Prediction of the Impact of real Estate tax Reform on local Fiscal revenue --- Based on Shanghai

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Abstract: This paper analyzes the current situation of real estate in Shanghai and the reasons for the failure to implement the real estate tax in 2011. It analyzes the social welfare of real estate under different tax bases, tax rates, and different exemption schemes to adjust the gap between the rich and the poor. Using the "China Household Finance Survey" as the data basis, the data is analyzed by the Gini coefficient method on household income, household housing area, the market value of the real estate, and the number of houses owned by households. The higher the real estate tax rate, the higher the Gini coefficient. By calculating different exemption schemes, when the per capita living area exemption scheme is 35-60 square meters, it can adjust the income gap of Shanghai residents' families. It shows that the real estate tax rate should not be set too high to avoid the loss of social welfare of resident families. At the same time, the expansion of the tax base, the increase of taxes on the existing houses, and the use of the per capita living area exemption can effectively supplement the fiscal revenue to adjust the income gap.

1. Introduction

1.1 Research background

On October 23, 2021, the Thirty-first Meeting of the Standing Committee of the Thirteenth National People's Congress adopted and announced the "Decision of the State Council on Carrying out the Pilot Work of Real Estate Tax Reform in Some Areas" [1]. The document summarizes the 2012 Years of personal housing property tax reform pilot experience, combined with the new situation, further deepening the Shanghai real estate tax reform pilot [2]. The property tax reform in 2012 failed to meet people's expectations in terms of curbing housing prices and did not meet expectations in terms of replacing land transfer fees and supplementing fiscal revenue [3]. After the property tax was implemented, the price of renting or transferring housing increased, and the property tax, which was supposed to reduce the gap between the rich and the poor, was passed on to low- and middle-income people. At the same time, the market demand for housing increased, resulting in a serious imbalance between the supply and demand of urban housing [4].

Housing prices in first-tier and key provincial capital cities have continued to rise, and housing prices have grown faster than wages, making young people unable to afford high housing prices. The original land policy acts on the land transfer fee. However, fiscal revenue should be jointly supported by all people. The land transfer fee ultimately falls on those who buy new houses, which will naturally increase the burden on the younger generation and increase the imbalance between generations. Second, the gap between the rich and the poor between cities is growing, and the growth rate of housing prices far exceeds the level of economic growth. In order to achieve shared prosperity, regional balance development, adjust the gap between the rich and the poor and regulate housing prices, the purpose of the real estate tax is to promote the steady and healthy development of the real estate market.

Local governments rely on land finance. As the era of real estate development comes to an end, land finance is unsustainable, and land resources are limited. The situation forces the transition from land finance to real estate tax. At the same time, local finances are tight, and new fiscal revenue needs to be raised. The epidemic, the sluggish real estate market, large-scale land auctions, and the operational difficulties of small and medium-sized enterprises have significantly impacted local finances.

1.2 Literature review

Feng analysed the reasons for the failure of the real estate tax in Chongqing and Shanghai in 2011 and pointed out that the real estate tax rate was too low and the tax base was wrongly positioned [3]. Zhong conducted in-depth research on the gap between the rich and the poor in China and put forward the internal connection between real estate and the wealth gap, indicating that reasonable taxation can effectively adjust the gap between the rich and the poor [5]. Chen discussed the experience and impact of property tax collection in other countries, analysed the differences between my country and other countries and regions, and extracted relevant expertise to reference domestic policy formulation [6].

Most scholars have mainly studied the impact of real estate tax reform on fiscal revenue, housing prices, income distribution, and family burdens. Few scholars have studied the effects of real estate tax reform on income inequality and social welfare. Li proposed the impact of the real estate tax on the income gap and social welfare. Using provincial tax rate, the per capita value exemption scheme can narrow residents' income gap and improve social well-being [7]. Even though some scholars have proposed relevant effect simulations, they have not accurately pointed out the impact of different tax rates and tax bases on income gaps in specific cities.

1.3 Research framework

This paper mainly analyses why the Shanghai real estate tax has not achieved a comprehensive impact after the promulgation of the real estate tax in 2011. Moreover, by proposing a simulation of the impact of different tax rates and tax bases on the income gap in Shanghai and its social welfare effects, this study tries to make corresponding suggestions. Firstly, it analyses the reasons for the failure of the real estate tax pilot city in Shanghai, then proposes a new simulated tax rate and tax base, and then analyses the impact of the real estate tax on the wealth gap in Shanghai under different tax rates through the Gini coefficient model. Atkinson's social welfare model verifies the results of social welfare effects under different property tax rates. Finally, relevant suggestions are put forward according to the research results.

2. Method

The Gini coefficient is a comprehensive indicator to measure the income gap between residents. This indicator was proposed by Italian economist Gini in the early 20th century. When everyone in the society has the same income, and the income distribution is even, the Gini coefficient is 0; when the payment of the whole society is concentrated in one person, and the income distribution is uneven, the Gini coefficient is 1 [8].

The Gini coefficient needs to be calculated using household or grouped household income data. Using different sources and calibers of primary income data will result in different Gini coefficients. The data used in this article is based on the 2019 China Household Finance Survey Report, which separately calculates the amount of real estate tax payable by each household. The "China Household Finance Survey Report" data includes household behaviors such as household income, consumption, and wealth and includes demographic characteristics, income, and other information based on individuals in the household [9]. The household is used as the unit, and the real estate tax rate is also measured on a household basis. Therefore, the assessment of the adjustment effect of the real estate tax on the income gap and the welfare effect is based on the household. The income mentioned in this article refers to the sum of wage income, property income, operating income, transfer income, and other income. The definition of income is consistent with the definition of income by the National Bureau of Statistics. When the sample size is large, it can fully offset the estimation error of real estate-owning households [8].

3. Result

The gap between the rich and the poor is mainly in real estate in China. According to the National Bureau of Statistics household survey data, the Gini coefficient of national per capita disposable income was always above 0.46 between 2003 and 2019 and reached 0.468 in 2020 [5]. In terms of the composition of wealth, among the net wealth of residents across the country in 2017, the net value of the real estate in urban areas accounted for 73.21%; rural areas are relatively low but also reached 51.34%. Real estate net worth is the most important part of family wealth and drives the growth of residents' wealth. In terms of growth rate, the net value of real estate increased by 15.56% in 2017, which is faster than the growth rate of family wealth [11]. The increase in house prices has expanded the wealth gap by about 45%. However, due to the large range of urban real estate prices, the contribution rate of urban real estate net value to wealth inequality is significantly higher than that in rural areas. House prices have a significant impact on Residents' wealth gap, which is a very important factor of wealth gap [5].

On January 28, 2021, the Shanghai Municipal People's government issued the Interim Measures of Shanghai Municipality on the pilot of levying property tax on some individual houses [12]. It stipulates that the real estate tax shall be levied on the newly purchased second and above houses of Shanghai residents and the newly purchased houses of non-Shanghai residents. The tax rate shall be set at 0.4% and 0.6% respectively to the house price. It aims to supplement fiscal revenue, regulate house prices, and narrow the rich and poor gap. However, it has not achieved remarkable results in curbing house prices and did not meet the expected requirements in supplementing fiscal revenue. On the contrary, house prices have exacerbated the rich and poor gap.

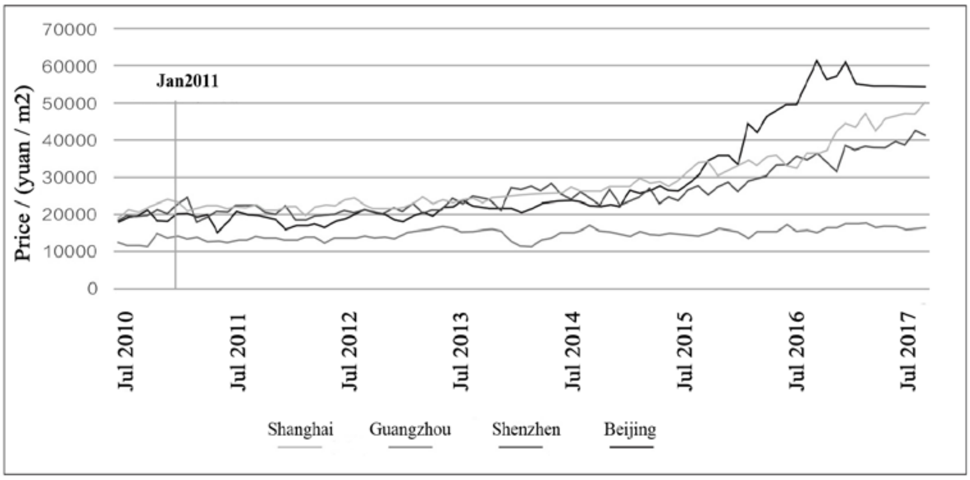

Figure 1. Shanghai house price trend.

House prices continue to grow, which is difficult for low - and middle-income people to bear, and residents' consumption is squeezed out. In the two years since the promulgation of the real estate tax in 2011, the average transaction price of new commercial housing has been relatively stable. Still, it has ushered in a continuous rise since then, and the inhibitory effect of the real estate tax on house prices is limited [13]. For first-tier cities such as Shanghai, due to the lack of housing supply elasticity, the rise in real estate demand is more transformed into house prices. High house prices bring higher production and operation costs, and population inflow slows down significantly even starts to flow out. In rising house prices, enterprises face higher factor costs, higher rents, and many housing-related costs. The rising operating costs caused by rising house prices will erode enterprises' profits and worsen the manufacturing industry's living environment. The rise in house prices has increased the burden on buyers and renters, especially for low - and middle-income groups. Housing expenditure is too high relative to income, and high house prices have squeezed out the purchasing power of other aspects. Because of the influence of COVID-19, the world is facing the problem of falling demand. This will have a certain impact on China's foreign trade. When exports decline, it is necessary to increase investment and consumption. Therefore, it is necessary to stimulate consumption, expand domestic demand and stabilize macroeconomic growth. Therefore, stabilizing house prices has positive significance for promoting consumption.

The fiscal revenue is tight, and the total income of real estate tax is low. Local governments rely too much on land finance, while the first-tier cities enter the period of stock housing, and the tax of land transfer fee model is difficult to sustain.

Comparing the total housing property tax revenue of Shanghai residents with the general public revenue each year, implementing the pilot project of housing property tax has little impact on the financial revenue. The income from levying property tax on Residents' housing accounts for a small proportion of general public revenue, even in 2019, which accounts for the largest proportion, it is only 0.42% [13]. The real estate tax can improve the local main tax and increase the local stable tax source.

In the current land financial system, the contribution of land transfer income is considerable. In 2020, land transfer revenue and special real estate tax accounted for 37.6% of local fiscal revenue. However, real estate development and infrastructure investment are ending for first-tier cities. According to the latest data from the National Bureau of Statistics, the newly started area of houses decreased by 12.6% from January to September. The completed area of houses decreased by 9.8%. The land purchase area of real estate development enterprises decreased by 33.8%. The land transaction price decreased by 27.5% [14]. The transition from land finance to the real estate tax is inevitable.

The model of land transfer fee leads to unfair intergenerational distribution, increases the gap between the rich and the poor, and the existing real estate tax income plays a limited role in promoting redistribution. The model of land transfer fee leads to unfair intergenerational distribution, increases the gap between the rich and the poor, and the existing real estate tax income plays a limited role in promoting redistribution. Most theorists believe that the current state-owned land transfer fee is a one-time deduction of the future land rent, which is the manifestation of tax capitalization. The real estate tax is a kind of annuity system. That is, the income from state-owned land is recovered annually. Theoretically speaking, as long as the total amount of the two is equal, they should achieve the same goal by different paths. However, the defect of the former lies in the unfair intergenerational distribution. The high land transfer fee makes it difficult for young people who need to buy houses and solidifies the capital of the previous generation. As the growth rate of capital is greater than that of labor, the gap between the rich and the poor will become increasingly serious. At the same time, the real estate tax revenue promulgated in 2011 stipulates that it is used for affordable housing expenditure, conducive to solving the housing difficulties of low-income groups, adjusting income distribution, and promoting social equity. The guiding opinions of the general office of the State Council on the construction and management of indemnification housing projects stipulate. And the income collected from the pilot real estate tax shall be specially used for indemnification housing projects. From 2011 to 2019, residents' housing and real estate tax accounted for only 8.52% of housing security expenditure [15]. At present, Shanghai's pilot real estate tax plays a certain role in promoting income redistribution, but its role needs to be strengthened.

The real estate tax measures promulgated in 2011 have too small tax objects and cover a small number of people. It stipulates that based on exempting the tax-free housing area of 60 square meters per capita. The real estate tax shall be levied on the second and more houses owned by Shanghai residents. In contrast, the new houses purchased by non-Shanghai residents shall be subject to the real estate tax. However, there is no collection policy of stock housing property tax in Shanghai's pilot collection of property tax. As Shanghai enters the era of stock housing, the growth rate of incremental housing slows down, and the tax object should be based on stock housing.

The low tax rate cannot effectively curb real estate speculation and insufficient real estate tax income. According to the experience of developed countries and Shanghai, the real estate tax rate mainly adopts a progressive and average tax rate, and the tax rate is low. Previously, Shanghai adopted two tax rates of 0.4% and 0.6%. According to the calculation (Liu Nannan's paper), it was about 5% of family income. Other developed countries

According to the number of sets or areas, the progressive tax rate is not increased step by step. The introduction of real estate tax can curb speculation and investment demand, release many land and housing sources, and increase the market supply of new commercial housing and second-hand stock housing, which may reduce house prices in the short term. But at the same time, it is also possible to further push up house prices through cost transfer, which depends on whether the supply in the real estate market is sufficient. The real estate tax introduced in 2011 has restrained house prices in the short term, but house prices continue to rise after that due to the relationship between market supply and demand. The progressive tax rate on the real estate tax levied on multiple suites, villas, and high-priced houses, curb the demand for these houses, optimizes the housing supply structure, and increases the supply of small and medium-sized houses.

4. Discussion

This paper calculates the Gini coefficient before and after the imposition of real estate tax according to the formula of the Gini coefficient. According to the Atkinson index, it calculates the impact of the real estate tax on the social welfare level.

Calculation of Gini Coefficient The sample households in Shanghai are divided into five groups according to their annual income. This paper calculates the Gini coefficients before and after-tax when different real estate tax rates are implemented in Shanghai.

Table 1. Gini coefficients of different tax rate schemes.

Tax rate	Shanghai Real Estate Tax Rate Scheme	
	Gini coefficient before tax	Gini coefficient after tax
The real estate tax rate is 0.4%	0.5026	0.5078
The real estate tax rate is 0.5%	0.5026	0.5086
The real estate tax rate is 0.6%	0.5026	0.5100
The real estate tax rate is 0.7%	0.5026	0.5108
The real estate tax rate is 0.8%	0.5026	0.5121
The real estate tax rate is 0.9%	0.5026	0.5129
The real estate tax rate is 1.0%	0.5026	0.5137

The following is the calculation of the Gini coefficient of different schemes based on the tax-free area of the first suite, the per-capita living area exemption, and the per-capita exemption amount. Table 2 calculates the Gini coefficient before and after-tax when the tax-free area of the first home is different.

Table 2. The Gini coefficient before and after-tax when the tax-free area of the first home.

	Tax-free first home	First suite exempted area (square meters)							
		35	40	45	50	55	60	65	70
Gini coefficient before tax	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707
Gini coefficient after tax	0.59747	0.60002	0.59949	0.59887	0.59872	0.59843	0.59841	0.59826	0.59804

Table 3 calculates the Gini coefficients before and after-tax when the per capita tax-free living area is different.

Table 3. The Gini coefficients before and after-tax when the per capita tax-free living area.

	Tax-free living area per capita (square meters)							
	35	40	45	50	55	60	65	70
Gini coefficient before tax	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707
Gini coefficient after tax	0.59373	0.59708	0.59705	0.59707	0.59707	0.59706	0.59826	0.59808

Table 4 measures the Gini coefficients before and after-tax for the per capita value exemption scheme.

Table 4. The Gini coefficients before and after-tax for the per capita value exemption scheme.

	Per capita value exempt area (square meters)							
	1	2	3	4	5	6	7	8
Gini coefficient before tax	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707	0.59707
Gini coefficient after tax	0.60117	0.60044	0.59999	0.59949	0.59895	0.59940	0.59986	0.59808

5. Conclusion

This paper uses the Gini coefficient formula to calculate the social welfare effects of different real estate tax rates and different exemption schemes based on Shanghai household income, housing area, real estate market value, and the number of houses owned by households. The results show that collecting real estate tax will damage the social welfare of households to a certain extent; the higher the real estate tax rate, the greater the loss of social welfare of the household, so the real estate tax rate should not be too high. However, increasing real estate tax can supplement fiscal revenue. According to the real estate tax revenue mentioned above, it can be used for affordable housing expenditure. Government regulation can effectively promote social redistribution and improve social welfare.

In calculating the number of sets exempted, the per capita living area exemption, and the per capita exemption amount, the after-tax Gini coefficient of the per capita living area exemption scheme is greater than the pre-tax Gini coefficient. And this indicates that the per capita living area exemption can be adjusted within 35-60 square meters. The income gap of Shanghai residents' families positively affects the family income gap. The results align with the tax exemption scheme proposed by Wang Dehua.

This paper mainly analyzes the problems faced by the real estate market now. It proposes that the implementation results of the 2011 real estate tax are not ideal due to the unreasonable setting of the tax base and tax rate. At the same time, it focuses on the connection between real estate tax, income gap, and social welfare, filling the vacancy of the real estate tax in adjusting the gap between rich and poor.

The Gini coefficient method used in this paper measures the relative income gap. The Gini coefficient is the aggregate average of the gaps between various income groups at a certain time. At the same time, the sample size of Shanghai households is small, and the data results are limited. The Gini coefficient method cannot calculate the effect of the government through tax redistribution and ignores the government's role in regulating the gap between the rich and the poor through taxation.

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