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# **The Development of Affordable Housing**

## **---A Case Study in Guangzhou City, China**

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## Master of Science Thesis

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### **Abstract:**

The development of 'Affordable housing' has become an urgent and important topic of discussion in China. Unlike in western countries where the social welfare system has been set up for many years and the public housing system also is mature, in most of Asian countries, the social welfare systems are still weak in relation to their large amount of low-income populations. The gap between rich and poor is considerable large, and is still increasing; many people with low-income could not afford their own houses since the minimum down-payment and the entry-requirement of real estate market are both increasingly high; the 'Affordable housing' is therefore very difficult to be developed appropriately under this circumstances.

The thesis provides an overview of the development of 'affordable housing' around the world, and a brief introduction of the relevant situation in China, in order to find out some applicable policy suggestions for the development of Guangzhou city's affordable housing market from such previous experiences. Public housing system in U.S. and Sweden has a strength foundation for many decades, while China is a developing country with the largest population in the world, in order to solve the housing problem, Chinese government start to implement public housing policies and establish the 'public housing system with Chinese style'. The Guangzhou affordable housing policies are based on the Chinese style public housing system, given the similar culture background and economy foundation, Singapore and Hong Kong's public housing development process has more value for Guangzhou City Government to learn from.

Results from questionnaire and analysis are shown for the current housing statu in Guangzhou City, which reflect some realistic housing problems and it takes a long term for householder to achieve down payment and 'full house ownership'.

### **Key word:**

Affordable Housing, Homeownership Achievement, Real Estate Market

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## Contents

1. Introduction.....	6
1.1 Affordable Housing.....	6
1.2 Purpose and Research Questions .....	6
1.3 Structure and Methodology .....	7
1.4 Limitation .....	8
2. Literatures Review .....	9
2.1 Issues in Affordable Housing Development.....	9
2.2 Homeownership Achievement.....	9
3. Global Affordable Housing .....	11
3.1 Overview of global affordable housing.....	11
3.1.1 Definition and Characteristic.....	11
3.1.2 Social Welfare Economic Theory .....	11
3.1.3 Problems and Challenges .....	12
3.1.4 Argument.....	12
3.2 The development of Social Housing in Sweden.....	13
3.3 The development of Public Housing in United State.....	14
3.4 The development of Public Housing in Singapore .....	16
3.5 The development of Public Housing in Hong Kong.....	18
4. Affordable Housing in China.....	21
4.1 History and background .....	21
4.2 Housing Policy Framework.....	21
4.3 The Development of Affordable Housing in China.....	22
4.3.1 Conception of Affordable Housing .....	22
4.3.2 Characteristics of Affordable Housing .....	23
4.3.3 Reform process of Affordable Housing.....	24
5. Overview of Guangzhou Real Estate Market .....	26
5.1 Geography Information .....	26

5.2 Economy Status .....	28
5.3 Real Estate Market in Guangzhou .....	28
6. Guangzhou Affordable Housing Development.....	31
6.1 Results from Questionnaires.....	31
6.2 Questionnaire Analysis.....	31
6.3 Analysis of Guangzhou Affordable Housing Dilemma .....	35
7. Conclusion .....	37
References .....	38

# 1. Introduction

## 1.1 Affordable Housing

The house provides a ‘necessary foundation’ for every people to live during the social actions and physical actions (Byrne and Diamond, 2007). The price of real estate market became more unstable since the economy of many countries increased dramatically after World War II. House became ‘more expensive’ in many countries from the beginning of 21st century (Haffner and Boumeester, 2010). There is a gap between high-income and low-income group. For low-income group, to own a comfortable house became one of the unaffordable dreams in their lives.

Providing affordable housing has become an urgent task for governments. Today have many governments around the world realized it and have been planning to take more actions on it. The U.S. government, Sweden’s government and Singapore’s government, for examples, have carried out many policies to solve the problem. Wallace published a research in 1995 that analyzed the affordable housing gap in US mainly by focusing on the federal financial support and the rules of “for-profit and non-profit” agencies (Sirmans and Mecphenson, 2003).

There is no official definition of ‘affordable housing’ yet, but there is a wide acceptable definition about the ‘target group’ of ‘affordable housing that was defined by James E. Wallace: If a family’s total monthly cost is less than 30% of householder’s income (United States life cost level), the affordable housing policy would be applicable. Different countries have difference affordable housing policies; in Canada and United States, local governments seem firmly committed to increasing the availability of affordable housing through a variety of innovative subsidy programs; In China, affordable housing involves the national construction program and organized by the real estate department of province government to provide a suitable housing environment for the low-income families.

The development history of affordable housing showed that western countries and eastern countries are in different situations and cannot share the same policies. The affordable housing system development started very early in U.S. and Europe, but in Asian countries, it started from the middle of 20<sup>th</sup> century. Some of the high developed countries and areas in Asia like Singapore and Hong Kong started their affordable housing project from 1950s, which was quire early in Asian area. In the recent decades China government made very hard efforts to develop affordable housing for the low-income householders in order to keep the growth of society stable.

## 1.2 Purpose and Research Questions

The main purpose of this thesis is to find out some applicable suggestions and policies for the development of Guangzhou City’s affordable housing market by comparing and analyzing the relevant experiences from other countries and areas.

Many successful policies and development experiences of both western and eastern countries are introduced first. In order to find out if such experiences can be applied also in the market of Guangzhou City, the thesis analyzes the possibilities by comparing the backgrounds, policies implement and other circumstances.

The thesis also analyzes the current situation of Guangzhou City's development. It indicates both potentials and challenges that could help both the government and potential investors to have a basic understanding of the affordable housing market and its possible developing directions in the future.

The thesis mainly focuses on answering the questions about Guangzhou City below: Why is difficult for young householder to enter real estate market in Guangzhou City? What are the challenges for government to develop this market? Why is it so important to develop affordable housing in order to achieve sustainable development target in real estate market growth? What are the alternative options for government to solve the conflict in affordable housing development process?

### **1.3 Structure and Methodology**

#### ***Structure***

A literature review of 'Affordable housing' field is right after this introduction. In this part, many previous works and key findings are described, and it also refers some housing sustainable theories.

The next part is a brief overview of the global affordable housing development, which includes the experiences of Europe (Sweden for instance), U.S., and Asian cities (Singapore & Hong Kong for instance). For each area, an evaluation of the local policy is also carried out.

The third part is an introduction of China's current housing policy which has great influence to the Guangzhou local housing market.

An overview of the Guangzhou's local real estate market and the housing development is presented in the fourth section.

The last part is an analysis that mentioned in the *methodology* section.

#### ***Methodology***

A questionnaire is used to investigate the market value of housing and the average income of household in different target group in Guangzhou City. The questionnaires sent to acquaintance friends who are working in real estate cooperation and hospital. This observation group is the young household, they have the realistic and directly experience about Guangzhou housing status.

The first part of the questionnaire is about the current housing status of the household. The questions in this part are aim to get the information about the current living status of different households, including the location, living space, consumption level, the way to get relevant

market information and so on. The second part is about the ideal housing status of the household. In this part, there are more details about the householders' favor living environment, affordable housing price level, the selection between commercial housing and affordable housing and so on. The next part is about rental housing, because most of the householder will choose to rent a house as temporary living place before they can afford to buy their own houses. In this part, we can know the information about the different requirements between rental house and ownership house for householders. The fourth part is about the opinions of householder to the local real estate market. The last part is about the personal information and background.

After collecting and sorting the information from the questionnaire, an analysis is carried out by three steps below:

1. According to the information that collected from the questionnaire, we can calculate how many years would an average-leveled household take to save the down-payment for a house in general situation, and how many years would be taken to finish all the payments of a house.
2. Carrying out different scenario analyses to analyze that under which circumstances that the period length of the housing payment could be shortened, and how much it could be shortened. In this step, the interest rate, down-payment rate, and other variables would be changed in different scenarios.
3. According to both the calculate results and the information from the questionnaire, an ideal and reasonable period length of the housing payment would be set up at last.

## **1.4 Limitation**

This research is based on current economic factors in Guangzhou real estate market, by assuming that polity and environment conditions will not change during this researching period. Since many market conditions are not included in this research, the analysis result can only be used in the similar cities like Guangzhou. Suppose the internal and external economy factors in real estate market can be observed and predicted.

Guangzhou is one of the developed cities in China, but it has many particular factors which is very hard to be found in other cities, for example, Cantonese's consumption habit, culture background, and life style. Under this difference, the concept 'house ownership achievement' is means residents completely have the house ownership right, no arrearage, and no ownership segmentation, in a word is 'full house ownership'. On the other side, the observation group is not much enough to reflect all the problems in housing market of Guangzhou City.

This research can be suitable used for Guangzhou government polities making and implement, but has confine to apply for other city government. It is very difficult to have the ambitious that provide the perfect policies measure to solve the housing problems completely.

## 2. Literatures Review

### 2.1 Issues in Affordable Housing Development

Human development is always together with urban development. Urbanization comes from human activities that gathering for food distributed, living collection and infrastructure providing in order to make a better environment for human survival. Moreover, housing expansion is the symbol of urban development because housing is the central needed to the social and economic development for everyone (Byrne and Diamond, 2007).

With city rapid growth, more and more people moved to city and as the consequence city turned to be crowded. Housing is one of the basic needs of human living, the same important as the food, it provide a privacy and security place for people to live in (Sheng and Mehta, 2008). When large number of people living in city became more competition, the demand to housing will increase then the gap between housing demand and supply will enlarge if the construction speed is lower than housing demand increasing. The young households and low-income households have the lower competition power and may be they will become homeless because it is difficult for them to enter the housing market. If the homeless households status get worse the stable of urban development cannot be continue.

In order to keep the urban stability and sustainable growth, the city government has to make some measures to help the young and low-income households to enter the housing market. Sheng and Mehta pointed out that housing is a 'human right'; no government can ignore this important right to the citizen (Sheng and Mehta, 2008). Schmidt and Budinich provided a framework for government to deal with the housing problem during the urban development for the young and low-income households. Government takes actions to service young and low-income households through analyzing the value chains in housing market (Schmidt and Budinich, 2007). Among government actions, policies have the direct effect on housing market and the efficiency of the protection to young and low-income household rights.

### 2.2 Homeownership Achievement

Improving living environment for households has been a government policy since many years ago, the European countries and United State had made Home ownership program to make people living better. But the goal of 'living better' is not only can they afford themselves a house to live but also can they have jobs, substantial incomes, security protections and pension fund supports, therefore they do not need to worry the rest of their lives. After analyzed the Europe's current living status according to the Europe's previous home ownership experiences, Doling and Shorsheewood (2003) found out that home ownership will be affected by both the welfare system and the labor market.

The U.S. had made some achievements in public house sector since World War 2, and many governments from other countries would like to learn the experience from U.S. to solve their own problems. Weesep and Priemus's lecture pointed out an obviously lesson that the privatization do not solve all the problems in the housing development process. They also found out that based on the American tradition, the public housing became the benefit for

‘Euro-American’ group, with the housing program implement, and government moved housing subsidy program from construction subsidy to the rental subsidy.

China is the biggest developing country in the world. With rapid economic growth and speedy expanding pollution emissions, China has been the biggest polluter. The good way for China to reduce pollution emission is to choose the sustainable development pattern when they develop countries economic. Housing industry is a very important part of China economy. In the past decades in China, housing industry has showed the great distribution in China’s economic development; especially residential building has made “a new growth point of national economy” (Sun, 2008:6). As an essential part of China economic development, housing sustainable development has a positive development.

Many researchers start from the housing policy to research the national housing status. National housing policy makers establish the housing policy framework according to country housing problem. Many researchers and governors made lot of research on housing policy making process in order to shape suitable city housing development course. Policy making is complicated and take time process as a ‘dilemma’ (Diamond, 2010). Different cities have different policy dilemma, some cities have the high density but less economy development level like Guangzhou, some cities are in developed level and housing policy involve migration problem like Singapore.

Whatever in developing city or developed city the affordable housing policy is often used to solve the housing problem like to inhibit the excessive growth of commercial housing price, and to help the low-income households to own their houses. However, like other policies, affordable housing policy not only has the advantage but also disadvantage. The particular case is the America affordable housing crisis which is the result from the increasing of housing cost cannot provide enough affordable housing to huge households (Jois, 2007). In order to make the growth of the housing markets to be stable, the local government, on the one hand, can provide some preferential tax-policy support and financial support to the constructor or locates the affordable housing project in the suburb area where the land cost less, therefore the total cost of the affordable housing project would be lower; on the other hand, make the housing market enter level for the low-income households to be lower, and also provide them financial supports, so that it can create a stable and sustainable development for the housing market and the society.

## 3. Global Affordable Housing

### 3.1 Overview of global affordable housing

#### 3.1.1 Definition and Characteristic

Affordable housing is one part of the housing market in western developed countries as well as in eastern developing countries. The so called housing is the house that built for residential use which provides basically private and secure place for people to live in. There are many different ways to classified housing, for example, according the provided party standard, these are commercial housing and public housing; according to the business standard, there are general commercial housing and low-profit housing; according to the customers standard, there are social housing and business housing. Housing is not only has the characteristics of commercial profit but social security protection. Affordable housing is an important part of social housing security protection, provided by local government to the customers who is low-income household or has lower competition power in social market. Many countries' government use affordable housing policy to organize the social security system.

The definition of affordable housing can be found in article that written by Iglesias:

*“Affordable housing” is defined as housing that is legally restricted for the use of persons or households who meet specific income requirements.*

The ‘Affordable housing’ that is used in this thesis can be exactly understood as the definition above. Moreover, affordable housing is provided or organized by central or local government to the low-income households and the people who has less competition in housing market.

The characteristics of affordable housing can be summarized as follow:

1. Government involving. As the main provider of affordable housing is not commercial real estate developers but the governments, affordable housing project is planned by the government including the location, housing type, building standards and the level of house price.
2. Consumers are fixed. There has limitation for the affordable housing consumers, like low-income crowd. Government has the principles for affordable housing purchase, like family members, income level and background. It should be noted that affordable housing market is opened to specific consumers.
3. Complicated applicant selection. In general speaking, the number of affordable housing supply is less than the demand, because if the supply is higher than demand, it will fall down the housing price and affect the commercial housing market.

#### 3.1.2 Social Welfare Economic Theory

Adam Smith is generally considered the firstly researcher of welfare economics. His book ‘wealth of nations’ presents the ‘invisible hand’ hypothesis emphasize the important of

market efficiency to distribute the social resource and the market can promote both of 'self-interest' and social wealth increasing.

The other researcher Arthur Cecil Pigou had developed the welfare economics that focus on private and social wealth, he pointed out that market has shortage 'market failures' will destroy social fair competition and suggest government can correct the market failures through tax and subsidy policies. His book 'welfare economics' presents the welfare economics theory systematically. Pigovian taxes, which is '*taxes used to correct negative externalities, are named in his honor*' (Wikipedia, 2010). The core of Pigou's welfare economics is government should collect tax from the richer, then subsidies the tax to support the poor. Pigou emphasize the important of market because the 'invisible hand', and the market can achieve resource distribution with fairness. While another economist John Maynard Keynes has different views about Employment, interest and money supply in market system.

John Maynard Keynes made the proposition that increasing the scale of social security is one part of government spending. He advocated government should involve in country economy administration, it is possible to make balance between richer and poor in the social welfare distribution through tax adjustment by government. Keynes made comment that market itself could not work very well for people without the government manager, government can manage market with political, such as, tax policies, market operation roles and other regulations .

According to Pigou and Keynes's theories, there are two different ways to distribute social welfare, one is more emphasize 'equality' that every citizen could share the social welfare, and it would be the government who pay for the citizen's welfare expenditures like public health insurance and education cost, etc, the typical example of this pattern of welfare system is Sweden welfare system, it is therefore called "Swedish Model"; the other one based more on 'federal welfare distribution', peoples have to be responsible for their own living and some welfare cost, like health insurance, education cost, housing, etc, and government would provide subsidies to low-income households, like U.S.

### **3.1.3 Problems and Challenges**

Both developing and developed countries have had various types of public housing systems to help low-income households. But some problems have appeared during the housing development process. First, the queue of the applicants is so long, it will take some years for some families. For developing countries, it is difficult to make selection because the lack of applicant information.

### **3.1.4 Argument**

The arguments between advantage and disadvantage of affordable housing have been in existence for decades. Some researchers believe that the affordable housing is helpful to protect the living right of low-income households. Affordable housing is provided by government, many low-income households can have their own house. But another view

believe that affordable housing is management by government, including the price decision which will impact the commercial housing, destroy the freedom on housing transfer market.

## **3.2 The development of Social Housing in Sweden**

### ***History and background***

Kingdom of Sweden located in north of European, the third large country in the European Union with the 450.295 square kilometers area and 9.38 million population (calculated in July, 2010). Nearly 85 percent of Swedish live in urban areas, especially the capital Stockholm with 22 percent of country population. Basically, Sweden has the low population density in the world with 21 inhabitants per square kilometer in average (Wikipedia, 2010).

Sweden is a constitution monarchy country with the king or queen is the head commander of country and armed forces only perform ceremonial functions. Parliament is the law and policy maker of the country, has 350 members voted by general election since 1970 in a single house (Donner, 2000). Government is the administrative body led by a prime minister and take responsibility for the parliament. The courts are the main body of the Sweden judicial system. These three parts are independent without interference from each other.

### ***Economy issues***

The private commercial economy and public economy both existing in Sweden's economic system, this 'mixed economy' achieved a high developed level aided by three main natural resources: timber, hydropower and iron ore (Wikipedia, 2010). Sweden economy successful is well known for high-tech industry and national welfare benefit. The characteristic of Swedish welfare model was mainly government expenditure in public sector, about 60 percent of GDP, which include providing work opportunity for workers, wield range of insurance and old-age pensions.

The growth of Sweden economy has been stable and the inflation rate has been low during the past 20 years. But inflation once was a problem in the 1980s when government could not afford the huge volume of public expenditures and the budget was seriously in deficit.

The growth of Swedish economy based on the export extension. The government advocated opening the market and free-trading among international business. Since 1991, the Swedish government has given up the quota system. Moreover, after Sweden joined the EU, except the traditional policy alcohol national franchise, implement 'EU Non-Tariff Measures' to reduce trade restrictions. The main trading partners of Sweden are Germany, Britain, U.S. and Nordic countries. In recent years, the export of Sweden has rapid development especially in Asia area. Sweden has 132.8 billion U.S dollar export volume in 2009, including machinery, motor vehicles, paper products and chemical and so on (Wikipedia, 2010).

### ***Affordable Housing Policies***

As a typical welfare benefit country, Sweden has a completed and clear affordable housing policy to support the low-income households, big-families, retire and workless people. One of the public housing characteristics of Sweden housing policy is that government policies are

not only provide public housing for low-income household but try to create a living environment for them with less different between low-income and high-income households.

The proportion of the public houses that are developed by Sweden's government or by both the government and other develop companies to all the houses as a total is around 2/3 of rental housing, which is really a high percentage comparing to other western countries. The average living space of Swedish is 41 square meters, they have two rooms in average level, and 93.1% housing with bathroom, and 97.5% housing with central heating system, all of these showed Sweden is one of the highest housing standard countries in the world. But all of these achievements came after a long time difficult practice in Sweden housing development process.

From 1920s to 1930s, Sweden experienced a large scale of 'short of housing supply' as same as other developed countries. In the later 1930, 41% household living in Stockholm only has one room space or less in average, moreover there are lot of percentage were became to homeless. In this rough situation, Sweden government set variety housing policies some of them are still working today. The cores of these policies included: government take responsibility to make the long term country housing development plan, adopt a positive land policy to reduce housing development cost to increase housing construction, monitoring the price changing between the reasonable levels in housing market, provide variety tax and financial support for subsidy or direct subsidy to low-income and retire people.

From 1960s, government made the ambitious strategy 'Million Program (Mijionprogrammet)' for the purpose of providing one million new houses for different groups of households. The famous government program had successful solved the 'short of housing supply' social problem from 1965 to 1974, after this period, government policies concentrated on upgrade the housing quality and better living environment.

### ***Comments on Sweden's Social Housing Policy***

After World War II, Sweden's government initiated many policies in order to achieve their housing goals: one is 'to rationalize and increase housing production in order to rise significantly the average housing standard'; and the second goal is 'to equalize greatly the distribution of housing consumption'. The general policies of Swedish housing are framed by the state, and local government responsible for implement, such as, determined how to allocate the social housing to low-income group and retire people. On the one hand, affordable housing policy of Sweden is based on the very strong social welfare system and the government provided full financial support to the low-income group to own their house. But on the other hand, the huge amount of subsidy cost government spending a lot until the reisis around 1990.

## **3.3 The development of Public Housing in United State**

### ***History and background***

U.S. has the largest national economy in the world. It has the solid market foundation and strong growth power. Due to the economy booming, American government has the capital to

develop large-scale construction project. In 1980s, American housing market had rapid development, the investment of house account 6% to 8% of GDP. In American, the core of housing policy include two main parts, one is encourage the affordable housing project, the other is provide financial support to the low-income household to own their house. Those policies achieved the ambitious government strategies that are economy and social stable development. Actually, the American housing policies have the long time development process.

### ***Affordable Housing Policy***

There are many households in U.S. are homeowners, the homeownership rate have increased for almost all groups in recent decades (Quigly and Raphael).

In 1937, 'American Housing Act' was put into practice which marked the American government began to change the way of management from indirectly management to directly control management. As a corresponding changing, state government policy moved the housing support subsidies from mid-income household to low-income household, then the scale of public housing had been extend more and more affordable housing were built during that period. In 1949, the famous law in American housing development history was put in practice which called the Housing Act 1949, make the federal government should take responsibility to renewal housing and public housing. In order to keep country prosperity and stably growth, the government should make practical way to solve the housing problems, such as 'enact the provisions for low-rent public housing, slum clearance, farm housing and housing research' to provide a health and quality living environment for every American household. The main provisions of the Housing Act 1949 included:

- *Providing federal financing for slum clearance programs that associated with urban renewal projects in American cities ,*
  - *Increasing authorization for the Federal Housing Administration (FHA) mortgage insurance*
  - *Extending federal money to build more than 800,000 public housing units and*
  - *Permitting the FHA to provide financing for rural homeowners.*
- (Source: Wikipedia 2010)

From the American housing policy development process, it is obvious that the government of American really tried hard to solve housing problem for the low-income household. The characteristics of American public housing included:

1. Multiple housing supplies. There are two main housing supply source, government direct building project and subsidy commercial housing developer. From 1930s FHA started to use government loans and provide subsidy to support local government to build public housing. From 1970s, the local governments reduce the direct building housing project but increase sustentation fund for the commercial housing developer to develop affordable housing and low-rent housing. For those housing developers, government provide tax free or low taxable, low-interest loan, low-price land using fee for them to reduce the development cost.

2. Rental price control and subsidy. Governmental through the legislation to limit the public housing rental price increasing unreasonable, price increase about 2% to 5% per year. Housing rent account 25% of housing disposables income. American government provides 4 ways of subsidy: tax subsidy, rental subsidy, cash subsidy and housing coupon.
3. Financial support. Government provided financial support for low-income household to purchase housing. For example: low-interest and long-term loan guarantees, tax subsidy.

### ***Comments on U.S. Public Housing Policy***

The U.S. has the highest proportion of privately owned housing in the world; the housing policy is an important part of national public policy. The core of this housing policy is to help low-income group to purchase their owned house.

Weese and Priemus had realized some 'lessons' from U.S. government's efforts to make the implement in order to improve the 'housing and living conditions of the nation's poor' (Priemus, 1999). As a research result they found out the 'privatizations of housing' could not settle all the problems in the development of housing process. But keep making housing policy innovation is the successfully tips for U.S. government to make reforms to improve the living status for low-income group.

## **3.4 The development of Public Housing in Singapore**

### ***History and background***

Singapore is a newly industrialized country with the famous nickname of 'garden city'. Since 1964, the Singapore government has introduced the Home ownership for the People Scheme to help the group of low-income people to rent or purchase a public house for their family. Four years later, the government allowed people used their Central Provident Fund (CPF) to be the down payment as part of their housing purchasing fee. More and more people in Singapore had own their house, since owning a house was not a difficult thing for them. Housing and development board (HDB) is the government departure formed to response implement the public housing scheme including manage the new housing planning and development process and allocation the low-rent housing to people needed. The Public Housing Scheme of Singapore is one of the most successful examples of affordable housing production in the world. More and more countries try to learn the experience from Singapore public housing scheme to solve the housing development problem in their countries.

### ***Public Housing Policy***

The truth is housing situation in Singapore that 'More than 80% of Singapore's population lived in HDB flats, with 95% of them owning their HDB flat'. This achievement based on the housing policies of Singapore are concentrated on solve housing problem for residents and formed social wild sense that 'everyone has the right of adequate housing'. Under these housing development strategies of government setting, Singapore achieved more than one

time successful but make the national housing sustainable development. More successful facts in detail from Global Urban Development Magazine:

*'Some 85 per cent of Singapore's resident population lives in public housing. More than 850,000 housing units in 23 new towns have been constructed. While the poor elsewhere are homeless, the poorest 20 per cent of households in Singapore have equal access to housing resources, albeit public housing and many are homeowners. The proportions bear witness to the realization of housing rights'.*

The successful of Singapore Public Housing is evident from these facts:

1. Stronger government manager. Formed a profession non-profit agency HDB responsible for the Public Housing Scheme in Singapore make sure it shaped up. From 1960 to 1965, about 54430 housing built by HDB that solved the housing shortage problem in during this period effectively. The main works of HDB include public housing planning, designing, constructing, allocating, selling and renting out. After 1990s, HDB focus on upgrading public housing environment and facilities, renewal the older public housing, research on housing design to build suitable housing to fulfill people need, and so on. Singapore government made seriously ministering in housing market, limited the housing speculators enter the market to prevent price volatility, auditing the applicant to fulfill the requirement of public housing purchasing.
2. Establish two different type housing market. Singapore government used the political power to separate housing market from one to two, one is public housing market, and the other is commercial housing market. These different markets have different target groups. Public housing market has the public housing, low-rent housing, studio apartment, small size apartment and so on which are the lower housing access level for household because government made subsidy for these households and housing developers. The commercial housing market contain single house, best location house, luxuriance house and so on which suitable for the high-income group or the people who want to do housing investment.
3. Implement central provident fund policy. Singapore CPF policy launched in 1955, it was clearly states the issues. The working Singaporeans saved monthly part of 20% salary to CPF account and their employers also responsible 20% for monthly contributions to it. CPF can only use to specify purpose such as medical insurance, education and housing purchasing.

### ***Comments on Singapore Public Housing policy***

The government of Singapore have been launched the 'the home ownership program' for more than 40 years, they have the complete housing policy system to protect the living right of low-income group. 'HDB' flat is the world's most effective solution for the housing problem, many countries and areas would like to learn the experience from Singapore's housing model to solve the housing problem in their own countries.

### **3.5 The development of Public Housing in Hong Kong**

#### *History and background*

Hong Kong is located on the south of China and border the Shenzhen City over the Shenzhen River. The area of Hong Kong is 1104 square kilometer consists of 200 offshore islands with the 7.055 million populations. It is one of the highest density countries or regions in the world.

Hong Kong used to be a colony region of Britain and it is this colonial experience that make it has the different political and culture process compare to other cities in China. There are different social class categories according to household's income level.

*'Sandwich Class' is considered that the income of this group is between higher income groups to lower income groups in social class.*

In Hong Kong, the sandwich class is considered the family's income between \$20,000 and \$40,000USD per year. There family group are not really poor however they feel need financial support from the government in the beginning years, so they can get more income and life better in the future.

There are three stages in Hong Kong Public Housing development process. That process can conclude the changing as from setting the temporary place for the huge immigrants to take more comprehensive the housing policies and construction program, from only provided the rental housing to subsidize household became homeownership, and from built low level housing to construct modernization public housing.

First stage start from 1950 to 1970, in this period main of the Hong Kong government functions were dealing with the large number of immigrants and set a mass of housing program for the low-income residents. In the beginning of 1950s, lots of shanty homes had been built for homeless, but a terrible fire destroyed thousands of its type house, after that, the public housing policy was launched to be the principle of housing constructed. The housing policy aims in this stage were upgrading living environment for residents, transferring the residents from shanty homes to concrete structure high building to make more space for urban stable development.

Second stage started from 1970s, this period is the turning point of Hong Kong Public Housing development. In 1973, Hong Kong Housing Authority (HA) was established to responsible for the Home Ownership Scheme, Tenants Purchase Scheme, Sandwich Class Housing Scheme and Interim Housing. Since then, Hong Kong government introduced a series of housing policies to standardization the housing market, construction market and the subsidy funded sector.

Third stage can be considered to be the development result of second stage in the late of 1970s. The government took full implementation of the 'Home Ownership Scheme' to speed up the public housing construction schedule. As a result more rural housing had rebuilt to be urban concrete construction, living standard and environment been obviously improved and

the quality of public housing are good as commercial housing because government allowed developers and investors to participate in public housing program.

The successful of Hong Kong public housing model can be point out included:

1. Legitimate formed a housing authority HA as the independence and non-profit housing agency.
2. Effective financial and governor arrangement.
3. Clear housing policies system.

### ***Affordable housing policy: My Home Purchase Scheme***

The Hong Kong Chief executive Donald Tsang had delivered his sixth annual policy address on 13 of Oct 2010. He focused on housing and announced a home purchase scheme in which the governments will subsidies middle-income earners to buy their own homes. He's target is to build 5000 units under the scheme including 1000 at this site in Tsing Yi, if demand proves to be high, the government could allocate more plots to build more flats.

The chief executive also promised that units under the new scheme would be affordable. But he emphases that this home purchase scheme is the no-frills, small and medium-sized flats only for these 'sandwich class' households, if they can spend 45 to 50 percent of their income on rental and also on saving, and also with the added protection of rental non-adjustment. He recommended that the new program is more flexible than home ownership scheme, as tenants would be reimbursed half of their net rental payments for up to five years to help them purchase a flat. He is confidence that this new scheme will make easier for middle-income earners to purchase their own home.

These 5000 flats will be built under my home purchase plan to help the so-called sandwich class buy their own homes. The idea is that they will rent their homes until they can save enough to buy them. First stage of this new scheme, 1000 flats will be provided by 2014, those who qualify for the scheme can rent the flat at a fixed rent for up to five years. They can chose to buy within a specified time frame the flat they rent or another flat under the plan at prevailing market price, or a different unit in the private market. To help them with the down payment, they can get a subsidy equivalent to half of the net rental they have paid during the tenancy period. The idea is to give tenants time to think whether or not to join the housing market without being troubled by the ups and downs of housing prices.

On poverty relief, the government and the business sector will each put in 5 billion dollars to set up a community care fund to giver extra help to the needy beyond what the comprehensive social security assistance scheme can provide. Low income earners may qualify for up to 600 dollars a month in transport subsidy. The subsidy equivalent to half of the net rental paid may not be sufficient to cover the down payment in full. Tenants must conscientiously build up savings to meet the down payment and related expenses (source from TVB report).

### ***Affordable housing policy: Home Ownership Scheme***

Hong Kong has the similar housing scheme as the public housing scheme in Singapore that so called 'Home Ownership Scheme' (HOS). HOS is a 'subsidized-sale' housing program which been launched in 1970s for the purpose to give the poor a chance to buy or rent a low cost housing to make their life more stable and better .

Under the HOS, all residents who belong to the 'law definition' low-income group can buy the house specify by government housing program with about 30 to 40 percent price discount.

### ***Comments on Hong Kong Public Housing policy***

Table1. The comparing between My Home Purchase Scheme and Home Ownership Scheme

Schemes	My Home Purchase Scheme	Home Ownership Scheme
Target	Sandwich Class, individual and families. Applicants with families need a household income of no more than HK\$39,000 (\$5,006) a month and assets of no more than HK\$600,000 (\$77,022).	Low-income residents. Applicants are subject to a monthly income limit of HK\$27,000 (\$3466) for households of up to eight people and an asset limit of HK\$530,000 (\$68,036).
Type of housing proving	5000 no-frills housing	Start from 1970s, as part of the government public housing policy to implement for long time.
Conditions	Rent will be set at the market level, but will be frozen, for up to five years. During that time tenants may buy the flat they are renting or another flat at market price, or buy a flat in the private market, within a specified time.	HOS housing market is only open to 'eligible low-income' residents. After 3 years, residents allowed to put their house in the secondary housing market.
Guarantees	The rent will not be increased for five years, and that one half of the rents paid will be refunded toward the purchase of a home, whether it is the unit being rented or another one in the private market.	The HOS provides a subsidy essentially through lower land premiums charged against the unit at the time of sale. But this land premium subsidy is essentially a loan that needs to be repaid in full at market rate if the owner eventually sells his unit in the free market.

## 4. Affordable Housing in China

### 4.1 History and background

China is located in the eastern Asia, in western of Pacific Rim, with the land area 9.6 million square kilometers and over 1.3 billion populations. It is the greatest population country account and the third largest area in the world, accounted 19.5% of world total population and 6.5% of world total land area and medium level of population density. The administrative regions in China can be compartmentalized into 23 provinces (including Taiwan Province), 5 autonomous regions, 4 directly administered municipalities and two special administered regions. The capital city of China is Beijing.

A Beijing economic consultancy (GK Gragonomics) manager, Tom Miller said: 'it's realistic to say that within 10 years China will be roughly the same size as the U.S. economy' (BBC report, 2010). Many report investigated that the gross economy amount is huge for example, in 2003, the amount of GDP in China is RMB 1,170 billion (\$ 140 billion), but this is not the fair comparison, for example, the GDP per head in China is about \$4,400, but in U.S., Sweden, Hong Kong, Singapore are, \$37,600, \$25,400, \$26,000 and \$24,000 respectively.

### 4.2 Housing Policy Framework

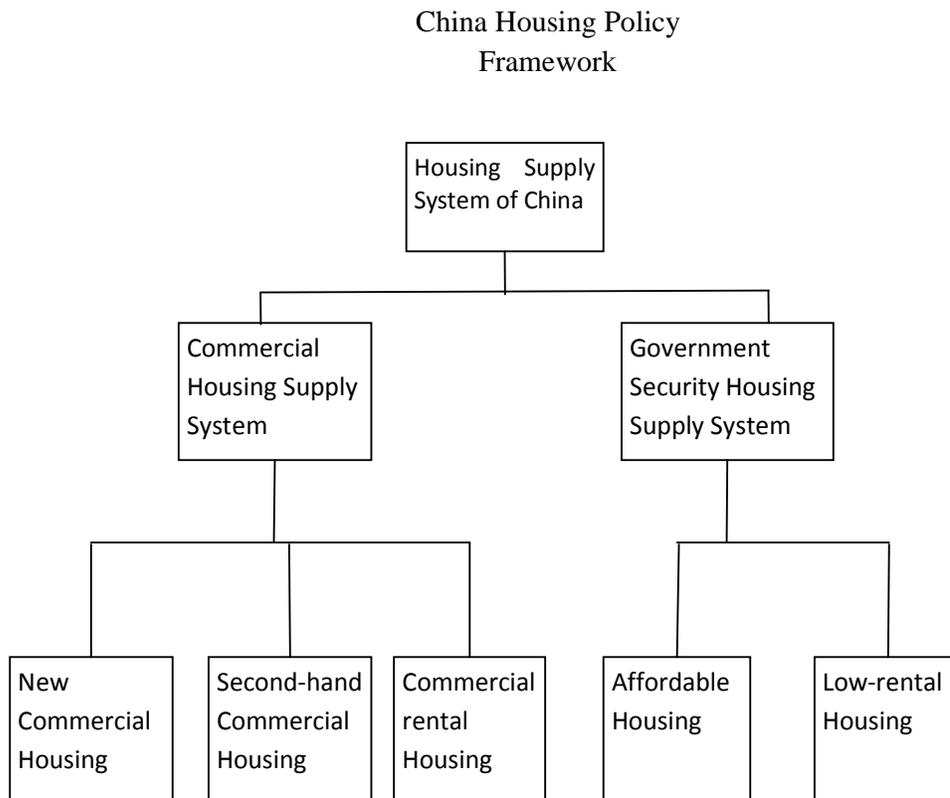


Figure 1. The Framework of China Housing Policy system

The housing supply system in China consists of two parts, commercial housing supply system and security housing system. The commercial housing market is opened for the private real estate developer or buyer, while the social security housing is opened only for the low-income group or typical group.

### **4.3 The Development of Affordable Housing in China**

#### **4.3.1 Conception of Affordable Housing**

China has an increasing share of urban population rate during the last 30 years, typically from 19% in 1998 to 44% in 2006. This is the highest annual development speed in the world (Yamaguchi, 2007). More and more rural workers move to urban to find the job and live in there. According to the Bureau of Statistics of China, there are 126 million rural workers are living in urban areas in China in 2005 by comparing the period in 2002. Most of the rural workers are young people, un-married without high education. In recent years, many rural migrant workers planned to stay in urban for long period, 58% and 52% of them work in the secondary industry and tertiary industry respectively. They tried to find a job and live in urban area for the purpose to seek a more comfortable living environment. But the rural migrant workers are the low income and homeless group, it very hard for them to have the ownership house in the recently housing market.

On the one hand, urban areas could not make the high stable development without migrant workers; on the other hand, the migrant worker would not live in urban stable without a ownership house. The government should do something to deal with this situation. In 2007, the government document 'Approach for Affordable Housing Management' has the definition to Affordable Housing in China Policy sector:

Affordable Housing is the housing which has the policy support and financial subsidy from the government, follows the particular construction standard designed by government, fixed dwelling size and selling price, available to low-income applicants with the national security subsidy.

In China, the affordable housing included variety comments: land supply, source of construction capital, price setting, and development type.

- Land support. Land for the affordable housing construction is provided by the government allowance, priority providing with less or no using fee.
- Source of Construction Capital. There are several channels for capital collection to develop the affordable project, for example, government financial budget, enterprise financial support and Housing Provident Fund.
- Fixed dwelling size and price to sell. In order to prevent the influence from commercial housing market to transfer the housing in affordable housing market, affordable housing uses the fixed construction size and price which designed and evaluated by the government housing department. Households have the similar status will be allowed the same style housing.

- Development method. Government in charge of the affordable housing project bidden organization and make the decision to the tender.
- Particular applicants. There have the clean apply requirements to the applicants, such as, income level, family members and so on.

#### **4.3.2 Characteristics of Affordable Housing**

There are three main characteristics in China affordable housing: affordability, security and commodity.

Firstly, for most of the moderate income or low-income households, the affordability is the most important factor to own a house with typical location and construction style. In China, affordable housing often distinguishes by several approach level according to the location, size, structure, decorate and so on. The government document ‘Approach for Affordable Housing Management’ prescribed the profit of affordable should be lower than 3% of project developing included development cost and tax. Bogdon and Can (1997) concentrated the research on local housing affordability problems, as a research result, they found out several factors can help to measure the affordability of housing which are the following three affordable indicators:

*(1) housing cost burden—the proportion of households paying over 30% and the proportion paying over 50% of income in rent; (2) the affordable housing stock—the proportion of units renting for less than the fair market rent; and (3) the rental housing affordability mismatch ratio—the proportion of housing units relative to the number of households in an income range.*

Secondly, affordable housing belongs to the social security housing that has the function to solve the housing problem for homeless group and keep social stable development. Over the last decade, the government of China introduced many policies to achieve these goals in two main aspects. On the one hand, provided policies and financial support to the housing developer, such as, tax discount, low land using fee, efficiency construction project examination, basic public facilities providing. On the other hand, provided financial subsidy to the low-income house buyers and guide them to buy the reasonable house according their particular situation. In the housing price magic high period, the government even used the administrative measures to intervene the housing market to lead the price back to normal level. All of the measures the government tried were to make sure the affordable housing can play the role as it should provide a home for the group which cannot afford the housing.

Thirdly, affordable housing is regarded as a commodity and can be transferred in the housing market as the commercial housing. However, affordable housing can only be transferred in the specified housing market and the buyer should be low-income household group. The different between affordable housing and commercial housing in China are as following:

Table 2. Difference in commercial housing and affordable housing

	Commercial Housing:	Affordable Housing
Developer	Real Estate Developer	Government
Project Fund	Private Fund	Housing Provident Fund
Construction style	High taste living level	Basic living level
Sell type	Public sale	Qualification Sale

In general situation, commercial housing is organized by the commercial investors or real estate developers, the operation and benefit gain become to them. But affordable housing is organized by local government or state government, they design the whole program.

### 4.3.3 Reform process of Affordable Housing

#### *Stage of exploratory from 1978 to 1997*

Most of the resident lived in the state-owned enterprises housing provided by the local government and enterprise, these welfare housings almost cost nothing to households because this typed of housing produced and allocated to resident according to the housing welfare system. There was less public housing sales in this period because the housing constructed and allocated by government plan but not market itself. Affordable housing as the new word start appeared in the Chinese government documents.

Before the housing reform movement, China was implementing the welfare housing allowances system named ‘privatization action’, every household work for enterprise will have the housing which provided by government and enterprise’s ‘planed distribution’, so we named the characteristic of the policies during this period ‘welfare housing planned allowances’.

In 1994, the State Department introduced the ‘the decision about deeply reform urban housing system’ to make clear the commercial housing reform direction which is the symbol of China housing reform action. This ‘decision’ introduced very clearing that China will implement the Provident Fund as part of housing policy system. But in the earlier time, as the preparation of China housing reform, government started the housing privatization under the ‘social democracy economy system’.

Latter in 1990s in China income difference expanded and the housing shortage for low-income person became serious. Many redevelopments are advanced in the private base, and the removal compensation changes from the offer of the substitution housing to the supply of the compensation, evictions have developed into social problem. Therefore all the residence security polices for the low income earner are being done during the regulations about the

land accommodation, the construction of the residence for the work person and the house rent assistance to the low income earner and so on.

***Stage of political reform from 1998 to 2004***

The state department of China introduced the urban housing reform and speed up housing construction plan, which was a symbol that affordable housing in China starts to develop. In the end of 20 century, under the economic recession background, China government adjusted the development strategies to focus on the domestic market through expanding the demand, of consumer to drive the production increasing.

***Stage of housing market adjustment from 2005***

With the development of affordable housing in China housing market, some problem appeared such as unfair competition between applicants, housing type not matching the consumer's taste, housing price is not affordability. On Aug 2007, the State Department introduced the government advice to solve the housing problems for low-income group that affordable housing been re-defined and change from political-commercial housing to political-security housing and clarified the qualifications of applicants measured by income level, household size est.

The affordable housing policies in China are similar as the most of the countries in the world based on the national welfare and homeownership components (Duda, 2005). As part of the housing reform program, two principal policies were launched, one is Housing Provident Fund which started to introduce in Shanghai from and Mortgage Finance issues.

## 5. Overview of Guangzhou Real Estate Market

### 5.1 Geography Information

Guangzhou is the capital city of Guangdong province which located in south of China on the side of Pearl River, about 120 kilometer far from Hong Kong. Since from 1514, the first European country people Portuguese arrived in Guangzhou City by sea, the ‘Canton’ which translated from ‘Guangzhou’ which is well knew to the world outside China. In 1593, Guangzhou was promoted to be a municipality and became the business and financial center in southern China.



Figure 3. Map of China (Source: Map of cities of People’s Republic of China)

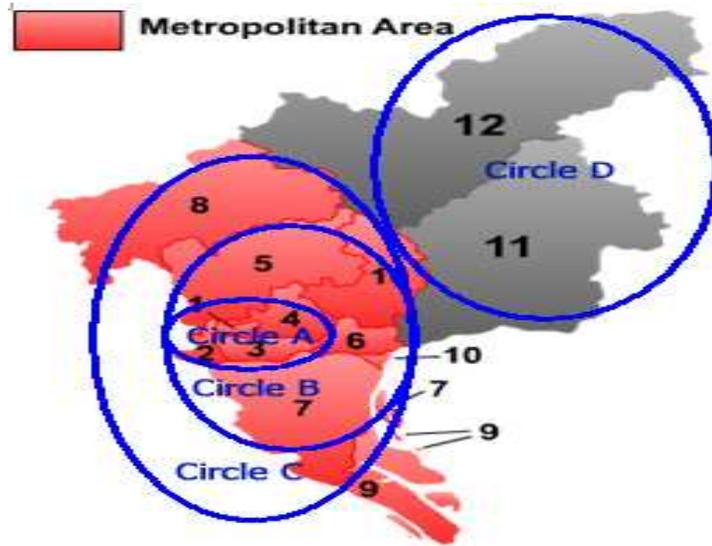


Figure 4. Guangzhou Municipalities (Source from Wikipedia)

Table 3. Population Statistic of Guangzhou City

District Number	Name	Population	Density	Area Square
Circle A	Central Business District			
1	Yue Xiu District	3,969,000 (40,8%)	12,175	4,3%
2	Liwan District			
3	Haizhu District			
4	Tianhe District			
Circle B	About 20 mins from central	2,006,000 (20,6%)	1,501	17,7%
5	Baiyun District			
6	Huangpu District			
10	Luogang District			
Circle C	About 60 mins from central	2,373,000 (24,4%)	1,095	28,7%
7	Panyu District			
8	Huadu District			
9	Nansha District			
Circle D	More than 60 mins from C	1,384,000 (14,2%)		49,3%
11	Zengcheng City			
12	Conghua City			

## 5.2 Economy Status

Guangzhou is one of the high developed cities in China. It has 6 million inhabitants. Since the ‘economy reform and open’ in 1970s, Guangzhou has been always at rapid economy development and become the 3 top developed cities in China. In the CBD of this city, there are more than 40% habitants live there share 4.3% land space for the reason people likes to live close to work place. For future development, Guangzhou government selected two satellite cities which is close to Guangzhou to move the factory industry to there. As table below shows, in recent years the GDP of Guangzhou had stable growth. In 2009, the GDP of Guangzhou City is 9,112.28 billion RMB (\$1,383); growth rate is 11.5% compare to last year. The added value of first industry, second industry and third industry were 17.25 billion RMB (\$2.6 billion), 339.46 billion RMB (\$51.5 billion), 554.56 billion RMB (\$84,2 billion), growth rate were 3.9%, 8.8% and 13.6% (Source from Guangzhou Statistics Bureau).

Table 4. The Gross Domestic Product of Guangzhou City

years	2005	2006	2007	2008	2009
GDP (billion U.S. \$)	78.2	92,3	108.4	828.74	125.8
GDP Growth (%)	12.9	14.9	15.3	12.5	11.5
GDP Per Capital (U.S. \$)	8165	9587	10944	12434	13480
GDP Per Capital Growth (%)	14.3	14.3	12.1	10.2	10.0

(Source: Guangzhou Statistics Bureau)

The third industry is the increasing power for economy growth, and the real estate added value has 30% of the total third industry added value. Obviously, real estate is the main power to lead Guangzhou city economy growth. In recent years, Guangzhou real estate industry made a positive growth, both of the real estate investment and transfer increasing. The investment in housing market was also made rapidly increasing.

As a close city to Hong Kong, Guangzhou City government learns the housing policy experience from Hong Kong. They implemented the urban renewal project to improve the residents’ living environment and provided new housing for poor people. In 2009, Guangzhou city has 20 billion RMB total investment in real estate industry and 23,2 billion RMB on housing sale which increase 11% and 10,8 compare to last year.

## 5.3 Real Estate Market in Guangzhou

Table 5. Real Estate Investment Growth of Guangzhou City

years	2006	2007	2008	2009
Investment Growth in Guangzhou real estate market (%)	9,6	26,4	8,3	7,1

In 2009, the added value of real estate market is 70.58 billion RMB (\$10.71 billion) and the growth rate is 20.5% compare to last year. In this period, the income of households' increasing is 9.1%, and the resident assumption price is mines 2.5%, the Engel Coefficient of Guangzhou households is lowdown every year. Household living in Guangzhou has 10,880 RMB disposable incomes per capital.

Table 6. The Relation of Engel Coefficient and housing consumption

Type of consumption	Engel Coefficient Standard	Housing consumption (%)
rich	20-39	20-30
Middle rich	40-45	18,9
	45-50	12,1
Middle	50-55	11,2
	55-60	7,1
Poor	>60	

The Engel Coefficient is the total amount of food expenditure proportion of the total consumption. In 19<sup>th</sup> Century, a Germany statistician Engel found this regularly: '*the income elasticity of demand of food is between 0 and 1*', which means in the low-income household the proportion of food expenditure is larger than the high-income household. By extension meaning, if a country or area has a lower Engel Coefficient, the residents in this country or area are much richer.

Table 7. Engel Coefficient of Guangzhou City

year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Engel Coefficient	42,6	40,0	38,1	36,8	38,3	37,3	37,0	32,9	33,7	33,2
Living space (m <sup>2</sup> )	13.13	13.36	15.57	17.31	18.18	18.70	19.44	19.90	20.46	20.93
House Price (U.S. \$)	743	652	631	590	701	776	958	1325	1506	1528

During the last 20 years, Guangzhou economic has increased rapidly. From 1990 to 2009 the average disposable incomer per capita in Guangzhou grew by 8.8%.

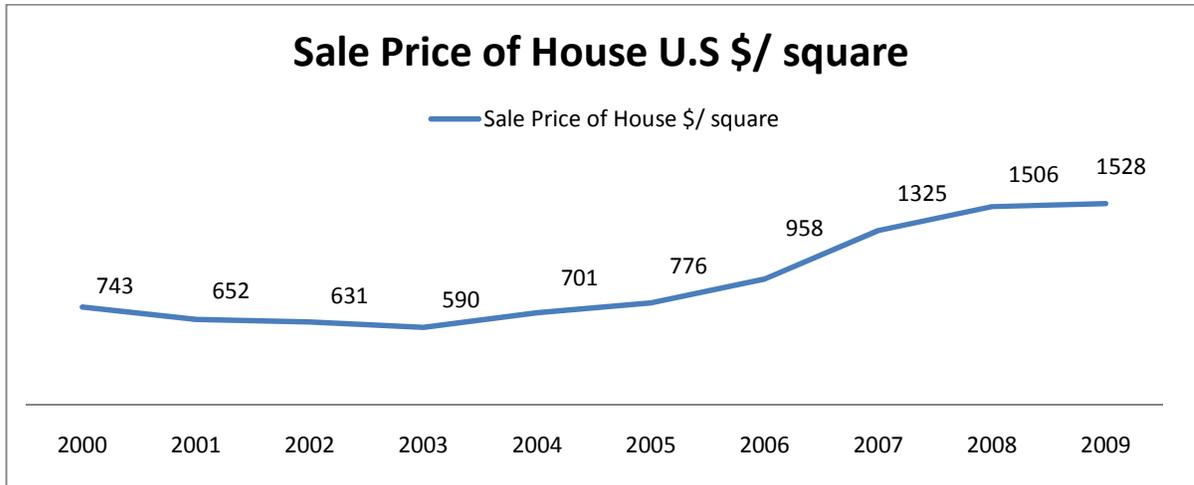


Figure 5. Sale price of housing in Guangzhou Market (Source: Guangzhou Bureau of Statistic)

Through the data observation from above figure, the average sale price in Guangzhou house market had increased 2 times from about 5000 RMB (\$759) to 10000 RMB (\$1517) in the last decade. In 2009, sale price of house in circle A had arrived at 11263 RMB (\$1709), and in 2010, the sale price of house reached 10072 RMB (\$1528) and the fourth season is 40% higher than the first season. The 'ten thousands per square meter housing' extend from circle A to circle B, which means there are 2,006,000 people more should afford the higher housing price for their living(Source from South Newspaper).

## 6. Guangzhou Affordable Housing Development

### 6.1 Results from Questionnaires

There are 15 complete questionnaires been collected. According to the questionnaire results, we set up three observation groups, first is high-income class, second is sandwich class and the third is low-income class. The based data are from the questionnaire, we assumed the statistic unit is one householder, by adding some unexpected factors and the currency exchange rate (6,59RMB~1\$) to receive the result in U.S. dollar. The basic household income and consumption situation as follow:

Table 8. Different income level in three income class

Income of household (\$)	3035	2276	1517
Monthly spending on house (\$)	1024	713	506
other spending 30% of Income (\$)	910	683	455
Moethly assumption (\$)	1935	1396	961
Monthly saving (\$)	1100	880	556
Saving income 3%	33	26	17
yearly saving (\$)	13235	1059	6693

### 6.2 Questionnaire Analysis

The data used in this thesis came from the Guangzhou city statistic bureau and the questionnaire. First step, classify data to 3 groups according to the distance between house location and city center. Every group has middle size house from 71 to 90 square meters and large size house from 91 to 120 square meter. First group is the house located right in the city center, this type houses have characteristics that are highest standard of house with highest sale price. The household has the high income will prefer to chose these houses.

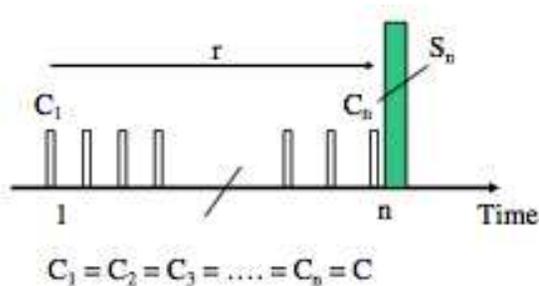
Table 9. Statistic result from questionnaires

Location	City Center		20 mins from city center		60 mins from city center	
	91-120	71-90	91-120	71-90	91-120	71-90
Size of house (m2)						
Price of house (\$)	303490	273141	227617	182094	151745	121396
downpayment 30% (\$)	91047	81942	68285	54623	5523	36419
interest rate	5%	5%	5%	5%	5%	5%
monthly interest payment(\$)	885	797	664	531	443	354
maintenance monthly cost (\$)	303	228	197	182	117	152

After basic data collection, we selected the three income groups: \$27141, \$182094 and \$121396. We assumed the other economic factors, as above table showed, the group 1 are the households with average income with \$303; group 2 are households with average income \$664; group 3 are the householders with income \$443. According to the questionnaire result, we assume group has yearly saving \$13231; group 2 has yearly saving \$10589; group 3 has yearly saving \$6694.

Calculation 1, house down payment achieved years:

Based on the household has stable yearly saving \$13231, in order to achieved enough down payment \$81942, assume the interest rate is 5%, according to the 'amount of one per period formula', it will take them years.



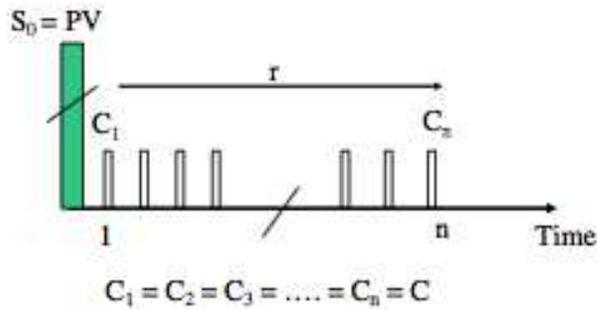
$$81942 = 13231 * ((1 + 5\%)^n - 1) / 5\%$$

$$n = 5,53$$

This means household of group 1 will take about 5 year to achieve enough down payments for a house.

Calculation 2, house ownership achieved years:

Household has the same assumption as calculation 1, the house market value is \$273141, and the down payment is \$81942, household has loan  $273141 - 81942 = 191199$ . In the case if household has the stable income \$13231 per year with interest rate 5%.



$$13231 = 191199 * 5\% * (1+5\%) / ((1+5\%)^n - 1)$$

$$n = 26.28$$

This means household of group 1 will take about 26 year to achieve full ownership for a house.

The same calculation formula, the group 2 will take 4,70 years to achieve down payment and 18,88 years to achieve house ownership; group 3 will take 4,93 years and 20,64 years as well.

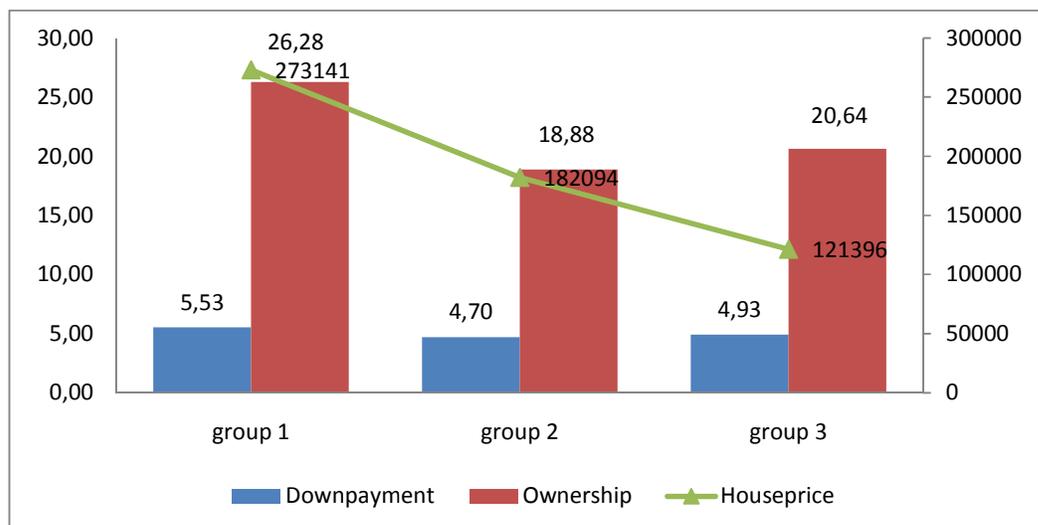


Figure 6. Analysis result from case 1

The second step is to adjust the assumption interest rate and down payment rate, for example, assume the interest rate down to 3% and down payment rate is 20%, then see how the achieve years of down payment and house ownership change.

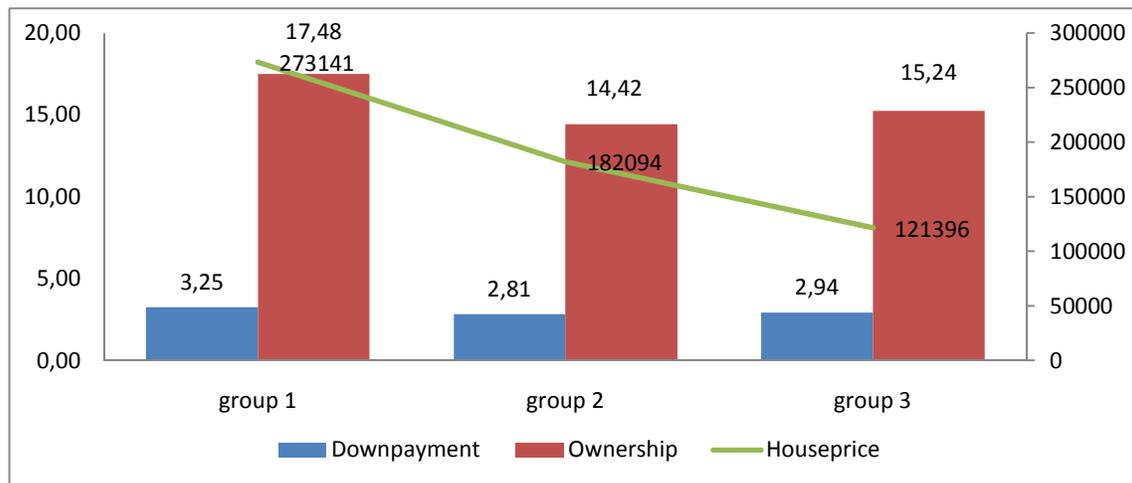


Figure 7. Analysis result from case 2

The down payment and house ownership achieved years of group 1 change to 3,25 and 17,48. The group 2 households will take 2,81 years to achieve down payment and 14,42 years to achieve house ownership. The group 3 households will use 2,94 and 15,24 years to make enough down payments and have the house ownership. In this case, there are 40,63 percent lower down of down payment and 34,32 percent lower down of house ownership achievement years compare to the case 1. The house price level in this period is the same as case 1. This is the optimal reduce for the achieved years; this financial policy can be implemented by the government.

In the third case, we assumed every group can achieve the down payment within 3 years and house ownership with 10 years, and then we calculate the affordable house price for the households in order to relax their pressure from down payment and house ownership. It is obviously the optimal housing price should be sold in the market is \$227618, these is 16,67% higher than realistic price, and we found this is the price-gap in Guangzhou housing market.

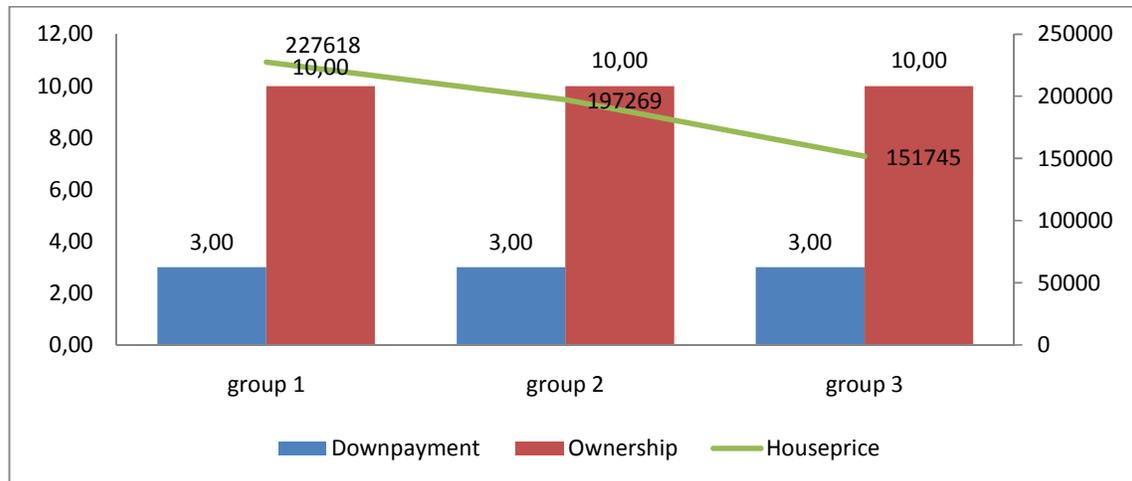


Figure 8. Analysis result from case 3

In order to reduce the price-gap, on the one hand government can focus on market price observation to make housing price get close to the householders, income level, on the other hand government can provide the financial subsidy to low-income group to drive the social income level in balance.

### 6.3 Analysis of Guangzhou Affordable Housing Dilemma

#### *Dilemma in Affordable Housing Development*

First, the size is too large and construction standard out of control. Although these is a issue from the government document ‘Approach for Affordable Housing Management’, prescribe the size of affordable housing should be less than 60 square meter, but in fact, most of the housing developers do not follow this issue to develop housing constructions. In real estate market, housing developers produce housing for the maximum profit, so they pretend to develop affordable housing in order to get the development license and government subsidy easier, but in fact they developed the large size and luxury housing project to sale in the high price in housing market. As a result, these few small size housing (around 60 square meter) sale in the housing market, as opposed more and more large size housing (around 120 square meter) appeared for sale in the market.

Second, unreasonable affordable housing plan, for example, the location is far from city center, low standard facilities. Generally speaking, the location of affordable housing will be chose in the places which are far from city center and traffic is not convenient. The residents live in this place have higher cost including traffic, education, shopping, medical and so on. So there is the unreasonable plan for affordable housing, on the one hand, the target resident of affordable housing is low-income earners, on the other hand, low-income earners would not like to choose these affordable housing because the living cost is higher.

Third, the price of affordable housing is higher than the residents’ purchase power. According to the affordable housing developing model, there is no land cost with tax discount and financial subsidy from the state government, so the affordable housing can be sale in

lower price compare to the similar situation commercial housing. But in Guangzhou housing market, the affordable housing sale in almost the same price as the commercial housing in the similar location and construction standard.

Fourth, right of the house ownership is unclear. There are two main house ownerships in currency China housing market. One is house owner has the complete right to the house, for example, commercial house which can be free transferred and rented out house in the housing market. The other one is limited right to response house, for example, affordable house which can only be using by owner without rent out or sale. But in fact, some affordable housing sold with the full property right in order to attract buyer, because this type of house can be transfer and rent out in commercial housing market. Some buyer bought affordable housing as the investment property so that the price of affordable housing is driven higher and higher.

### *Analysis of Existence Dilemma*

In public housing sector, the ‘Housing affordability’ has become a widely-used word but it still a suitable definition and general acceptance on it. Many economists tried to find the suitable definition of affordability in many fields do not have especially in housing sector to find out the relation between the households purchase ability and housing cost (Chan,2010).In Guangzhou city, 60% households are non-ownership residents. This is the really dilemma of Guangzhou housing development (Diamond, 2010).

In Guangzhou housing policy system, there are many ‘loopholes’. For example, lacks of the household income register system and personal credit observation system, these make the application selection very difficult and hard to select the household who really need a house. The total income of household should include the fixed property and liquated property, for example, bank saving, securities and other investments. In Guangzhou, households’ incomes are very difficult to calculate because there is no household income register system and personal credit system be built, as a result, household can hide their income in order to apply the affordable housing successfully.

Other weak point in the Guangzhou affordable housing development is the low efficiency of government supervision. Before the affordable housing project stating, housing developer will provide the operation plan to government including the project operating period, cost and the price to sale after project done. But the government will lose the active supervision when the construction market is fluent; the government tried to do more monitoring on the project that will increase the cost of project because involved more people and need more time.

## 7. Conclusion

Housing problem is not only an economic problem but also a social problem; to set up a reasonable housing policy system is still a goal that many governments aimed at. Both western countries and eastern countries are facing the same housing problem, and the development of “affordable housing” offered a good solution to it. Through implementing various affordable housing development models in different countries, we can find out that affordable housing is not a perfect solution but it is an effective one to the housing problem.

Sweden has a long history of providing affordable housing to residents. Take “Million program” for example, it had provided huge amount of low-cost houses for low-income peoples to live, which created a miracle in the human history of housing development. However, some social problems have also been caused by carrying out such program, such as social differentiation and increasing crimes, therefore it had been ended 9 years later. U.S. also had long history of affordable housing development that it started from 1949, and got the ‘admired achievement’ in housing sector.

In terms of cities which have a high population density like Guangzhou, the experiences of affordable housing development in Singapore and Hong Kong are more valuable to be the examples. Although the housing policy systems in these two cities are more mature and completed than in Guangzhou, the three cities do share the similar culture background, economy foundation and social structure, all of which provided Guangzhou a similar development circumstance as the other two cities. Therefore, Guangzhou do has ready conditions to draw on the experiences of the other two cities.

In average, the time that a resident have to spend on saving the down payment for a house would be 5.05 year, and in order to own a house, this number becomes 23.92 years, which is a considerable long period. If the government can provide the financial and policy support, for example, reducing the down-payment rate and interest rate, the period length for saving the down-payment would be shortened by 40%, while for owning a house by 34%. It would be a good way to solve the housing problem in Guangzhou city.

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## Questionnaire Survey of Housing Status in Guangzhou City

Dear Miss / Sir,

This is a housing status survey for the purpose to research the currency housing market in Guangzhou City. As the capital city in Guangdong province, Guangzhou are one of the highest developed housing market in China, there is great significance to improve living environment for residents through the research on housing status. In order to achieve the purpose of this research, please select the realistic status of who fill in this questionnaire. This questionnaire is a research method for KTH master thesis, it does not include personal name and other security information, all issues related to privacy will be kept confidential, thank you for your cooperation.

### Your current housing status

(Information about the house you are living)

1. Which location do you live in Guangzhou now:
  - a. central business district
  - b. downtown residential area
  - c. around 20 minutes far from the city center by bus
  - d. around 60 minutes far from the city center by bus
  - e. more than 60 minutes far from the city center by bus
2. What is the type of your house:
  - a. private rental house
  - b. government subsidized rental house
  - c. private ownership house
  - d. commercial ownership house
  - e. affordable ownership house
3. What is the size of your house:
  - a. less than 40 m<sup>2</sup>
  - b. 40-70 m<sup>2</sup>
  - c. 70-90 m<sup>2</sup>
  - d. 90-120 m<sup>2</sup>
  - e. more than 120 m<sup>2</sup>
4. How much did you spend on your house decoration:
  - a. less than 10,000 RMB
  - b. 10,001 to 20,000 RMB
  - c. 20,001 to 50,000 RMB
  - d. 50,001 to 100,000 RMB
  - e. more than 100,000 RMB
5. What is the estimated market price of the house you are living in:
  - a. less than 5,000 RMB / m<sup>2</sup>
  - b. 5,000-10,000 RMB / m<sup>2</sup>
  - c. 10,001-15,000 RMB / m<sup>2</sup>
  - d. 15,001-20,000 RMB / m<sup>2</sup>
  - e. more than 20,000 RMB / m<sup>2</sup>
6. How did you get information about your current housing:
  - a. Housing agent
  - b. advertisement
  - c. internet
  - d. friends
  - e. others
7. How do you think about your current housing living situation:
  - a. very satisfied
  - b. satisfied

- c. moderate
- d. dissatisfied
- e. very dissatisfied

### **The ideal status of ownership housing**

(Assume that you have the plan to buy an ownership house)

8. How long do you plan to buy an ownership house:

- a. less than 1 year
- b. 2-3 years
- c. 3-5 years
- d. 5-10 years
- e. more than 10 years

9. Which location do you most like to buy an ownership house in Guangzhou:

- a. central business district
- b. downtown residential area
- c. around 20 minutes far from the city center by bus
- d. around 60 minutes far from the city center by bus
- e. more than 60 minutes far from the city center by bus

10. Which is the key reason for you to buy an ownership house:

- a. for families living
- b. for parents living
- c. for investment
- d. for other reasons

11. Which condition is the most important thing for you to choose an ownership house:

- a. the location
- b. the construction type
- c. the environmental facilities
- d. the price
- e. the other reasons

12. What type of housing decoration level is your favor choice:

- a. less than 10,000 RMB
- b. 10,001 to 20,000 RMB
- c. 20,001 to 50,000 RMB
- d. 50,001 to 100,000 RMB
- e. more than 100,000 RMB

13. Which price level can you afford for an ownership house:

- a. less than 5,000 RMB / m<sup>2</sup>
- b. 5,000-10,000 RMB / m<sup>2</sup>
- c. 10,001-15,000 RMB / m<sup>2</sup>
- d. 15,001-20,000 RMB / m<sup>2</sup>
- e. more than 20,000 RMB / m<sup>2</sup>

14. Which size of the house will you buy:

- a. less than 40 m<sup>2</sup>
- b. 40-70 m<sup>2</sup>
- c. 70-90 m<sup>2</sup>
- d. 90-120 m<sup>2</sup>
- e. more than 120 m<sup>2</sup>

15. Which type of ownership housing is your first choice to buy:

- a. single commercial housing
- b. multiplicity commercial housing
- c. affordable housing

16. If you will buy an affordable housing, which price do you think is reasonable:

- a. less than 5000 RMB / m<sup>2</sup>
- b. 5000-8000 RMB / m<sup>2</sup>

- c. 80000-10000 RMB / m<sup>2</sup>
  - d. 10000-13000 RMB / m<sup>2</sup>
  - e. more than 13000 RMB / m<sup>2</sup>
17. If you will buy a commercial housing, which price do you think is reasonable:
- a. less than 5000 RMB / m<sup>2</sup>
  - b. 5000-8000 RMB / m<sup>2</sup>
  - c. 80000-10000 RMB / m<sup>2</sup>
  - d. 10000-13000 RMB / m<sup>2</sup>
  - e. more than 13000 RMB / m<sup>2</sup>
18. Which type of payment will you choose to pay for the ownership house:
- a. bank loans
  - b. government subsidy
  - c. personal savings
  - d. housing provident fund
  - e. Other type of payment
19. Which type of housing facilities is your favor choice for an ownership house:
- a. complete level
  - b. general level
  - c. basic level
  - d. not require
20. Which type of property management is your favor choice for an ownership house:
- a. Quality
  - b. good
  - c. moderate
  - d. general
  - e. not require

### **The ideal status of rental housing**

(Assume that you have the plan to rent a house)

21. Which location do you most like to rent a house in Guangzhou:
- a. central business district
  - b. downtown residential area
  - c. around 20 minutes far from the city center by bus
  - d. around 60 minutes far from the city center by bus
  - e. more than 60 minutes far from the city center by bus
22. Which is the key reason for you to rent a house:
- a. for families living
  - b. for parents living
  - c. for investment
  - d. for other reasons
23. Which condition is the most important thing for you to rent a house:
- a. the location
  - b. the construction type
  - c. the environmental facilities
  - d. the price
  - e. the other reasons
24. What type of housing decoration level is your favor chose to rent a house:
- a. decoration does not a matter
  - b. less than 20,000 RMB
  - c. 20,001 to 50,000 RMB
  - d. 50,001 to 100,000 RMB
  - e. more than 100,000 RMB
25. Which price level can you afford for a rental house:
- a. less than 1,000 RMB / month

- b. 1,001-1,500 RMB / month
  - c. 1,501-2,000 RMB / month
  - d. 2,001-3,000 RMB / month
  - e. more than 3,000 RMB / month
26. Which size of the house will you rent:
- a. less than 40 m<sup>2</sup>
  - b. 40-70 m<sup>2</sup>
  - c. 70-90 m<sup>2</sup>
  - d. 90-120 m<sup>2</sup>
  - e. more than 120 m<sup>2</sup>
27. Which type of payment will you choose to pay for the house rental:
- a. bank loans
  - b. government subsidy
  - c. personal savings
  - d. housing provident fund
  - e. Other type of payment
28. Which type of housing facilities is your favor choice for a rental house:
- a. complete level
  - b. general level
  - c. basic level
  - d. not require
29. Which type of property management is your favor choice for a rental house:
- a. Quality
  - b. good
  - c. moderate
  - d. general
  - e. not require

### **Your views for the real estate market**

(Including the opening questions)

30. Which is the key problem for potential first-time house buyer access to housing market:
- a. the down payment
  - b. lack of market information
  - c. unstable economic status
  - d. uncompleted political system
  - e. other reasons
31. Suppose you have a stable job and you can have 70% mortgage from bank, how long do you think you should save the down payment to purchase an ideal house:
- a. less than 1 year
  - b 2-3 years
  - c. 4-5 years
  - d. 5-10 years
  - e. more than 10 year
32. Which type of amortized loans would you like to choose:
- a. less than 20 years fixed rate mortgages
  - b more than 20 years fixed rate mortgages
  - c. less than 20 years adjustable rate mortgages
  - d. more than 20 years adjustable rate mortgages
  - e. none of these choices
33. Which period do you need guidance mostly:
- a. the period before purchasing
  - b the purchasing period
  - c. the ownership period
  - d. the selling period
34. Which measure is most helpful for you to access to housing market:

- a. increase financial subsidy
- b. provide market information guidance
- c. low down the transfer cost
- d. market risk controlled
- e. political protection

35. How do you think about the current housing situation in Guangzhou:

- a. very optimistic
- b. optimistic
- c. moderate
- d. pessimistic
- e. very pessimistic

36. How do you think about the affordable housing policies implement in Guangzhou:

- a. very successful
- b. successful
- c. moderate
- d. unsuccessful
- e. very unsuccessful

37. How do you think about the commercial housing policies implement in Guangzhou

- a. very successful
- b. successful
- c. moderate
- d. unsuccessful
- e. very unsuccessful

38. How do you think about the Guangzhou housing market within the next 5 years:

- a. very optimistic
- b. optimistic
- c. moderate
- d. pessimistic
- e. very pessimistic

39. Do you think the government should intervene the real estate market:

- a. should always intervene
- b. should intervene only in special situations
- c. should never intervene

40. What is the biggest problem for you to buy an ownership house and why:

41. What do you think about the advantage and disadvantage of Guangzhou affordable housing policies:

42. Which part of China housing policies do you think should be reformed in order to achieve housing sustainable development:

43. What are your suggestions for Guangzhou government to achieve housing sustainable development:

--

**Personal information**

44. Your Sex:

- a. Male
- b. Female

45. Your age:

- a. less than 25 years old
- b. 25-34 years old
- c. 35-44 years old
- d. 45-59 years old
- e. more than 60 years old

46. Your education level is:

- a. Primary level
- b. middle school level
- c. high school level
- d. university level
- e. graduate level

47. Your monthly salary is:

- a. less than 3000 RMB
- b. 3000-8,000 RMB
- c. 8,001-13,000 RMB
- d. 13,001-20,000 RMB
- e. more than 20,000 RMB

48. How many families do you live together:

- a. less than 3
- b. 3-4
- c. 5-6
- d. 7-8
- e. more than 8

49. How long have you been living or work in Guangzhou:

- a. less than 1 year
- b. 1-3 years
- c. 3-5 years
- d. 5-10 years
- e. more than 10 years

50. Your occupation is:

## **Eligibility Criteria for Affordable Housing Purchase in Guangzhou City**

1. The single applicant or the applicant with family members should have the Guangzhou Citizen Registration. The applicant should have a job located in Guangzhou City.
2. The requirements about the disposable income, annual household income and per capital household income of applicant are classified by the number of household as the table-1 showed.
3. Applicants are the non-homeownership or owned house square less than 10 square meters per person. The Applicants and the family members have never bought or sold real estate property in the past 5 years before apply date.
4. Applicants never use the house purchase preferential policies included:
  - (a) Using the cost price or standard price policy, price fixed by government to buy a house;
  - (b) Affordable housing purchase policy;
  - (c) Enterprise housing purchase policy;
  - (d) Resettlement community housing policy;
  - (e) Other housing benefit policies provided by Guangzhou City Government.

### 5. Application Process

#### (a) Application Form Filling

Applicants fill in the Guangzhou City Affordable Housing Application Form with truth information about applicants and family members.

#### (b) Application Form Submitting

All the applications and proved material should submit to Housing Department of Guangzhou City Government

#### (c) Investigation and Audition

It will take about 20 work days for authority officer to make investigation on the application materials. If all the materials are qualified to the eligibility criteria, an audition will be made to every applicant to have more detail information.

#### (d) Qualified Review

The material of qualified applicants will be change to Land Authority of Guangzhou City Government. According to the applicants' situation, Land Authority will plan the land providing in this year. Land Authority will take about 15 work days to review the applicants' qualification and grade to every in list. The grading principle is showed in table-2. This result will be transfer to Housing Department.

#### (e) Selection and Publicity

Housing Department selects the candidates according to the housing providing situation in the market. Then announce the applicant candidates' name in Guangzhou City Government website for 10 work days.

(f) Waiting for the Notice

Housing Department will send the qualified notice to applicants according to grading list and the affordable housing providing situation in the housing market.

(g) Housing Choosing and Contract Signing

After received the qualified notice, applicants have maximum 3 times to choose a favor house. If the applicant cannot make decision within 3 times or give up the house choosing, it will be treat as not-qualified applicants and cannot apply for affordable housing again within two years. After finished house choosing, applicant can sign the housing contract as the former housing owner.

**Principle of applicants' income for affordable housing application**

Members of family	Family month disposable income (RMB)	Family year disposable income(RMB)	Year income per member (RMB)	Living square meter per member(m2)	Net family property value (RMB)
1	1524	18287	18287	<10	110 000
2	3048	36574	18287	<10	220 000
3	4572	54861	18287	<10	330 000
>4	6096	73148	18287	<10	440 000