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Research Article

Research on the Policy Effect of Property Tax Reform: Take the Pilot Reforms in Chongqing and Shanghai as Examples

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It has been ten years since the implementation of property tax reform in Shanghai and Chongqing. With the continuous promotion of tax reform, the central government clearly put forward the decision to accelerate the pilot real estate tax reform in 2021. Every piece of news about the pilot and promotion of property tax reform attracts close attention from people in related fields and becomes a hot topic on the Internet and media. Reform policies are carefully formulated and improved, and the relationship between reform policies, market demand, and people's livelihood is properly handled so that the real estate market will develop in a healthy and stable manner and have a significant impact on the economy and society. This article mainly starts with the history of property tax development, reform priorities, and comparison with property tax policies of other countries. It takes Chongqing and Shanghai as the research objects, selects several typical factors, and uses multiple linear regression models for analysis. This article studies the impact of China's property tax pilot on the real estate industry and its effects from both theoretical and empirical aspects and discusses the policy effects of the property tax policy pilot. The levy of real estate tax has a certain effect in a short period of time, but it is not ideal in the long run. Studying the economic effects of Shanghai-Chongqing property tax is conducive to perfecting China's property tax reform and promoting the healthy development of real estate market and economic and social development.

1. Introduction

Property tax is a tax levied on the owner or user of a house based on the residual value or assessed value of the house. The main characteristics of the tax are that it is a real estate tax, with a strong regional dimension and a stable and reliable tax source, and it is irreplaceable. The introduction of property tax not only helps to strengthen the state's macro-control ability and reasonably adjust the income distribution of residents but also correctly guides consumption and effectively allocates real estate resources. The current legal system of property tax in China is based on the *Provisional Regulations of the People's Republic of China on Property Tax* in 1986. In the era of rapid economic development, this legislation is to some extent correct, but, in many aspects, it still shows an obvious lag. For this reason, property tax

reform is the inevitable trend of social development. In recent years, the rapid development of China's real estate market has led to a sharp rise in housing prices, with the result that the real estate market has become severely fragmented, making it difficult for low- and middle-income groups to purchase houses. As a result, the commodity of housing has gradually moved away from its basic attribute of "housing" and started to be used to meet investment and speculative demands, resulting in an unequal distribution of social wealth and adversely affecting people's livelihood and economic development. Property tax reform, as the focus of research by Chinese scholars, has attracted people's increasing attention. While housing prices are rising, people are increasingly hoping that property tax will make qualitative changes. Therefore, we need to explain the role of property tax on house prices and the national economy.

The Chinese government has introduced corresponding policies to regulate housing prices so as to consolidate the stability of the real estate market, among which the pilot property tax reform conducted in 2011 has attracted particular attention from the public.

In the last ten years, the property tax pilot was implemented in Shanghai and Chongqing, which played a considerable role in demonstrating the reform. Although the role of property tax in raising revenue and regulating the development of the real estate market in China is not obvious, the unreasonable design and the deviation of function positioning need to be solved urgently, from the perspective of analyzing its effect, and the pilot reform of property tax still has a positive impact in regulating the structure of property supply and demand. At present, China has only conducted property tax pilots in Shanghai and Chongqing. Therefore, it lays a certain foundation to study the policy effect of the property tax pilot by drawing on the pilot cities and analyze whether the property tax can curb the rise of house prices and so forth.

A theoretical basis can be given in the issue of China's future real estate tax reform. The different national conditions in China and western countries determine the design of tax reform to be combined with China's specific national conditions. Therefore, China cannot completely imitate the systems of other countries; otherwise, it may hinder the development and progress of China's economy and society. The development of China's property tax policy needs to be based on China's unique situation, and more research and analysis need to be put into this reform. Currently, it is not uncommon for scholars in China to study property taxes, and their views on the policy effects of property taxes vary. In this paper, through theoretical analysis and the most timely and effective data, we study and analyze the property tax pilot project, hoping to provide theoretical support for the implementation of the national property tax reform.

It has been ten years since the implementation of property tax reform in Shanghai and Chongqing, and the general trend of property tax reform has been implemented nationwide. Every news of the property tax pilot reform and promotion attracts close attention from people in related fields and becomes a hot topic on the Internet and media. Reform policies are carefully formulated and improved, and the relationship between reform policies, market demand, and people's livelihood is properly handled, so that the real estate market can develop healthily and steadily and have a significant impact on the economy and society. Therefore, this paper aims to explore the positive and negative effects of the pilot real estate reform on the economy and house prices in Shanghai and Chongqing and whether the short-term and long-term policy effects are the same, so as to make some targeted suggestions for real estate policy reform.

2. Literature Review

Property tax is not a recent development, and scholars in various countries have studied many effects of property tax. From the theoretical research of Chinese scholars, Sui and Li studied the impact of property tax on house prices. Based on the principles of western economics and the demand and supply curves, they found that market demand can change property prices to a large extent, indicating that property tax alone cannot be levied to suppress house prices in the long run, and the level of tax rate and the demand of residents also need to be considered [1]. Using a variety of methods to practically analyze the impact of property tax, Pang analyzed the impact and problems of property tax using the reform in Shanghai and Chongqing as examples, as well as the property tax policies of developed countries, and put forward relevant policy recommendations [2]. Niu described the current property tax reform in more detail, made a theoretical analysis of its economic effects, concluded that the property tax reform did not have significant effects, and pointed out the problems and countermeasures [3]. Based on the background of property tax reform, Li studied the role and impact mechanism of property tax on house prices from both theoretical and practical aspects [4]. Using an empirical study of the relationship between property taxes, house prices, and local fiscal expenditures, Feng explained that property taxes have only a relatively weak and insignificant effect on promoting equity in house prices [5]. By comparing the changes in the real estate market in Shanghai before and after the property tax reform, Yin and Wei reflected and proposed corresponding countermeasures [6]. Yuan analyzed the effect of property tax on stabilizing housing prices in detail and made targeted suggestions [7]. Dai concluded that the property tax has a limited disincentive effect through a Differences-in-Differences (DID) model with parameter estimation based on data from 35 cities [8]. Wang and Cao's research showed that if house prices are made to rely only on existing property tax policies, there are major limitations and a combination of other instruments should be used [9]. Jiang et al. evaluated the reforms in Chongqing and Shanghai using the HCW method and concluded that the pilot reforms could not solve the problems of real estate market in Shanghai but had an obvious dampening effect on Chongqing's real estate market, and the Chongqing model could be used as a reference for the future reform path in China [10]. Using a synthetic control method, Liu and Fan evaluated the effects of the property tax since the pilot project and found that the property tax had a dampening effect on the rise in house prices [11]. Data from 35 cities were collected from 2007 to 2015, and Li and Wang used a DID model to validate the effect of the Shanghai and Chongqing property tax pilots on residents' subsistence and developmental consumption. They found that, with the perspective of residents' consumption, the expected results of the policy were not obvious on the property tax pilot in China; the residents' willingness to consume was significantly reduced and the residents' developmental consumption expenditure was reduced more; and the effect on residents' survival consumption was not obvious [12]. Bai and Zheng analyzed the advantages and disadvantages of China's existing property tax system by comparison with those of the United Kingdom, the United States, Japan, and other countries one by one, pointed out the shortcomings of China's existing system, and proposed constructive opinions on the future reform path of China [13]. Zhang analyzed the

property tax system of Thailand, which is also a developing country and is also in the reform stage and will implement a new property tax policy in 2021 [14]. Its old system, reform direction and transition policy, and the problems encountered therein are of great help to the development and improvement of China's property tax policy and are worthy of our analysis and reference. Zhu and David Dale-Johnson used a dynamic general equilibrium approach to study the potential impact of introducing an alternative tax system in the Chinese housing market. The policy effects are predicted through counterfactual experiments. They considered a universal property tax, an optional tax that applies only to investment properties, and a land value-added tax [15]. Using counterfactual analysis, Du and Zhang evaluated the effects of home purchase restrictions and the trial property tax on housing prices in China separately and found that the trial property tax in Chongqing reduced the annual growth rate of house prices by 2.52%, while the trial property tax in Shanghai had no effect on the annual growth rate of house prices [16]. Cao and Hu developed a theoretical model of property tax reform to decompose the potential impact of property tax reform in China. The analysis shows that a unified property tax policy would bring about significant heterogeneous impacts across income groups and different regions, mainly due to differences in income distribution, housing prices, and the extent of house demolition, as well as differences in degree. In terms of the incidence of property taxes, their simulations suggest that using tax revenues from public housing subsidies for the poor can mitigate setbacks; in some cases, it may even increase overall social welfare [17]. Wang and Zhang analyzed property tax reform in China in a computable general equilibrium model. The model recognizes the interactions between housing markets and macroeconomic development in different provinces. They found that the implementation of property taxes will reduce housing production at the expense of welfare in the taxed areas. The expansion of taxed areas may increase total social welfare and national income. Although property tax policies may not change the distribution of income in China, increasing income tax rates could reduce income disparities [18].

Property taxation has been studied by many scholars in other countries for a long time. In terms of classical western economics, property taxes on housing on the one hand reduce speculative home purchases by increasing costs and risks. On the other hand, the supply of second-hand housing rises and home prices are reduced. Another idea is that in 1975 Hamilton [19] took the property tax "benefit" as a starting point. In the Tiebout model, the principle of "voting with their feet" puts the mobility of residents under fixed conditions, and differences in property tax rates will eventually be reflected in prices across regions; that is, property taxes will capitalize house prices, and house prices will fall; as it has largely become the consensus of the literature [20, 21], Palmon and Smith, as well as McDonald and Yurova, recognized that property taxes fall into complete capitalization, while Oate (1969) and Goodman and Thibodeau argued that property taxes are only partially capitalized [22–25]. Property taxes are also acting on house

prices by other mechanisms; for example, Song and Zenou studied the communication impact of property taxes on house prices and cities in a central city [26]. In the direction of property taxes on the cost of moving residents, Ferreira found that property taxes act on the idea of purchasing marginal housing facilities for residents [27]. In addition, Duca et al., Gallin, and Poterba and Sinai found that property taxes act on the credit constraint of residents or that the cost of housing has a role on prices [28–30].

In general, conclusions about the effect of property taxes on housing prices cannot be made from previous researches. Therefore, it is important to conduct a long-term study with a property tax pilot.

In recent years, scholars from various countries have discussed the relationship between housing price and real estate tax many times and put forward their own opinions on it. In this paper, the authors' reflections on such results are as follows: firstly, the market research and analysis are not comprehensive; secondly, the static perspective cannot be studied in depth. However, their studies have some insights in certain practices. Due to the lack of research methods and relevant data, the literature related to property tax is not abundant, and some in-depth theoretical analysis and empirical evidence are relatively scarce. Therefore, it becomes possible and even more necessary to further explore these theories and empirical evidence. This paper will explore the relationship between property tax and house price from two aspects: firstly, analyzing the mechanism of the relationship between property tax and house price and, secondly, conducting empirical analysis on property tax in China.

At present, foreign studies on real estate tax reform and domestic experiments on real estate tax in Shanghai and Chongqing are mainly oriented towards qualitative discussions, the results of which are not uniform and cannot be used as a basis for policy yet. Compared with other articles, the main advantages of this article are as follows: First, it tests the effect of China's property tax pilot under the theory of multiple linear regression, there are fewer similar studies in China at present, and it not only considers the effect of the existence of property tax on prices but also adds other relevant variables, and the results are more accurate and valid. Second, this paper examines the effect of property tax reform using the latest panel data from 2005 to 2019. Therefore, this article is more excellent in terms of timeliness and can provide more references to the practice of the policy.

3. Theories and Methods

In the real estate market, the general public has the demand for owner-occupied and real estate speculation.

3.1. For the Demand Side

3.1.1. For Owner-Occupied Demand. The implementation of the real estate tax will have a demand and structural impact on people with owner-occupied needs. Property taxes generally raise the cost of holding directly to the buyer, so in theory they will reduce demand for real estate. But, on the other hand, housing is a special commodity that is different

from other products. Because of its lack of substitutes, it is usually part of the people's rigid demand, which is less elastic and basically does not cause large amplitude due to price fluctuations. What is more, individual single-family houses, newly built luxury houses, and the nonfirst ordinary houses bought by people who have no household registration, business, and job are subject to taxation; that is, in theory the policy can protect the basic housing needs of the general public, so the property tax levy will not affect the self-living needs of residents. Meanwhile, the property tax will change the structure of homeowners' housing needs; that is to say, in order to reduce the cost of housing, consumers will give up buying a large area of high-grade housing due to the lack of personal affordability but choose to buy ordinary housing at a reasonable price.

3.1.2. For Speculative Demand. Housing demand contains both speculative demand and investment demand. Speculative demand refers to buying at low prices and selling at high prices to capture profits through price differentials. Property taxes can make holding and transaction costs higher for speculators, and transferring property in a short time becomes difficult to implement, greatly increasing the risk of investment during the holding period. Increased costs and risks will discourage speculation. Investment demand is strongly influenced by expected returns and is positively correlated with expected returns. Housing, as an unusual commodity, plays a huge role, while investment properties are relatively weak. After the implementation of the property tax, investors' income expectations will fall and they can attribute the fall in house prices to the policy drive. If expected returns fall, investment demand will also fall accordingly. The decrease in investment demand will restrain the rise of commercial housing prices. In addition, the publication of property taxes will make the cost of ownership for speculators rise. They should sublet their remaining properties or switch them to the secondary market. As the supply of secondary properties increases, prices will fall.

3.2. For the Supply Side. Although the property tax was levied, some concessions such as land premiums were not implemented, which means that the property tax greatly increases the development cost of real estate companies and the decrease in demand for real estate will correspondingly reduce residential sales. However, the cycle of residential development and investment is long, so price fluctuations in the short term will not have a significant impact on supply. Land resources are very scarce and immovable, so, in the long run, the supply curve of the housing market can be represented by an inelastic curve perpendicular to the *x*-axis; therefore, the supply of housing will not change with the property tax. However, due to our tax policy on large-area and high-grade housing, the supply structure will change from large to small homes and from high-grade to ordinary homes. To sum up, the implementation of the property tax will reduce housing prices, which is reflected in the

suppression of speculation on high-grade housing, while the system of household registration reduces real estate speculation by the nonlocal population.

Scientific research at home and abroad shows that the price of commercial housing is affected by many factors, such as GDP, per capita disposable income, profit margin, real estate development investment, land acquisition costs, and local taxes. In this paper, the authors will combine literature review and theory with empirical analysis and take the factors that play a large role in the price of commercial housing as explanatory variables and then analyze the factors that affect real estate prices.

4. Current Situation of Property Tax in China

4.1. The Current Situation and Problems of Property Tax in China

4.1.1. The Current Situation in the Face of Reform. After several discussions and studies, the State Council promulgated and implemented the *Provisional Regulations of the People's Republic of China on Urban Real Estate Tax* in 1951, which stipulated that property tax and local tax would be levied together. After the 1984 constitutional amendment, property tax became a separate tax. The *Provisional Regulations on Property Tax of the People's Republic of China* was promulgated in 1986 after a trial run in some areas and was repealed on January 1, 2009.

From 2000 to 2018, taxes related to real estate in local fiscal revenue increased significantly. According to the Bureau of Statistics, this percentage increased from 7.78% in 2000 to 20.72% in 2018. In order to balance the supply and demand of real estate and give full play to the role of real estate market, it is of great historical significance to speed up the implementation of property tax reform. In 2010, the executive meeting of the State Council issued the *Opinions on the Key Tasks of Deepening Economic System Reform in 2010*, which gave the guideline of "gradually promoting property tax reform." In 2011, Shanghai and Chongqing were first used as pilots to carry out individual housing property tax reform.

4.1.2. Problems with Property Tax

(1) Double taxation

Property taxes are often double taxed in some real estate distribution segments. Buyers bear the cost of infrastructure along with the value of the home.

(2) Unreasonable tax rate

Property taxes are often levied on rents and prices. However, the tax on rents is not the same as that on prices. The tax rate levied on rent is 12%, and that on prices is 1.2% of the original value of the house. But house prices and rents are increasing year by year, while the original value of the house remains the same, so there will be different situations in which property taxes are calculated according to the two methods.

TABLE 1: Shanghai and Chongqing pilot reform policy comparison.

Specific content	Shanghai	Chongqing
Pilot area	Shanghai Administrative Area	Main City District 9
Local residents	Acquired second home and above (including second-hand and new housing)	(1) Newly purchased or owned single-family commercial residence (2) Newly acquired high-end residences
Foreign residents	Newly purchased housing (including first home)	No household registration, no work, no business personal acquisition of the second set of housing and above
Tax rate setting	The average sales price of new commercial housing in the city in the previous year is divided into two classes: (1) The tax rate is 0.4% if the market transaction price of taxable housing is less than 2 times of the standard price (including 2 times). (2) The tax rate is 0.6% if the market transaction price of the taxable housing is higher than 2 times the standard price.	The average price of new commodity housing transaction area in the nine districts of the main city for the last two years is divided into three classes: (1) The tax rate is 0.5% if the transaction unit price of the taxable housing floor area is less than 3 times the standard price. (2) The tax rate is 1% if the transaction unit price of the taxable housing floor area is 3 times (including 3 times) to 4 times of the standard price. (3) The unit price of the taxable housing floor area transaction is 1.2% if the unit price is 4 times (including 4 times) or more of the standard price.
Taxable amount	Taxable area of newly purchased housing × unit price of newly purchased housing × corresponding tax rate × 70%	Taxable floor area × unit price of floor area transaction × corresponding tax rate
Tax-free area	Area per capita: 60 square meters (inclusive)	Family housing area: (1) stock of single-family commercial housing, 180 square meters (2) Newly purchased upscale, single-family commercial housing, 100 square meters
Taxation basis	The assessed value is determined with reference to the real estate market price of the taxable housing, and the assessed value is revalued according to the prescribed cycle. At the initial stage of the pilot project, the market transaction price of taxable housing will be used as the basis for tax calculation for the time being. The property tax is temporarily calculated and paid at 70% of the market transaction price of the taxable housing.	The taxable value of taxable housing is the property transaction price. When the conditions are ripe, the assessed value of the property will be used as the basis for taxation.
Tax usage	Protected housing construction	Construction and maintenance of public rental housing

(3) Few taxation objects

It is only levied on industrial and mining areas, county cities, and established towns.

(4) Unreasonable objects of taxation

Take Shanghai and Chongqing as examples: in Shanghai, for local people, the second house bought before is not subject to tax, but the second house bought newly is subject to tax, which is unreasonable due to time difference; for outsiders, the newly purchased house will be taxed, which increases the pressure on outsiders. Chongqing individual income tax collection policy is prone to the phenomenon of "fake divorce" to evade payment of tax.

(5) Unreasonable tax exemption policy

We should not only measure whether we are exempted from tax by the floor area but also consider its location and purpose. This regulation may also lead to a situation where the supply of small apartment exceeds the demand and the supply of large apartment exceeds the demand.

4.2. Pilot Reform of China's Property Tax in Shanghai and Chongqing.

On January 28, 2011, Shanghai and Chongqing officially launched the pilot of property tax reform. The main contents of this taxation are shown in Table 1. Shanghai, as a representative of the southeastern coastal cities, is a developed economy with a much more mature real estate markets than Chongqing which is a representative of the central and western cities, and housing prices in Shanghai are higher than those in Chongqing. The two cities are generally representative of this property tax pilot. In terms of the usage and administration of property tax revenues levied on individual houses, the two cities' programs are basically the same; however, there are differences between the two cities in terms of taxation targets, tax rate levels, and exemption criteria. The common point of the Shanghai and Chongqing

property tax pilot program should be a direction for the promotion of property tax in the country, specifically in four aspects: First, the direction of taxation is based on new house purchases, especially single-family houses, and the future purchases of high-priced houses will have to pay more taxes. Second is the implementation of a differentiated tax rate. Because the policy intention is to control the proportion of high-priced housing and discourage the purchase of high-priced housing, both Shanghai and Chongqing have set different tax rates of two and three brackets to show the policy orientation. Third, more lenient tax exemption standards are set. Shanghai government has set a tax exemption standard of 60 square meters per capita, and Chongqing municipal government has also set a tax exemption condition of 100 to 180 square meters, with the aim of protecting the self-occupancy needs of the city's residents and a significant portion of the improvement needs. Fourth, it controls the outsiders' investment demand and imposes stricter tax conditions on the purchase of houses by residents who do not live and work locally, while being relatively lenient to the city residents.

5. Data Analysis

5.1. Variables and Model Selection. The impact of property tax reform is reflected in many factors, which are different. Therefore, the representative indicators were chosen to study the role of the property tax pilot in Shanghai and Chongqing. We use the average sales price (p) of commercial properties in Chongqing and Shanghai from 2005 to 2019 before and after the pilot reform in 2011 as the explanatory variables, completed housing area of real estate development enterprises (sbc), sales area (ssa), completed investment amount of current year (inv), land acquisition cost (lac), and regional gross domestic product (gdp) as the explanatory variables, property tax (D) as a virtual variable, and μ as a random error term to establish an econometric model including the above six variables and use a multiple linear regression model to study the impact of property tax collection. Data are from the statistical yearbook of Chongqing Municipal Bureau of Statistics and Shanghai Municipal Bureau of Statistics.

The variables are described as follows:

(1) Average sales price of commercial housing (p): refers to the annual sales of commercial housing divided by the sales area, in yuan/square meter.

(2) Completed housing area of real estate development enterprises (sbc): the authors obtained the annual completed housing area in the statistical yearbook of the Bureau of Statistics in the section of the real estate industry and converted the unit into square meters.

(3) Sales area (ssa): the authors obtained the annual sales area of commercial housing in the real estate industry section of the statistical yearbook of the Bureau of Statistics and converted the unit into square meters.

TABLE 2: Analysis of regression equation results.

Variables	Estimate	Std. error	t value	p value
(Intercept)	$6.495e+02$	$9.139e+02$	0.711	0.4974
sbc	$2.904e-05$	$4.388e-05$	0.662	0.5267
inv	$-3.577e-05$	$4.666e-05$	-0.767	0.4653
ssa	$4.113e-05$	$2.315e-05$	1.777	0.1135
lac	$2.709e-08$	$8.920e-09$	3.037	0.0161*
gdp	$2.264e-10$	$1.459e-09$	0.155	0.8805
D	$7.736e+02$	$5.148e+02$	1.503	0.1714

(4) Completed investment amount of current year (inv): the authors obtained the annual real estate investment amount in the statistical yearbook of the Bureau of Statistics in the section of the real estate industry and also converted the unit into yuan.

(5) Land acquisition cost (lac): the authors obtained the annual land acquisition cost in the statistical yearbook of the Bureau of Statistics in the section of the real estate industry and converted the unit into yuan.

(6) Regional gross domestic product (gdp): the authors obtained the gross regional product for each year in the national economic accounting section of the statistical yearbook of the Bureau of Statistics and converted the unit into yuan.

(7) Property tax (D): take 1 when it exists and 0 when it does not.

The econometric model is as follows:

$$p = a_0 + a_1 sbc + a_2 inv + a_3 ssa + a_4 lac + a_5 g\ dp + a_6 D + \mu. \tag{1}$$

Using statistical software such as R language, the above data were analyzed by multiple linear regression with econometric tests, and finally conclusions were drawn.

5.2. Data Analysis

5.2.1. Multiple Linear Regression Analysis. Multiple linear regression analysis was performed on Chongqing data using R language (15 years of data from 2005 to 2019 were selected for this paper), as shown in Table 2.

Signif. codes: '' 0.001, '**' 0.01, '*' 0.05, '.' 0.1, '' 1.

The Multiple R-squared was 0.9791 and the Adjusted R-squared was 0.9634, with an overall p value of 2.763×10^{-6}. Although the R-squared and the overall p value are relatively satisfactory, with an R-squared close to 1 and a p value close to 0, it was noted that the regression coefficients of sbc, ssa, inv, lac, gdp, and D were not significant (because the corresponding p values were greater than 0.05), and the existence of polycollinearity was suspected, and stepwise regression analysis was performed in R.

The Akaike information criterion (referred to as AIC value) at the beginning was 182.34:

$$p \sim sbc + inv + ssa + lac + gdp + D. \tag{2}$$

TABLE 3: Results of stepwise regression analysis.

Variables	Df	Sum of sq	RSS	AIC
<none>	1		1284732	178.37
− D	1	230908	1444820	180.13
+ inv	1	18920	1265812	180.15
+ gdp	1	17289	1267443	180.17
− lac	1	5792665	7077398	201.97
+ sbc	1	70821	1213912	179.52
− ssa	1	513348	1727260	182.81

TABLE 4: Optimal result analysis.

Variables	Estimate	Std. error	t value	p value
(Intercept)	$1.153e + 03$	$4.084e + 02$	2.824	0.01654*
ssa	$4.137e − 05$	$1.330e − 05$	3.109	0.00994**
lac	$2.548e − 08$	$3.618e − 09$	7.043	$2.15e − 05$
D	$7.415e + 02$	$3.105e + 02$	2.388	0.03597**

Signif. codes: '' 0.001, "**" 0.01, '*' 0.05, '.' 0.1, '' 1.

After stepwise regression, it can be seen from Table 3 that when inv, gdp, and sbc were deleted, AIC reached the minimum of 178.37:

$$p \sim \text{ssa} + \text{lac} + D. \quad (3)$$

When all variables are regressed, the AIC value is 182.34. If the variable gdp is deleted, the AIC value will become 180.38; when the AIC value is minimal, gdp should be deleted first and the next round is calculated. After three rounds of calculations, it was found that the AIC value would increase at this time regardless of decreasing any of the variables. Therefore, the calculation was stopped and the optimal regression equation, namely, p regression ssa, lac, and D, was obtained.

The optimal regression equation is tested using R language, and the result is shown in Table 4.

The Multiple R-squared was 0.9761 and the Adjusted R-squared was 0.9696, with an overall p value of $3.385e^{-09}$. The p value was $0.01654 < 0.05$ for the t-test of the regression coefficient of the intercept in the test results. The p value of the t-test for the regression coefficient of sales area (ssa) was $0.00994 < 0.05$, which passed the test. The p value of the t-test for the regression coefficient of land acquisition cost (lac) was $0.000025 < 0.05$, which passed the test, and the p value of the t-test for the regression coefficient of property tax (D) was $0.03597 < 0.05$. Therefore, all regression coefficients passed the t-test. The Multiple R-squared of the overall model was 0.9761, and the Adjusted R-squared was 0.9696, which was close to 1, indicating that the model had a high fitting degree. The p value of the overall F-test of the model was $3.385e^{-09}$, which tended to be close to zero and also passed the test.

The final optimal model is

$$p = 0.001153 + 4.137 \times 10^{-5}\text{ssa} + 2.548 \times 10^{-8}\text{lac} \\ + 7.415 \times 10^{2}\text{gdp} + 7.415 \times 10^{2}D. \quad (4)$$

From the linear regression model, we can see that the regression coefficient of property tax is positive; that is, the

TABLE 5: Chongqing house price and growth rate.

Year	Average selling price (yuan/m^2)	Growth rate
2007	2722.58	20.0%
2008	2785.00	22.9%
2009	3442.00	23.6%
2010	4281.00	24.4%
2011	4733.84	10.6%
2012	5079.93	7.3%
2013	5569.00	9.6%
2014	5519.00	−0.9%
2015	5486.00	−0.6%
2016	5485.00	0
2017	6792.00	23.8%
2018	8066.86	18.8%
2019	8402.00	4.2%

TABLE 6: Results of the filtered regression analysis.

Variables	Estimate	Std. error	t value	p value
(Intercept)	$−4.382e + 03$	$2.058e + 03$	−2.129	0.280
sbc	$−2.194e − 04$	$7.106e − 05$	−3.087	0.199
inv	$−3.107e − 04$	$1.504e − 04$	−2.067	0.287
ssa	$1.669e − 04$	$3.620e − 05$	4.610	0.136
lac	$−1.792e − 07$	$6.141e − 08$	−2.919	0.210
gdp	$2.348e − 08$	$8.753e − 09$	2.682	0.227
D	$−1.805e + 03$	$9.842e + 02$	−1.834	0.318

average price of commercial housing is positively correlated with property tax, contrary to our expectation that property tax will suppress housing prices.

A reasonable explanation can be found in the fluctuation of the average price of commercial housing in Chongqing from 2007 to 2019. The property tax levied in Chongqing will have a restraining effect on housing prices, but this effect is only temporary. As shown in Table 5, after the implementation of the property tax reform in 2011, housing prices rose by only 10.6%, half the rate of the previous year, but rebounded in 2017 and beyond. The reason for this temporary effect is that, on the one hand, reducing the demand for high-end housing is likely to increase the demand for ordinary housing, and thus the price of ordinary housing will rise. On the other hand, due to the narrow range of collection, it cannot solve the problem of rising house prices at source and cannot play a long-term regulatory role in the real estate market.

Therefore, in order to explore whether the introduction of property tax can have a dampening effect on house prices in the short term, the data for 9 years from 2007 to 2015 are then analyzed in R language. Let the regression equation be

$$p = a_0 + a_1\text{sbc} + a_2\text{inv} + a_3\text{ssa} + a_4\text{lac} + a_5\text{gdp} + a_6D + \mu. \quad (5)$$

Table 6 shows that the values of the regression coefficient are $\hat{a}_0 = −4.382 \times 10^3$, $\hat{a}_1 = −2.194 \times 10^{-4}$, $\hat{a}_2 = −3.107 \times 10^{-4}$, $\hat{a}_3 = 1.669 \times 10^{-4}$, $\hat{a}_4 = 22121.792 \times 10^{-7}$, $\hat{a}_5 = 2.348 \times 10^{-8}$, and $\hat{a}_6 = −1.805 \times 10^3$. However, noting that the regression coefficients of completed housing area (sbc), sales area (ssa), completed investment amount of current year (inv), land

TABLE 7: Results of regression analysis after taking logarithms.

Variables	Estimate	Std. error	t value	p value
(Intercept)	$5.974e + 00$	$3.173e - 01$	18.829	0.0338*
sbc	$-5.699e - 08$	$1.096e - 08$	-5.202	0.1209
inv	$-8.619e - 08$	$2.318e - 08$	-3.718	0.1673
ssa	$4.835e - 08$	$5.581e - 09$	8.662	0.0732.
lac	$-4.663e - 11$	$9.468e - 12$	-4.925	0.1275
gdp	$6.113e - 12$	$1.350e - 12$	4.530	0.1383
D	$-4.773e - 01$	$1.518e - 01$	-3.145	0.1960

Signif. codes: '***' 0.001, '**' 0.01, '*' 0.05, '.' 0.1, ' ' 1.

TABLE 8: Correlation test.

	ssa	lac	sbc	gdp	inv	D	lp
ssa	1.0000000	0.9116169	0.8572544	0.9059994	0.8981400	0.7675365	0.9481078
lac	0.9116169	1.0000000	0.8358750	0.9659952	0.9714309	0.7282118	0.8564417
sbc	0.8572544	0.8358750	1.0000000	0.9245227	0.8927773	0.8733904	0.8442835
gdp	0.9059994	0.9659952	0.9245227	1.0000000	0.9947671	0.8654434	0.9045270
inv	0.8981400	0.9714309	0.8927773	0.9947671	1.0000000	0.8339504	0.8929200
D	0.7675365	0.7282118	0.8733904	0.8654434	0.8339504	1.0000000	0.8659713
lp	0.9481078	0.8564417	0.8442835	0.9045270	0.8929200	0.8659713	1.0000000

TABLE 9: Stepwise regression analysis final results.

Variables	Df	Sum of sq	RSS	AIC
\<none\>	1	0.007599	0.000768	−60.008
(i) D	1	0.010616	0.008367	−42.903
(ii) inv	1	0.015761	0.011384	−40.440
(iii) gdp	1	0.018632	0.016529	−37.456
(iv) lac	1	0.020782	0.019401	−36.175
(v) sbc	1	0.020782	0.021551	−35.334
(vi) ssa	1	0.057634	0.058402	−27.359

acquisition cost (lac), and gross domestic product (gdp) of real estate development enterprises as explanatory variables and property tax (D) are not significant (because the corresponding p values are greater than 0.05), the explanatory variables are taken as logarithms, so the model is changed to

$$lp = a_0 + a_1 sbc + a_2 inv + a_3 ssa + a_4 lac + a_5 gdp + a_6 D + \mu. \quad (6)$$

Linear regression analysis was performed again.

The regression results are still not very significant in Table 7, so the correlation test is performed in R.

Obviously, the correlation degree shown in Table 8 between all these data is high; for example, the correlation coefficients between ssa, lac, and gdp are 0.9116 and 0.9060, and the correlation coefficient between sbc and gdp is 0.9245, so the model is judged to have polycollinearity, and the following stepwise regression analysis is performed using R language.

Table 9 illustrates that the AIC value at the beginning is −60.01.

$$lp \sim sbc + inv + ssa + lac + gdp + D. \quad (7)$$

When all variables were regressed, the Akaike information criterion (referred to as AIC value) was −60.01. It was found that the AIC value increased no matter which variable

was deleted. Therefore, the calculation was stopped and the equation at the beginning was the optimal equation; namely,

$$lp = 5.974 - 5.699 \times 10 - 8sbc - 8.619 \times 10 - 8inv$$
$$+ 4.835 \times 10 - 8ssa - 4.663 \times 10 - 11lac + 6.113 \quad (8)$$
$$\times 10 - 12gdp - 0.4773 \, D.$$

From the analysis results of R language, we can get the following conclusions.

Based on the available data, the house price in Chongqing city in 2011 has decreased compared with the growth rate in 2010. From the regression results, there is a significant negative correlation between property tax and house price in the overall model, and it can be assumed that the property tax policy implemented since 2011 has a negative effect on house price, and the policy has indeed brought some impact. After the property tax was introduced in Chongqing in 2011, house prices decreased by 0.4773 yuan for every 1 unit increase in property taxes. It showed that the introduction of property tax in Chongqing did have a dampening effect on commodity housing prices until 2015, but the effect was very insignificant. The p value of the F-test for each coefficient was greater than 0.05, except for the p value of the F-test for the intercept, which was 0.0338 < 0.05. Although the Multiple R-squared of the overall model was 0.9983 and the Adjusted R-squared was 0.988, which was close to 1, indicating that the model had a high fitting degree, the p value of the overall F-test of the model was 0.07753 > 0.05, which did not pass the test.

The prices of second-hand houses are suppressed by the property tax in Chongqing. The holding cost of real estate speculators will be increased by the effect of property tax, so that they rent real estate or trade surplus house in the secondary market, thus increasing the supply of second-hand houses, suppressing the price of second-hand houses and further affecting the price of commercial houses.

TABLE 10: Shanghai panel data.

Year	Residential sales area (10,000 square meters)	Residential sales area (10,000 square meters)	The proportion of residential sales area to commercial housing sales area (%)	Sales of commercial properties (billion yuan)	Residential sales (billion yuan)	Sales price of commercial properties (yuan)	Residential sales price (yuan)	Annual commercial housing price growth rate %	Annual residential price growth %
2008	2296.12	1965.86	85.62	1895.45	1608.47	8255.01	8182.02		
2009	3372.45	2928.04	86.82	4330.22	3620.23	12839.98	12364.00	55.54	51.11
2010	2055.53	1685.35	81.99	2959.94	2395.35	14399.89	14212.77	12.15	14.95
2011	1771.3	1473.72	83.20	2568.88	1981.91	14502.79	13448.35	0.71	-5.38
2012	1898.46	1592.63	83.89	2669.49	2208.96	14061.34	13869.89	-3.04	3.13
2013	2382.2	2015.81	84.62	3911.57	3264.03	16419.99	16192.15	16.77	16.74
2014	2084.66	1780.91	85.43	3499.53	2923.44	16787.05	16415.43	2.24	1.38
2015	2431.36	2009.17	82.64	5093.65	4319.93	20949.80	21501.07	24.80	30.98
2016	2705.69	2019.8	74.65	6695.85	5233.29	24747.29	25909.94	18.13	20.51
2017	1691.6	1341.62	79.31	4026.67	3336.09	23803.91	24866.13	-3.81	-4.03
2018	1767.01	1333.29	75.45	4751.5	3864.03	26890.06	28981.17	12.96	16.55
2019	1696.34	1353.7	79.80	5203.82	4457.16	30676.75	32925.76	14.08	13.61

This dampening effect will also affect new housing. However, the impact on new housing is mainly on the housing mix, not on housing prices. In other words, Chongqing's pilot reform will be effective in curbing housing prices in the short term. However, in the linear regression analysis from 2005 to 2019, the price of commercial housing is positively correlated with property tax, with a high fitting degree and significance. This shows that Chongqing property tax reform can indeed improve the real estate market in the short term, but the effect is not the same as that in the long term.

5.2.2. Descriptive Data Analysis for Shanghai. The first batch of pilots joined the city of Shanghai on January 28, 2011. During these years, the overall change of Shanghai's house prices is shown in the table below.

From the data in Table 10, we know that Shanghai house prices still increased in 2011, but the rate of increase dropped significantly from 12.5% to 0.71%. By the end of 2011, the prices of all commercial housing dropped month-on-month but increased year-on-year. In recent years, in the reform, Shanghai house prices have increased rather than decreased in the late period, which shows that the effect of the reform is not obvious. First of all, in Shanghai, as a first-tier city, property tax has shown very little effect under high property prices. At the same time, the reform has few levy targets and almost no effect. Second, the implementation of a number of real estate regulation policies can only bring down housing prices in the short term.

6. Analysis of the Advantages and Disadvantages of the Property Tax Levy

6.1. Advantages of Property Tax Levy

6.1.1. Reduce Housing Speculation and Prevent Economic Bubbles. Most of people think that house prices are bound to increase and take this phenomenon as a form of speculation. Although the tax will have little effect on property

speculation, the property tax makes the cost increase and restricts people from blindly speculation in real estate, resulting in house prices not rising too much and avoiding economic bubble.

6.1.2. Reduce Social Inequality and Improve Resource Utilization. In Chongqing, property taxes are levied at progressive rates, making a scientific distinction between houses of different prices and types, with more expensive ones being taxed higher and less expensive ones being taxed lower. Wealth is distributed in a rational way, reducing social inequities while improving resource utilization. In the initial stage of the real estate tax pilot reform, it did have the effect of curbing housing prices, but it was not satisfactory in the long run.

6.1.3. Supplement Local Funds to Bridge the Local Financial Gap. The local tax is mainly levied on newly built houses and a disproportionate number of houses, which is also used by local governments as a fixed income to supplement local funds and fill the local financial gap.

6.2. Disadvantages of Property Tax Levy

6.2.1. The Effect Is Not Significant. In the early stage of this pilot, house prices were reduced, but the effect was not obvious. Therefore, although the policy had some positive effect, stopping the continued rise of house prices in the result, it could not be used as a long-term measure. This study also suggests that the current property tax pilot also has limitations, reducing house prices not only can depend on the introduction of property tax but also needs to take the necessary monetary policy and administrative instruments as a complementary tool.

6.2.2. A Dampening Effect on Residents' Consumption Behavior. In order to prevent high-end housing consumption and reduce real estate speculation, Shanghai and

Chongqing were taken as pilots to implement property taxes. In some ways, however, there were daily undesirable results for the general public, with a consequent reduction in purchasing expenditures by urban citizens and a significant reduction in preferential policy.

7. Analysis of Property Tax Policies in Other Countries

7.1. Analysis of Property Tax Policies in Developed Countries

7.1.1. Overview of U.S. Property Taxes. In the United States, houses are privately owned and have perpetual property rights. Property taxes are collected by the municipality, county, and other local government affairs departments, and the rate and scope of taxation are set by the state. Implementation and supervision are separate to prevent double taxation. When the market price of real estate depreciates or appreciates, the taxpayer has the right to apply to the relevant authorities for revaluation of the real estate price. The taxpayers of U.S. property tax are the owners of lands and houses. It is somewhat sound and complete in terms of preferential policy. For example, educational, charitable, and religious institutions are exempted from property taxation. There is a great deal of flexibility and variability in tax rates. For example, in different tax authorities, tax rates are usually set by the respective authorities in different ways, but they are all governed by their respective national laws. The relevant agencies will also provide a detailed delineation of the functions of local real estate.

7.1.2. Overview of Japanese Property Tax. In Japan, the land is privately owned and is expropriated by the local governments of cities, wards, towns, and villages. The tax is based on a market value that is assessed every three years. In Japan, there are three types of property taxes: fixed assets tax, city planning tax, and business premises tax, all of which are collected through local implementation, and the central government participates in the distribution of fixed assets tax. The Japanese government has a well-developed system of tax rate regulation. The standard rate of property tax in Japan is 1.4%, and the increase must be filed with the Minister of Internal Affairs before raising it. Japan has also developed a sound tax exemption mechanism. For those under the jurisdiction of the same tax authority, the total amount of land property is less than 300,000 yen and the total amount of housing is less than 200,000 yen; they are exempted from property tax. Tax exemptions are for school dormitories and designated cemeteries; property exemptions are for religious, public interest organizations, research teams, and education; small-scale residential land has corresponding reduction rights. Japan has adopted differential tax rates and has developed a mature real estate tax system and a reasonable tax system in recent years.

7.1.3. Overview of UK Property Tax. The UK is a land public ownership country and the first country to impose property taxes. Therefore, its property taxation system is relatively well developed. Property tax in the UK is divided into two categories according to the purpose: residential property tax and commercial property tax. Commercial property taxes are levied on both residential and commercial properties. Residential property taxes are levied locally and are based on the historical valuation of the house, which is reassessed over a period of time. Residential property tax in the UK is levied on users of housing, including those over the age of 18 who own or rent apartments. Some exemptions are available for certain groups. For example, full-time students are exempted from paying property taxes. At the same time, there are tax brackets for disabled-owned homes, vacation homes, and second suites, and property taxes are levied at the appropriate rate depending on the actual situation. The business housing tax is levied primarily on commercial properties. It is levied by the central government and distributed according to local conditions. The taxation is based on the rental value of the house and the tax rate is generally uniform throughout the country. The subject, scope, object, tax rate, and exemption conditions of the British property tax are relatively complete. It is also a land public ownership system, which can enlighten our property tax reform.

7.2. Analysis of Property Tax Policies in Developing countries: Thailand. Under the current Thai tax system, there are two types of real estate taxes.

7.2.1. House and Building Tax. Taxes are levied on houses, buildings, and the land attached to them. The taxpayer is the owner. When the land and the house belong to different owners, the owner of the house pays taxes. The Ministry of the Interior decided that a locally established assessment board conducts the tax rules. For leased residences, taxpayers declare their own taxable amounts. For unoccupied property, the tax is based on the assessed rental value. The tax benefits mainly include tax exemption for individual housing land; being unoccupied for more than 12 months; houses, buildings, and attached land owned by the government or royal or general organizations; nonprofit hospitals, educational institutions own buildings, and their attached land.

7.2.2. Land Development Tax

(1) Tax elements. The tax is levied on all property excluding government, religious and personal housing, and farming. The Thai system is also one of private ownership, with landowners paying taxes. The basis of taxation is the median value of the land, excluding land improvements. It is determined and published by the local assessment board with reference to the latest transaction price and remains unchanged for 4 years after the determination. The tax rate is fixed and the higher the median value, the higher the applicable tax rate. The tax benefits mainly include government-owned land, public welfare hospitals, schools, and temples; personally owned land used for public interest; and personally owned land for residence, farming, and planting,

which should be reduced or exempted according to the location and purpose of the land.

(2) The Main Content of the Reform

(1) Merge the existing taxes and combine the two taxes.

(2) The tax base is consistent and the market value is determined based on not only land tax but also building tax.

(3) Make appropriate changes to tax rates. Property and buildings used for different purposes also have different tax rates. The lowest tax rate is for agricultural land such as farming, followed by personal housing, and the highest tax rate is for commercial and unused housing.

(4) Adjust the housing tax exemption policy by eliminating the tax exemption for all housing and applying the tax exemption only to the main housing of the family and housing valued below a certain amount.

(5) The concessions and tax exemptions for unused properties are no longer in effect; instead, the tax rates for them become the highest.

(3) Transition Policy during Reform

(1) slow and gradual implementation of new policies and tax rates. The tax rate for the new Thai policy will gradually increase at a rate of 25% per year.

(2) A two-year period is used to implement the lower tax rate. The new policy was announced with the lower tax rate in 2020 and 2021, remaining below the maximum level of the new provisions until 2022 when the new policy is used.

8. Conclusion and Suggestion

8.1. Analysis of the Reasons for the Problems of the Pilot Reform in Shanghai and Chongqing

8.1.1. Unsystematic Policy Design. In practice, the property tax hits hardest the average family that can only just afford to buy a home, while the rich are virtually unaffected. Its taxpayers are not short-term owners, and most real estate speculators who make speculative transactions in a short period are not subject to the property tax. Those poor people who spend their savings on buying high-end properties basically to make a living should pay taxes. This means that, at source, social equity is not achieved by property taxes but may lead to a worse situation. The subject, scope, object, tax rate, and exemption conditions of the British property tax are relatively perfect, which have great significance for the reform of China.

8.1.2. Unscientific Tax Base Setting. In addition to individual self-use independent commercial residences, higher priced residences newly purchased by individuals and the first and subsequent general residences of people who have no household registration, business, and job in Chongqing are the subject of taxation, while all other types of properties are excluded from taxation, making speculators and excess inventory clean.

In the Shanghai real estate tax pilot reform program, it is mentioned that, in the initial stage, the market transaction price of taxable housing is temporarily used as the basis for taxation, which will increase the transaction cost to a certain extent. Although the effect is improved compared to the original property tax based on tax residuals, it still does not achieve social equity. China is a publicly owned country, and the value of land and property is included in the price of housing. The residual value of real estate fades over time, while the value of land remains and even becomes higher. Home prices and land values increase in tandem. If homes are not resold twice, taxes will become less until they disappear and there is no way to make it fair for most of people. However, USA has more robust tax base policies, such as differentiated implementation and monitoring to avoid double taxation, as well as the ability to apply for reassessment of property prices and to divide the property by function.

8.1.3. Unscientific Tax Rate Setting. So far, in comparison with other countries, China's tax rate is not very high, so the taxation is not very useful. Therefore, a reasonable increase in the tax rate would be helpful for the property tax to come into play. The above also points out the need to make the tax base broader, which shows that the differential proportional tax rate is a reasonable direction for policy reform. For example, higher tax rates are applied to high-end residences and lower tax rates are applied to ordinary residential properties, with appropriate additional provisions for tax deductions, thus ensuring social equity. The U.S. tax rate has great flexibility and various methods, and Japan has a perfect tax rate adjustment system and adopts differential tax rates, which are worth learning from China in these aspects.

8.1.4. Nontransparent Purpose of Tax Revenues. The current situation in China is that how the property tax revenue is actually allocated and used is not announced by the government, and citizens have reason to doubt the use of tax revenue, resulting in low compliance of residents in paying taxes, which will also cause resistance to the collection of property tax. The proportion of property tax revenue to local tax revenue in western countries is generally high, and property tax is an important type of local tax, and property tax is the main source of local finance, while the proportion of property tax to local tax revenue in Asian countries is relatively low. For example, in Japan, the central government participates in the allocation of fixed assets tax to make full use of social resources, the property tax reform was implemented, and the tax on property ownership was raised, which effectively curbed speculation and stabilized the development of real estate after the real estate market bubble.

8.1.5. Unsystematic Evaluation of House Prices. Internet technology has not yet been applied to real estate by the Chinese government, and the property tax registration

system needs to be further improved in order to obtain complete information. How to make the public's residential information a public resource needs to be urgently addressed. Some speculators will use various tricks to legally evade taxes, which makes it difficult to maintain social justice and rational use of resources.

8.2. Suggestions for Property Tax Reform in China

8.2.1. Optimize the Collection System and Expand the Scope of Property Tax Collection. If the current system continues, people who own a lot of properties will "succeed." Until the property tax is successfully reformed, residents across the country are likely to scramble to buy property and housing prices will spike abnormally again. Therefore, property tax can be imposed on both incremental and stock properties. Not only can it promote social equity but also it can increase the revenue of local governments.

8.2.2. Consider the Fundamental Purpose of Property Taxes When Developing Programs. On the issue of how to collect property tax, Shanghai and Chongqing differ greatly in the specific aspects of taxation policies and tax incentives for incremental and stock properties, as well as properties with different prices. How the policy is ultimately prescribed will have a greater effect on the outcome of the property tax levy. Therefore, when pilot reforms are carried out in various places, policies need to be formulated to correspond to the fundamental purpose of the levy.

8.2.3. Property Tax Should be Conducive to Narrowing the Gap between the Rich and the Poor. First of all, the government should make it possible for all residents to afford to buy property. Both the Shanghai and Chongqing reform policies have tax incentives, and such policies can make housing available to citizens in general, in particular the poorer residents. Secondly, the rental value of housing is likely to increase because of the property tax reform, which will undoubtedly be worse for the poor, so the state should improve the planning of the use and construction of low-rent house.

8.2.4. The Purpose of Government Financial Sources Should be Open and Transparent, and the Tax Supervision Should be Improved. The survey found that the disclosure of government financial revenue and expenditure information has a greater positive effect on taxpayers' obedience. The central and local governments of China can make the tax part public and improve the tax supervision mechanism to crack down on corruption as well as tax evasion, so that the legitimate rights and interests of citizens and governments can be protected.

8.2.5. The House Price Rating System Needs to Be Improved Urgently. The price of homes and properties is subject to many factors and fluctuations, which makes the existence of an appraisal system necessary. Develop and improve

appraisal policies and train highly qualified and competent professional practitioners to take all types of influencing factors affecting property prices into account and reassess property prices on a regular basis, with an emphasis on integrating them with technology. In addition, the use of computer technology is also indispensable. Governments at all levels should focus on timely communication with industry and commerce departments and real estate, land, and property registration departments and establish a convenient and efficient database. Up-to-date information is uploaded on time to guarantee the efficiency of collection and monitoring, so that residents can see the reliability of government and promote social justice.

For the purpose of narrowing the gap between the rich and the poor, maintaining social equity, ensuring citizens' housing demands, and curbing the pathological growth of property prices, it is urgent to introduce property tax pilots reform. More than 10 years have passed since the National Development and Reform Commission first proposed the property tax reform; however, its effect is not significant or has even remained unchanged so far. Although the pilot reform in Shanghai and Chongqing had a certain effect in the early stage, because of the failure to consolidate the results of the reform and adjust countermeasures in a timely manner when problems emerged, housing prices rebounded after a brief decline. This shows that, in the future policy development as well as the pilot process, we should always pay attention to the effects and shortcomings of the reform and react and adjust in time, to make the property tax play its proper role, guarantee social equity, stop speculation and wastefulness in the real estate market, and make the social economy and real estate market run smoothly and healthily. In terms of implementation, we can learn from the policy of Thailand, which is also a developing country, and use some transitional instruments to gradually move from lower to higher tax rates before the new reform is implemented.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

Acknowledgments

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