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China's Housing Market: A Policy Assessment and Outlook for Wood Consumption

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Juan Luo

EXECUTIVE SUMMARY

Prior to the 1980's, the government provided its citizens with public housing. As a consequence, there was a lack of investment in this sector. State-Owned Enterprises (SOEs) were responsible for providing its workers with an apartment or other housing unit. SOEs allocated apartments under a series of rigid administrative regulations that resulted in a rental market with artificially low rents, no home ownership and average living space per capita that was less then 4 m^2. These conditions led the Chinese government to consider housing reforms by the end of the decade.

During the 1980's, along with other aspects of their economic system, China started to reform its urban housing sector. The housing reforms increased investment in the private (also know as *commercial*) and public (also known as *non-commercial*) housing sectors. As a result of these reforms, there are roughly 1 million annual housing starts today. The average living space is 8-10 m^2, with a goal of 12m^2 by the year 2010. So far, the housing reforms are focused mainly in the cities of Beijing, Tianjin, Shanghai and those in Guangdong Province.

The introduction of reforms has produced a dual-housing system in China. One segment of this dual system is the SOEs, which continue to provide the majority of housing to its employees. The other segment is the private housing sector, which operates in a more conventional, open housing market. Eventually China hopes to eliminate this dual-housing system. To do so additional market mechanisms must be undertaken to further develop an open, competitive housing market. These mechanisms involve reforms to price setting mechanisms that set current home sale prices and government-set rents.

An important consideration will be a households' income in establishing market price setting mechanisms. The recent reforms have led to two problems. One is that the price on the 'open housing market' is too high to be affordable by average urban residents. As a result there is currently an overstock of newly built housing that was constructed for affluent households. The other problem is that government-set rents can't be raised to market levels without a significant wage adjustment. Thus wage reform will be just as important for housing reform to be successful.

Housing reforms will need to be monitored along with other economic reforms in China. SOEs still control much of the urban housing stock—i.e. the majority of housing is in the public, non-commercial housing sector. The reliance of employees on their work units for their housing needs has not fundamentally changed under the reforms undertaken to date. Successful housing reforms will depend on the reform of SOEs. Wage and housing reforms, and controlling unemployment are a part of much larger and more complicated SOEs reforms. In large part, SOEs reforms will be key for housing reforms to be successful.

It is estimated that housing reforms generated $80 billion in new household-related spending in 1998 (9% of GDP) and $150 billion in 1999. However, housing reforms are major undertakings, which will gradually, rather than immediately, bring opportunities for foreign firms. Continued success in generating economic activity will promote further reforms.

China's prediction of 10% annual growth in domestic demand over the next ten years may be over-optimistic, but disposable income has increased by an average of 6% in urban areas over the last five years, and 5.4% in rural areas. A continued growth in income is likely to have a substantial effect on the domestic demand for wood products, hence the outlook for a growing market in China for wood products is optimistic.

Rising incomes among China's emerging middle class, many of whom still live in accommodations provided by their employer, has also raised spending levels on furniture and interior wood products. Demand will initially depend on affluent families that can afford a home purchase and separation from SOEs housing subsidies. As more middle class families become affluent, they also will likely renovate

existing units or move into new apartments. Those dependent on heavily subsidized state housing are not likely to contribute much to any potential increase in wood products demand, however. Hence the transition to a western-style housing market is likely to be slow and intimately coupled with wage reforms and the transformation of SOEs to competitive industries. As this happens, over the next several years, demand will grow for higher quality products such as flooring, molding, windows, doors, cabinets, paneling, wall units and furniture. It is expected that consumption of these products will develop into a significant market following these transitions.

Over the last decade and more, China's furniture industry has attained unprecedented development; its output during the period 1986-1997 had developed from 120 million pieces to 476 million pieces, with an average annual increase of 39.8%. Total output value of the industry as of 1998 reached 78 billion RMB and then in 1999 with growth rate to an estimation of 12%. Timber is an important raw material for the furniture industry. A large furniture sector will depend more heavily on imports of timber.

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INTRODUCTION

China's economy has begun a process of radical change with economic reforms that were set in motion in 1978. Today, this change continues with policies that aim to privatize agriculture, allow the private sector to produce over two-thirds of industrial output and reform of state-owned enterprises (SOEs). China plans to develop the legal, administrative and regulatory framework that will support a market economy. One must bear in mind however that the transition is likely to take time; at least a decade and probably longer to complete. Until then, China will be a challenging and sometimes complex environment in which to do business, for both local and foreign enterprises.

There exist evidence that China's is successfully opening its economy to foreigners through policy changes. For example, the ratio of trade to GNP has grown from 10% in 1978 to 36% in 1996 and foreign investments have been significant. However, transforming the SOEs is a key domestic policy that will be crucial to housing market reforms—the topic of this paper. The transformation of SOEs is one policy area to watch since there is the potential for significant impacts on urban employment and economic stability. And, China has yet to tackle this important issue.

China has begun to modify its housing sector, nevertheless. This paper presents a description of housing sector policies and how these policies may affect wood product demand in China. It describes current policies so as to determine which direction the housing market may take in the near future and its implication for wood product consumption. The working paper discusses housing from the perspective of recent reforms announced by the government. The purpose is to provide an overview of current housing sector policies describing the problems associated with the housing sector and how the government is resolving them. Often, the study discusses reforms using economic terminology. Market reforms imply promoting market mechanisms to allocate resources more effectively than China's past central planning system. The discussion framework used in the paper first describes the problems associated with the current market, and then examines how policies have addressed these problems. The paper reviews macro-economic measures such as GDP, construction output, real estate revenue, and investment in real estate development to describe the development of the market and its potential size in the near future. In terms of housing demand, personal income is a key independent variable, and there exists many related policies to address this problem. Several examples are affordable housing policies, housing rent reforms and home financing loans. The cost, current inventory of housing and other variables will also affect future home spending in terms of housing supply.

The sections on housing reforms and the macro economy are followed by a presentation on housing reform's implication for wood use under market reforms. The working paper mentions the opportunities that exist for increasing wood use, either by promoting construction techniques that can lower home building costs while meeting the demand for housing, or through an increase in the use of value-added wood products in home interior decoration. As the government attempts to promote private participation in the supply of housing, the paper considers how these supply factors may contribute to an increased use of wood based products. Currently, the housing sector in China consumes only a small amount of wood. Most home building activities employ little wood during construction and in the structure itself due to cultural and historical preferences. Much of wood use in home construction is in the rural sector. In urban areas, home furnishing and interior decoration are major end uses for wood products in China. However, the change in ownership of dwellings and the need to meet the demands of a growing population will have a large impact on the type and form of wood products consumed by the housing sector and where these products will come from.

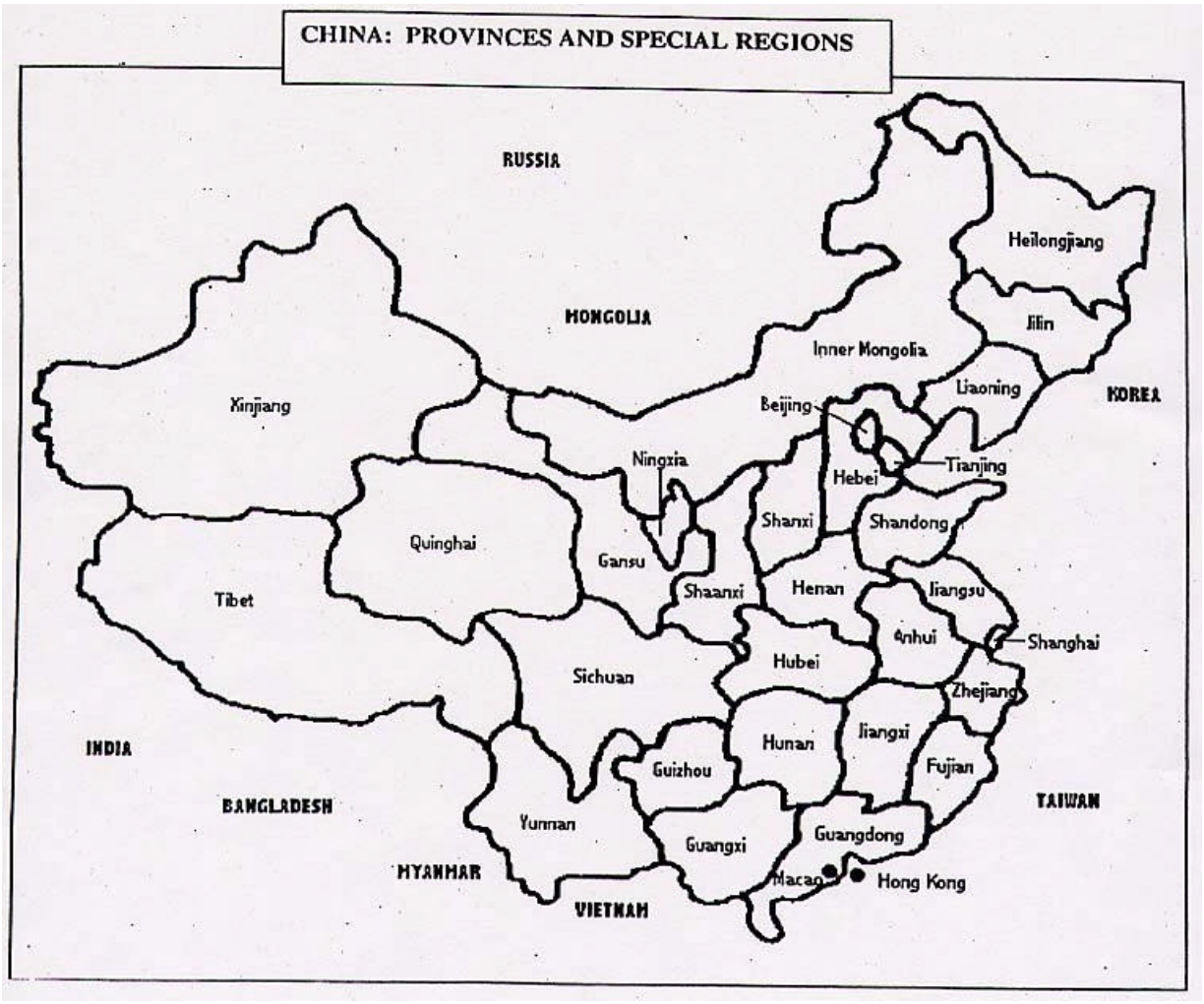

Figure 1. Map of China and Provinces

Source: China Forestry and Wood Products Industry, Wood Forestry Center.

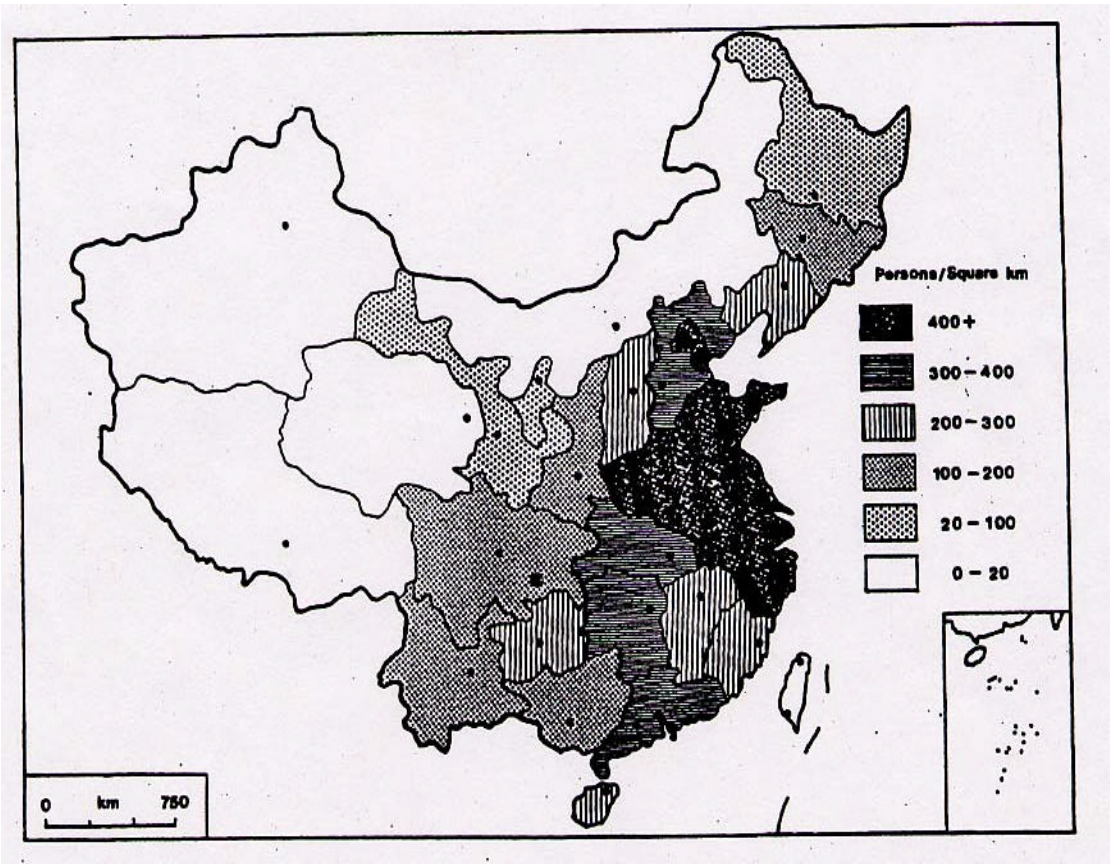

Figure 2. Map of Population Density in Chinese Provinces

Source: Housing Policy and Practice in China.

A HISTORY OF RECENT HOUSING REFORM POLICIES

THE STRUCTURE OF CHINA'S GOVERNMENT

Reforms are a political process undertaken within a political structure. This section briefly introduces the political structure in China. The State Council is the executive organ of the National People's Congress (NPC). The State Council governs China. It is responsible and accountable to the NPC, and has power to make administrative measures, issue directives, and formulate laws and decrees. It leads the work of the central administration at various levels throughout the country. The National People's Congress and its Standing Committee are empowered to exercise legislative power. The People's Court is the judicial organ of the State, and the judiciary is able to exercise independent power in accordance with law.

The NPC is composed of representatives selected from provinces, autonomous regions and municipalities directly under the central government. New policies are submitted by these representatives and then discussed by the NPC. After discussion, a policy is decided by ballot. If over 2/3 of the members vote for a drafted policy, then this policy is formulated as a formal policy and the State Council will begin to execute it. Under the State Council, there are different levels of local governments such as provincial, county and city government. After a new policy is passed by the NPC and executed by the State Council, it will go from provincial to county to city. All levels of local governments are involved with almost all functions of the new policy. Local governments are composed of different departments in charge of different functions. The division between different levels of government—central, provincial, county, and city—is not function-oriented, but involves the division of responsibility within each function. Every level of government has similar responsibilities: to supervise the lower level of a department and run the departmental function at its own level.

The above description of China's governance portrays the system as a series of vertical links. Flows of information and instruction, while may initiate from the bottom initially are quickly transformed and implemented from top to bottom. Some of the policies describe in the paper originated locally and have been adopted nationally.

The Housing and Real Estate Management Act was the first important housing policy acted by the State Council. The Ministry of Construction started to draft a Housing and Real Estate Management Act in 1988. It was not finalized for several years because of the political uncertainties around 1989. In 1992, a new drafting group was formed to continue the work. In 1994, this act was submitted to the NPC and passed by the NPC on July 5, 1994. The Housing and Real Estate Management Act came into force on January 1, 1995. This act applies to the urban planning control areas of officially defined cities and towns. It doesn't apply to other areas such as rural villages. The act regulated four major activities of housing and real estate development in these geographical areas. First, the act regulates acquisition of land use rights for housing and other real estate development. Second, the act controls engagement in housing and other real estate development. Third, it standardizes rents, mortgages and other transfers of housing and real estate. Fourth, it directs management of housing and real estate. The act organized previous reforms into a single measure.

THE MOVEMENT FROM CENTRAL PLANNED HOUSING TO PRIVATE SECTOR HOUSING INVESTMENTS

An objective of the government in early housing policy development was to stimulate a private sector to initiate housing investments. Under the central planning system, an urban household's living space is very small. Work units allocate an apartment or home to their employees based on their marital status, age and work assignment. Since housing units are attached to work units and, owned by work units, the allocation of housing is linked to employment status. Employees also receive a low wage because they were provided

with housing. In addition, employees are also required to pay a rent, albeit a low one, less then 1% of their wage, for the house they live in.

From the perspective of stimulating investments in housing, several problems exist with this centrally plan system of housing. For one, the government favors investment in manufacturing activities rather than services, such as housing. As a result, there has been insufficient spending on housing in the past. In the planned economy, housing project funds were provided solely by the central government. Any new housing investment was limited by other investment activities in other sectors with higher priority. The free distribution of public sector housing and the low rent system provided no incentives for the private sector to participate in the housing sector. As a result, the current housing stock is old and a housing shortage exists. The rapid growth in urban population and rural to urban migration has put greater pressure on the government to spend more on housing. The problem is made worse because the centrally planned system promotes low rents and poor housing maintenance. Very low rents were identified as the main cause of other housing problems, including shortages of housing and the lack of investment, the poor quality of new housing and poor management, few repairs and lack of maintenance. In most cities the monthly rent of a typical home cost less than a pack of expensive cigarettes.

The preceding introduction has set the stage for a discussion of housing reforms. In the section that follows housing reform policies are introduced. The section includes a discussion of the major policies enacted by the Chinese over the past fifteen years or so. They include the transfer of property-use rights, housing management policy, rent reforms and housing insurance. Section 3 then discusses the economic contribution of housing and its reform policies. Data on investment in the real estate sector, the cost and price of private sector homes, income distribution are presented and discussed. The opportunities for housing reforms in the rural sector and its implication for wood products demand is also presented in this section. A final section discusses wood product consumption and potential uses. The section presents information on trends in wood use and where opportunities for increased wood products sales in China might exist.

HOUSING REFORM POLICIES

One can say that the main purpose of housing reforms is to transform the current planning system to a housing market with the private sector providing new construction and households owning and maintaining their apartments or homes. This is the idealized housing market in economies such as the US. China has taken a few actions to initiate this transition. In 1987, the user right of the first plot of land was transferred from government to real estate developers. The action led to a narrowly defined, property-use right. A more recently enacted housing policy allows people of different income to afford their own houses. Mortgage loans are now available to permit urban households to purchase a home. As mentioned above, the Housing Real Estate Management Act was the first formal act in China to give recognition to a real estate market for private housing. The act sparked the real estate market by eliminating taxes, stimulating new production and allowing ownership to transfer from SOEs to individuals. This last objective should reduce the government's burden for maintaining the public housing inventory. It should also detach a employee's housing benefit from the work unit and increase their "capital" though home ownership and equity.

Private Real Estate Development: the First Step

Before the 1980's, under China's central planning system, there was almost no privately owned real estate. Urban housing was provided and allocated through the socialist system. Apartment complexes and homes were almost completely state-owned. Furthermore, the central and local governments were the sole owners of all land in the country and the sole providers of housing. The socialist government eliminated any private construction activity and ownership. The private rental sector was systematically brought under the control of the state. Meanwhile, China paid attention to manufacturing sector investments, but the investment in housing construction was limited. Since the state was the sole investor for urban housing

through work units such as SOEs, it led to limited activity in housing construction and a serious housing shortage and poor management and maintenance of existing housing.

In 1978, the government began to encourage work units and individuals to invest in housing construction. During the 1980's, for housing investments to take place, state and local government work units and individuals were required to bear a reasonable share of construction costs. Some large-scale housing projects, which were separated from work units, were constructed. Towards the end of the 1980s, more central government funds were channeled to individuals and the financial rewards envisioned with newly constructed housing began to shift from the employers to the individuals through economic reforms. Since the initial 1987 granting of control of a plot of land in Shenzhen (China's first Special Economic Zone) from government to a real-estate developer's control, the private real estate sector developed quickly. Since then, different real estate developers including state, local, collective, individual, and foreigner developers have participated in the real estate sector.

In the Eighth Five-year plan, the government expanded the target for spending on housing in urban areas. The planned floor space completion target for the five-year period was achieved within the first four years. Private real estate developers, and not SOEs undertook most of the new construction. A primitive housing and real estate market was emerging, but with problems. Nevertheless there were improvements of housing conditions. However, the construction costs for new housing were high, which results in unreasonably high prices. Hence a huge amount of new housing lay empty in many cities, with no one able to buy the homes. These problems led the government to adjust their housing policy.

Establishing an Independent Housing Management System

Work unit-owned housing, i.e. 'self-managed' public housing, was the creation of the central planned government. Under this planned system, the work unit was composed of a community. It supplied health insurance, a kindergarten, schools, transportation and other facilities. Housing was a necessary item of public goods supplied by work units for their employees. However, the work units did not have the right to make decisions over building their own homes due to the distribution pattern of revenues. These enterprises had to hand over its revenues to the central government, where, according to the national plan, it was redistributed. For the SOEs, there were no independent sources of revenues to construct new housing. The only source was money that came from the central government budget. When a new housing project was constructed, the work unit owned it and had the right to distribute it accordingly. Work units were required to maintain the housing units, however they were not adequately planned and low rents were charged to tenants. Therefore, housing managed and owned by work units became a burden, particularly since revenues were directed to the central government rather than maintenance of housing units. One important aspect of the current housing reform is to transfer work unit-owned housing to individuals so that work units no longer need to provide housing to their employees. The goal is for most individuals to take ownership and maintain their units.

It is impossible to reform the system of housing construction and distribution without changing the old housing management system. Under a market economy and the combination of the present circumstances in China, the current housing management system will be remodeled so that housing management is separated from work units and various levels of governments. The idea is to establish an independent real estate sector. SOEs would still pay taxes to the government. However, the government now makes a financial allocation to institutions that are profitable work units. Employees working in these enterprises or institutions would get a reasonable percentage of money to purchase a house or to pay for rent at market value in addition to their wages.

Because of different administrative institutions set up in different cities and provinces, the housing management companies and housing development companies may be two entities. The former manages existing housing and maintains them; the latter builds new housing and sells them. Both are still tied to the Central government. The land management and operations company represents the municipal government

that leases lands and charges fees for the right to use lands. It then turns over the revenue to the central government. Under these management reforms, urban residents can now buy or rent their home rather than depend on their employer for a home. In addition, to stimulate this semi-private sector, the housing companies, which sell homes in the market, can make profits from their business operations.

The above description does not discuss other reforms needs. Establishing a new housing management system will need wage reforms and other relevant adjustments in the national economy. Otherwise the market clearing home price for sale and rent that would cover construction and maintenance costs will likely be too high for most households. This point is discussed in greater detail in Section 3.

Housing Rent Reforms

Under the central planning system, housing was a public good provided by the government. All urban citizens need only pay a nominal rent to qualify for housing. The rent was token, equivalent of the price of a pack of cigarettes. The token rent resulted in a financial burden for the central government when maintenance and new housing was required. Rents were not sufficient to cover maintenance costs, which led to a deterioration of many public-owned housing. As a result, the state began to increase housing rent under the housing rent reform policy. Housing rent reforms increased rents from 1 RMB/m^2 to 15% of household incomes by 2000. After 2000, rents will continue to increase to maintain a savings account for each household to be used for housing needs.

In addition to providing revenues for SOEs to maintain housing, another objective of the rent reform was to increase the sale of housing units. Before housing reforms, urban citizens preferred the low cost of government-subsidized housing. Now, higher rents create conditions that reduce the price differential between home ownership and home rental. Some of the larger SOEs are channeling housing subsidies into formal salaries with the expectation that urban household incomes and their purchasing power will increase and so will home purchases. As rents increase to around 15% of their household income, more people are expected to buy their own homes.

Compulsory Savings for Housing

Under the central planning system, the State Council decided the level of investments to be made in the housing sector and then allocated it to SOEs. When making the allocation decision, the State Council first considered investments for productive activities such as manufacturing. As a result, there were insufficient investments in housing and this led to a serious housing shortage. Earned wages by employees were insufficient to meet the cost of housing since deductions were made for the housing that was provided by the SOE. While this deduction was made to provide housing, in practice, the state didn't always allocate the deduction to housing, but rather for purposes other than housing. With the low housing investments and a rapidly increasing urban population a serious housing shortage problem developed. Early housing reforms stimulated high cost housing to be constructed, but this did nothing to alleviate the housing shortage felt by middle- and low-income households.

The Compulsory Savings Plan was initiated in Yantai City in 1987 and formalized in Shanghai in the early 1990's, becoming a national policy that is still in effect today. The plan requires all urban employees to save part of their salary (5% in 1994) for housing. The employer (whether public or private) is required to contribute a similar portion to the employee's account each month. The savings are held by a bank on behalf of each employee and managed with their employer collectively. The bank is only able to lend the money for housing purposes. The account holder may withdraw the money from the bank during his/her employment only for approved home purchases and payments for major home repairs. The employer makes evaluations and approvals of withdrawals. If the account holder doesn't withdraw the savings for the purchase of a house or other related uses before he retires, the account holder has to withdraw the money after they retire.

The purpose of the policy is to create a housing development fund and gradually increase the employee's ability to purchase a house. The government's intent is to channel a portion of rising incomes into the housing sector from the compulsory savings.

Once Shanghai introduced compulsory home savings, 104 major cities (53% out of 194) had followed by the end of 1993, and 119 cities (61%) had established housing fund management centers. By August 1993, Shanghai had accumulated 1.8 billion RMB home savings, enough to build two million m^2 of housing. (*People's Daily*, overseas edition, 16 December 1993).

Housing Reforms for Lower Income Households

While urban household incomes have increased greatly since the initiation of market reforms, market reforms also have brought income distribution problems among the urban population. Deng Xiaoping's reform idea to "let a small part of people become rich at first and then those people will allow other people to become rich later on" led to the large income difference among the urban population and adjustments to early housing reforms. Housing needs under central planning was based mainly on the status of the household head in work units or in the community. The assessment didn't have a direct link with the tenant's income or housing situation and gave the greatest rights to those with the highest status. Unequal distribution and corruption in the allocation of housing were serious complaints from the general public. During the initial years, the rapid commercialization of housing produced an imbalance in housing availability. Major concerns of housing reformers in China since 1993 include high prices for houses sold in the private market, investment in mainly high-end apartments, and continued housing shortage problems in cities. The multi-layered housing system was designed to fix the problem associated with income disparity. The first layer of this system is designed for the high-income households, who would purchase a house at a market price. The second layer of this system is designed for middle-income households by providing affordable housing. The third layer of this system is designed to assist low-income families, who will receive dwellings at government-set rent.

The Anju Project is an example that has been designed to work with the problem of high home prices and still provide housing to various segments of the Chinese population. In Guangdong Province, many cities began to address overcrowding and other housing problems. These activities developed into special policies in housing under the slogan of Peaceful Living (Anju Gongcheng) or Affordable Housing projects. Beijing began to tackle the housing problems of middle- and low-income households in 1993.

In 1995, the State Council issued the Implementation Plan of the State Anju Projects. The aim was to speed up housing construction and their sales. The basic means of finance was government-assisted work unit support but with individuals bearing the main cost of purchase. The target groups were low-middle-income urban households (traditional public sector employees). The State Council enlarged the original house-building plan by an additional 150 million m^2 in five years. Of this 12.5 million m^2 was to be built in 1995 with an estimated 12.5 billion RMB. The investment and scale of Anju Projects in subsequent years was to be decided annually. The initial capital investment required for Anju Projects was shared by the central government and the cities approved to carry out such projects. The investment was to be recovered through the sale of the completed houses.

The State Plan requires each city to plan Anju Projects according to the city's overall plans, to reduce construction costs for these through the free allocation of land, subsidized district and neighborhood infrastructure costs, and a tendering or bidding process that included several developers. The sale price covers the costs of land acquisition--survey, design and land preparation—construction, provision of neighborhood facilities, a 1-3% management fee, loan interest and taxes. The sale of Anju housing will give priority to families currently in dilapidated housing. Retired persons and teachers in school are also given priority. Similar to many other central policies, this implementation plan only sets out the basic framework. Its application at the local level is left to local government.

Home sales in China are directly linked with a household's income. However, there exists great difference among household income. Many households cannot afford the market price of home. The new Affordable Project tries to make it possible for middle-income households to purchase their homes. Instead of purchasing homes from private realtors, middle-income households buy houses directly from Affordable Housing suppliers, i.e. the city government or work unit, at construction cost. Since middle-income households are not considered state-supported households, they have to pay full home price. However, unlike private sector housing, the Affordable Project houses are sold at cost, which is lower than the private market price.

Housing Insurance and Financing Loans

Under the economic planning system in China, and prior to reforms, there were no home financing or insurance institutions at all. As owners, the central and local governments did not need financing or insurance. After the Compulsory Housing Savings law took effect, housing funds increased, but they were still not enough for the investment levels needed to satisfy demand. At the same time, because of the serious difference among urban citizens' income, a percentage of urban citizens could not afford their own housing.

Housing finance and insurance strategies aim to establish a new housing finance and insurance system that is independent of the state's planning system. The housing finance strategy is in addition to compulsory savings allowing funds available for home construction and purchase to expand. Banks are to play an active role in providing funds for home construction and purchase. The majority of funds for housing projects would originate from bank financing rather than state investments. To secure the bank financing, an insurance system was developed that provides protection to banks.

The availability of bank loans is a critical component in the strategy to encourage the purchase of homes. It aims to provide the resources for many people who do not have sufficient savings to buy a house on their own. By offering long-term mortgages covering up to 70% of the price of a home, the banks can help urban residents to buy a home now rather than wait until they can accumulate sufficient capital. The bank loans are established as a mechanism to increase the available funds to meet current demand for residential housing. It is expected that the current construction of residential housing will be further promoted with a greater availability of funds, and that the real estate industry would contribute substantially to economic growth in China.

The cities of Yantai and Benbu first established a home savings bank in 1987. The Construction Bank and the Industrial and Commercial Bank also have established a credit department to provide mortgage services to individual homebuyers. By the end of 1992 there were 4,000 credit departments in the country financing home loans. The Construction Bank has issued mortgages to 198,000 homebuyers, and borrowing from the Industrial and Commercial Bank for mortgages reached 390 million RMB (People's Daily, overseas edition, 16 December 1993).

In 1998, a new set of regulations on individual housing mortgage loans was issued by the People's Bank of China to facilitate the nation's housing reform. The regulations have been improved in three main ways. First, the type of homes that can be purchased has been expanded. Under trial regulations, it was stipulated that individual mortgage loans were available only to those urban residents who wanted to buy apartments built with public housing funds. The revised regulations now make housing loans available to those who want to repair or buy privately built houses. This change in the regulation should stimulate construction activity.

Second, the new regulations allow more cities and towns to handle individual housing loans. The original set of regulations was limited to only 223 pilot cities for the "Affordable Housing Project" discussed above. The revised regulations were expand to all cities and towns.

Third, the number of banks allowed to offer individual home loans has been expanded from only select banks (the Industrial and Commercial Bank of China, the Construction Bank of China and the Agricultural Bank of China) to include practically all banks.

The new regulations standardize the operations of loan departments in all banks. The lack of adequate regulations over the past few years has led to many variations in mortgage contracts. The 1998 regulations stipulated not only the qualifications of applicants, the procedures, the repayment terms, interest rates, and guarantee of home mortgage loans, but also home insurance and the methods of insuring the loan in detail. The insurance sector, which acts as a guarantor to bank loans, would also benefit from the changes in regulation.

Home Ownership Transfer

Under the old planning system, the state owned all housing. China invested in housing and then allocated it, retaining ownership rights. Under this ownership arrangement only government investment made sense since the government would own any improvement in the home. This led to problems, as discussed above, with insufficient investments and a scarcity of housing. Employees benefited under this system since they did not need to worry about housing. However, lower wages due to housing benefits impacted affordability and income levels. Currently this situation has not changed significantly. A large percentage of housing in China is currently owned by SOEs and is not transferable, although the proportion of public housing dropped from 63.1% in 1995 to 58.3% in 1996 and 42.9% in 1997 (Source: USDA 1998). A large part of the population still lives in government-owned dwellings, however.

China has introduced several housing reforms to make the Chinese housing market a more competitive market. One approach the government has taken is to transfer the ownership of state-owned housing to private individuals. Table 1 illustrates the goals of ownership transfer reforms. The Central government also needs to increase incomes so as to allow individuals to purchase homes.

One objective of market reform is directed at changing public structures that are not transferable into dwellings that can be purchased. If successful, the supply of transferable properties will increase. As a result, individual owners, rather than SOEs, would own a larger portion of the housing stock, and will take on a greater share of the responsibilities to repair and maintain the structures.

Table 1. The Goal of Reforms in China's Existing State-owned Housing

	Price	Eligibility	Rights	Other Comments
Pre-1993	±120 RMB/m^2	Current tenant	use rights	Various subsidies
After 1993	a. Cost b. Market price	Current tenant or other	ownership rights	Resale after 5 years

Source: Housing Policy and Practice in China 1999.

Table 1 summarizes the existing reform policy goals. It compares the difference of housing ownership before 1993, and after 1993. For example, after 1993 the sales price of existing homes in the public sector was no longer fixed. It now reflects either the construction cost or some market price. The current tenants are eligible to buy the house. Upon purchase they receive ownership rights and are allowed to sell after a period of 5 years.

There are important implications under such a policy to transfer and sell ownership from the SOEs to individuals. One such issue involves private capitalization. A transfer of ownership under some type of arrangement will tend to increase private capital ownership. It allows for capital creation under private versus public ownership as the value of the capital increases. Such a transfer will promote activities that increase the value of the home such as remodeling, repairing and replacing previously owned SOEs

housing that are now held by the private sector. These decisions would be based on whether any capital investments in dwellings can be recaptured through future sales of homes. That is, private ownership of capital (through home equity) should grow and stimulate general demand and further stimulate private housing demand. Private housing grew from 35.4% of total housing in 1995 to 40.4% in 1996 and 55.8% in 1997.

Recently there have been some new developments for housing ownership transfer. The Ministry of Construction have made parts of its long-awaited reform program public in July 1999, specifying regulations for the secondary housing market and further clarifying housing property rights in transactions (China Daily, 07/29/99). This program stipulates that State officials and employees own housing property rights "upon buying public housing at cost price." They can go to the secondary (existing home sale) housing market to sell their home or exchange it for something more spacious. Before they can sell their homes or exchange them, they must have a housing property right certificate. According to Ministry officials, the new policies should stimulate the housing market.

HOUSING REFORM POLICIES AND CHINA'S MACROECONOMY

CHINA'S OVERALL ECONOMIC SITUATION

With 1.2 billion people, China accounts for a fifth of the world's total population. Urban residents account for 26% of China's population of which 92% are of Han descent. With the population of U.S. at around 280 million, there are more urban residents in China than the total U.S. population. In China each household averages close to 2 children. More males than females were recorded in the last census; the largest age groups were the 15-19 year olds, and the 20 -24 year olds. This population and its growth rate will stimulate China's housing market presently and in the long term. China's increasing population means increasing housing demand with the prospect of more consumption of wood products under the right set of housing reform policies.

China is also one of the world's fastest-growing economies. The middle class, with an annual income of US$ 18,000 is expected to grow from 28 million to 150 million by the year 2000. With the return of Hong Kong to China in July 1997, a new economic reform policy, and a population equivalent to one-fifth the size of the world's population, China is expected to become a significant consumer market and a global economic power in the 21st century. During the last two decades, China has enjoyed strong economic growth due to economic reforms. Since 1978, China has had an "open door policy" to the world. It has achieved an annual national growth rate between 8-10% from 1978 to 1999. Per-capita income has increased fourfold, and 200 million people were able to rise above the poverty level. In 1997, China's economy achieved "a soft landing" from an inflation rate of nearly 25% to 3.5% of the following year.

Table 2. GDP 1991-1999 Unit: RMB Billion

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999
Percentage Change	9.10	14.10	13.10	12.60	9.00	9.80	8.50	7.80	7.00
GDP	2161.78	2663.01	3463.44	4675.94	5847.81	6788.46	7446.26	7939.57	8495.34

Source: China Statistical Yearbook (1999).

The GDP growth rate of 7.8% in 1998 was lower than the government had planned due to the Asian financial crisis. China has tried to maintain the exchange rate at around 8.28 RMB (China's monetary unit) to one US dollar, and so far has resisted devaluing its currency in order to stay competitive amidst the large devaluation of other Asian currencies. The 7.0% growth rate registered in 1999 suggests that China has successfully prevented itself from recessions that plagued other countries in the region.

The most economically developed areas in China are listed in Table 2. In this section, Shanghai, Beijing, Tianjin and Guangdong will be used as typical examples to discuss China's policies. Table 3 shows the GDP per capita and population of these areas.

Table 3. Top Eight Provinces or Municipalities, Ranked by GDP per Capita 1995

Province	GDP Per Capita (U.S. Dollar)	GDP (U.S. Dollar)	Population
Hong Kong	24,127	152.0 billion	6.3 million
Shanghai	2,037	29.7 billion	14.6 million
Beijing	1,304	16.8 billion	12.9 million
Tianjin	1,144	11.1 billion	9.7 million
Zhejiang	956	42.5 billion	44.5 million
Guangdong	921	64.9 billion	70.5 million
Jiangshu	855	62.2 billion	72.7 million
Liaoning	800	33.7 billion	42.1 million

Source: Asia week, September 1997.

Despite the high economic growth rates registered in China, it is not without pressing problems that can dampen its economic performance. In 1998, the Chinese government committed the country to a set of severe economic reform measures that will privatize many state enterprises. Under the latest reform measures, China will retain 300 state-owned companies and privatize most of the remaining companies by the end of the year 2000. That amounts to some 100,000 SOEs that will be closed, merged, or sold to investors.

No one can predict the degree of social and economic dislocation such massive reconstructing will lead to, but urban unemployment is already at eleven million (the registered unemployment rate in urban areas was 3.1% in 1998), and the Labor Ministry expects another 8-10 million SOE workers could be unemployed within the next three years (i.e. the unemployment rate will double). Unemployment is likely to reduce a household's ability to purchase a home significantly. As the Asian financial crisis deepened in 1998, the Chinese government resolved to accelerate financial and economic reforms. While the rest of Asia is looking for Japan to help lead the region out of its crisis, the region also desperately needs a strong Chinese economy and needs the RMB to remain stable. A growing residential construction will motivate the economic growth in the near future and provide employment opportunities. According to the 15th Party Congress, the Chinese economy will grow by about eight percent until the end of the year 2000, with a targeted inflation rate of 3%.

INVESTMENT IN REAL ESTATE DEVELOPMENT

The reform program has diversified the sources of housing and construction investments to enable a major expansion of the urban housing market. Work units, either public bodies or as semi-private enterprises, continue to contribute to housing construction. Private enterprises have also been involved in the housing sector. The private property market setting has attracted some overseas investments to housing developments in China.

As stated before, prior to the current housing reforms, the China paid less attention to housing investments than to investments in the manufacturing and other sectors. As a result, there exists a serious housing shortage and poor housing conditions. Since housing reforms began, the China began to increase investment in housing. Figure 3 illustrates the investments made in real estate development in China from 1990 to 1998. The investment grew from nearly zero in 1990 to over 300 billion RMB in 1995. In 1996 and 1997 the investment remained flat, followed by an increase in 1998 to over 350 billion RMB. The investment values are reported in nominal terms.

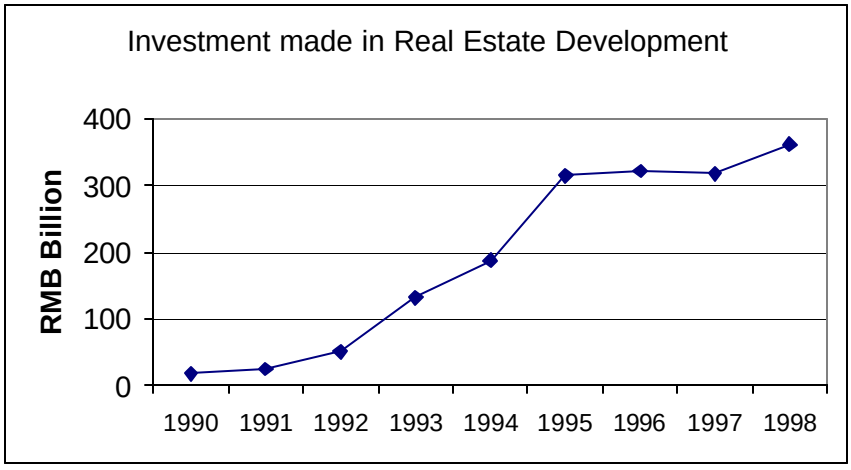

Figure 3. Investment Made in Real Estate Development in China

Source: China Statistical Yearbook (1991-1993, 1999).

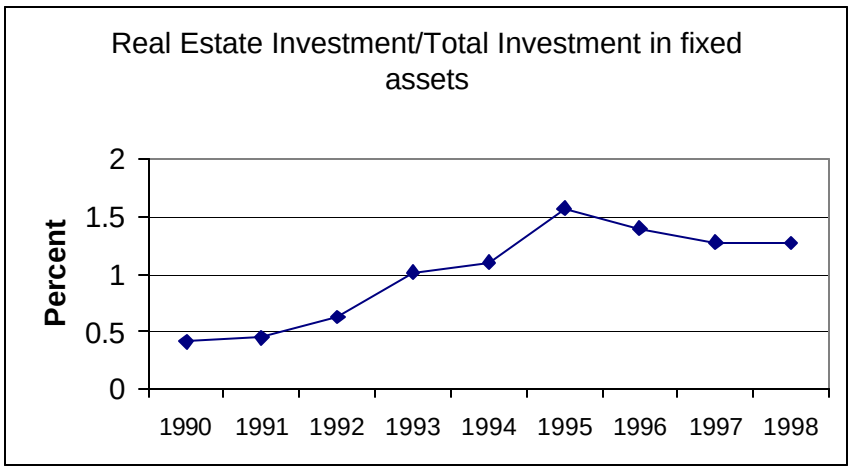

Figure 4. Real Estate Investment Expressed as a Percent of Total Investment in Fixed Assets

Source: China Statistical yearbook (1999).

Figure 4 illustrates the percent of real estate investments to total investments in fixed assets from 1990 to 1998. In 1990, it was around a half percent of the total investment in fixed assets. It increased between 1990 and 1995, reaching one and a half percent of total investments. Since 1995, it has declined to around 1.25%.

Table 4. Real Estate Investment Completed in 1995 (Unit: RMB Billion)

	Total Investment	Land Development Project	Land Using Rights Transferred	Commercial Housing Investment
National	315.15	42.29	38.97	214.36
Beijing	35.58	6.36	5.48	16.00
Shanghai	46.60	5.32	7.00	28.62
Guangdong	56.06	9.82	7.03	40.53

Source: Yearbook of China Real Estate Market 1996, China Planning Press.

In 1995, real estate development investments reached a peak. Table 4 divides it into three parts. Investment in land development projects reflects the initial payment made for land use rights. Investment in land use rights transferred reflects how much a real estate developer would pay for using state-owned land, and may be thought of as a rental fee based on time. Investment in commercial housing refers to the construction cost incurred by the private or "commercial" sector, as it is known in China. Construction costs are the largest part of the total investment. But, before construction, the developers need to purchase the land development and land use rights.

Table 5. Real Estate Investment Completed by Use Category in 1995 (Unit: RMB Billion)

	Total Investment	Residential Housing	Villa, High-cost Apartment	Affordable Housing	Normal Apartment	Office	Housing for Commercial Use	Other
National	315.15	175.80	20.60	13.67	141.53	40.53	41.76	57.07
Beijing	35.58	14.52	5.29	0.72	8.51	7.24	2.82	11.00
Shanghai	46.60	28.01	3.16	3.37	21.48	8.17	3.24	7.17
Guangdong	56.06	29.44	2.63	0.37	26.44	6.75	9.27	10.60

Source: Yearbook of China Real Estate Market, 1996, China Planning Press.

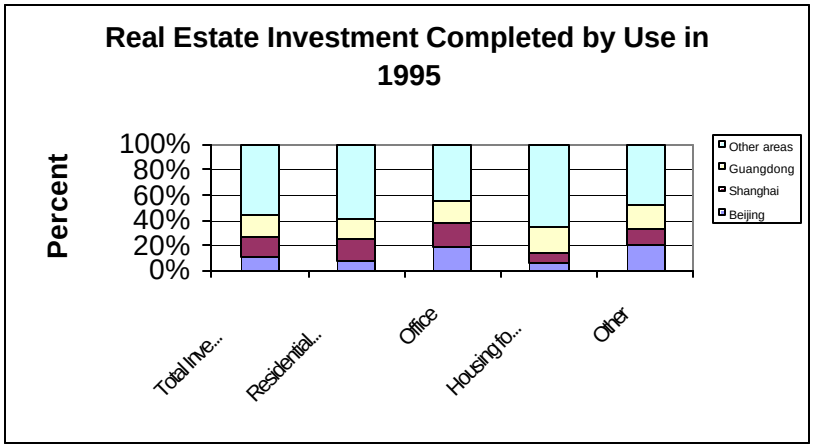

Figure 5. The Real Estate Investment Completed by Use Category in 1995

Source: Yearbook of China Real Estate Market, 1996, China Planning Press.

China's real estate investment can be classified into the following types according to use:

- residential housing (villa, high-cost apartments, affordable housing and normal apartments),
- offices,
- housing for commercial use such as stores, and
- others.

Among these, the residential housing investment is the single largest part of the total investment in real estate investment and is the focus of China's housing reforms. From Table 5 and Figure 5, we can see that Beijing, Shanghai and Guangdong province are the most developed areas of China, and real estate investment in these areas is equivalent to forty percent of the national investment.

Table 6. The Real Estate Investment in Different Areas in 1994 and 1995 (Unit: RMB Billion)

	1994	1995(in current term)	1995 (in real term)
National	188.1	314.9	297.0
Beijing	10.0	35.3	33.3
Shanghai	11.7	46.6	44.0
Guangdong	40.4	56.2	53.1
Jiangsu	15.6	24.6	23.2
Zhejiang	15.2	24.1	22.7

Source: Yearbook of China Real Estate Market, 1996, China Planning Press.

Note: The year 1994 is the base year.

The most dramatic increase of real estate investment occurs in areas listed in Table 6 (jumping from 188.138 billion RMB in 1994 to 314.902 billion RMB in 1995 in nominal terms). The price index of investment in fixed assets of 1994 to 1995 is 105.9. We can see these five areas contribute 83.4 billion RMB to the total increase of 109 billion RMB (around 75%). About half of real estate development was

concentrated in Shanghai, Beijing and Guangdong Province. Real estate development in the central and western regions didn't take place at the same rate. The areas listed in Table 6 are all on the east coast, and include China's Special Economic Zones, such as Shenzhen.

Urban housing investment in China occur in two sectors, one being commercial (private) housing and the other being non-commercial (public) housing. The difference between the two is that commercial housing can be sold and bought freely in the housing market, but non-commercial housing remains publicly owned.

Commercial housing investment is playing an increasingly important role within the area of urban housing. Commercial housing increased from twenty-seven percent of total urban housing investment in 1991 to nearly 56 per cent in 1994 (Ministry of Construction, 1995).

Table 7. Distribution of Real Estate Development Companies (1998)

	Number of Development Companies	State-owned	Collectively-owned	Privately-owned and Others	Foreign Funded	Funded by Enterprises from Hong Kong, Macao and Taiwan
National Total	**24,378**	**8,395**	**5,090**	**6,475**	**1,204**	**3,214**
Beijing	462	175	18	88	54	127
Tianjin	500	193	74	150	32	51
Shanghai	2,601	801	435	1,058	101	206
Guangdong	3,936	1,196	1,231	728	97	674

Source: China Statistical Yearbook (1999).

China's real estate sector is developing very quickly. Table 7 breaks down the distribution of real estate companies. Shanghai has the largest proportion of privately owned companies and is to only region where privately owned companies out number SOEs. It is expected that the investment in commercial housing will continue to with additional sources of investment funds, including an increasing interest by foreign firms, particularly from Hong Kong, Macao and Taiwan.

REAL ESTATE REVENUE

Figure 6 shows how revenues from the real estate sector have grown since 1987. The revenue has expanded quite rapidly measured in nominal currency.

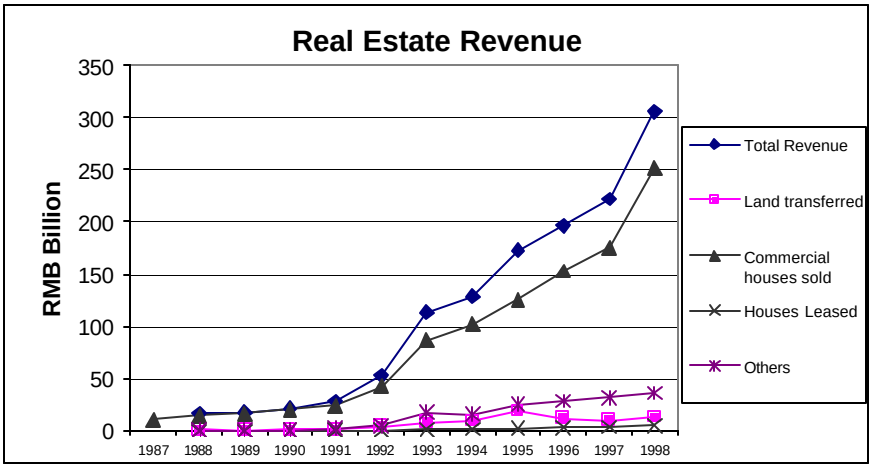

Figure 6. Real Estate Revenues (1987-1998)
Source: China Statistical Yearbook (1999).

Figure 6 also shows the composition of China's real estate sector revenue. Total real estate revenue is composed of land transfers, commercial houses sold, houses leased and others, with commercial housing sales representing the overwhelming part of total revenue.

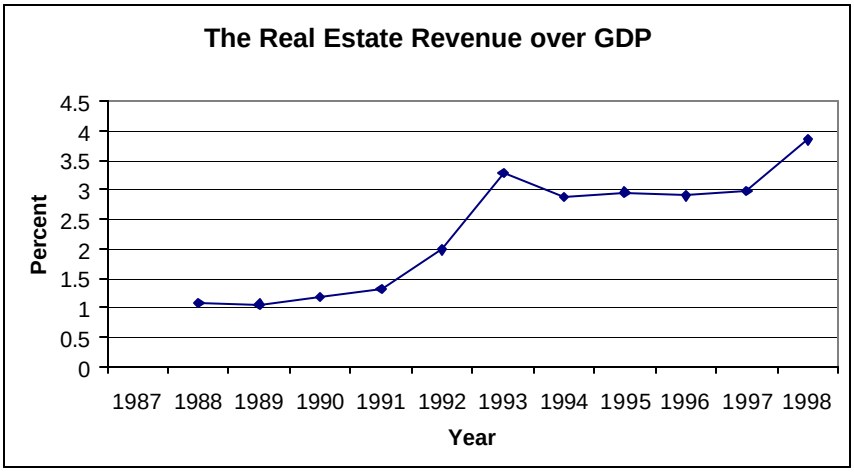

Figure 7. Real Estate Revenue As a Percent of GDP
Source: China Statistical Yearbook (1999).

We can see that the real estate revenue increased quickly since the housing reforms in the late 1980's. How did it contribute to China's GDP or how does it compare to other sectors? Figure 7 illustrates the percent of real estate revenue to GDP. It is clear that in 1988, when China's real estate revenue began to develop, it was only a very small part - about 1% of the GDP. In the years that followed, as the real estate sector expanded (except 1989 and 1994), the percentage of real estate revenue over GDP grew rapidly. It reached a peak in 1993 of 3.28%. In 1993, the GOC began to impose macro-economic regulations to slow down the rapidly expanding real estate industry. By 1994, the percentage of real estate revenue over GDP stabilized at 2.9%. By 1998, this percentage jumped to nearly 4%.

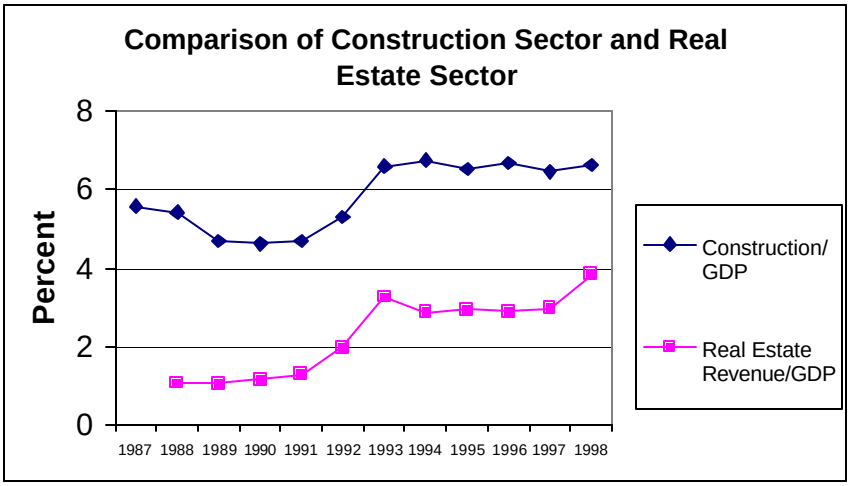

Figure 8. Output of Construction Sector and Real Estate Revenues As a Percent of GDP
Source: China Statistical Yearbook, 1999.

Since the real estate sector is a component of the construction sector, Figure 8 charts both construction/GDP and real estate revenue/GDP. Note that they have a positive correlation. Market reforms that have stimulated the real estate activity have been a boost to the construction sector.

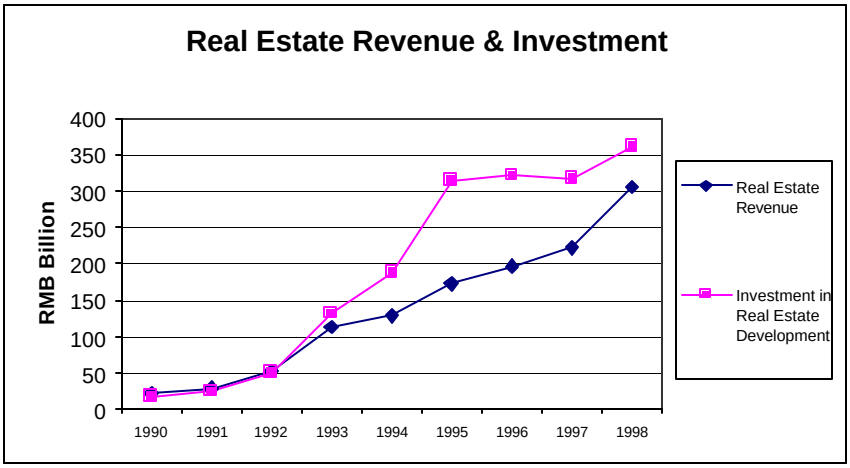

Figure 9. Real Estate Revenue and Investments Made in Real Estate Development
Source: China Statistical Yearbook (1991-1999).

With the increase in real estate revenue, there has been a rise in the investment for real estate development. Figure 9 illustrates the increase in both activities. The chart suggests that investments have surpassed revenue, particularly in 1995, with continued growth in 1998. Both trends are increasing, a sign that the government has place housing as a high priority in their planning activities.

HOUSING AFFORDABILITY

Under the government housing supply system, the state's investment in housing was not enough, and the housing supplied was not in very good condition. At the same time, because the state built housing on its own land, it needn't pay for the land use and other levies. Also no borrowing occurred so high rates of

interest on loans for housing construction were avoided. While providing savings to the government coffers, the internalized costs did little to promote economic activity and construction of adequate housing. In addition, after housing reforms were introduced, real estate developers needed to pay for the land use and interest costs. As real estate developers tried to improve housing quality and introduce new designs to increase housing's acceptance by households, the cost for home construction also increased.

After several years of housing system reforms, two kinds of housing emerged in China. One is an internal supply system in which work units or, housing bureaus, supply their employees with public housing with various degrees of subsidies. The other resembles a housing market in which anyone is allowed to purchase a home. The purpose of housing reforms is to decrease the percentage of public (i.e. non-commercial) housing and increase the private (i.e. commercial) housing percentage of the total housing sector.

Housing under SOEs has not been totally reformed, as no market mechanism yet exist. A remedy for the housing shortage depends on state investments in housing construction. So, housing shortages among the SOE employees still exist and are a persistent problem. The shortage forms a supply gap in the public housing supply system.

This supply gap should attract investments in housing from the private sector. However, the limitation of available urban land, building materials and technology increases construction costs. Currently it is hard for real estate developers to reduce construction costs because of levies and the high interest rate applied to construction loans for real estate developers. As a result, housing in the private sector market is beyond what many consumers can afford. As a result, much of the high-end housing constructed by private developers has gone unsold.

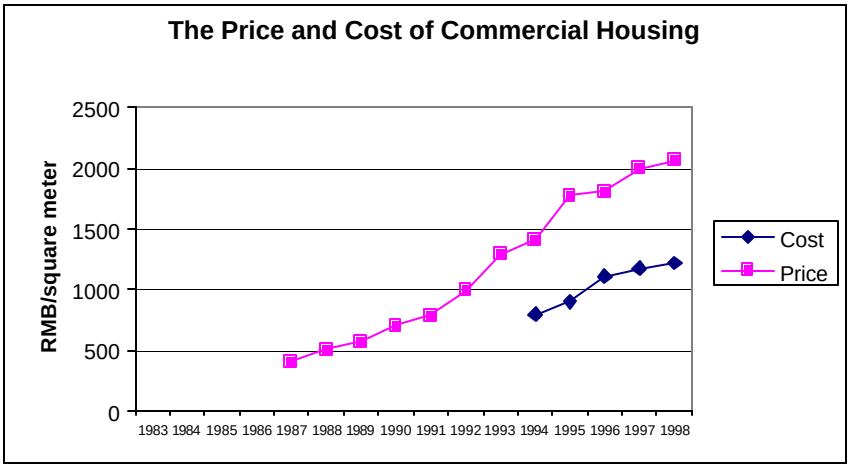

Figure 10. The Market Price and Cost of Commercial Housing in Urban Areas of China
Source: China Statistical Yearbook (various years).

Figure 10 shows the average national selling price of housing in the private sector (commercial housing). In 1998, the average selling price was almost double the average cost. The costs of commercial housing vary by urban areas. In Figure 11, Beijing, Shanghai, Tianjin, and Guangdong have different costs and market prices for commercial housing. Beijing has the highest market price in the country--over 5000 RMB per m2. The other three areas also have a much higher price than the national average. In Beijing, the market price of commercial housing is more than double the cost of it. The price is so high that housing is unaffordable for many urban citizens.

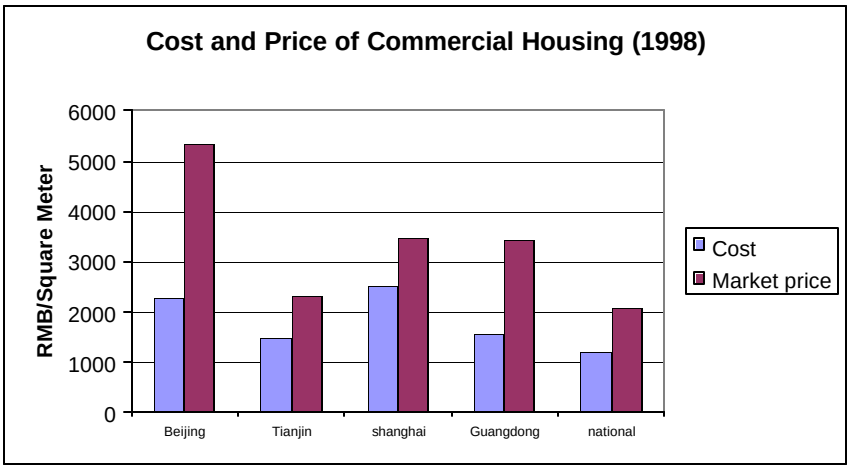

Figure 11. The Cost of Real Estate Development and Housing Price by Region (1998)
Source: China Statistical Yearbook (1999).

Housing prices on the open market need to come down for the housing market to reach some type of equilibrium. Housing construction cost should be kept at a minimum, and home prices should be within the reach of a household's income. Because much of the commercial housing is priced above a level many urban citizens can afford, increasing an urban citizen's disposable income becomes the key policy variable. Lowering the selling price in the open market is another way to resolve this difference by allowing developers to construct lower-cost housing.

China's policy to impose multi-structured housing opportunities originates from the need to meet the demands of a diverse population, whose ability to purchase housing varies widely. Table 8 puts into a table China's basic incomes in urban cities.

Table 8. Basic Household Incomes of Urban Residents

Basic Income Conditions of Urban Households (1997)							
Item	**All Cities and County Town**	**Grouped by Size of cities**					
		Very Large City	**Large City**	**Medium-sized Cities**	**Small Cities**	**County Towns**	
Number of Households Surveyed	37,890.00	7,600.00	5,250.00	6,750.00	2,750.00	7,290.00	
Proportion (%)	100.00	20.06	13.86	17.81	7.26	19.24	
Average Households' Size (person)	3.19	3.13	3.14	3.18	3.20	3.23	
Average Number of Employees per Household	1.83	1.80	1.77	1.85	1.85	1.86	
Per Capita Disposable Income (RMB)	5160.32	6524.37	5277.01	4900.57	5266.52	4371.38	
Item	**Grouped by Percentile Households**						
	Lowest Income (first decile)	**Low Income (second decile)**	**Lower-middle Income (second quintile)**	**Middle Income (third quintile)**	**Upper Middle income (fourth quintile)**	**High Income (ninth decile)**	**Highest Income (tenth decile)**
Number of Households Surveyed	3,789	3,789	7,578	7,578	7,578	3,789	3,789
Proportion (%)	10	10	20	20	20	10	10
Average Households' Size	3.6	3.44	3.34	3.19	3.07	2.94	2.72
Average Number of Employees per Household	1.71	1.83	1.86	1.86	1.85	1.86	1.75
Per Capita Disposable Income (RMB)	2430.24	3223.37	3966.23	4894.66	6045.30	7460.70	10250.93

Source: China Statistical Yearbook (1998).

The table illustrates that per capita disposable income of only 10% of urban households is greater than 10,000 RMB. The per capita disposable income of households in urban areas for the highest income bracket in 1998 is 10,250 RMB. The average household size is 2.72 persons, and it implies that the average household income is 10,250 RMB multiplied by 2.72, or approximately 30,000 RMB.

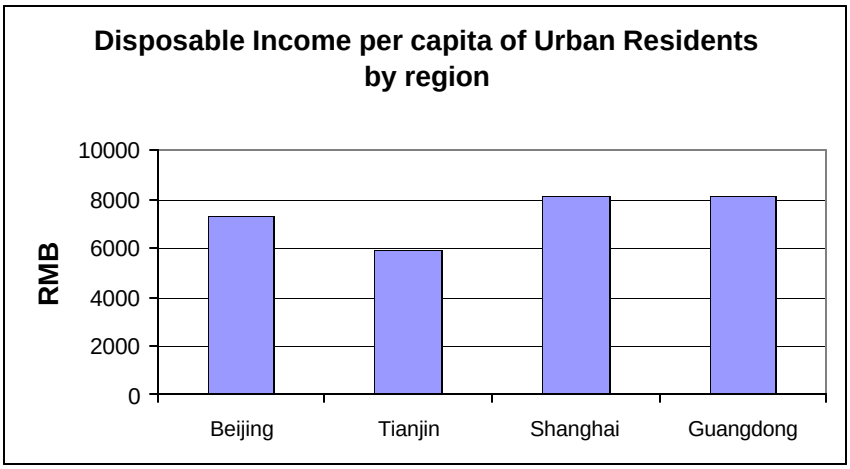

Figure 12. Disposable Income per Capita of Urban Residents by Region
Source: China Statistical Yearbook (1997).

Figure 12 shows regions in China with substantially higher incomes. Incomes are higher in these areas due to the fact that many employees have higher education, and work in high technology fields, especially in Guangdong Province. Their disposable income is substantially higher than the population average. Figure 12 suggests these annual disposable incomes range from 6,000 RMB to slightly over 8,000 RMB.

We combine the information on household income with cost and price data to derive a measure of affordability for the highest 10% of the population. Assuming that the cost of a house (for a household) is six times the annual household disposable income (international practice sets the ratio between three to six times), the affordable cost of a home equals 6*30,000=180,000 RMB. For a two-bedroom apartment (60 m2), the affordable price per m2 would be 180,000/60=3,000 RMB. Figure 11 shows the cost of housing in China's most developed cities: Beijing (2055 RMB/m2), Shanghai (2321 RMB/m2), Tianjin (1238 RMB/m2), and Guangdong Province (1419 RMB/m2). The affordability measure covers even the high construction cost of private sector housing in Shanghai. However, market prices in Figure 11 shows that Beijing, Shanghai, and Guangdong Province all have a market price above the affordability measure of 3,000 RMB/m2.

This analysis indicates that the highest-income segment of urban households in China may not perhaps afford the price of a mid-sized apartment in China: the measure is above the cost but below the average sales price. Affordability for the other 90% of the urban population with lower incomes is more questionable. In general terms, the per capita income for most Chinese citizens is very low, and there exists a spread between rural and urban households. Figure 13 illustrates the national average annual per capita net income separated between rural and urban households. The per capita annual income of rural households is much lower than that of urban households and the difference between them is increasing. Even the average per capita income of urban households is only a little above 5,000 RMB. It is obvious that affordability is likely to continue to constrain purchases of private sector homes.

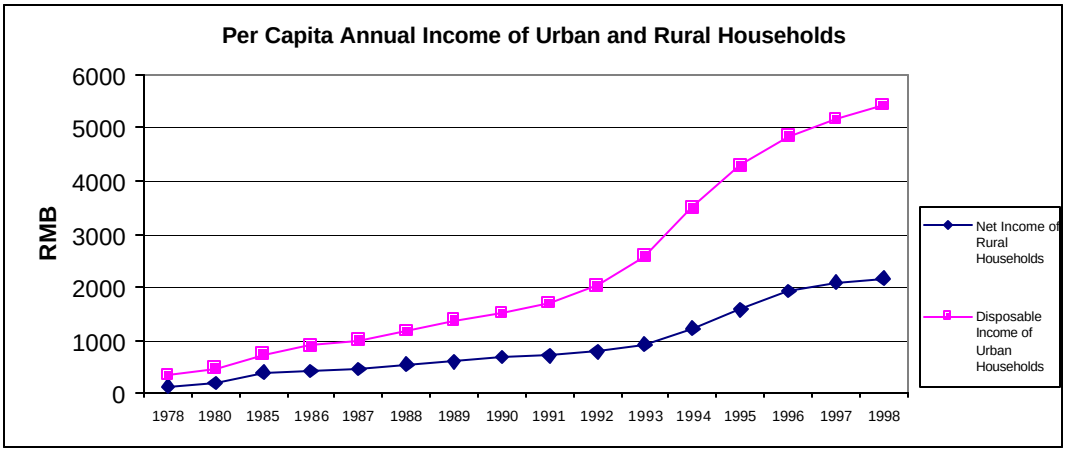

Figure 13. Annual per Capita Net Income Across China (in nominal term)

Source: China Statistical Yearbook (1999).

The statistics shown in Figure 14 indicate fairly small expenditures for housing in the urban centers and Guangdong Province in 1997. These expenditures range from 2-5% of the annual per capita income. It is obvious that in 1997, housing was still subsidized by the government for most urban citizens. Should the subsidy be incorporated directly into the wages of the workers and government functionaries, in effect, turning the housing fund into an allowance for the work force to buy their own houses, the central government would still need to shrink the gap between the high market prices of housing and the low personal income of the urban citizens. Because of low wages, it is difficult to reduce the total subsidies during the housing system reform. Wage adjustment is a requirement for raising the present rent level to a market level. It appears that wage reform is also a prerequisite for the housing system reform.

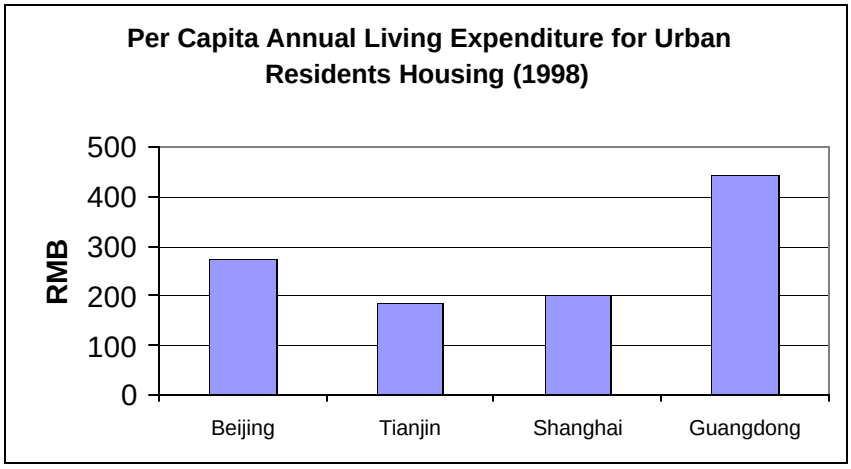

Figure 14. Per Capita Annual Living Expenditure for Urban Residents Housing (1998)
Source: China Statistical Yearbook (1998).

China's income/home price gap has shrunk only marginally. As a result of the rapid economic development in the past two decades, China's national income has increased greatly. So have housing prices, however. As a result, home affordability for the urban citizens has not improved significantly. The present average income of China's urban residents is still relatively low, and only a small percentage of high-income families can afford housing.

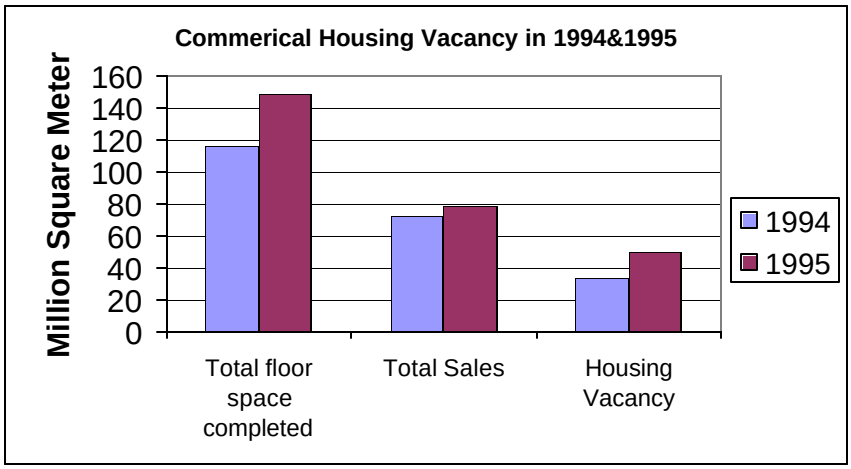

Figure 15. Housing Vacancy in China in 1994, 1995
Source: Yearbook of China Real Estate Market, 1996, China Planning Press.

Because urban citizens cannot afford to buy homes at the market price, there exists a large percentage of vacant commercial housing. In 1995, the total amount of housing sold nationally in the private sector was 71 million m^2, and the vacant housing floor space totaled 50 million m^2. Total floor space construction in 1995 was 149 million m^2. Hence, the vacant rate for commercial housing was about 38% of the total floor space completed. The construction of high-end housing in China's urban areas has had a very serious effect. It has promoted a greater housing shortage as evidenced by the high vacancy rate through prices that 90% of the households cannot afford to pay.

THE COMPOSITION OF HOUSING PRICE

The main reason for high housing prices on the open market is due to the price-setting mechanism. In China, the price of a home is not formed through market competition. It is calculated based on the development costs and influenced by government policies. A shortcoming of this price mechanism is the usually high appraisal of total costs. It is very common for many factors to be added into housing costs in most Chinese cities. Under the central planning system, the SOEs were responsible for their employees housing, school, transportation, medical care and other social programs. After policy reforms, all these responsibilities have been transferred to households by adding fees to the home price.

In China, the price for homes consists of 13 items, with a total of 71 sub-items varying among different projects and urban areas. They can be classified into 4 major types: the first is the cost for land acquisition, resettlement of peasant owners, site development, construction, taxes, project management and profits. The second cost includes expenses for auxiliary facilities with housing. The third cost covers all public facilities including green space, on-site infrastructure, kindergartens, schools, sub-district offices and other unspecified items, commonly known as *da peitao* (large projects of public infrastructure in new housing development areas). The fourth cost is for commercial facilities such as clinics, grocery stores, bookstores, gas stations, waste treatment plants, and similar structures. The proportions of all 13 items are shown below in Table 9.

Table 9. Price Composition of Commercial Housing in Beijing

Cost Items	Proportion of Housing Price (%)
1. Land Acquisition	4.7
2. Resettlement	24.5
3. Land Development	4.4
4. Construction	25.6
5. Auxiliary Facilities	3.7
6. Outdoor Projects	3.0
7. Public Infrastructure	7.2
8. Environment and Green Space	0.6
9. Facilities for Gas, Water, Heating	5.6
10. Large Project Public Infrastructure	10.6
11. Business Tax and Local Construction Tax	2.4
12. Management Fee	1.8
13. Profits	6.1

Source: Liu Qi (1992), *Zhongguo dangdai zhuzhai jingjixue* (Housing economic in modern China).

In fact, the real cost directly related to housing construction in Table 9 involves items 1, 2, 3, 4, 11, 12, and 13 which belong to the construction-related cost of housing. The other items such as 5, 6, 7, 8, 9, 10 should not be included in price of the home, rather the cost of auxiliary facilities and outdoor projects can be paid for through annual fee collections. The cost of a large project public infrastructure should be covered by the government budget because these public facilities have been paid for by the resident's tax. Items 5 - 10 amount to more than 30% of the price of housing. If these were covered by other more efficient finance channels, the present housing prices could be cut by up to one third.

A significant portion of the housing price in China comes from 'apportioned levies' (*tanpai*). Due to the method of setting housing prices, mandated by the central government, it is very easy for local government agencies to transfer expenses from their budgets onto housing construction projects through special levies. As a result, housing prices are inflated and have led to a high vacancy rate. In Tianjin, despite the housing supply increase in 1987, the sale rate of ordinary housing was 97.3% of the total supply while in 1994 it was only 52.3% (1996 China's Real Estate Market, p.383).

REAL ESTATE TRANSACTION

Real estate transaction is a measure of market activity. This section is concerned mostly with commercial housing that is supplied on the open market system; i.e. the private sector market. Currently, the level of investment required to develop commercial housing has increased. However, due to current high prices of housing, there is a large amount of vacant new construction in urban areas. Because of the housing vacancy, the associated wood consumption for furniture and interior use has also been affected.

There is one kind of urban housing actively being built — public houses (non-commercial housing) built by the government, which is composed mostly of work units. Since 1993, this non-commercial housing was sold to employees of work units at a cost that is lower than the market price. However, employees who bought the housing do not have the right to sell the home during the first five years of ownership. They have not acquired any property rights. After these five years, employees can sell their home in a used housing market. Should the non-commercial housing be sold to employees at the prevailing price on the open market, the employees own the property rights and can resell the housing at once.

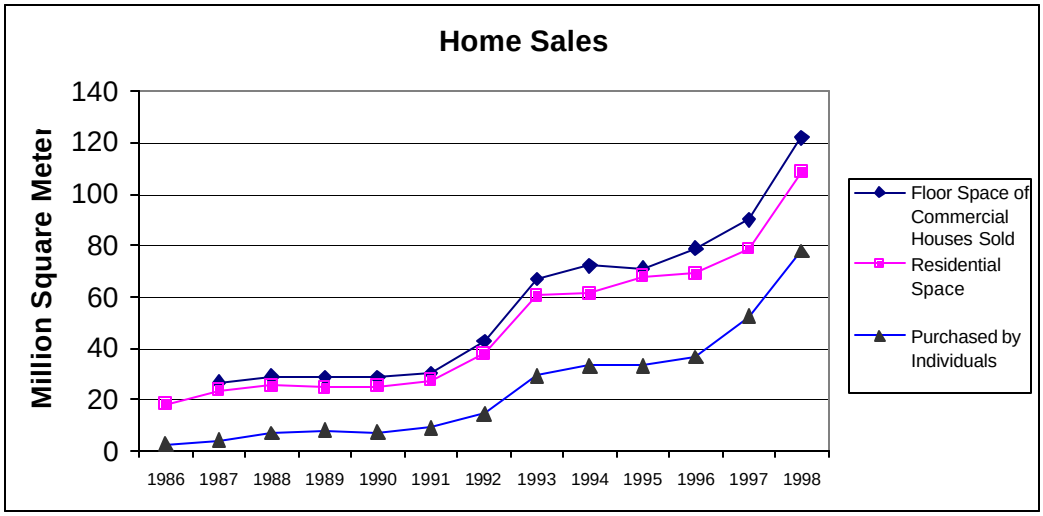

Figure 16. Home Sales and Floor Space of Residential Houses.
Source: China Statistical Yearbook (1999).

Table 10. The Structure of Home Buyers in Tianjin in 1994

Items	Percent
Government Organizations and Institutions	0.5
Foreign Invested Companies	19.0
Domestic Enterprises	53.1
Individuals (overseas)	6.9
Individuals (domestic)	26.5

Source: 1996 China's real estate market p. 386.

Not all new commercial housing was sold directly to individuals (see Figure 16). Work units for their employees, especially for people who have greater social and economic privileges, buy a substantial part of new homes. In Shanghai, for example, in 1990, 85% of private sector housing was sold to work units, while in 1993, 75% of home sales was bought by the public sector (Shanghai Land System Reform Office and Shanghai Statistics Bureau, 1994, p.66). In Tianjin, for example, the majority of home purchases were made by domestic enterprises, presumably SOEs, and government organizations in 1994 (Table 10). The

purchases by domestic enterprises account for 53.1% of total housing sold and, through buying homes for some leaders of these enterprises, leaders of these enterprises are force housing standards to rise as well as housing prices.

Figure 16 shows residential home sales accounts for most of the commercial housing sales (commercial housing includes residential housing sales and non-residential housing sales such as business properties and shops). The sold amount of commercial housing increased greatly in the 1990's, except for a period in 1993 and 1994. The amount of residential buildings sold to individuals also shows a similar trend. When measured proportionally, individual purchases have increased substantially. However, the participation of work units in the private housing market is an important element for providing housing to their employees and raising market prices.

In Shanghai more than 20,000 families participated in housing transactions in the secondary housing market in the beginning of 1999. Transaction volume exceeded 2.2 billion RMB, according to the Ministry of Construction Statistics.

Also, in Beijing, homeowners are reportedly taking advantage of new rules to sell their homes. Beijing issued a regulation in October 1999 unveiling plans to allow residents to sell their homes, of which most were previously state owned. Industry sources said an estimated 700,000 houses would go on sale in Beijing. Yet the ratio of home sellers to buyers stands at one to four. Analysts in China suggest that while so many new home-sellers would give the new market a boost, it will also have a tremendous negative impact on the sale of private sector homes. (China Daily, 11/16/99)

China also announced that it will try to stimulate more individual purchases of commercial housing and discourage work unit purchases. Work units continue to purchase homes through government subsidies that lower the price, so the government will eliminate the subsidies it is providing the work units. This will make the real estate market more competitive and the market price of housing will reflect the housing demand and supply rather than a highly skewed market price based on many fees and taxes.

Mortgage Plans to Help Potential Owner

Table 11. Conversion Table of Personal Housing Loan

		Annual Interest Rate (%)		Monthly Payment		Total Principal & Interest	
Years	**Months**	**Housing Fund**	**Commercial Loan**	**Housing Fund**	**Commercial Loan**	**Housing Fund**	**Commercial Loan**
1	12	4.248	6.570	Full Amount to be Paid when the Loan Expires		104,248.00	106,570.00
2	24	4.356	6.750	4,358.35	4,465.93	104,600.40	107,182.32
3	36	4.464	6.930	2,973.08	3,084.51	107,030.88	111,042.36
4	48	4.536	7.020	2,281.97	2,395.55	109,534.56	114,986.40
5	60	4.644	7.110	1,870.86	1,985.31	112,251.60	119,118.60
6	72	4.752	7.218	1,599.01	1,715.39	115,128.72	123,508.08
7	84	4.860	7.326	1,406.82	1,525.25	118,172.88	128,121.00
8	96	4.968	7.434	1,264.47	1,385.07	121,389.12	132,966.72
9	108	5.049	7.542	1,154.09	1,278.25	124,641.72	138,051.00
10	120	5.130	7.650	1,067.02	1,194.86	128,042.40	143,383.20
11	132	5.238	7.650	998.28	1,122.79	131,772.96	148,208.28
12	144	5.346	7.650	942.34	1,063.35	135,696.96	153,122.40
13	156	5.454	7.650	896.30	1,013.64	139,822.80	158,127.84
14	168	5.562	7.650	858.08	971.55	144,157.44	163,220.40
15	180	5.670	7.650	826.13	935.56	148,703.40	168,400.80
16	192	5.778	7.650	799.33	904.51	153,471.36	173,665.92
17	204	5.886	7.650	776.79	877.52	158,465.16	179,014.08
18	216	5.994	7.650	757.82	853.92	163,689.12	184,446.72
19	228	6.102	7.650	741.91	833.15	169,155.48	189,958.20
20	240	6.210	7.650	728.60	814.79	174,864.00	195,549.60

Source: Shanghai Real Estate News, Sept. 4, 1998.

Note: Based on loan of RMB 100,000 (as of September, 1st, 1998).

Public housing funds are one means of to provide housing. In Shanghai the government first sanctioned a public-funded program to finance home ownership in 1991. Since then, over 100,000 people have taken out mortgages. The Shanghai Public Housing Reserve Management considers projects that provide the funds to individuals for home ownership. In 1998, more than 70% of their funds were used for low-interest mortgages, almost double the amount provided in 1997.

Home mortgage plans are not dissimilar to the US. In addition to the 30% down payment, banks required third-person guarantors for mortgages, and insurance companies offered additional coverage. The legal framework in China is improving as well.

Mortgage loans for homebuyers in China are a new development under financial system reforms. By the end of 1993 the Construction Bank had issued mortgages to 198,000 homebuyers, and loans from the Industrial and Commercial Bank for mortgages had reached 390 million RMB. (*People's Daily*, overseas

edition, 16 December 1993, p.2) Interesting enough, since China's commercial banks began to offer housing loans in the early 1990's, overdue payments have been kept at below 3%. Individual home loans have accounted for a very small proportion of total bank loans. New regulations will encourage banks to channel more funds into individual loans for home purchases.

Table 11 presents a mortgage rate table. It calculates the amount of money people must pay per month over a time period of at 1 to 20 years. For example, consider that the average price per square meter is about 2,000 RMB and most people prefer to own apartments about 70-90 square meters. An 80-m^2 apartment will cost about 160,000 RMB at the 2,000 RMB price. With approximately two-thirds of the price paid through loan (or about 100,000 RMB), the family would pay from 1,067 to 1,194 per month for a ten-year loan, in addition to the 60,000 RMB cash payment up front. A family allocating one third of its income for its home mortgage means that the family must have at least an income of 3,233 to 3,618 RMB per month.

In America, between 20 - 40% of commercial loans are lent to private homebuyers while China's rate was only 0.3% in 1996. In 1997 the China's central bank—the People's Bank of China—issued trial regulations that offered long-term housing loans to homebuyers. However, the effort to boost home purchases was unsatisfactory. Long-termed housing loans did not promote more purchases during this period.

More recently, the People's Bank of China has decided again to increase available funds to spur on the country's housing market by extending loan terms and lowering interest rates (China Daily, 09/23/99). The housing market is seen as a source of economic growth for China during a period of economic recession in Asia. The bank announced in September 1999 that all commercial banks would extend the mortgage loan term from 20 years to 30 years, and drop the highest annual interest rate from 6.3315% to 5.58% starting September 21st, 1999. The annual interest rate for loans with terms of no more than five years would be 5.31% and the rate for loans with terms of 6 to 30 years, 5.58%. The annual interest rate for public saving funds with terms of or below 5 years was 4.14%, and the rate for public saving funds with terms of 6 to 30 years was 4.59%.

In Table 11, the commercial rate of mortgage loans is 7.65% for loans 10 years and longer. After September 1999, this rate was adjusted to 5.58%. Also the term of loan was extended from 20 years to 30 years. Accordingly, the amount of money a household will need to pay monthly should decrease considerably. Accordingly, the financing policies should allow home purchases by households in China to be more affordable.

Mortgage loans, public housing funds and other housing finance options have proven to be practical in China. They can play an important role in increasing an urban citizen's ability to afford a house. However, China's housing finance and housing insurance programs are not well developed and continue to have a lot of problems. The government is constantly undergoing changes and continues to develop its housing finance and insurance systems.

RURAL HOUSING OPPORTUNITIES

China's housing policies are focused mainly in urban areas, and most of the housing market reforms will likely affect urban dwellings, with little or no impact on the rural housing sector. Most wood consumed in construction comes from rural demand for dwellings, whereas most of the demand for value-added products will originate in urban dwellings. Also, since a large proportion of houses are owned by the SOEs, rural housing is considered public-owned housing and are not part of the private sector policies described above.

The urban economic reforms, which began in 1984, created a rift between the cities and the countryside. Urban household incomes grew at a much faster rate than that of rural households. Urban and rural income

disparities and a higher inflation rate in rural China paralyzed much of the rural housing development. During the 1990's, rural housing construction competed with urban development projects for materials and labor. Increased prices for building materials coupled with slow increases in income were primarily responsible for the slowdown in rural housing development.

New rural housing construction is still very basic. There are limited budgets, no knowledge of modern building technologies and a lack of affordable good quality materials. Traditional housing in most rural areas is usually one floor, but during the housing boom, two-floor buildings became increasingly popular. Taller buildings require materials such as steel, cement, good quality bricks and glass. Although the government provided some steel and glass through economic planning, for rural housing, the amounts provided were insignificant. Since there was no planning provision for cement and timber for rural housing, households had to buy these materials at market prices rather than through government subsidies. Rural households still rely on the family members to collect and prepare materials and this process usually takes several years. Poor designs and poor building skills along with inappropriate planning created unregulated growth and low quality housing.

It is not difficult to identify inequality and segregation in rural China. Not every household has been able to build a new house. Agricultural reforms created the environment for farmers to get rich, but not every village and individual benefited equally. The gap between different regions and between households was reduced during the early years of the Communist government, but after 1978 the gap widened rapidly. Villages in economically advanced regions, such as the Pearl River Delta and Yangtze River Delta, became richer than those in the inland regions. Villages around major cities also fared better than remote ones.

Today, house styles and quality depend on the owners' financial resources. The differences are very prominent. Households with the economic means build new houses outside the boundaries of the old village, while the poor and the old are left behind in the central areas with run down earthen houses.

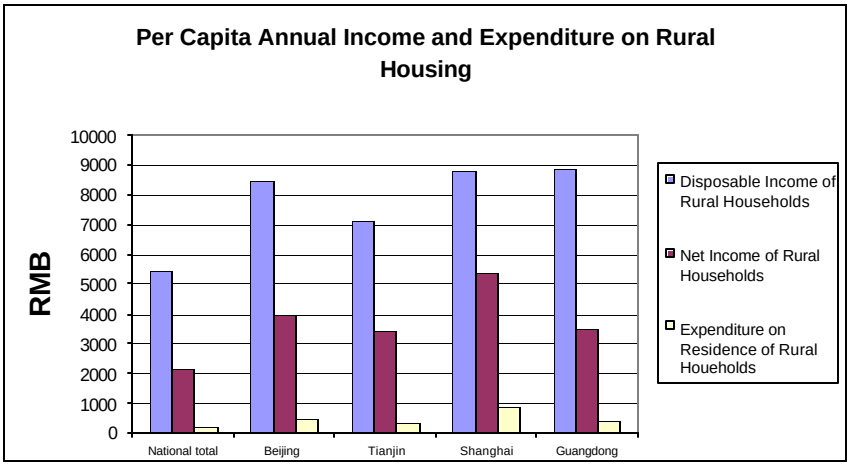

Figure 17. Per Capita Annual Income and Rural Expenditure on Residence (1998)
Source: China Statistical Yearbook (1998).

China's rural households have a much lower annual income than urban households do. Also, there are few programs that provide government-built units in rural China. The cities shown in Figure 17 are the most developed in China and, correspondingly the rural households associated with these regions have the highest income among rural households across the country. The highest amount spent on residences is in rural areas of Shanghai, 876.39 RMB per capita in 1998.

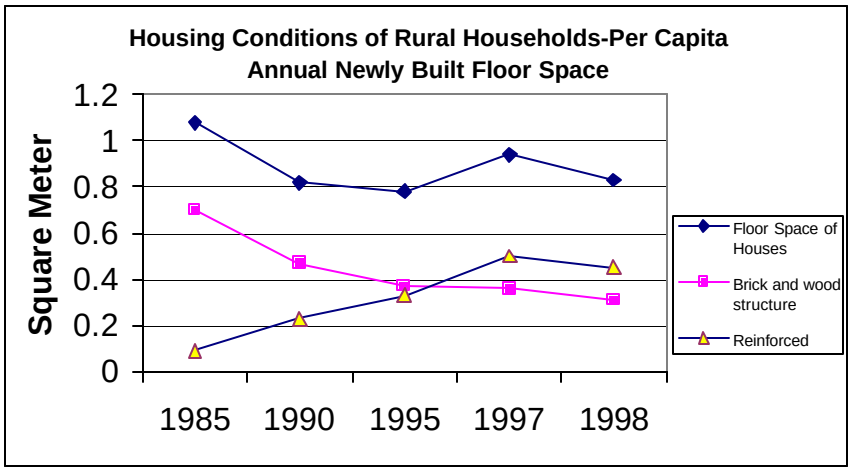

Figure 18. Per Capita Annual Newly Built Floor Space of Rural Households
Source: China Statistical Yearbook (1999).

There are two kinds of housing structures in rural areas: one is brick and wood; the other is reinforced concrete. In recent years, fewer and fewer new houses have been built of brick and wood, while houses with a reinforced concrete structure have become more popular. For the Chinese, this implies a gradual improvement in rural housing in China; the reinforced concrete structures are more expensive than those made of brick and wood are, and with this added expense comes the notion of higher quality.

In the late 1970's China instituted regulations restricting the use of wood, as it was then believed that the nation's wood resources were coming under heavy pressure. In 1983 this concern led to the promulgation of the 'Regulations for Economical and Rational Applications for Wood and Wood Substitutes.' These regulations prohibited the use of wood in ordinary buildings for floors, stairs, wallboards and other decorative uses, wooden trusses for use in house construction was banned as well. This public policy has led in part to the declining trend in the brick and wood structure over the past 15 years.

Table 12. Housing Conditions of Rural Households

	1980	1985	1990	1995	1997	1998
Number of Rooms Per Household (Room)	4.06	5.11	5.61	5.14	4.84	4.90
Per Capita Floor Space (m^2)	9.40	14.70	17.83	21.01	22.45	23.71
Brick and Wood Structure (m^2)		7.47	9.84	11.91	11.86	12.16
Reinforced Concrete Structures (m^2)		0.31	1.22	3.10	5.11	5.72
Cost Per Room (RMB/m^2)	267.17	465.75	803.06	1864.68	3022.77	3126.44

Source: China Statistical Yearbook (1999).

Note: Data in this table are obtained from the sample surveys on rural households.

Table 12 describes the housing conditions for the rural population. Brick and wooden structures have traditionally allowed for a greater floor space, and has provided about 2/3 of the total floor space. The strong growth of reinforced concrete structures is associated with high-rise buildings and the substitution policies for wood and brick use.

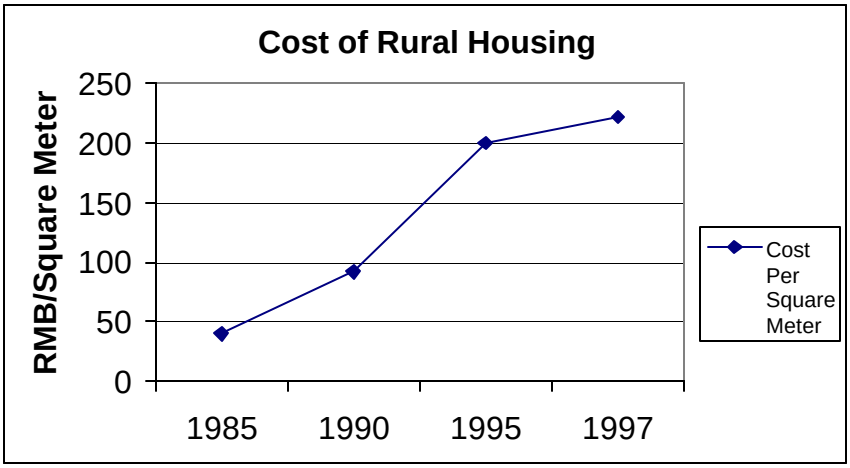

Figure 19. Cost per Square Meter of Newly Built Floor Space of Rural Households

Source: China Statistical Yearbook (1999).

The cost per m^2 of newly built rural houses went up gradually in recent years. The cost per m^2 of newly built rural houses was estimated at 221.92 RMB in 1997, which is one-sixth of the cost for urban real estate. Rural housing is ordinarily built from lower costs and poorer quality materials than commercial housing in urban areas, which accounts in part for the difference in the cost per m^2.

China launched its Affordable Housing Projects in 1993, which raised rents for public housing. The government expects that housing investments will drive economic growth over the next three to five years. With it, the demand for associated industries, especially wood for construction, furniture and interior decorations should increase. Meanwhile, in 1996 local bans on the use of brick and concrete in construction in order to save soil for agriculture and are becoming more widespread. The Wood Products Substitution Policy of 1983 has in effect been superseded by a brick and concrete substitution policy,

meaning other materials will be used in construction, though this will mainly affect rural areas. In the urban areas, wood frame housing is only about 10% of the total housing starts with most wood frame housing located in rural areas. From 1998 to 1999, due to China's housing reforms, commercial housing starts increase from 7,590,000 to 8,430,000 units.

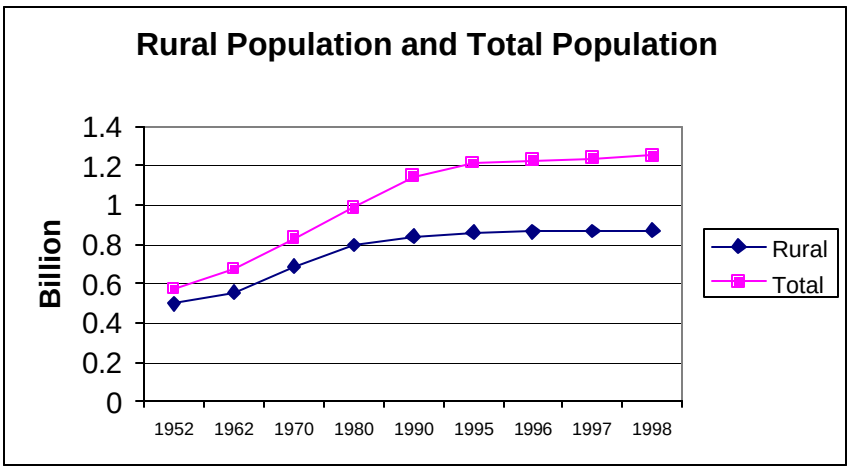

Figure 20. Rural Resident and Total Population

Source: China Statistical Yearbook (1999).

The percentage of rural population over total population has decreased over time. In recent years, the population appears to have remained stable. Around 860 million people live in rural areas. In Figure 19, the newly built wood frame structure per capita in 1998 was 0.31 m^2. Therefore the total floor space of newly built housing of wood frame structures in rural areas in 1998 was about 26.6 million m^2, approximately 286 million square feet or a quarter of a million houses of 1,200 ft^2 in size.

Because of the low budget of rural housing (248 RMB/m^2) in 1998, it is difficult for rural residents to use a lot of timber for their housing. These residents commonly use more brick than timber because brick is more readily available and requires little input other than soil and family labor. The use of timber focuses on trusses, beams and posts, while brick is used for the walls, and tile is used for roofs.

WOOD USE AND HOUSING

Wood use in housing is a small percentage of construction materials. Table 13 provides the total amount and composition of expenditures in the construction sector. Timber is 6% of the value of construction materials used in 1998 nationally. Timber used in construction is a much smaller percentage among the urban areas. In Beijing, for example, timber consumed in construction activities is valued at less than 3% of the total construction material consumption value. Only in Guangdong Province is the value of timber higher than the national average. It reaches nearly 10% of the value of materials used in construction.

Table 13. Consumption of Main Construction Materials of Construction Enterprises by Region (1998)

	Value of Materials (RMB Billion)	Steel (RMB Billion)	Timber (RMB Billion)	Cement (RMB Billion)	Steel (Million tons)	Timber (Million m^3)	Cement (Million tons)	Price of Timber (RMB/m)
National Total	442.7	119.57	27.76	71.4	43.67	28.1	228.36	988.5
Beijing	30.57	8.197	0.88	2.55	2.40	0.75	7.04	1184.2
Tianjin	9.72	2.24	0.43	1.72	0.83	0.31	5.6	1406.7
Heilongjiang	14.83	2.61	0.54	1.86	0.87	0.60	4.64	904.8
Shanghai	18.1	5.14	0.83	2.35	1.82	0.65	6.74	1282.7
Guangdong	35.07	11.2	3.41	6.39	4.02	4.06	17.81	840.6

Source: China Statistical Yearbook 1998.

Figure 21 shows the distribution of construction material for China's construction sector. The consumption of steel is the largest single component, over one quarter of the total value of construction materials. It is expected that much of the growth in the construction material will be in steel as high-rise apartments in urban areas are built. As a result, expect demand for wood products used in construction will not increase as sharply. However, wood products for interior use and furniture should grow.

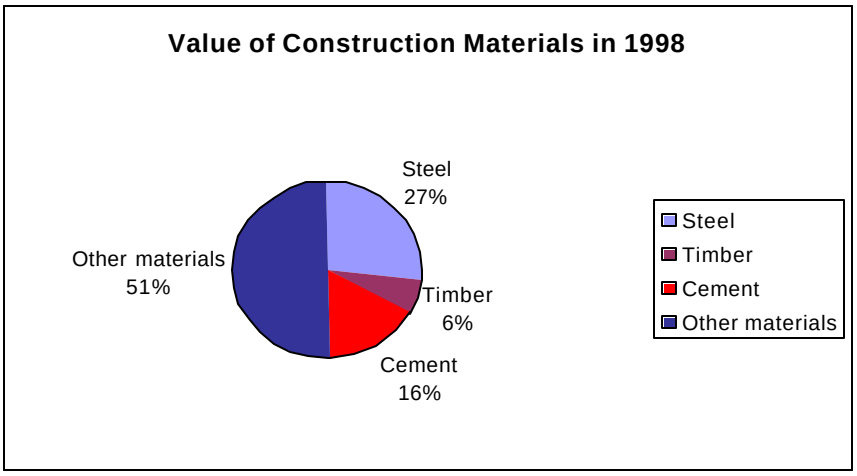

Figure 20. Value of Construction Materials in 1998

Source: China Statistical Yearbook (1999).

The majority of urban China homes are six-story brick wall structures with pre-fab concrete slabs. China has moved away from wood to concrete for safety reasons. Contractors are looking for greater heights for its buildings to be able to house China's large urban population. Almost every city in China is a high-density area and because of this fire is a general concern to all. The concrete and brick structures in use now are considered fireproof. China has developed some earthquake-resistant building systems. A major impediment for wood-frame housing is its inability to reach the 6-story minimum height for the majority of urban housing.

Table 14. Urban Construction Market Segment Table (1999)

	1998	1999	2000
Total housing starts (thousand units)	8,516	8,942	9,389
-- of which, wood frame (thousand units)	85	89	93
-- of which, steel, masonry, other materials (thousand units)	8,431	8,853	9,296
-- of total starts, residential (thousand units)	3,829	4,471	5,634
-- of residential, single family (thousand units)	383	447	563
-- of residential, multi-family (thousand units)	3,446	4,024	5,070
-- of total starts, commercial (thousand units)	4,688	4,471	3,756
Total value of commercial construction market ($Billion)	40.56	42.56	44.72

Source: USDA/FAS Forest Products Annual, 1999.

Note: Housing starts estimates are for urban areas only, based on 666 cities and 36 m^2 average per unit.

Table 14 delineates wood frame housing starts from total housing starts. Wood frame housing is only 1% of total housing starts. Wood frame housing starts represent a small segment of potential wood demand. As more urban families move to apartments of their own, imports of higher quality products such as, flooring, molding, windows, doors, cabinets, paneling, wall units and furniture will increase. In most urban housing, aluminum doors and window frames are standard issue, while vinyl frames, rather than wood, are replacing aluminum in budget housing. These markets represent a prospect for importers as the housing sector continues to be reformed.

Little is known of how wood use is related to real estate market transactions in China. In the U.S., for example, sales of furniture and other wood products are often associated with transactions of real estate as new owners repair, remodel and redecorate their homes. A similar relationship may exist between real estate transactions and wood product consumption in China. However, little information exists regarding wood use in China's household expenditures. The following discussion of this outlook is based on data from the United States Department of Agriculture (USDA, 1998, 1999).

Table 15. Furniture and Interiors Sector in China

	1998	1999	2000
Residential housing starts (number of units: million)	3.83	4.47	5.63
Total number of households (million)	342.80	352.80	362.80
Furniture production ($ million)	10,482	11,530	12,683
Total furniture Imports ($ million)	1,800	1,980	2,178
Total furniture exports ($ million)	2,193	2,412	2,654
Interiors market size ($ million)	1,531	1,788	2,253

Source: USDA/FAS Forest Products Annual 1999.

Note: Housing estimates based on 36 m^2 per unit.

While China's middle class remains small (in the late 1990's, 28 million), compared to western countries, it has grown rapidly and will reach 150 million at the end of 2000 resulting in increased expenditures for home furnishings. The market opportunity in urban China for wood use in interior decoration is large, and the demand is expected to continue growing. Interior uses include doors, windows, furniture, flooring and cabinets. This is particularly true as China works through the current economic slowdown, and housing reforms begin to take hold. The reforms will help boost demand as more and more families move into their own homes. Investment in furnishings and home improvement increases sharply in buildings that have converted to private ownership. Demand will start edging up faster when low-income families eventually become affluent enough to renovate or move, most likely during the next ten years. When this happens, high quality wood products will all be in higher demand.

Demand for furniture and interior decoration wood products is growing rapidly, with the two markets worth a total of $12.3 billion in 1997 and increasing to $13.6 billion in 1999. In 1997, China's furniture manufacturers produced goods valued at $9.4 billion with exports valued at $1.4 billion and total market sales of $8.4 billion. As competition has intensified, however, supplies of some types of furniture already exceed demand. Lacking their own designers, many furniture companies saturate the market with copies of existing products. As a result, they are slow to catch up with international trends. China has officially registered 30,000 furniture manufacturers and 65,000 paneling firms. Its estimated total annual capacity for production of medium-density fiberboard (MDF) is 1,485,000 cubic meters, including expansion of 345,000 cubic meters in 1998. Guangdong Province is the biggest MDF producer, with an annual capacity of 275,000 cubic meters.

Softwood has not proved popular with Chinese consumers so far. At the moment, softwood is mainly used for low-quality applications, such as frames for cabinets. As a result, demand for softwood is underdeveloped compared to demand for hardwood and plywood, though inexpensive Scandinavian style pine or pine-effect furniture is beginning to appear in large cities. Some of this is imported; some is locally made modern style furniture using materials such as shaving slabs, MDF, and fine wood board. Several

foreign manufacturers sell products in China, including Sweden's *IKEA*. European beech is becoming popular for interior decorations, especially for doors.

Demand is high for replacement furniture and interior refurbishment for hotels and offices, as well as for individual homes. People in rural areas have also begun purchasing industrially made furniture, and some cross-border and foreign enterprises have set up factories in China. Some Hong Kong manufacturers have moved operations to the Chinese mainland, while Taiwan has set up more than 300 factories. Singapore has set up a furniture industrial sector close to Shanghai, with seven enterprises already producing furniture and do-it-yourself products, much of it for export. Companies from Malaysia, South Korea, Japan, the US and Italy have also established plants.

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Appendix

GLOSSARY

Affordable Housing: The targets are low and middle-income households. The basic principle of finance was government help, work unit support with individuals bearing the main costs. The central and city government shares the initial capital investment required. Free allocation of land, the subsidies of district and neighborhood infrastructure costs, and the selecting of developers by tendering or bidding can reduce the construction costs. The sale price is the cost price.

Commercial Housing: Housing which can be sold and bought freely in the housing market, versus noncommercial housing, which cannot be bought or sold. Commercial housing includes residential homes, business properties and shops; the three current types of housing which can be exchanged in China. For purposes of this paper I define the supply of China's housing as structures that can be sold in the housing market.

Disposable Income of Urban Households: The income of the sample households which can be used for daily expenses, i.e. total income minus income tax, property tax and other current transfers.

Housing and Real Estate Development: Acquiring urban land user rights and constructing urban infrastructure and buildings

Investment in Fixed Assets: The essential means for social reproduction of fixed assets. By means of construction and purchases of fixed assets, more advanced technologies and equipment are adopted into the national economy, and new sectors are established, which promotes the adjustment of economic structure and the regional distribution forces. These enhance economic strengths so as to provide material conditions for improving people's livelihood. Amounts of investments in fixed assets, refers to the value of activities in construction and purchases of fixed assets in monetary terms. It is a comprehensive indicator that shows the size, pace, proportional relations and use orientation of the investment in fixed assets. It includes investment in capital construction, investment in innovation, investment in real estate development and other investment in fixed assets.

Net Income of Rural Households: The total income of the permanent residents of the rural households during a year after the deduction of the expenses for productive and non-productive business operations; the payment for taxes and the payment for collective units for their contracted tasks, which can then be spent for investments in productive and non-productive construction, for consumption in daily life and for savings deposit.

Price Index of Investment in Fixed Assets: Reflects the trend and degree of changes in prices of investment in fixed assets. Removing the factor of price change in the aggregates of investment at current prices, this indicator shows the changes in the prices of commodities and fees involved in the investment of fixed assets, and can be used to observe the actual size, growth, structure, and efficiency of investment in fixed assets and provides reliable and scientific data for government planning, management, decision making, and further improving the current national accounting system.

Speculative Buildings: Buildings that are for sale or for rent to make profit

Wood Substitution Policy: In the late 1970's China instituted regulations restricting the use of wood as it was then believed that the nation's wood resources were coming under heavy pressure. In 1983 this concern led to the promulgation of the 'Regulation for Economical and Rational Applications for Wood and Wood Substitutes.' These regulations prohibited the use of wood in ordinary buildings for floors, stairs, wallboards and other decorative uses. Wooden trusses for use in house construction was also banned.

Work Unit: It has a wide range in China. An institution, a branch of State Owned Enterprises (SOE), a government organization, or a company where people work can be called a work unit.