaluation for Spain", *SERIEs,* Vol. 11, No 4, pp.407-455.

Stephenson, A.V. (2018), "The impact of personal income tax structure on income inequality for Belgium, Bulgaria, Germany, Lithuania, and Poland: A comparison of flat and graduated income tax structures", *Atlantic Economic Journal,* Vol. 46, No 4, pp.405-417.

Técnico, B., Novas, D. (2017), "Taxation and distribution of income in Brazil: new evidence from personal income tax data", *Brazilian Journal of Political Economy,* Vol. 37, No 2, pp.267-286.

Tian, Z.W., Jin, S., Wang, Y. (2022), "Research on the impact of the preferential policy of annual lump sum bonuses: Based on the perspective of income distribution and international talent competition", *Public Finance Research,* No 2, pp.77-90.

Torregrosa-Hetland, S., Sabaté, O. (2022). "Income tax progressivity and inflation during the world wars", *European Review of Economic History*, Vol. 26, No 3, pp.311-339.

Víghová, A., Košovská, I., Hudáková, M. (2024), "Evaluation of revenues, EBITDA, net profit, and corporate income taxes in relation to the income side of the state budget", *Entrepreneurship and Sustainability Issues*, Vol. 12, No 1, pp.459-467. https://doi.org/10.9770/jesi.2024.12.1(30).

Wan, Y., Xiong, H.J. (2019), "China's personal income tax reform in 2018 income redistribution effects", *Taxation Research*, No 6, pp.52-565.

Wan, Y., Xu, C.B. (2020), "Re-examination of the revenue distribution effect of China's consumption tax", *Taxation Research,* No 1, pp.50-56.

Wang, H., Lou, F. (2017), "Measurement of the fiscal redistributive effect", *China. Economic Research Journal,* No 1, pp.103-118.

Wang, Y., Tian, Z.W., Wang, Z.T. (2019), "Study on income redistribution effect of individual income tax reform in 2018", *Collected Essays on Finance and Economics,* No 8, pp.31-38.

Wu, Y. (2022), "A study of the effects of special additional deductions for infant and child care individual income taxes", *Tax and Economic Research,* Vol. 27, No 5, pp.29-38.

Yang, M. (2019), "The effects on tax reduction and income distribution of the new round of individual income tax reform", *Economic Perspectives,* No 7, pp.37-49.

Yue, X.M., Xu, J., Liu, Q. (2012), "Evaluation of redistributive effects of the personal income tax reform in 2011", *Economic Research Journal,* Vol. 47, No 9, pp.113-124.

Zhan, P., Li, S., Xu, X. (2019), "Personal income tax reform in China in 2018 and its impact on income distribution", *China & World Economy,* Vol. 27, No 3, pp.25-48.

Zhang, X. (2017), "Principles of computable general equilibrium (CGE) modeling and programming, 2E", *Shanghai: Truth & Wisdom Press,* pp.25-30.

Zhang, X., Yue, X.M. (2021), "The impact of China's 2018 personal income tax reform on income redistribution", *Finance & Trade Economics,* Vol. 42, No 11, pp.5-19.

KINIJOS GYVENTOJŲ PAJAMŲ MOKESČIO KOREGAVIMO POVEIKIS PAJAMŲ PASKIRSTYMUI REMIANTIS BENDRĄJA PUSIAUSVYRA

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Santrauka. Gyventojų pajamų mokestis yra svarbiausias mokesčių tipas, kuris reguliuoja gyventojų pajamų pasiskirstymą Kinijoje. Tačiau literatūroje trūksta išsamios analizės, pagrįstos bendra pusiausvyra, apie tai, kaip gyventojų pajamų mokestis perskirstomas. Siekiant ištirti gyventojų pajamų mokesčio poveikį rezidentų pajamų pasiskirstymui, remiantis bendrosios pusiausvyros teorija, buvo sukurtas apskaičiuojamosios bendrosios pusiausvyros (CGE) apmokestinimo modelis. Taip pat buvo sudarytos socialinės apskaitos matricos (SAM) remiantis keturiais Kinijos sąnaudų ir produkcijos lentelės skyriais, paskelbtais per pastarąjį dešimtmetį. Išsamiai išmatuotas gyventojų pajamų mokesčio poveikis gyventojų pajamų pasiskirstymui, jis vertikaliai palygintas su pajamų poveikiu ir vartojimo poveikiu. Rezultatai atskleidė, kad gyventojų pajamų mokesčio taikymas sumažina pajamų atotrūkį tarp miesto, kaimo ir šalies gyventojų, o tai rodo progresinį apmokestinimo pobūdį. Kinijos gyventojų pajamų mokesčio mokėtojai labiausiai susitelkę į dideles pajamas gaunančias grupes, o tai yra pagrindinė progresinio gyventojų pajamų mokesčio pobūdžio priežastis. Be to, laikui bėgant gyventojų pajamų mokesčio perskirstomasis poveikis didėjo iki 2018 m. mokesčių reformos, o vėliau, pakeitus mokesčius, silpnėjo. Išvadose pateikiama orientacinė reikšmė, susijusi su tolesniu Kinijos mokesčių sistemos reformavimu ir pajamų paskirstymo modelio gerinimu.

Reikšminiai žodžiai: gyventojų pajamų mokestis; pajamų pasiskirstymas; pajamų efektas; vartojimo efektas; apskaičiuojamas bendrosios pusiausvyros (CGE) modelis.