

International Reference and Mechanism Construction of Real estate taxation Assessment System Reform

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Abstract. The scientific real estate tax appraisal system is the basis for steadily advancing the real estate taxation reform. Based on WOS and CNKI, this paper uses CiteSpace software to analyze the number of papers, research focus, and countries with outgoing messages in real estate tax research. This study illustrates that: (1) In this field, developed countries have occupied strategic leadership. (2) The fiscal perspective of real estate tax reform is currently a hot issue in academic research, but the analysis of the real estate tax system based on the tax assessment is rarely discussed. Therefore, this paper refers to the construction of a RETAS that is relatively mature, analyzes and summarizes the selection of taxation basis, the setting of assessment agencies, the implementation of assessment procedures and the construction of dispute resolution mechanisms, improves the real estate tax assessment system with Chinese characteristics, and provides some experiences and references.

Keywords: Real estate taxation; Taxation assessment; CiteSpace.

1. Introduction

In recent years, as China's housing price is boosting, the call for real estate tax reform has continued to grow. At present, Chinese scholars mainly research the financial function positioning in the field of real estate tax, and they have made outstanding achievements. But tax assessment, the primary link of collecting property tax, which benefits steadily advancing the real estate tax reform, is less frequently mentioned.

Compared with the indirect taxes such as consumption tax, real estate tax is direct because of taxpayers have a high tax sensitivity and misery. At the same time, as "rational economic men", taxpayers naturally want to pay less even no taxes. The determination of the specific price is settled by the tax base and tax rate together. When the rate is constantly uncontrolled, it will naturally be focused on the assessment of the tax base. Therefore, China should establish real estate tax assessment system (RETAS) according to its own conditions to avoid a vague understanding of taxpayers.

In short, the RETAS requires us to take precautions beforehand from the selection of tax basis, the setting of assessment agencies, the implementation of assessment and the establishment of dispute mechanisms. Therefore, it is necessary to learn from developed experiences and then establish an assessment system according to China's national conditions.

2. Research status and trends of real estate tax based on CiteSpace

2.1 Data sources and methods

In order to objectively describe the research, this paper applied the international data to the core database of WOS. Then entered "TS=("real estate tax" OR "house and land tax" OR "estate tax")" for advanced retrieval. After the screening of "category", while excluding duplicate essays, examinations, and others, 2399 results were retrieved.

For Chinese literature collection, this paper used advanced retrieval in CNKI journal database with the theme of "real estate tax" and set the category to "SCI", "core", and "CSSCI". After the screening of "category", 1090 data are obtained.

This paper uses CiteSpace (version 5.8. R3) to visually analyze 2399 English documents and 1090 Chinese documents. CiteSpace is an informational visualization software using Java, which measures the literature and visually analyzes the path of the evolution of the subject area .. It is easy to clarify relations through this knowledge graph and the network .. This paper studies this project from the number of articles, the countries of publication, and the trends of research focus.

2.2 The changing trend and the number of articles issued

The number of papers is an important indicator of the research focus in some field, which can reflect the degree of attention and dynamic changes of researchers .. This paper counted 2399 English essays and 1090 Chinese essays on real estate tax. (shown in Fig 1).

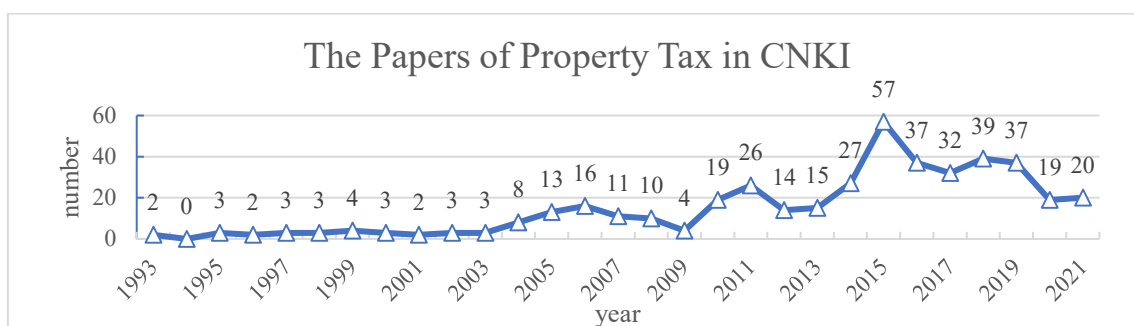


Fig. 1 The Number of papers of Real estate tax research in the CNKI database

(1) In 1986, China firstly promulgated the regulations on real estate tax. At that time, the number of domestic papers was relatively small, probably because China's research foundation was weak, and the researchers were in the process of preliminary understanding and observation.

(2) From 2009 to 2011, there was an inflection point in the number of domestic papers, which may be related to the policies issued by the State Council and the launch of real estate tax pilots in Shanghai and Chongqing in 2011.

(3) From 2013 to 2017, a peak occurs, which was at the stage of promoting the reform of real estate taxes. On November 9, 2013, the Third Plenary Session of the 18th Central Committee proposed relative propositions and in 2017, the Ministry of Finance proposed the principle for real estate tax.

(4) From 2019 to 2021, there was a downward trend, which may attract the attention of relevant scholars. In addition, on October 23, 2021, the Standing Committee of the National People's Congress decided to carry out pilot project on real estate tax reform party. The decision may lead to the next phase. It can be seen that academic research in real estate tax would be affected by the national policies. In addition, there is a relatively short lag between research results and the practice of research results.

2.3 Major research forces

The number of papers in the international real estate tax research can represent the degree of activity to some extent. Based on the data retrieved from the WOS, the software created a new construction to analyze the data. Setting "Country" as the node type, we obtained the national distribution network map (shown in Fig.2). The diameter of the node represents the number of papers, while the thickness of the connection indicates the closeness of cooperation between countries. From the perspective of cooperative relations, it could be seen there is strong international cooperation in real estate tax research.



Fig. 2 National distribution of real estate tax research

The top 10 countries were selected based on the data retrieved in the database (shown in Tab 1). From 1993 to 2021, the United States ranked first in the real estate tax sector with 1,002 articles and far exceeded the second country: The United Kingdom (145); Germany (127), and France (111) both published more than 100; Countries such as Canada (82), Italy (61), Spain (55) and Japan (54) have published more than 50 papers. Among the top 25 countries, except for Turkey and South Africa, the rest are developed countries, which shows that developed countries have occupied a strategic lead in research layout.

Table 1. The betweenness centrality ranking of the top 10 nations

country	Number of papers	Betweenness centrality
United States	1002	0.49
England	145	0.13
Germany	127	0.09
France	111	0.16
Canada	82	0.05
China	77	0.05
Italy	61	0.09
Spain	55	0.01
Japan	54	0.04
Australia	48	0.1

2.4 Research focus and trends of real estate tax

The CiteSpace software is applied to the keyword co-occurrence analysis of papers of the real estate tax group, and the map of keywords is obtained (shown in Fig.3). China's research on supply-chain finance is mainly based on tax reform, tax structure, scope of tax, land finance, tax design elements, etc. And it is rarely involved in the assessment of real estate tax.

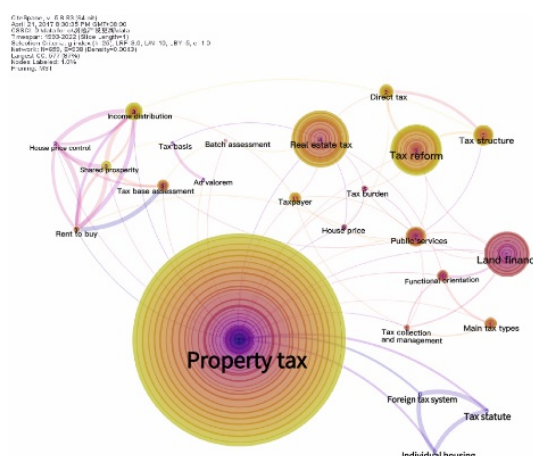


Fig. 3 Real estate tax keywords

3. Analysis of the basis for taxation of overseas real estate

A reasonable tax assessment model is the premise of real estate tax collection, and the tax calculation is used as the direct quantitative basis for calculating the tax liability on real estate. Therefore, the clear unification of the tax calculation is a prerequisite for ensuring the steady advance of real estate tax assessment.

Judging from the current taxation practice in the overseas real estate market, the basis mainly includes two types: volume tax and ad valorem tax. The volume tax assessment is based on the area of the object. Although this assessment procedure is easy to manage, it cannot reflect the time value. So foreign regions generally tend to use ad valorem tax as the basis for tax calculation. The ad valorem model is further divided into capital value taxation and rental value taxation while capital value includes market value and cadastral value.

3.1 Use cadastral value as the basis for taxation

The cadastral value is based on the nature of the land, using a variety of parameters to adjust the value of the real estate recorded in the cadastral register. However, due to the high cost of policy implementation, countries based on cadastral value are often derailed from reality in terms of updating adjustment parameters. In addition to Russia, some Latin American regions such as Mexico also use cadastral value as the basis and observe the practice based on cadastral value. Facts show that cadastral value is much lower than the value of the real estate market, which could fail to provide sufficient tax sources for the country, affect the provision of local government public services, and inevitably leads to an unfair tax burden and inadequate regulatory functions in the long run.

3.2 Take the market value as the basis for taxation

Market value refers to the value appraised by the asset appraisal institution and its professionals in compliance with regulations and asset appraisal standards. Taking the market value as the basis for tax calculation will fully consider the impact of factors such as market supply and demand, and economic development and adjust it in a timely manner. Typical overseas cases that use market value as the basis for calculating real estate taxes include the United States, Japan, South Korea, etc. (shown in Tab. 2).

Table. 2 Taxes on real estate ownership

	Types of retention tax	Tax base	rate	Evaluation methods
United States	property tax	Real Estate Appraisal Value * Ratio prescribed by state	"Revenue by expenditure" (Average 1%-3%)	Mainly using the market method, cost method, Income method
Japan	Fixed asset tax	Real estate appraisal value	Standard tax rate 1.4% Up to 2.1% can be set	
	Urban planning tax		The maximum shall not exceed 0.3%	
Korea	Consolidated real estate tax	Appraisal value of real estate *60%	Proportional tax rate, the progressive tax rate	
	property tax	Appraisal value of real estate*70%	Progressive tax rates	

3.3 Use the rental value as the basis for taxation

Rental value is the amount of rent that can be obtained for a full year if the house is rented out under open market conditions. In Hong Kong, for example, the real estate tax that really belongs to the housing ownership link is adjusted annually by the Legislative Council. Using the rental value as the basis for calculating real estate tax can better reflect the taxpayer's ability to pay taxes, but the rent belongs to the appreciation part of the property holder who obtains more than the average

profit with the holding of capital, which is not the characteristics of the tax in the ownership link.

3.4 Summary

In general, most overseas regions have introduced different tax basis or types of ownership tax, and each basis both has its advantages and limitations. It is found that the choice of tax basis often depends on the political and technical conditions, often reflects the specific conditions of each country, and always evolves through time.

Due to the difficulty of data collection and the high cost, the use of cadastral value as the basis is not the main trend of future development. Therefore, overseas regions tend to use the rental value and the market value as the basis for taxation. Theoretically, when "virtual rent" is used as a tax basis, the lessee's annual net rent discounted value is equal to the value of the real estate capital. However, in practice, due to the differences in rent policies and assessment methods, the magnitude of the value calculated by the two tax bases is not equal in the process of local practice. And from the economic perspective, the basis shows that rental income is for the flow of wealth, not the stock. When the market value is used as the direct quantitative basis for real estate taxation, the capitalized premiums possessed by landowners can be credited to the tax base. Therefore, real estate taxation on the basis of market value helps to alleviate the problems of social equity and promote common prosperity.

4. Overseas real estate tax base assessment system

In the RETA system, the tax basis is the objective premise and the quality guarantee. For countries that levy a real estate tax on the basis of market value, the real estate tax base assessment is an important part of the RETAS.

4.1 Assessment subjects

The main body of real estate tax base assessment refers to the appraisal agency engaged in the real estate appraisal business. In the practice of the developed system, although the appraisal mode is slightly different, the establishment generally follows the principle of "independent appraisal and collection and management". There are four modes in detail.

4.1.1 A third-party "statutory body"

This model is to provide data to the government by setting up an independent third party to conduct tax base assessments. The strong independence of the assessment agency ensures the objective results. However, due to the difficulty of forming a strictly organizational system in this mode, the communication cost is high. Typical cases include British Columbia, Canada, Ontario, and the Appraisal Company of Indiana, USA.

4.1.2 The tax department set up a special agency

In this model, the tax base assessment office set up under the department evaluates the real estate according to the corresponding standards. This model has low communication costs and easy coordination of real estate tax policies. However, the appraisal and collection authorities in the same part will also affect the transparency of the appraisal process and results, as well as the degree of public acceptance. Typical examples are the Property Valuation Division of the Inland Revenue Authority of Singapore, the Real estate tax Office in Germany, the Valuation Office in the United Kingdom, and the Office in Finland.

4.1.3 Government departments outside the tax authorities

In these countries, the body is set up to be independent of the tax authorities but affiliated with the government. The establishment of such an assessment body is conducive to reducing the cost of information sharing and facilitating the government's management of land. Typical areas are the

Office of the Chief Appraiser in New South Wales, Australia, the California and Ohio Offices in the United States, and the Treasury Office in Hong Kong.

4.1.4 Hire an appraiser to evaluate

This model has the appraiser elected by citizen or appointed by the government. This mode has enhanced the market-oriented competition and caused greater liquidity. South Africa is a typical region where parliament hires a registered appraiser to assess the real estate tax.

In short, whether it is entrusting a third-party intermediary agency to evaluate or establishing an appraisal agency by itself, it is necessary to clarify the responsibilities of the institution and ensure the rationality, fairness, and impartiality, so as to improve the transparency of the appraisal work.

4.2 Assessment techniques

The assessment purpose affects the choice of techniques. Real estate appraisal should take the overall fairness as the starting point according to the division of the competitive market, ignore some factors that reflect personality differences, and use the batch valuation model to assess.

For case appraisal, it means that the appraisal agency uses three traditional methods to evaluate a single real estate. The opposite assessment technique is batch appraisal, i.e. the process of evaluating a range of real estate using a standard method and some account statistical tests at a given time [5]. Specifically, it refers to the determination of quantitative changing laws based on traditional models with computer technology analysis. After analyzing the established regression equation, a reliable tax assessment model is formed.

Compared with traditional method, batch appraisal gets rid of the one-to-one shackles while reducing the workload of appraisal agencies, costs, and making the appraisal value base more reliable.

4.3 Batch assessment procedures

The appraisal procedure includes basic two links: the collection of tax source information and the confirmation assessment tax sources.

In addition, since the price always fluctuates around the value, it is needed information that reflects the market supply and demand. From the practice, the collection of the information usually varies. In general, there are four channels: taxpayer self-declaration, data sharing between departments, on-site exploration by the appraisal department and reference from previous appraisal examples, and purchases from real estate brokerage companies by the appraisal department.

Besides, agencies often use larger databases, combined with geographic information systems, to dynamically verify and update real estate information.

The appraisal confirmation of the tax source refers to the scientific automatic assessment and has been developed in various regions for about 40 years, and the United States, the United Kingdom, Canada and other regions have accumulated much tax assessment experience in exploration and improvement.

4.4 Evaluation cycle

Because the value of real estate is always changing, the assessment of the real estate tax base should be held regularly.

There are generally two types of appraisal cycles overseas: one is the statutory appraisal cycle, which means when the same real estate is valued repeatedly, the time between two consecutive appraisals is prescribed by law. The other is the actual evaluation cycle, which means the interval between is not stipulated by law, and the assessment body can decide on their own according to the actual situation. The length of the assessment cycle is mainly affected by economic development and assessment costs, the shorter the appraisal cycle of real estate tax, the more times the appraisal is completed, and the more accurate the appraisal concludes.

From the perspective of overseas assessment practice, most regions generally choose the interval of 2-5 years as the evaluation cycle, of which the region with a period of 3 years and 5 years is the

largest in Japan, the United Kingdom and most states in the United States. Even some regions choose 10 years as the assessment cycle, such as Connecticut in the United States, Cape Town in South Africa, etc. . At the same time, some regions are assessed once a year, such as Canada, Australia, Lithuania and Hong Kong.

4.5 Dispute resolution mechanisms for assessment results

The objectivity of the tax assessment is the basis for ensuring the justice. Because the orientation of the appraiser and the taxpayer is opposite, the appraisal will inevitably differ from the expectations of some taxpayers. Therefore, for regions that levy real estate tax, it is important to reasonably and effectively eliminate the disputes between the two parties under the regulation of the law. The practice of developed regions shows that although the dispute handling mechanisms vary from region to region, there is consistency in the transparent announcement of real estate tax bases, and the digestion and processing of dispute diversion.

Property tax base dispute resolution mechanism are quite similar in the US and Canada. It is broadly divided into three stages. First, taxpayers file complaints with local tax-based assessment agencies. If the officers agree to the application, they should make timely adjustments and inform the taxpayers. However, if they find the taxpayer's complaint unreasonable, they could maintain the original assessment result. And the taxpayers can move on to the next stage, namely the appeal to the Government Review Board. At this stage, the Review Committee issues a formal written opinion based on the results of the review.. If the dispute remains unresolved, the taxpayers can proceed to the third stage, in which a court ruling is requested. At this stage, the judicial process is entered, and the parties generally hire a socially independent third-party evaluation agency to give support.

A typical example of a disputing mechanism in developing countries is South Africa. Taxpayers there can search the results of the assessment within the statutory period after the provisional assessment roster has been finished. Most provinces in South Africa have set up an assessment and complaint committee. The chairman could be a retired judge of the Supreme Court, a lawyer who has been practicing for at least 10 years, or a person who has sufficient legal experience qualified by the Governor. The committee will make a hearing and adjudication again. If the taxpayer is still not satisfied with the outcome, the dispute would be submitted to the administrative reconsideration procedure, and the Supreme Court will review the decision of the committee. .

5. Build China's real estate taxation system

5.1 Establish a scientific real estate taxation assessment system

The establishment of a RETAS is an important part of promoting its own reform. Currently, this system in China is not complete, for example, it lacks professional assessment standards and qualified professionals and institutions. This makes the scientific accuracy of the assessment results cannot be guaranteed and leads to a large loophole in the construction of the system. China can learn from these countries based on China's national conditions so as to perfect its RETAS.

For the selection of taxation basis, now the real estate tax in the retention aspect of property taxation combines the original value of the house and the rental value, which causes serious taxation problems and hinders the optimal allocation of real estate resources. The practice of overseas real estate taxation in recent years shows that countries with mature real estate tax systems generally use market value as the basis of real estate tax and this tendency is expanding. In view of this, China should unify the basis of real estate taxation according to its own conditions.

The main body of real estate tax assessment is the key to make tax assessment go smoothly. Therefore, a professional real estate tax assessment agency should be well-established. A professional assessment body requests regularly knowledge training to strengthen the legal concept and moral literacy of the assessors.

When it comes to the selection of the real estate tax base assessment cycle in China, the period should not be set too long and the method should be diverse .. The floating range of the assessment

cycle can be formulated by the central government in accordance with the principle of regular continuity, and the local government can adjust it according to the specific situation.

5.2 Establish an efficient supporting system for real estate tax assessment

A scientific RETAS is a solid legal guarantee for the reform of the real estate tax system. Taxpayers' doubts about real estate tax will generally increase with the deepening of the tax reform. A clear legal system helps to define the statutory responsibilities of the appraisal agency, enable both parties to understand each other's rights, clarify their obligations, and thus improve citizens' compliance with the tax law and promote the steady reform of real estate tax.

The complete and detailed real estate information provides data protection of CAMA in China. The collection of high-quality real estate basic data can start from the following three aspects: First, establish a standardized real estate registration system. Second, standardize and improve the registration standards for land use rights. Third, gather information resources and establish an intergovernmental information platform.

In addition, tax authorities can also reduce the cost by providing taxpayers with convenient and diverse declaration and collection mechanisms, such as electronic mailing and bank branch reporting. These methods can improve the efficiency of assessment, enhance the authenticity of information and avoid the waste of human resources even illegal acts.

5.3 Establish a scientific tax-based dispute resolution mechanism

At present, there are lots of disputes in China. It is foreseeable that in the future, with the reform of property tax, the controversy will blow out. Therefore, China should handle this problem as soon as possible. Some useful ways include learning from the practical experience of overseas countries, adopting advanced techniques to resolve taxpayers' dissatisfaction in advance and repeatedly practicing in the system to find a way suitable for China.

The abroad practice of handling tax-based disputes shows that the hierarchical digestion of tax-based disputes is conducive and can improve the transparency of real estate taxes. With the gradual deepening of the complexity of the dispute process, the construction of dispute handling institutions in China can be divided into four levels: assessment level, collection and management level, administrative reconsideration level and expert appraisal level. On the one hand, the assessment level should solve taxpayers' problems and help taxpayers understand the assessment process and results, and on the other hand, they can review the price of disputed assessment results. Whether it is an institution or a group, the responsibilities of the collection and management level should involve at least two aspects of price review and administrative reconsideration. When disputes enter the litigation level, each region should set up a special court, and cities with insufficient conditions can set up a special group for real estate disputes and the adjudication of disputes. The expert institution is mainly responsible for assisting the court in the technical appraisal of the assessment results and the civil adjustment of real estate tax base disputes.

All in all, the hierarchical construction of real estate tax-based dispute handling is a scientific way to ensure the efficient resolution of disputes, and it is also an important part of the real estate tax collection and management system. At the same time, China could expand the application of high technologies in the dispute resolution process to ensure the accuracy and efficiency of the assessment results. For example, using the man-machine interaction can refine the system, improve the assessment and administrative efficiency, facilitate the operation of taxpayers and reduce disputes.

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