

Comparison of affordable housing financing policies between China and the US

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Xuantong Zhang

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Advisor: Prof. Lance Freeman

Abstract

China and the United States, as the two largest economies in the world, are facing the shortage of affordable housing, and the key to solving affordable housing is adequate funding. China and the United States differ greatly in the financing of affordable housing. This article talks about a comparative study of affordable housing financing policies between China and the United States, summarizes the differences between the two, explores the reasons for this difference, and compares the advantages and disadvantages of the policies of the two countries.

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Introduction

According to the statistical report of China in 2015, the per capita housing area of urban households in China was more than 30 square meters. However, China still faces a relatively large housing problem. According to statistics from 2015, 3.3% of urban households still have less than 8 square meters of per capita housing area, and 11.9% of households have 9-16 square meters of per capita housing area. Compared with the average standard of 30 square meters, the housing area of these families are seriously insufficient, and these families are mainly low-income families, unable to improve their housing conditions by themselves. In addition, although the average housing area in China has greatly improved, we have to consider not only the housing area, but also the housing quality and the environment. Although many Chinese urban families have reached the average housing area, the quality of housing is not optimistic, especially in metropolitan cities. A large number of families live in houses constructed in the 1970s and 1980s. The conditions of this part of the housing are not good. In addition, China's urbanization is still underway. There are still hundreds of millions of people living in rural areas. With the urbanization of this part of the population, they may also face housing problems. Therefore, China urgently needs to develop affordable housing, and to solve the housing problem of these families through affordable housing. The United States is also facing housing issues. High housing prices in big cities make it difficult for low- and middle-income families to afford high-quality housing, which has also caused slum and segregation. To this end, the United States has also devoted a lot of energy in the construction of affordable housing, hoping to alleviate such issues through the construction of affordable

housing, while reducing the gap between the rich and the poor and achieving social equity. In the construction of affordable housing in China and the United States, the funding for affordable housing is an important factor that directly determines whether the affordable housing can be successfully constructed and completed. It is interesting to compare the funding sources of affordable housing in China and the United States. China's affordable housing funds mainly come from the government's direct financial input, and private capital is relatively small. In the United States, affordable housing mainly relies on the developer's own funds. The government does not directly fund it, but instead uses tax credit to stimulate the construction of affordable housing. In other words, the funding for affordable housing construction in the United States comes more from private capital and the funding for affordable housing construction in China comes from government funds. Therefore, it will be interesting to compare and study the financing policies of affordable housing construction in the two countries. These are two completely different financing policies. Through comparison, we can understand the advantages and disadvantages of these two models, and provide some references for the future acquisition of affordable housing funds. In addition, I will explore the reasons behind these two different financing models.

Literature review

Affordable housing refers to the housing for low-income families with lower price or rent, achieved by means of government's direct investment in the construction or the government's subsidy to the housing construction agency in a certain way (Yiwei Xie, 2014).

Affordable housing has the nature of social welfare. The government uses housing policies to

reduce the land costs, tax costs, and investment costs of developers, or directly grants construction funds to reduce housing supply costs and prices, and provides it for low-income families. The basic function of the affordable housing policy system is to provide services for the supply, distribution, consumption, and operation of affordable housing, improve the supply capacity, and enhance the housing consumption capacity of the protected population. Therefore, according to the circulation process of affordable housing, this paper divides the affordable housing policy into financing policy, supply policy, distribution and transfer policy, operation and maintenance policy. Financing policy refers to policies related to financial activities such as consumption and credit services generated during the whole process of housing construction, sales and consumption; Supply policy refers to the policies that stipulate the supply quantity, supply method and layout planning of affordable housing; Distribution and transfer policy refers to the policy about finding low- and middle-income families who really need supportive housing, and ensuring that they have the ability to obtain affordable housing, including eligibility review, purchasing subsidies, entry and exit mechanisms, etc.; Maintenance policy refers to the policy provisions on property services and community construction after the affordable housing is put into use, in order to ensure that these affordable housing can maintain a good state.

In the literature review section, with the comparative research on affordable housing policies as the theme, it is sorted out in accordance with affordable housing policy overview and evolution, financing policies, supply policies, distribution and transfer policies, operation and maintenance policies. Through this part, this paper attempts to review the progress of the existing research to provide a certain theoretical basis for the research of this paper, and

attempts to use this paper to supplement the existing research system.

Policy overview and evolution

Many studies develop by introducing main contents and characteristics of affordable housing policies in different countries, and make policy suggestions by comparison. Among these literatures, there are two kinds of comparison methods, static comparison and dynamic comparison. On the one hand, static comparison introduces the overview of different affordable housing policies, summarizes respective characteristics of different countries, and tries to find out policy suggestions in comparison. Charles Connerly compared the UK and US about how the two nations had protected the housing rights of their black and minority ethnic citizens. He identified the strengths and weaknesses of each nation's approach to housing anti-discrimination legislation and to make recommendations for how both nations might learn from each other in this area of housing policy (Charles Connerly, 2005). Qingbin Ma summarized the affordable housing models and characteristics of the United States, Germany, Japan, and Singapore. The main characteristics of the United States are government intervention and market dominance; the German real estate market is dominated by leasing and is characterized by perfect laws; Japan has the affordable housing financial policies with a combined participation of government and citizens; Singapore is known for its sound public housing flats policy. After making a comparison, the article put forward policy suggestions on coordinating the role of the government and the market (Qingbin Ma, 2010). Shufen Sun summarized the basic arrangements and institutional characteristics of the affordable housing system in Japan and South Korea using comparative research methods, and proposed to

strengthen the government's housing security policy and increase the number of small and medium-sized housing supply. Also, a series of measures such as the expansion of financing channels for housing security funds were raised (Shufen Sun, 2011). Affordable housing systems in Germany and Switzerland have also been compared, with respective characteristics summarized. For example, in Germany and Switzerland housing security policy has a solid legal basis, housing security responsibility is relatively clear among different levels of governments, the role of market mechanisms is important, and housing security methods are dynamically adjusted (Yifang Chen et al., 2012). On the other hand, dynamic comparison focuses on how affordable housing policies develop in a certain period. A good example is the study of Nicole Gurrán and Christine Whitehead, they compared the evolution of UK and Australian housing and urban policy regulation particularly since the defining post-war Act of 1947 in the UK and the implementation of the first Commonwealth State Housing Agreement (1945) in Australia. By comparison, the author made suggestions about strengthening planning approaches for affordable housing by synchronizing affordable housing policies between different levels of governments and by having strong political wills (Nicole Gurrán and Christine Whitehead, 2011).

Regarding the comparison between China and the United States on affordable housing policies overview and their evolution, existing literature has covered both static and dynamic analysis. The static characteristics of US affordable housing policy include the legalization of housing security measures, diversified housing construction channels, and diversification of housing security methods, etc. (Wenhui Pan, 2005). As for the dynamic development of affordable housing policies in the two countries, most Western countries represented by the

United States adopted a model of combination of market housing supply and welfare housing supply. Whereas before 1998, China mainly provided pure welfare housing, after 1998 it turned to completely market-oriented housing supply (Wenhe Ouyang and Xuan Zhang, 2011). Housing privatization and commercialization transformed the Chinese socialist housing system into a dynamic housing market, but new housing problems of market economies have emerged. Government at the national level has responded by developing new policies to support affordable and social housing; and at local level various new housing provision schemes have been tested, but their scale and impact have been limited because of the priority given by the local state to economic growth and securing local land related revenues (Alan Murie and Yaping Wang, 2011). Botong Song introduced the evolution of American affordable housing policy, and analyzed the implementation results of three typical housing policies: direct government construction, supply-side subsidy policy, and demand-side subsidy policy. It also reviewed the experience of American housing policy evolution to make recommendations for the development of China's affordable housing policy. For example, housing policies should be formulated from the perspective of market efficiency and fairness, and government expenditure costs should be considered in the formulation of housing policies (Botong Song, 2002). Wenbin Li studied the evolution of the US housing policy in the past 70 years, focusing on the analysis of important housing subsidy programs such as public housing plans, housing subsidy programs, rental subsidy programs, housing subsidy programs, and voucher programs. The effect of the programs was evaluated, and suggestions for China to formulate affordable housing policies were provided (Wenbin Li, 2007).

Financing policy

The financing policy is one of the most important parts of the affordable housing policy. The main components of the public housing financial system includes: public housing financial policies, public housing financial management institutions, public housing financial institutions and public housing financial instruments (Hongyu Liu, 2009). Different countries have various funding sources, and the US, Germany, Japan and Singapore are typical examples with distinct characteristics. The United States subsidized private financial institutions and encouraged private financial institutions to provide low-interest loans to public housing developers. Germany grants 50% interest-free loans to the developers' construction budget with the repayment period of 25 years. Japan adopted a government-civilian combination financial policy model, with the central bank as the leader, private financial institutions as the main body, and policy financial institutions as the supplement. Singapore has established a housing finance system centered on provident fund savings (Qingbin Ma, 2010). Although every country has its typical financing policy for affordable housing, several financing models exist at the same time in one nation. For example there are four types of financing channels in Germany, including the government financing, rent payment by tenants, self-financing of operating agencies, and the more recent PPP model (Public-Private Partnership)(Lingling Yao and Xiaoyong Zhang, 2009). In total, there are two main funding sources for affordable housing, that is, public finance and market. About public finance, Yang Yang made a comparative analysis of the fiscal expenditures for public housing in the United States, the United Kingdom and Hong Kong, China. The data from the three regions revealed a common law: the scale of fiscal expenditures for affordable housing construction is relatively fluctuating, while the scale of financial expenditures for the maintenance of affordable

housing is relatively stable, so the financial expenditures of affordable housing will show an inverted U-shaped change trend in the short and medium term (Yang Yang, 2009). About financing market as funding sources, Mingqiu Yang analyzed the securitization process of the United States, Canada and Hong Kong, China, and pointed out that the primary market of housing finance in Hong Kong was more developed, but the secondary market was in its infancy, and Hong Kong, China had always relied on commercial institutions for housing finance (Mingqiu Yang, 2011). Zhifeng Liu and Jinbiao Cao introduced the characteristics of the mortgage system in the United States and Canada, and pointed out that the mortgage securitization of rental housing depends on some mechanisms to function, including government leading, financial instrument innovation, interest rate marketization, standardization of housing loans, real sale of bank loans, development of the bond market, mutual promotion of the primary and secondary mortgage markets, etc. (Zhifeng Liu and Jinbiao Cao, 2009).

Especially about the comparison of financing policies between China and the United States, the US central government provides operating subsidies for affordable housing suppliers and provides financial incentives for new investments, while China mainly relies on government funds to invest in affordable housing projects (Heng Xie and Wen Zhou, 2012). American public housing policies are reflected in the its housing financial system. For example, the U.S. government had preferential policies for low- and middle-income families in terms of both the down payment ratio and the loan interest rate; the Federal Housing Administration and the Veterans Administration were responsible for providing insurance and guarantees for low- and middle-income families' home purchase loans, etc. (Yu Zhang and Hongyu Liu, 2008)

Especially, the primary market for housing mortgage loans was the top priority of the US government's housing finance regulation due to many participating institutions, close relation to the housing market and carrying public housing policies. The US government specifically established the "Federal Housing Finance Committee" and "Federal Housing Loan Banking System" to achieve comprehensive monitoring of the primary market for housing mortgages. Yu Zhang and Hongyu Liu introduced in detail the mode and practice of the US government to supervise the housing mortgage primary market under this system framework, and proposed policy recommendations for establishing an independent market regulatory agency and focusing on strengthening public housing policy supervision (Yu Zhang and Hongyu Liu, 2008).

Supply policy

Generally, the supply policy of affordable housing refers to policy that can increase the provision of affordable housing. Take Germany as an example, the government supports housing construction through preferential policies such as land provision, loans and taxes. And low-rent housing are raised through two major channels: The first is government-built housing, including the use of housing construction funds at all levels of governments or state-owned companies applying for a long-term interest-free or low-interest loan (interest rate is only 0.5% for a period of 20-30 years) to a government-designated financial institution to build low-rent housing. Secondly, private investors, cooperatives or other institutions can also apply for the above loans to build affordable housing, and hold them for lease after completion (Dong Wei and Yanmin Ji, 2010). Besides the quantity of buildings that have been built, some studies focus on the supply quality of affordable housing, and it's another dimension of supply policy.

Xin Zhang (2011) introduced the construction of affordable housing and related institutions in Japan. Japan's affordable housing is also called public housing. It is a low-standard, low-rent public housing constructed and leased by local governments for the low-income people according to the Public Housing Law formulated in 1951. 1971-1980 was the peak period for the construction of public housing, with an average of more than 70,000 households built each year. With the continuous increase in the number of public housing, the number of new construction was gradually reduced every year, with only 14,000 households built in 2007. As of October 2008, the stock of public housing was approximately 2.01 million, accounting for 4.1% of the total number of residential housing in Japan. With the development of society, the focus of public housing has changed from new housing provision to the renovation problems caused by aging, or the need to add equipment and improve the equipment for the needs of special groups (elderly and disabled). Besides Japan, the changes in the spatial layouts of affordable housing in the UK, the US and Singapore also have experienced the process of affordable housing shortages -- government leading housing construction -- housing shortages resolved -- the strengthening of social contradictions by the generation of residential differentiation -- government leading reorganization of space (Zhengtao Zhang et al., 2012). It was concluded that the government should not only focus on the number of constructions, but also rationally organize and distribute the space as soon as possible to avoid social problems. In terms of supply actors of affordable housing, the two major players are seen as government and market among the most literatures, and the importance of the two seems always be trading off and taking turns. However, besides government and developers, there are other actors such as nonprofit sector and household affecting the supply of

affordable housing. Michael Schill compared British housing associations and American community-based nonprofit housing providers about their financing, management and increasing role, and discussed what the appropriate role of these organizations should be in the development and implementation of housing policy (Michael Schill, 1994). Tony Fahey and Michelle Norris also introduced the factor of household self-provision into the way of thinking housing policy development. They suggested that the growth of home ownership and the decrease of renting can be explained by the efficiency gain arising from self-provisioning of accommodation (Tony Fahey and Michelle Norris, 2011).

Distribution and transfer policy

Hugo Priemus et al. compared the U.S. housing voucher program with the British housing benefit and the Dutch housing allowance programs, with respect to their scopes, the relationship between housing support and rent levels, the poverty trap, moral hazards, and administrative problems. After comparison, the authors made suggestions US and Europe learn from each other (Hugo Priemus et al., 2010). Among different distribution and transfer policies of affordable housing, there are mainly two types, market-leading distribution and government-leading distribution. First, the symbol of market-leading distribution is the housing market filtering theory. It claims that the same house can be circulated multiple times among families with different incomes, and the same family can continuously replace the house during the family life cycle. As a result, matching the corresponding housing is also a way to solve the housing shortage of low- and middle-income families (Kunhui Ye and Liu Yang, 2012). There are five major factors that affect the housing market filtering results, including

current housing characteristics, family income status, housing consumption behavior, family member structure and family life cycle. The authors analyzed the housing market filtering mechanism based on the development process of affordable housing in China and the United States, and concluded that in the construction stage of affordable housing, the housing characteristics should meet the filtering needs, and the subsidy policy for low-income families can be used to play the role of the housing market filtering mechanism to configure reasonable housing for low- and middle-income families. Second, the government-leading distribution of affordable housing is symbolic in Germany. Lu Li compared the main housing security systems in Germany and China, with a special focus on the distribution policy of affordable housing. She introduced the Germany policies of rent control, rent subsidies, tax incentives for home purchases, and Chinese policies of the housing provident fund and affordable commercial housing policy. On the basis of comparing the two countries, it was recommended that China strengthen legal, fiscal, financial and taxation support for affordable housing allocation (Lu Li, 2008). With the development of society, there has been a gradual shift from supporting low- and middle-income residents from government side to an increasing dependence on market provision of affordable housing (Nathan Marom and Naomi Carmon, 2015).

Operation and maintenance policy

In comparative studies of operation and maintenance policies of affordable housing, Japan, Singapore and Germany are often set as examples. Japanese public housing, first built in 1951, was the most important part of Japan's public housing security system. Half a century later,

Japanese public housing was faced with the problems of long-term disrepair and functional aging, insufficient earthquake and disaster resistance, energy saving and environmental protection problems, the aging of occupants and other issues. Various countermeasures were taken by Japanese governments at various levels, and as a result, these problems were solved well (Yi Zhou, 2011). Junfu Li et al. introduced Singapore's affordable housing policy, discussed the policy content and characteristics of the Singapore's affordable housing system, and summarized Singapore's community management experience with the Wulan New Town as an example (Junfu Li et al. 2012). The Singapore Government set up the housing authority HDB, which was responsible for all matters related to affordable housing, and has formed a centralized operation mechanism for unified planning, construction, distribution and management. Singapore's affordable housing has clear regulations on entry and exit mechanisms and uses corresponding punishment mechanisms to ensure its effectiveness. The town council is the core organization for the maintenance and management of HDB flats. It is solely responsible for various management affairs and funding arrangements, and puts great emphasis on daily maintenance management. Singapore's management experience including the government focusing on affordable housing maintenance, building a good community, and encouraging public participation. German housing security system also puts great emphasis on affordable housing community management and maintenance, besides financing and supervision system. Through cooperation between the government and private institutions, Germany has adopted specific measures to address such issues as lack of momentum in business development, insufficient infrastructure investment, housing vacancy and ethnic integration, and has achieved good results (Desheng Xue et al. 2012). Through

analysis, the authors put forward suggestions such as improving the housing security legal system and put emphasis on the community management role of autonomous organizations.

By reviewing the comparative studies on affordable housing policies, we can find that there have been relevant researches on the overview and evolution of affordable housing policies, financing policies, supply policies, distribution and transfer policies, and operation and maintenance policies. While there are large number of studies on overviews and financing policies, relatively few studies focus on other three topics. And this is even more true in Sino-American research. Although in the comparative study between China and the United States, there have been some literature in financing policies for affordable housing, the existing research is often limited to the introduction of one or two micro-financial policy instruments in China or the United States, and Chinese literature is often based on the purpose of studying the experience of United States. It is certainly good to learn advanced experience from other countries, but it is necessary to conduct a comprehensive understanding and systematic comparison of affordable housing financing policies between China and US, and see their respective characteristics before they can exchange experience efficiently. To address this issue, this article will compare the two models of affordable housing financing policies in China and the US, explore their respective causes, analyze respective advantages and disadvantages, and try to make a more comprehensive comparison to supplement the current research.

Conceptual Framework and Research Method

The subject of my research is the affordable housing financing policies in China and the United States and the policies reasons for this model. My research will be based on the national level. The core concepts in my research are the affordable housing financing policies, subsidy policies for affordable housing. I hope that through this study, we will find out what causes the difference in the affordable housing financing polices between the two countries. My hypothesis is that the two countries' policies on affordable housing are the main reason for the differences in financing polices.

The data of my research mainly use official government data and data obtained through literature review. I plan to adopt lateral and longitudinal research as research methods. First compare the affordable housing financing policies in China and the United States. In this part, I plan to use tables to visually show the difference between the two. After that I will further explore the policy reasons. Finally, I will compare the advantages and disadvantages of the two different policy system and make some suggestions.

Financing Policy of Affordable Housing in China

China's affordable housing has a short history. Before 2007, marketization is the main trend in China's real estate industry, and the housing supply system was single. As a result, many cities experienced conflicts in housing supply and demand, and signs of overheating in

real estate started to show since 2003. The real estate industry has quickly become one of the main pillar industries of China's national economy. The proportion of real estate industry's contribution to GDP has increased from 4.02% in 1997 to nearly 10% in 2010. At the same time, the price of commercial housing was also rising at a high speed. Taking Beijing's housing price as an example, the average price of commercial housing in 2003 was 4456 yuan / square meter, and in 2007 it has risen to 14,411 yuan / square meter. The average house price soared to 35,000 yuan / square meter, an increase of 7.8 times in seven years. Developers and speculators made a good fortune from high housing prices, to taste the sweetness, but ordinary consumers who have rigid demand for housing have suffered a lot. The main reason of this situation was that, affordable housing construction was absent, and housing demand was overly dependent on the market. In 2007, the government began to re-examine the structure of the housing supply system, adjust the direction of the housing system reform, and shift the focus of its work from the previous commercialization to the housing needs of urban low-income people. From then on, Chinese government considered different housing consumption needs at all levels and reconstructed the affordable housing system. With the "Several Opinions on Solving the Housing Difficulties of Urban Low-income Families" issued by the State Council as a sign, affordable housing has become the focus of housing policies. China's affordable housing programs can mainly be divided into affordable commercial housing, low-rent housing, shantytown transformation and public rental housing, which will be described in detail as follows.

Affordable commercial housing

Affordable commercial housing refers to "the provision of ordinary housing constructed in accordance with national housing construction standards to low- and middle-income families with housing difficulties at a price lower than the market price" (In 1994, the Ministry of Construction, the Ministry of Finance and other departments Jointly promulgated the "Administrative Measures for the Construction of Affordable Commercial Housing in Cities and Towns," which gave the definition of affordable commercial housing for the first time). The construction cost of affordable commercial housing mainly includes: (1) land acquisition, demolition compensation and resettlement costs; (2) designing and preliminary engineering costs; (3) residential construction and equipment installation engineering costs; (4) infrastructure costs (5) Loan interest (6) Taxes (7) Management fees. (Feng B) In order to cover the cost above, affordable commercial housing construction funds are mainly raised through local government funds for housing construction, policy loans, and other funds. First, according to the "Administrative Measures for the Construction of Affordable Commercial Housing in Urban Areas", the supply of land for affordable housing construction is supplied for free by local governments. Local governments should prioritize the provision of lands according to the plan for affordable commercial housing construction. And local governments should provide taxes and fees preference to support the construction of affordable housing. For example, according to the "Measures for the Management of Affordable Housing", affordable housing construction projects are exempt from various administrative and institutional charges such as urban infrastructure supporting fees and government funds. In addition, infrastructure construction costs relevant to affordable commercial housing projects are also borne by the

government. Second, affordable housing construction units can apply for a housing development loan from a commercial bank using the project under construction as collateral. Third, under principles of government organization and market operation, the construction of affordable housing can take the form of project legal person bidding, and choose real estate development enterprises with corresponding qualifications and good social responsibilities for implementation, or the governments can directly organizes construction. However, in actual operation, affordable housing is still mainly constructed by local governments, because the profit rate of operating affordable commercial housing is subject to strict policy restrictions. The government stipulates that the profit rate of affordable housing projects implemented by real estate development enterprises shall be determined at a rate not higher than 3%; the affordable housing directly organized by the municipal and county people's governments can only be sold at cost without extra profit.

Low-rent housing

The low-rent housing system started in 1998. According to the "State Council's Notice on Further Deepening the Reform of the Urban Housing System and Accelerating Housing Construction", providing low-rent housing for the lowest-income families was raised as an important part of the housing reform for the first time. The "Measures for the Management of Low-Rent Urban Housing" issued on May 1, 1999 defined low-rent housings as "the government's implementation of social security function to provide low-income households with relatively low-cost ordinary housing. " In 2009, the Ministry of Housing and Urban-Rural Development, the Development and Reform Commission, and the Ministry of Finance

launched China's first low-rent housing plan. It provided preferential policies for low-rent housing construction such as land supply and funding sources ("Notice of the Ministry of Housing and Urban-Rural Development, Development and Reform Commission, and the Ministry of Finance on Printing and Distributing the Low-rent Housing Guarantee Plan for 2009-2011"). First, about land supply and preferential policies, the plan stipulates that all regions should make overall arrangements for low-rent housing land plans, prioritize construction land provision, implement various preferential tax policies to support low-rent housing construction, and effectively increase policy support to ensure that construction started on schedule. The low-rent housing project should be rationally arranged in areas with convenient transportation and relatively complete public facilities, and the governments are supposed to do a good job in the construction of municipal supporting facilities inside and outside the community. Second, the channels for raising funds for low-rent housing include the following ones. (1) The central government has strengthened subsidies for low-rent housing in areas with financial difficulties. The central subsidy standards for low-rent housing construction in 2009 are: 400 yuan / square meter in the western region, 300 yuan / square meter in the central region, and 200 yuan / square meter in financially difficult areas in Liaoning, Shandong, and Fujian province. (2) Provincial people's governments should increase investment in the construction of low-rent housing and grants of rental subsidies in cities and counties with financial difficulties. (3) The municipal and county governments are responsible to raise funds for low-rent housing security through multiple channels in accordance with relevant state regulations. The municipal and county finances shall incorporate the low-rent housing security funds into the annual budget arrangement. All net increase in the value of

the housing accumulation funds and at least 10% of the net proceeds from land transfers should be used for low-rent housing construction. (4) Commercial banks should increase credit support for low-rent housing construction projects that meet the loan conditions. It's obvious that the central government put great emphasis on financial support for low-rent housing. However, in fact, due to limited funding sources of local governments, the system developed slowly before 2006. In 2007, State Council Document No. 24 positioned the low-rent housing system as the core of the urban housing security system. Especially since 2008, the central government has established a special subsidy fund for the construction of local low-rent housing, which has made great progress. In 2009, the central government's investment plan for the construction of low-rent housing in various places was 33 billion yuan. According to the report of the special research group of the National People's Congress, the investment in low-rent housing in the first half of 2009 was 31 billion yuan, and 530,000 new housing rental subsidies were added. As of August 2009, 1.26 million units of low-rent housing construction projects nationwide had been started, and investment of 40 billion yuan had been completed. (He, Y)

Shantytowns transformation

The transformation of shantytowns refers to the reconstruction of shantytowns and dilapidated houses in urban areas, state-owned mining areas, state-owned forest areas, and state-owned reclamation areas in order to improve the housing conditions of people in need. Since 2008, shantytown reconstruction has been implemented on a large scale. From 2008 to 2012, 12.6 million shantytowns of various types were renovated nationwide.

According to the State Council's Opinion on Accelerating the Reform of Shantytowns, funds of shantytown reconstruction can be raised by increasing financial subsidies, increasing bank credit support, attracting private capital participation, expanding bond financing, and self-raising by enterprises and the public. First, increase funding support from governments at all levels. The central government commits itself to increasing subsidies for the renovation of shantytowns and giving priority to areas with financial difficulties. Local governments should also increase subsidies accordingly. Funds can be used for shantytown reconstruction expenditures through channels such as urban maintenance and construction tax, urban public utility surcharge, urban infrastructure supporting fees, and land transfer income. In addition to the above-mentioned funding channels, each region can also appropriately allocate part of the funds from the state-owned capital operating budget for the renovation of shantytowns in state-owned enterprises. Conditional cities and counties may provide loan discount interest to shantytown renovation projects. Second, increase credit support. All financial institutions shall innovate financial products and improve financial services to support the renovation of shantytowns, increase credit funds for shantytown transformation, and provide loans to eligible shantytown transformation projects. All regions should establish and improve the loan repayment guarantee mechanism for shantytown renovation, and actively attract credit fund support. Third, private capital is encouraged to participate in transformation. Governments are supposed to encourage and guide private capital to participate in the renovation of shantytowns in a variety of ways, including direct investment, indirect investment, equity participation, and commissioned construction. (Tang, Z) Fourth, shantytown reconstruction projects can also raise funds by

corporate bonds. Local government financing platform companies that meet the requirements and companies that undertake shantytown renovation projects may issue corporate bonds or medium-term notes for special use in shantytown renovation projects. For the issuance of corporate bonds for shantytown reconstruction, approval procedures shall be prioritized to speed up the approval process. Fifth, encourage enterprises to participate in the transformation of shantytowns and increase investment in transformation. For the enterprises participating in the renovation of shantytowns, the company's expenditures that meet the required conditions should be deducted before corporate income tax.

Public rental housing

The main supply targets of public rental housing are urban families with low-income housing difficulties. Public rental housing can be raised through multiple channels such as new construction, reconstruction, acquisition, and long-term rental housing in the market. On November 16, 2010, the Ministry of Finance, the National Development and Reform Commission, and the Ministry of Housing and Urban-Rural Development issued the "Notice on Issues Related to the Management of the Use of Funds for Affordable Housing Projects". The Notice clearly stated that in order to effectively solve the housing difficulties of middle- and lower-middle-income families in cities, starting in 2010, all localities should extract no less than 10% of net income from land transfers on the project of public rental housing. Public rental housing financing mainly includes direct financing and indirect financing. Direct financing methods include central subsidies, local fiscal expenditures, local construction

bonds, housing accumulation fund appreciation income, land transfer income etc.; indirect financing methods mainly refer to loans from financial institutions, including state-owned commercial banks, policy banks, and housing accumulation fund loans etc. Governments at all levels encourage social capital to participate in the construction of public rental housing in accordance with the principle of "government organization and social participation".

Funding sources can include developer funds, insurance funds, trust funds, real estate trust funds, and other eligible large and medium-sized enterprises and institutions. In terms of actual operation of the current public rental housing financing system, however, China's public rental housing financing still mainly relies on three major financing channels: government finance at all levels, net income from land transfer funds, and value-added income from housing accumulation funds. In 2011, China planned to build 10 million affordable housing units, including nearly 2.2 million public rental housing units, which was six times that of 2010.

From the introduction of the four types of affordable housing, it can be concluded that the funds for China's affordable housing mainly come from four channels: public finance, bank loans, net proceeds from land transfer and housing accumulation fund. (1) Finance. Before 2007, the central government's investment in affordable housing was very limited. But this situation has changed significantly after 2008. For the first time in the 2008 State Council Government Work Report, there was a commitment on housing security investment, especially on low-rent housing investment. Because of the international financial crisis, low-rent housing is considered to have the dual effects of improving people's life quality and promoting economic growth. The actual investment in the year was 35.4 billion yuan, far

exceeding the original commitment. In the 2009 government work report of the State Council, it was promised that "this year's central government plans to arrange 49.3 billion yuan for affordable housing projects to increase investment support for low-rent housing construction and shantytown renovation." According to the 2009 Central Government Expenditure Statement, the actual subsidy funds allocated by the Central Government for the construction of affordable housing reached 55.056 billion yuan. In addition, according to the 2009 National Financial Expenditure Statement, in 2009, the national financial subsidy funds for affordable housing were 72.597 billion yuan, which was 313.3% of the previous year. The local government only invested 17.541 billion yuan, which shows that the local government is not very enthusiastic about investing in affordable housing. (2) Bank loans. On January 18, 2010, Yingli Huo, deputy director of the Financial Market Department of the People's Bank of China, disclosed in an online interview with a reporter that by the end of 2009, loans for the development of affordable housing reached 62.8 billion yuan, an increase of 31% year-on-year, and 15% higher than the growth rate of real estate development loans. At the end of December 2009, the China Development Bank issued 68 billion yuan in loans to the renovation of state-owned industrial and mining shantytowns, which makes a total of 99.7 billion yuan issued since 2005. (3) Land transfer. Although the society has high expectations of land transfer payments for housing security, land transfer profits are one of the most important finance sources for local governments. So local governments often lack incentive to provide their land transfer profits to support affordable housing which has no economic benefits. Central government tried to encourage this funding source by issuing documents and stipulating that "a certain percentage of the net

income from land transfer" (Guo Fa [2005] No. 37), or "10% of the net income from land transfer" (Cai Zong [2007] No. 53) should be used for affordable housing. However, local governments explain "net income" on their own and made excuses that there is no "net income" left. According to the "Basic Situation of National Land Transfer Revenue and Expenditure in 2009" issued by the Ministry of Finance, China's land transfer income in 2009 was 1.27 trillion yuan, and the expenditure for that year was 1.23 trillion yuan, of which 18.87 billion yuan was spent on low-rent housing, only accounting for 1.5% of the total expenditure. (4) Housing Provident Fund. Although the current "Regulations on the Management of Housing Provident Funds" announced by the State Council Order No. 350 on March 24, 2002 clearly states that "the housing provident funds paid by individual employees belong to the employees themselves", However, for a long time, the value-added income of the housing provident fund actually became the main source of funding for China's housing security, especially the construction of low-rent housing. By the end of 2008, the total supplementary funds for low-rent housing construction from the value-added income of the housing provident fund amounted to 19.193 billion yuan. Although this funding source is stable, it grows slowly. More importantly, although there is a legal basis for the use of the value of the housing provident fund to build low-rent housing, the rationality of using the depositor's money to do public welfare undertakings is increasingly questioned.

The "Twelfth Five-Year Plan" for the construction of affordable housing proposed that 36 million new affordable housing will be built in 2011-2015. Among them, 10 million new affordable housing were built in 2011, of which 2.2 million were public rental housing, accounting for 22% of the total new affordable housing. (Jiang, H and Wang, B) At the same

time, the construction plan proposes that during the “Twelfth Five-Year Plan” period, the proportion of public rental housing construction shall not be less than the 2011 construction proportion. In 2011, the total funding required to complete the construction of 10 million affordable housing projects was 1,492 billion yuan (see Table 4.1). Although the sources of various types of affordable housing construction funds are diversified, they mainly rely on the central and local governments to solve them through three major financing channels, which can provide about 652 billion yuan in total, and there is still a gap of 840 billion yuan in funding. Social funding approach. In 2011, the government's clear source of funds mainly included 103 billion yuan in central financial subsidies, net proceeds from land transfers of approximately 60 billion yuan, and accumulative gains from provident funds totaling approximately 10 billion yuan (approximately 5 billion yuan in 2010), totaling 373 billion yuan. Assuming that 50% of the local debt issued by the central government is used for housing construction, it can provide 100 billion yuan in construction funds. In addition, China Development Bank has also clearly stated that it will issue special loans to support the construction of affordable housing. Therefore, the current government's relatively clear source of funds totals about 373 billion yuan. As of the first half of 2011, the central government allocated 61.7 billion yuan as a special subsidy for the construction of affordable housing, accounting for 50% of the total planned investment for the year, and in addition, 50.4 billion yuan in local bonds issued by the Ministry of Finance. However, data from China Bond Information Network showed that the bid interest rate for 5-year fixed-rate bonds was only 3.84%, and the subscription rate was 1.05 times; the interest rate for 3-year varieties was 3.93%, and the subscription rate was only 0.96 times. The market demand for

the two-period bond varieties is not strong, and the 3-year bond varieties have even failed to bid.

Financing policy of Affordable Housing in the US

Cities, counties, and state governments in the United States play a key role in the financing of affordable housing, but the US federal government still plays a major role in funding for affordable housing.

Of these, with the exception of the Low Income Housing Tax Credit Program, which is administered by state and local housing financial institutions, all other programs are administered by the US Department of Housing and Urban Development. HUD also funds smaller programs focus on specific activities or goals, supports lead reduction and healthy families, and promotes fair housing and economic self-sufficiency among residents of subsidized housing. There are other federal agencies that provide funding for affordable housing. The United States Department of Agriculture is particularly concerned about plans to fund single- and multi-family housing in rural cities, towns, and counties through the Rural Housing Service Administration. The US Department of Health and Human Services sometimes cooperates with HUD to provide funding.

This article plans to sort out these several policies, explore and summarize the characteristics of the funding sources of American affordable housing.

Low Income Housing Tax Credits

The largest source of support provided by the federal government for the creation and maintenance of affordable housing is managed by state and local housing financial institutions in accordance with regulations issued by the US Treasury Department. The Low Income Housing Tax Credit (LIHTC) program is an indirect subsidy program that encourages private investment in affordable housing by reducing the dollar-to-dollar incentive of federal income tax liabilities. Investors will receive credit within a 10-year period, and projects using LIHTC equity financing must remain affordable for at least 30 years. Since the program was created in 1986, nearly 3 million LIHTC devices have been invested in more than 45,000 projects.

There are two types of LIHTC tax credits, namely 9% tax credit and 4% tax credit, both of which are distributed by state and local housing financial institutions. 9% of LIHTC is usually used for new construction and larger renovation projects, and awards are awarded in a competitive manner based on preferences and priorities stipulated in the housing finance institution's qualified allocation plan. The number of LIHTC allocated to each state by 9% per year is determined using a population-based formula. In 2017, each state received an amount of USD 2.71 million from the LIHTC distribution agency or USD 2.35 per resident, whichever is the higher. In high-cost areas, 4% of LIHTC is mainly used for preservation and purchase of restoration projects, and automatically grants affordable housing projects supported by private event bonds. In 2017, the state appropriation was US \$ 305.3 million or US \$ 100 per resident, whichever is greater.

In order to meet the requirements of the LIHTC plan, within a 30-year compliance period, the project should reserve at least 20% of units for tenants whose income is less than 50% of the region 's median income, or for tenants whose income is less than this percentage 40% of tenants. 60% of middle income in the region. In fact, project sponsors usually set aside more units at affordable prices to increase the competitiveness of their applications and the tax credits that can be raised. Many projects are LIHTC compliant in 100% of units Requirements. Although the rents in LIHTC development zones are usually cheaper than market price units, the rent levels are usually too high to be affordable by extremely low-income families without additional subsidies. Cities and counties usually attach project-based credentials or other federal or state leasing assistance to some or all of the units in the LIHTC development to cover individuals and families who need higher affordability.

Tenant-based rental assistance programs

Rental assistance based on federal tenants is primarily provided through HUD's "Housing Voucher" program, which provides assistance to 5 million people in more than 2 million families. The plan is implemented by local and state public housing agencies. Voucher holders will receive a subsidy that they can use in any private rental unit that meets the program guidelines and the owner is willing to participate in the program. Since assistance is transferred with families, rather than attached to specific units, rent-based rent assistance can be a particularly effective tool for increasing low-income families into poor, resource-rich communities. Housing option vouchers are also very flexible. Public housing agencies have the flexibility to "partially project" some of their vouchers and attach them to specific

units to provide continued affordability and allow vouchers to be used for house purchases.

(Local Housing Solution)

The income of all voucher holders at the time of enrollment must not exceed 80% of the median income of the region. Every year at least 75% of new families joining the program must be very low-income families whose income does not exceed the median income of the region or the higher of the 30% of the federal poverty line. Participating families are required to spend 30% of their income on rent and utilities, and housing intermediaries will directly pay the balance (not exceeding the local maximum limit, which is the voucher payment standard) to the landlord. Agents can also set a minimum rent. The demand for vouchers far exceeds the supply, and most public housing agencies either keep a long waiting list for the plan or use lottery tickets to determine which families can join the waiting list.

HUD depends on appropriations and budgets, and annually provides funds to public housing agencies to update the currently used housing selection vouchers. However, due to funding policies, storage and ongoing resolution changes that have frozen planned funds, available funds are sometimes insufficient to renew all existing certificates. The three industry groups CLPHA, NAHRO and PHADA estimate that the cost of fully renewing all certificates in FY2018 will be \$ 19.84 billion.

Project-based rental assistance programs

Federal project-based rental assistance is mainly provided through HUD's Section 8 "Project-

based Rental Assistance Program", which provides assistance to 2 million people in approximately 1.2 million families. (HUD) The program is implemented by private owners of multi-family rental housing through housing subsidy payment contracts. Since assistance is always linked to the unit, project-based rental assistance can be a particularly effective tool for creating and maintaining affordable housing in high-cost or high-end areas. In fiscal 2016, HUD provided \$ 10.6 billion for project-based rental assistance programs.

To qualify for Section 8 project-based rental assistance, the household income must not exceed 80% of the region 's median income at the time of entry. At least 40% of aid units must be reserved for very low-income families whose income does not exceed the median income of the region or the higher of the 30% federal poverty line. The participating households contribute 30% of their monthly income to rent and utilities, or a minimum of US \$ 25 per month (whichever is higher), and the housing agency pays the balance directly to the landlord. In 2016, two-thirds of the Section 8 "Project-based Rental Assistance" module was occupied by families led by seniors or people with disabilities.

HUD has also provided project-based rental assistance to private owners of multi-family leases through several smaller programs, including a rental supplement plan, a rental assistance payment plan, and a Section 8 moderate rehabilitation plan. Over the years, many such plans have been phased out or merged, and although no new units have been created, HUD will continue to provide rental assistance for the remaining projects through existing contracts, even if it attempts to convert these properties to Section 8 through leases Assist in the presentation.

Public housing operating fund and capital fund

Public housing is affordable housing owned and operated by local public housing agencies.

More than 1 million families and 2.6 million residents live in public housing, most of them with extremely low incomes. Nearly 40% of households in public housing are families with children. (Yentel, D) The income of all residents must not exceed 80% of the median income of the region at the time of admission, and at least 40% of the residents of new public housing must be extremely low income each year, and the income should not exceed the higher. 30% of the middle income in the region or the federal poverty level. Residents usually pay 30% of their income to rent and utilities, and their welfare housing allowance or the minimum rent determined by the public housing agency is at most US \$ 50 (whichever is higher). In addition, residents can choose to pay fixed rent that does not change with income.

Public housing agencies obtain funding for public housing development in two ways: capital and working capital. The Public Housing Capital Fund aims to meet the capital needs of real estate. Eligible activities include unconventional maintenance, measures to improve the safety of residents, the development and reconfiguration of public housing units, the modernization of public housing attributes and manual labor, and Site improvement and demolition costs related to development projects. Working capital helps make up for the difference between residents 'rents and daily operating costs, including daily and preventive maintenance, employee salaries and insurance.

HUD allocates public housing funds to public housing agencies according to a formula, the

amount of which depends on congressional funding. For many years, the amount of funds provided through the operating fund has not reached the amount specified in the public housing operation formula. Therefore, the agency allocated the funds in proportion. Similarly, the amount applicable to public housing capital funds is insufficient to keep up with the cost of addressing the capital needs of public housing development. This deficit threatens the continued survival of public housing stock. It is estimated that in 2010 it was \$ 26 billion, and annual accrued income increased to 3.4 billion US dollars. In fiscal 2012, Congress approved the "Rental Assistance Demonstration (RAD)" program to help address these shortages. RAD authorizes public housing agencies to convert 225,000 units subsidized through public housing programs into Section 8 assistance, whether through project-based rental assistance or project-based vouchers. (Stout, D)

HOME Investment Partnerships Program (HOME)

The HOME program is a large amount of funds directly allocated by the federal government to large cities, towns or counties, and states (allocated to areas not directly funded). HOME funds can be used for a variety of housing-related activities, including home purchase and housing reconstruction assistance, land purchase or improvements to affordable rents or owned housing development, and tenant-based rent assistance. 60% of the funds are allocated to cities, towns, counties and consortia of local governments according to the formula, and the rest are allocated to the states. The states can directly provide funds for the project, or they can issue subsidies to local jurisdictions that are not eligible for direct allocation. HUD's distribution formula is based on a series of factors, including insufficient

local housing supply, poverty incidence, and financial distress.

In FY2016, HOME planned funding was US \$ 950 million. The plan is aimed at low-income families, and the plan rules require that 100% of the HOME funds be used to assist families with a median household income of 80% or less (in addition, lower income requirements apply to certain eligible activities). Housing owned, sponsored or developed by private non-profit community housing development organizations must account for at least 15% of the home distribution in participating jurisdictions. All HOME funds for affordable housing must match state or local resources or private donations, at least equal to 25 cents per dollar of HOME funds. The state will receive a formula distribution or a minimum grant of US \$ 3 million (whichever is greater), and local jurisdictions or consortia must be eligible to receive a formula distribution of at least US \$ 500,000 to directly receive funds from the HOME program. (Local Housing Solution)

National Housing Trust Fund

The National Housing Trust Fund is a lump-sum grant program managed by HUD, which aims to provide services to very low-income and very low-income families (including homeless families). Funds are allocated to designated national institutions (usually the Housing Finance Authority or the Housing Department). The formula used can explain the housing needs of these eligible income groups, and the incentives are mainly used to support the creation, repair, preservation, or for the lowest income households. Operate rental housing. Then, the national agency determines the projects to be funded. All auxiliary units must be affordable for at least 30 years.

The housing trust fund differs from most other HUD programs in that the funds are provided exclusively, not through congressional grants. Specifically, the housing trust fund comes from a 4.2 basis point assessment of Fannie Mae and Freddie Mac 's new businesses (the housing trust fund received 65% of the assessment, while the capital magnet fund accounted for 35%). In 2016, the first round of awards totaling US \$ 174 million was conducted; in 2017, the allocation was US \$ 219 million. (Local Housing Solution)

Rural Housing Service programs

The USDA Rural Housing Service provides single-family and multi-family housing programs to support various activities in rural areas. The single-family family plan helps low- and middle-income residents in rural cities, towns, and counties purchase and repair houses, while the multi-family plan provides related facilities and infrastructure for purchase and new construction, as well as supporting the following projects: rental assistance.

In short, in the US affordable housing system, the main source of funding comes from the private sector, and the government is more like a regulator and mentor. After 1980, LIHTC dominated the affordable housing policy in the United States. According to this policy, the government will not directly provide funds, but use tax credits to attract private participation in the construction of affordable housing. In other affordable housing plans other than LIHTC, the government is one of many investors. Government investment funds are either issued in the form of coupons to families who need to apply for affordable housing, or directly invested in housing construction. Affordable house. However, it is worth noting that in affordable housing projects, the government has not fully funded affordable

housing, and the private sector remains the main investor. In addition, government-invested funds will also be allocated to public housing agencies or local governments. This part of the funds is mainly used for the renovation and operation of affordable housing or private housing with the assistance of HUD. In other words, the US government's investment in affordable housing is continuous and will not end with the completion of the construction project.

Comparison between China and the US affordable housing models

	Chinese Model	US Model
Funding sources	government	market
Subject of subsidies	Supply side	Demand side
Ways of Financing	One-time payment	Continuous operation

Funding sources

First, in terms of funding sources, the main source of funding for China's affordable housing is government subsidies, while for the United States funds mostly come from the market under the direction of the government.

The main source of affordable housing funding in China is government financial subsidies. Taking 2011 as an example, the “Twelfth Five-Year” plan for the construction of affordable housing proposed that in 2011, 10 million new affordable housing units would be built, with a total funding demand of 1,492 billion yuan. The government's funding support mainly

included central financial subsidies of 103 billion yuan, net proceeds from land transfers of approximately 60 billion yuan, and provident fund appreciation gains of approximately 10 billion yuan, totaling 373 billion. And plus land supply costs, the government provided about 652 billion, accounting for 44% of the total funding required. Especially, local governments need to directly support local affordable housing construction. Data shows that from 2008 to 2010, Shenzhen's affordable housing construction fund accounted for 36.27%, 34.39%, and 21.28% of the government fiscal appropriation respectively. From the table below we can see another example. From 2011-2014, Chinese government totally arranged 1.7668 trillion fiscal funds for affordable housing, accounting for 41.02% of total fund of affordable housing; totally arranged land transfer income to by 273.7 billion, accounting for 6.36%. In addition, Chinese government input Housing Provident Fund extracted additional capital by 118.6 billion, accounting for 2.75% of the cumulative expenditure of affordable housing; gave out Housing Provident Fund for affordable housing projects by 77.58 billion, accounting for 1.8%. Expenditure in these three parts accounted for 51.93% of the total investment in affordable housing, let alone the medium and long-term enterprises bond issued by local government financing platforms, and national policy bank loans. Therefore, we can conclude that the government plays a role in the investment in affordable housing, and government expenditure mainly includes three parts: fiscal fund input, land transfer income expenditure, and provident fund expenditure. Social expenditures mainly include banks, real estate trusts, insurance, self-financing by enterprises, social donations, etc. Among them, bank loans are dominating. Public data shows that from 2011 to 2014, new housing security loans amounted to 919.6 billion, accounting for 21.35% of the total investment. Undoubtedly,

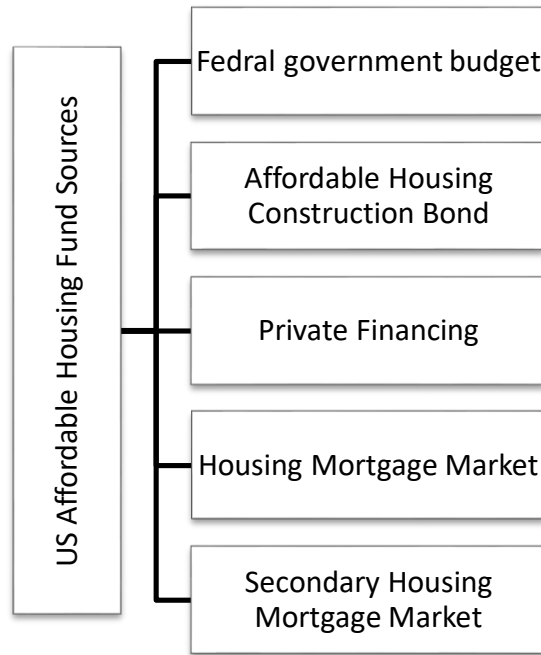
loans from financial institutions such as banks are second only to fiscal funds and have become the second largest source of affordable housing funds. However, since the Bank of China are state-owned, the government's policy guidance also plays an important guiding role in banks' loaning directions. The total appropriation from other funding sources is about 1151.4 billion yuan, accounting for 26.73%. However, many of these funding sources are still in the experimental stage and have not been promoted throughout the country.

	2011	2012	2013	2014	Total
Total Fund	1250	879.6	1037	1140.2	4306.8
Government Finance	382.1	444.6	443.3	496.8	1766.8
%	30.57	50.55	42.75	43.57	41.02
Bank Loans	175.1	179.6	153	411.9	919.6
%	14.01	20.42	14.75	36.13	21.35
Profit of land transfer	66.2	59.3	72.2	76	273.7
%	5.29	6.74	6.96	6.67	6.36
Housing Provident Fund	–	–	–	57.5	196.2
%	–	–	–	5.04	4.56
Others	–	–	–	98	1151.4
%	–	–	–	8.59	26.73

2011–2014 Affordable Housing Fund Sources in China (billion yuan)

On the other hand, the US government actively mobilizes social funds to participate in the financing of affordable housing. In the initial stage of the affordable housing system, funds for the construction of affordable housing in the United States were entirely dependent on federal government financial allocations. With the development of the economy and society, the demand for affordable housing is growing. In order to mobilize the enthusiasm of private financial investment in the field of affordable housing, the federal government has issued government-guaranteed housing construction bonds, which were used to finance institutional investors and individuals through the bond market. Affordable housing

construction bonds have national credit guarantees, and their credit rating is evaluated by rating agencies as second only to treasury bonds. Therefore, the investment risk is small, and investment returns are higher than ordinary deposits. Financial institutions, investment institutions, and individuals actively purchased the bonds for affordable housing construction. A large amount of funds has been raised, alleviating the federal government's funding shortage. The bond financing model is an effective means for the US federal government to expand funding for social housing construction. In addition to direct appropriations and financing in the bond market, the federal government has introduced a number of preferential policies to encourage developers to use their own funds to participate in the construction of affordable housing to reduce the federal government's financial pressure. For the housing construction agencies, the federal government provides government credit guarantees conditionally, encourages the development of the mortgage housing market, and uses the funds of the loan agencies to develop the housing financial market. In order to increase the liquidity of the affordable housing mortgage market and attract more investment in affordable housing, the federal government has promoted the securitization of residential mortgage loans, further expanding the secondary market for affordable housing mortgage loans, further expanding financing channels to overseas investors.



Funding Sources of US Affordable Housing

Subject of Subsidies

Second, in terms of the subject of the fund, China focuses on supply-side subsidies, and mainly distributed it to the construction of affordable housing. While the United States focuses on demand-side subsidies, mainly directly funds the residents.

From the perspective of the industrial chain, China's affordable housing policies pay more attention to the supply side. First, land for construction of affordable housing is planned and allocated by the government. Secondly, most of the planning and construction projects of affordable housing are also directly organized by the government. Finally, the profitability and pricing of affordable housing are also regulated by the government to ensure that affordable housing are affordable to low-income groups at low prices. On the demand side, however, China has not invested much. For example, affordable housing is distributed by the

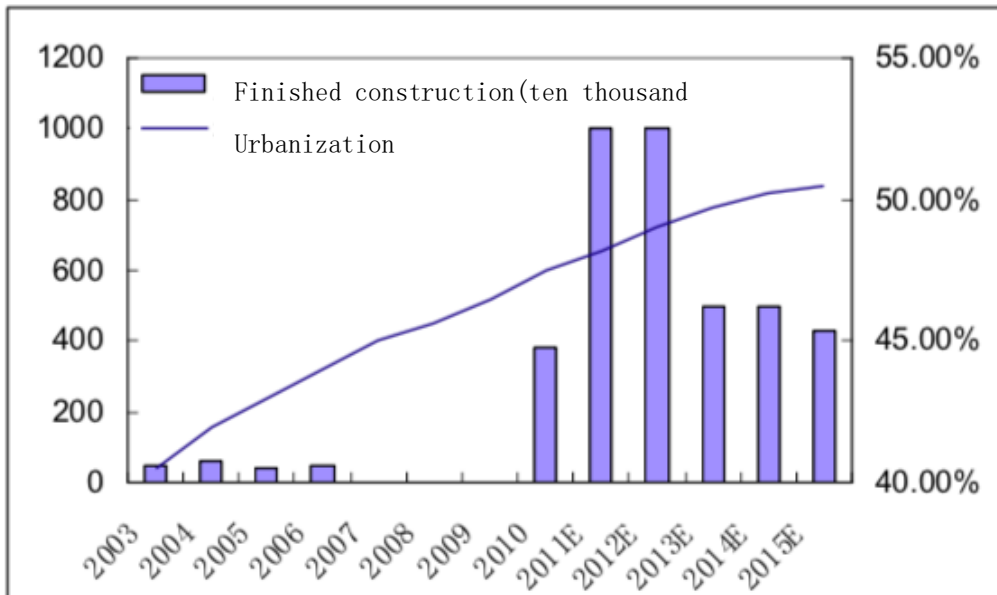
market after the government finish the construction. As long as the income of a family meets certain requirements, they can be eligible to buy affordable housing. This situation shows that China's subsidy for affordable housing is mainly on the supply side, and the government is committed to increasing the supply of affordable housing.

The US government has also gone through the stage of supply-side subsidies, but has now tend to provide housing subsidies mainly to residents. In the 1930s, the federal government implemented a low-rent housing program, and in the 1950s introduced urban renewal programs and urban redevelopment programs. These programs subsidized the construction and supply of social housing, with the aim of increasing the number of affordable housing. From the 1960s on, the federal government's subsidy projects began to shift to direct subsidies, mainly focusing on protecting the housing rights of low- and middle-income classes. After the 21st century, the US government's subsidies for housing have been extended to the middle- and upper- income classes, and the “American Dream Down Payment Plan” has been introduced to benefit the entire population, encouraging residents with higher income expectations to buy their own homes. The history of US funding system shows that during the period when the housing supply is relatively abundant, the U.S. government has focused on demand-side subsidies to protect the housing rights of residents and at the same time gave more allocation of housing to the market, thereby reducing government organizing and monitoring costs.

Ways of Financing

Third, with regard to the way of using the fund, China pays more attention to one-time capital investment, while the US government pays attention to continuous investment in housing operation and maintenance.

About China's affordable housing projects, the "Twelfth Five-Year" plan proposed that 36 million new affordable housing units were expected to be built during 2011 and 2015. The specific arrangement was to start construction of 10 million units in 2011, and built another 10 million units in 2012. From 2013 to 2015, a total of 16 million units were planned to be built. And the coverage of affordable housing should reach 20% at the end of the "Twelfth Five-Year". During that period, China indeed witnessed an unprecedented speed of building affordable housing. In addition to the signals on target setting, the main indicators currently measuring the progress of affordable housing are also the housing start rate and the completed area. In the five years from 2006 to 2010, the total area of residential buildings completed in China was 2.596 billion square meters. During the "Twelfth Five-Year Plan" period, the area of affordable housing construction in China accounted for 69.34% of the total area of residential buildings completed during the "Eleventh Five-year Plan" period.



2010–2015 Affordable Housing Construction in China

The United States has also experienced a period of vigorous construction of affordable housing. Before the 1960s, the housing security measures implemented in the United States were to build enough public housing. By 1959, there were 422,451 public housing units nationwide. The housing security policy implemented by the United States during this period has solved the housing lacks of low- and middle-income residents to a certain extent, but has also caused the isolation of the poor and ethnic minorities in the housing market, causing the emergence of a large number of slums and the exacerbation of segregation. After the 1970s, housing shortages were no longer the main challenge for American society, and low-income groups needed more help in paying rents. Accordingly, after the 1974 Housing Law was enacted and the rental certification plan and rental voucher plan formulated accordingly, rent subsidy policy played an important role. Such policies have improved greatly in terms of efficiency and fairness, and have also played a role in eliminating residential segregation. Affordable housing construction policy can increase

housing stock quickly in the short term, and alleviate the housing shortage problem of low-income urban residents, but in the long run, this type of housing security policy has a greater negative impact on the housing market. While the rent subsidy housing security policy has advantages in fairness and efficiency, and it is a policy orientation that is suitable for the current economic environment of the United States and the core issues of domestic housing.

Policy Reasons of Chinese and US Models

From the previous discussion, we can see that China and the United States have significant differences in the sources of funds, the subjects, and the ways of fund use. And there are policy reasons for these differences.

Reasons of Chinese Model

Land in China is publicly owned, and the government has greater control over society. If the government directly organizes the construction of affordable housing and coordinates the distribution of affordable housing, the cost is lower cost and efficiency is higher. China's affordable housing policy started late, and there is still insufficient supply of affordable housing. There is an urgent demand for more affordable housing, and supply-side subsidies were more in line with current demand.

Reasons of US model

The U.S. affordable housing policy shows completely different characteristics from China. And it is mainly affected by two policy factors. The first is that various parties and social

forces in the United States have influenced the direction of the U.S. affordable housing policy. The second is that the government's fiscal capacity restricts its ability to carry out affordable housing construction, allocation and maintenance all by itself. The US affordable housing policy has a long history, and from its development progress, we can see how the interests of all social parties and the government fiscal situation have led to the current policy situation. From the 1930s to the 1970s, the vulnerable groups affected by the economic crisis and the immigrants after the World War II faced a severe lack of housing.

(Bauman, J) Under the greater social demand, the construction of affordable housing in the United States gradually increased, and the main funding source was government support. In 1934, the US government established the Federal Housing Administration and Fannie Mae. The former was responsible for the construction and management of affordable housing in order to provide adequate supply of affordable housing; and the latter purchased and securitized housing mortgage loans in the primary market to ensure that buyers had enough loan funds available. This policy was maintained until the 1960s, during which it gradually caused widespread controversy. At that time, there were mainly two opinions in American society. The liberal alliance insisted that the government should lead the construction of affordable housing, while the conservative alliance represented by real estate developers believed that affordable housing constructed by government was "socialist" practices.

Disputes between the two sides made it difficult to adopt the existing affordable housing policy. On the other hand, after the World War II, the wave of suburban housing construction rose nationwide. As the middle and upper classes moved out of the city center, the government revenue gradually declined, and it was increasingly difficult to maintain the

affordable housing construction in the inner city all by the government. Therefore, in the 1949 Housing Law, the government made a certain degree of compromise. On the one hand, it emphasized that the federal government has an inescapable responsibility for housing construction. On the other hand, it canceled the "equivalent demolition" policy and encouraged developers' initiatives to transform slums. The 1954 Housing Act further relaxed restrictions on developers, and the market began to dominate the construction of affordable housing. In the 1960s, human rights movements, African American movements and feminism were intertwined, and the city's social composition became more diverse. The social parties put forward corresponding requirements for housing construction, and it is difficult for the government to maintain and undertake all the work. At the same time, after a large number of affordable housing constructions in the past few decades, with the disrepair of some affordable housing and the government corruption, the national fiscal deficit was severe. Therefore, in the 1965 and 1968 Housing and Urban Development Laws, the government began to reduce the number of directly constructed affordable housing, and replaced it with the purchase and lease of some private housing, transforming it into affordable housing. (Li, W) After the 1970s, most cities in the United States experienced an unprecedented financial crisis. As a result, the government rarely participated directly in investment, and the main financing sources for affordable housing construction was gradually from the public sector to private capital. The government increased the enthusiasm of private developers or non-profit institutions to participate in the construction and supply of public housing, turning itself from direct investor to manager. Since the

implementation of LIHTC in 1986, private capital has become the main source of funding for affordable housing.

From the history of affordable housing financing in the United States, it can be seen that the change in affordable housing financing policy is closely related to public fiscal pressure and the different interests of various political parties, and classes. The existing affordable housing financing policy has eased the government's financial pressure, and LIHTC has pleased both the Republicans because it is a tax reduction policy, and the Democratic because it is a welfare plan.

Comparison of China and US model

The sale of commercial housing in China began in 1978, but it wasn't until the cancellation of welfare housing in 1998 that it began to develop rapidly. Prior to 1998, China's housing mainly used welfare housing, and each family could be allocated to housing after meeting the standard. Moreover, before 1984, China's population movement was restricted, and it was impossible to go from one city to another without a license. Therefore, before 1984, urbanization was almost stagnant in China, so at that time, there was no problem of insufficient housing supply in Chinese cities. With the rise of commercial housing sales in China, large-scale population movements began, and the gap between the rich and the poor has widened rapidly, cities in China have experienced housing supply problems. The population coming from the countryside to the city lacks shelter, and the housing environment of some residents in the city itself has gradually deteriorated, and the housing environment has become very bad. The rapid emergence of large-scale housing demand in a

short period of time has led to the government's primary goal of rapidly increasing the supply of affordable housing in a short period of time in China's affordable housing policy. The housing in the United States has been a market-led mechanism for a long time, and there are no restrictions on population movements. Therefore, with the rapid flow of population into large cities in the early 20th century, the United States has begun the construction of affordable housing. Since the establishment of FHA in 1934 to the present, affordable housing in the United States has been developed for more than 80 years, and the supply is relatively abundant. Therefore, for the US government, with the guarantee of the government's finances, it is their focus to introduce private capital to sustainably supply affordable housing.

In general, due to the different development stages of the political systems and affordable housing situations of China and the US, the sources of affordable housing funds in the two countries are significantly different. However, the affordable housing supply policies and financing methods that China and the United States are pursuing are adapted to their respective economic and social developments.

Advantage and Disadvantage of the Two Models

Advantage and disadvantage of Chinese Model

The biggest advantage of Chinese affordable housing model is the high efficiency in the construction of affordable housing. From 2011 to the end of 2014, a total of 32.3 million units of affordable housing projects in cities and towns across the country were started, and

20.88 million units were basically completed. In 2015, 7.4 million new residential housing projects were started, and basically 4.8 million were completed. By 2015, the construction has overfulfilled the 12th Five-Year Plan.

	Target Construction	Start construction	Finish construction	Details of programs (start construction)		
				Affordable Commercial Housing	Public rental Housing	Shantytowns transformation
2011	1000	1043	432	200	400	400
2012	800	768	590	160	400	240
2013	600	673	589	120	300	180
2014	600	740	511	120	350	140
2015	600	740	480	120	350	120
Total	3600	3964	2602	720	1800	1080

2011–2015 Chinese Affordable Housing Target and realization (10 thousand units)

The biggest challenge for China affordable housing is the insufficient fund. At present, China still mainly depends on government financial input for funding sources of affordable housing construction. The proportion of funds raised through other channels is very limited. Diversified financing channels such as insurance and funds have not been fully utilized, and the level of market-oriented participation is very low.

According to the data published by the Ministry of Finance, the income from land transfer in 2010 was 2910.994 billion yuan, and the expenditure for the year was 2697.579 billion yuan, which included 1339.56 billion yuan in land acquisition compensation and demolition compensation, 46.362 billion yuan for low-rent housing security, and 753.167 billion yuan for urban construction. In fact, low-rent housing security expenditure accounted for only

1.6% of the total land transfer income in 2010. Local governments are not enthusiastic about investing in affordable housing funds, mainly because the interests of the state and local governments are difficult to coordinate. Affordable housing construction plans are guided by the Ministry of Construction, and in order to improve the housing supply system, the central government repeatedly requests that all regions increase the construction and investment of affordable housing. While local governments are supposed to arrange construction projects and provide the most part of financial support, the lands for the construction of affordable housing are provided free of charge and the affordable housing are allocated to low-income families without profits. So local governments who are under great pressure of economic development are less motivated to promote affordable housing. Local governments in China, especially those in non-coastal cities, land transfer fees are one of their main sources of finance. Since the reform of the tax-sharing system in 1994, the income from land transfers has been basically assigned to local governments, and gradually evolved into the local "second finance" in practice. Land transfer fees account for at least 50% of the local fiscal revenue. In some western cities, this proportion has even reached more than 80%. In China's urban economic development, direct investment by the government occupies a major position. Therefore, if you want to develop the urban economy, the land transfer fee is very important. And in China, the main indicator related to the promotion of officials is GDP rather than the number of affordable housing, so local officials are more inclined to use this money to develop urban economies.

Advantage and disadvantage of US Model

The main advantage of the American affordable housing financing policy is that through these policies, the government has changed from the main funder of the past to a supervisor and guide, greatly reducing the financial burden. In face of increasingly high construction and labor costs in the United States, the supply of affordable housing will not meet the demand if heavily counting on government investment, and may cause an imbalance in the supply of affordable housing and ordinary housing. Through the affordable housing financing policies, the US government has successfully attracted the entry of private capital, realized diversified financing models and development entities, and reduced the burden on taxpayers. What's more, it also guarantees a relatively stable supply of affordable housing (even the gap between supply and demand still exists).

LIHTC dominates the US's affordable housing policy, and it's symbolic when it comes to the challenges the US faces in affordable housing. The biggest drawback of this policy is the high cost of supervision of the government. According to a research, LIHTC costs 19% to 44% more than housing voucher subsidy per unit. The Congressional Budget Office also claims that "the government can provide tenants with equal value assistance through housing vouchers at a small fraction of the cost of credit." The main reason for the high supervision cost is that the developers of affordable housing in the United States are private entities, and what they care most is getting more return on capital. And the government cannot supervise all aspects of LIHTC and other subsidy policies, so some developers abuse the policy by exaggerating construction costs in order to obtain more tax relief or subsidies. For example, the National Public Radio (NPR) revealed that a Miami-based company called Biscayne Housing stole 34 million dollars from 14 LIHTC projects by submitting false

construction cost data to the state. Another Miami company stole 4 million dollars from four LIHTC projects in the same way. Similarly, an Oklahoma housing company was ruled to use "few million dollar fake building invoices to inflate the federal low-income housing tax credit." (Britschgi, C) In addition, some government officials collude with developers to gain private benefits through these projects, where corruption often breeds. For example, in 2010, LIHTC became the center of the largest public corruption case in Dallas history. The mayor and city planning commissioner deprived developers of bribes in return for approving housing tax credits and zoning changes. Fourteen people have been convicted of bribery, extortion and related crimes, including developers, state representatives, mayoral position in Dallas (senior city councilor), and city planning commissioner. Mayor Don Hill was sentenced to 18 years in prison, while city planning commissioner D'Angelo Lee was sentenced to 14 years. (Merten, S) In addition to subjective malicious crimes, the LIHTC policy does have operational difficulties, causing the government to spend additional regulatory costs. Since LIHTC often sets a strict ceiling on the amount of rents, it is difficult for developers to complete operations by increasing rents, so subsequent repairs and upgrades of this type of housing are difficult. Therefore, these affordable housing policies in the United States face problems such as inefficiency, corruption, and subsequent maintenance difficulties. As a result, the government must pay high monitoring costs during the implementation of the policies.

Conclusion:

This paper studies the financing policies of affordable housing in China and the United States, compares the different financing models of affordable housing in China and US, explores the policy reasons for the two different housing financing models, and analyzes their advantages and disadvantages.

In general, the financing model of affordable housing in China is government-leading, and the financing of affordable housing in the United States is dominated by the market. In China, affordable housing mainly includes affordable commercial housing, low-rent housing, shantytown renovation, and public rental housing. And the main sources of funding are government finance, housing provident funds, bank loans, and net proceeds from land transfers. That is to say, direct government investment is the main source of funding for affordable housing in China, and the market capital participation is currently very low due to the inability of developers to make profit from it. The US affordable housing policy includes many programs, with LIHTC (low-income housing tax credit) as the main project. Real estate developers and the capital market are the main sources of funding for U.S. affordable housing, while the government is mainly responsible for providing policy incentives and operation and housing maintenance. From the introduction above, it can be concluded that there are 3 main differences between Chinese and American affordable housing financing models. First, in terms of funding sources, the main source of funding for China's affordable housing is government subsidies, while for the United States funds mostly come from the market under the direction of the government. Second, in terms of the subject of the fund,

China focuses on supply-side subsidies, and mainly distributed it to the construction of affordable housing. While the United States focuses on demand-side subsidies, mainly directly funds the residents. Third, with regard to the way of using the fund, China pays more attention to one-time capital investment, while the US government pays attention to continuous investment in housing operation and maintenance.

Two main reasons can account for these differences in affordable housing financing policies. First of all, due to a short history of the development of affordable housing in China, the current main problem is the short supply. Therefore, a large amount of housing need to be provided on a large scale and in a quick speed. On the other hand, the affordable housing in the United States has a long development history, and the biggest challenge is not to increase housing supply but to efficiently distribute such public goods. Demand-side subsidies are more efficient in this stage, and relying on the market for distribution saves political organization costs. Second, lands are public owned in China, and the ability of Chinese government to mobilize social resources is relatively stronger. Therefore, the government can organize all society to participate in affordable housing construction. On the other hand, under the American democracy, society has more freedom over political power, and financial condition of the government is more sensitive. Therefore, American affordable housing policy is more affected by social forces, and the government is unable to undertake the entire project.

Although China and the United States have very different affordable housing policies, both models have advantages and disadvantages. China government-leading model has the

advantage of high efficiency in the construction of affordable housing, because the government can mobilize all the necessary resources and promote the whole society in an organized way. The disadvantage lies in the fact that society has not been encouraged to participate in financing, resulting in limited funds for affordable housing. With the development of urbanization, the funding shortage for affordable housing in China will grow larger and larger. In terms of the US, the advantage of its market-leading model is that the participation of social funds greatly reduces the financial burden of government, and at the same time also guarantees sufficient supply of affordable housing. The disadvantage is that real estate developers have a lot of room for rent-seeking, and the government needs to pay high monitoring costs in order to prevent corruption and maintain houses.

After comparing and commenting on the two countries' affordable housing financing policies, the paper tries to discuss some suggestions for their policy optimization. For China, the problem of funding constraints should be put great emphasis on. On the one hand, the financial burdens of local governments should be relieved through the policy design. It's important to mobilize the enthusiasm of local governments to fund and build affordable housing. On the other hand, the government should design policy to mobilize market forces to finance, construct, and allocate affordable housing, with itself acting as a leader and supervisor, which can effectively reduce the burden on the government. For the United States, affordable housing policies have been relatively well-developed, but there are still problems such as rent-seeking, government corruption, and extremely poor groups unable to afford rents. These problems may be the next direction for improving affordable housing policies for US.

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