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# Housing Acquisition Process for Public Housing and Commodity Housing in Shanghai: A Survey of Residents

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The purpose of this paper is to clarify the housing acquisition process by providing profiles of residents in Shanghai. A questionnaire was prepared for residents in both public housing and commodity housing to analyze the relationship between the purchase prices of housing units and the annual household incomes of the buyers. The ability to purchase private condominium units depends on whether the purchasers already possess any real properties. In Shanghai, the number of condominiums supplied by private developers has been rapidly increasing in recent years and represented about 40% of the number of households in 2009. However, as these prices are about 9 to 14 times the average annual household income, we believe that a path from renting public housing to owning commercial housing, which was a relocation process commonly witnessed in the 1980s in Japan, is considerably difficult to be followed by regular residents in Shanghai.

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## Keywords

Shanghai; Housing Commodification; Housing Affordability; Residential Relocation; Gong Fang (public housing); Shang Pin Fang (commodity housing)

## 1. Introduction

Before the declaration of the reform and the opening-up policy of 1978 in China, homes in urbanized areas were basically owned by public entities. At that time, housing was not considered a private asset but a welfare benefit supplied to employees by employers, the government/government-sponsored institutions (work units). While employers (work units) paid low wages to their employees, they had to provide subsidized rental housing (Huang et al. 2002). This is a type of public housing called *gong fang*<sup>2</sup> and classified as rental apartment buildings and traditional housing. Traditional housing consists of *li long* and *shi ku meng*, which were built before the establishment of the People's Republic of China. As housing was provided to employees almost for free<sup>3</sup>, the employers had to cover all the operating costs under this public housing system, which became a burden on the employers. As a result, housing repair and maintenance were not appropriately made which resulted in deterioration of the residential environments (Zhou et al. 1996; Bian et al. 1997; Zhang 1997). This is why employers began to transfer<sup>4</sup> the ownership of housing units to the sitting tenants since 1978 (Zhang 1998; Wang et al. 1999).

These tenants were given the option of either paying an increased rent or buying their current flats at subsidized prices (Tolley 1991). The allocation of housing was based on a queue system with those who have close relationships with the work unit listed at the top. Job rank and job seniority served as the indicators of the relationship between the employees and work units (Huang et al. 2002; Zhang 1998). According to the Shanghai Statistical Year Book as shown in Table 1, public rental housing currently accounts for 16.3%, and privatized public housing, which was transferred to an owner occupied unit, accounts for 41.6% in total housing stock at the present. In other words, approximately 72% of former public housing has become privately owned housing.

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<sup>2</sup> This is also called *lao gong fang*, especially in Shanghai.

<sup>3</sup> Public housing rents were based on the occupational class and length of service of each resident (Zhang 1998) and were usually set at a very low level. It was only 1 to 2 percent of household income in the 1980s and early 1990s (State Council 1994)

<sup>4</sup> Housing ownership with a 50 to 70 year ground lease was transferred to individuals (Kikuchi et al. 2009).

**Table 1 Breakdown of Housing Stocks in Shanghai**

	2006	2007	2008	2009
Public Rental Housing	23.8%	20.4%	17.4%	16.3%
Privatized Public Housing	43.0%	39.8%	42.7%	41.6%
Commodity Housing	32.4%	39.4%	39.1%	41.3%
Other	0.8%	0.4%	0.8%	0.8%
Total	100.0%	100.0%	100.0%	100.0%

Although construction and new supplies of public housing stopped in 1988, many of these housing units still remain. On the other hand, private housing newly built by developers, which is a type of commodity housing called *shang pin fang*, has been increasing, and accounts for approximately 90% of the total floor space of housing starts in the late 2000s (McGee et al. 2007), see Table 2. The percentage of commodity housing is expected to further increase in the future due to a halt in the construction of public housing. Most units in commodity housing are mid- and high-rise condominiums built for sale to individuals. In central Shanghai, a few of them are either detached homes (villas) called *bie shu* or low-rise attached homes (terraced houses) called *lian pai bie shu*.

**Table 2 Trends for Built and Living Floor Space per Capita in Shanghai**

Year	Built Space (thousand sqm)				Living Floor Space per Capita (spm)
	Commodity Housing	Other Housing	Total	% of Commodity Housing	
1995	5,298	12,171	17,468	30.3%	8.0
1996	9,923	8,804	18,727	53.0%	8.7
1997	11,761	10,035	21,797	54.0%	9.3
1998	12,420	7,215	19,635	63.3%	9.7
1999	12,292	5,023	17,316	71.0%	10.9
2000	13,880	3,360	17,240	80.5%	11.8
2001	15,242	2,197	17,439	87.4%	12.5
2002	17,081	1,724	18,805	90.8%	13.1
2003	21,400	1,408	22,808	93.8%	13.8
2004	30,762	1,942	32,704	94.1%	14.8
2005	27,399	794	28,194	97.2%	15.5
2006	26,991	477	27,468	98.3%	16.0
2007	27,525	912	28,436	96.8%	16.5
2008	17,633	1,361	18,994	92.8%	16.9
2009	15,088	133	15,221	99.1%	17.2

Commodity housing units are mainly supplied by private developers, which contribute to economic development in urbanized areas (Liu et al. 2002; Buttimer et al. 2004). By increasing the supply of commodity housing, this has helped the middle class build their wealth, but accelerated disparities in terms of home purchasing power among residents (Ronald and Chiu 2010). In overcrowded residential environments of urbanized areas such as Shanghai, ownership of commodity housing is regarded as a status symbol (Pow 2009). Recently, property values of commodity housing have significantly increased, thus making it impossible for everyday Chinese residents to purchase them (Shen et al. 2005; Chinese Academy of Social Sciences 2010). Viewed in this way, the privatization of housing has contributed to the asset building of middle income classes on the one hand, but widened the gap between households in terms of housing purchasing power on the other hand. However, little is known about the types of individuals who are able to acquire these commodity housings in terms of their social strata, and the processes that they undergo to do so.

Previous research on housing in China can be classified into three groups from the perspective of housing affordability. The first group of studies focuses on systemic issues in which the commodification of housing increases the gap in housing purchasing power. As the housing reform policy in 1998 was oriented toward industrial development rather than renovation of residential environment, property values appreciated, thus making it harder for middle to low income households to acquire housing (Logan et al. 1999). In addition, it has been pointed out although the *gong ji jin zhi du* [personal housing accumulation fund loan program]<sup>5</sup> increased the chances of purchasing housing, but loan programs were not equally available for consumers so that the disparities of housing acquisition abilities were broadened (Rosen and Ross 2000). The purpose of the housing reform policy in China was to shift the role of housing supply from the government to the private sector and attempted to expand domestic consumption. However, social welfare for residents in public housing was not well organized, and as a result, the gap in residential environment broadened.

The second group of studies concentrates on housing supply and development. The transferring of land use rights to private entities was one financial source for local governments after 1994 when the local taxation system started. As commercial land use rights were more expensive than residential rights, the former were more unevenly transferred by local governments as a manner of financing. As a result, this triggered a shortage of residential development sites (Fu et al. 1999). On the other hand, some of the traditional housing (*li*

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<sup>5</sup> The *gong ji jin zhi du* [personal housing accumulation fund loan program] is a saving program applicable to workers, in which funds are mandatorily reserved from their salaries. The funds are managed by government/government sponsored entities and lent to members as housing loans. It was first introduced in Shanghai in 1991 and prevailed over China by 1998.

*long* and *shi ku meng*) that remain in the inner ward districts began to be redeveloped into luxurious condominiums by first tier corporations or foreign capital companies (Kagawa and Chu 2007). This raised the issue of social strata disparity. In addition, since public housing has a very small floor space and poor facilities, it is said that the floor space of the housing per capita in Shanghai is less than 10 square meters and sanitary spaces are shared with other residents (Pow 2009). Furthermore, it is said that the ownership of commercial condominiums is a social status which generates practical benefits by producing high demands for these postmodern housings.

The third group of studies examines the effects of appreciated housing prices on housing affordability. It has been pointed out that housing prices in coastal cities significantly increased due to speculative demand (Shen et al. 2005; Chinese Academy of Social Sciences 2010). It becomes even more interesting to see that there was more demand for larger housing, thus raising absolute housing prices (Yoshida and Watanabe 2009). In other words, this indicates that much of the demand was created by the wealthy. It has been pointed out that housing price growth in residential spatial patterns has the effect of inducing the middle income class to move to suburban districts and leaving the low income class to reside in overcrowded aged housing (Chiu 1996). The development of commercial condominiums first began in inner ward districts as redevelopment projects and then expanded to outer ward districts due to the lack of development sites (Zhou and Logan 2008; Chiu 2010). In Shanghai, the housing supply started to increase in suburban districts after 2000, and in the middle of the 2000s, the stock volume of suburban districts exceeded that of the inner districts (Kikuchi et al. 2009). This indicated that residential relocation had occurred in Shanghai.

Thus, the disparity in housing acquisition power was actualized due to price appreciation derived from both a quantitative lack of housing and lack of quality in housing in the urbanized cities of China after the housing reform policy. It has been shown that this disparity is due to systemic issues, such as immature housing finance environment, lack in housing supply and price issues. However, because housing demands in Shanghai are derived from both real and speculative demands, the actual use of commercial condominiums, regardless whether they are owner or tenant occupied, is unclear. Moreover, the preference of residents in public housing, which still accounts for more than half of the total stock in Shanghai, is still unknown, especially preference for commodity housing.

Therefore, in this study, a questionnaire is prepared in order to profile residents in both public and commodity housing. The manner in which residents began to reside in their current primary housing and their future relocation plans will also be investigated.

## 2. House Price Appreciation in Shanghai

As previously shown in Table 2, the average housing floor area<sup>6</sup> per person in Shanghai almost doubled from 8.0 square meters per person in 1995 to 17.2 square meters per person in 2009. This indicates that a considerable number of private commodity housings, which are larger than and superior to public housing, were supplied over the period. Housing starts of commodity housing in Shanghai were as low as 30.3% of the total housing starts of 17.47 million square meters in 1995. However, after the housing policy reform started in China in 1998, the ratio of commodity housing increased and reached 99.1% of the total housing starts of 15.22 million square meters in 2009. Thus, the volume of housing supply did not dramatically change through the housing policy reform, but the quality of housing significantly improved. Finally, it should be noted that commodity housing units are so expensive that average income households cannot easily purchase them.

As shown in Table 3, the average sales price of commodity housing has been increasing year by year and reached over 1.1 million RMB in 2009. This is approximately 14 times the average annual household income in Shanghai (84,495 RMB<sup>7</sup>). In contrast, the average price of commodity housing in Tokyo was 5.6 times<sup>8</sup> the average annual household income in Tokyo. The Japanese government suggested that the price of affordable housing should be less than five times the annual household income. Some might argue that the actual average annual household income in Shanghai could be much higher than the statistical level. Others might suggest that the price to income ratio in Shanghai should be increased because of the expectation of income growth in the future, and also that it does not always reflect the real picture. Nevertheless, this price to income ratio in which the sales price is 14 times the average annual household income is considerably high and should be noted. The average sales price of commodity housing grew more than 10% every year on average between 1995 and 2009. On average, this increasing rate also exceeds the annual household income growth rate in the same periods of time as shown in Table 3.

The overheated condition of the residential market at that time was briefly quenched by the government's tightened policy, especially on speculative second home buyers. For example, the loan-to-value (LTV) ratio was specified to be less than 80% for the first home and 70% for the second home. A 5% sales tax was levied on the sales price for a resale within five years.

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<sup>6</sup> In China, the living floor space includes a common area. In other words, the actual usable unit size is approximately 20% to 30% smaller than the indicated floor area.

<sup>7</sup> Based on the average annual income per person of 28,838 RMB and the average household population of 2.93 persons from the Shanghai Statistical Year Book 2010.

<sup>8</sup> According to the 2010 Housing Statistical Data compiled by the Ministry of Land, Infrastructure, Transportation and Tourism, the average house price in Japan was 5.4 times the annual household income (4.6 times in the USA and 4.2 times in the UK).

These measures were stipulated in the *guan yu tiao zheng zhu zhai gong ji gou zao an ding* [decree of housing supply system improvement and home price stabilization]. In addition, a property tax for a second home was introduced in 2011 on a trial basis in Shanghai. The maximum LTV ratio was lowered to 60% for non-primary residences. These policies attempted to cool down the overheated condition of the housing market caused by speculative demand from wealthy investors.

**Table 3 Average Sales Price Trend of Commodity Housing in Shanghai**

Year	Average Sales Price of Commodity Housing		Annual Household Income		Price to Income Ratio
	RMB per 90 sqm	% Change	RMB	% Change	
1995	231,492	-	22,305	-	10.4
1996	287,953	24.4%	25,048	12.3%	11.5
1997	287,864	0.0%	25,992	3.8%	11.1
1998	320,123	11.2%	27,109	4.3%	11.8
1999	307,973	-3.8%	33,671	24.2%	9.1
2000	320,890	4.2%	35,623	5.8%	9.0
2001	347,975	8.4%	38,649	8.5%	9.0
2002	372,071	6.9%	38,425	-0.6%	9.7
2003	460,657	23.8%	44,452	15.7%	10.4
2004	584,007	26.8%	50,716	14.1%	11.5
2005	615,780	5.4%	56,121	10.7%	11.0
2006	647,641	5.2%	62,417	11.2%	10.4
2007	752,489	16.2%	71,104	13.9%	10.6
2008	742,951	-1.3%	79,224	11.4%	9.4
2009	1,155,598	55.5%	84,495	6.7%	13.7
Average	495,698	12.2%	46,357	10.0%	10.6

Note: Annual Household Income is calculated by multiplying Average Disposable Income per Capita by Average Household Population

Table 4 shows the recent trends of household incomes by income level in Shanghai. The annual average household income of the highest quintile increased by 131% from 69,131 RMB in 2003 to 159,900 RMB in 2009, and the average annual growth rate is 15.0%. The annual household income growth in the middle and lower income households is 13.4% and 11.9%, respectively. In other words, higher income households experience a larger income growth than less privileged families. However, even for high income households, the ratio of the average sales price (1,155,598 RMB) to annual household income (159,900 RMB) in 2009 was approximately 7.2, thus indicating that the purchase of commodity housing is not easily attainable.

**Table 4 Annual Average Household Income Trend by Income Hierarchy in Shanghai**

(RMB)					
Year	Low Income Household	Low to Middle Income Household	Middle Income Household	Middle to High Income Household	High Income Household
2003	20,683	26,766	34,189	41,435	69,131
2004	23,173	32,099	43,154	58,113	98,395
2005	24,652	36,344	46,691	63,086	109,017
2006	27,817	40,438	49,484	69,672	124,793
2007	32,435	44,940	61,153	82,132	136,261
2008	35,938	52,650	68,025	87,995	151,527
2009	40,670	57,768	72,669	91,482	159,900
Average Annual Growth Rate	11.9%	13.7%	13.4%	14.1%	15.0%

Table 5 shows a hypothetical example of mortgage repayment in high income households. The loan is intended for purchasing a house of 461,408 RMB, which was the average sales price in 2003, with a LTV ratio of 60%<sup>9</sup>, fixed interest rate of 5% per annum, and amortization period of 20 years. We assumed that advanced repayment is performed every year by allotting 30% of the annual income to the debt service. This example is extremely advantageous to purchasers because the down payment and annual debt service are estimated at their maximum and the purchaser's costs of interior finishes are not considered. Even with these lax assumptions, the annual debt service in the first year (25,579 RMB) accounts for approximately 37% of the average annual household income of the most wealthy class (69,131 RMB). Therefore, it does not seem possible for the other lower income households to take on mortgage loans.

**Table 5 Assumptions of Housing Mortgage Payments in High Income Households**

(RMB)					
Year	Household Income	Annual Debt Service	Principal Balance	House Price	Appreciated Value
2003	69,131	25,579	297,407	461,408	25,579
2004	98,395	29,519	267,888	547,807	141,497
2005	109,017	32,705	235,183	605,529	231,924
2006	124,793	37,438	197,745	601,853	265,685
2007	136,261	40,878	156,867	815,093	519,804
2008	151,527	45,458	111,409	851,491	601,660
2009	159,900	47,970	63,439	926,125	724,264
2010	175,028	52,508	10,930	1,045,466	896,113
2011	190,156	10,930	0	1,180,184	1,041,762
2012	205,285	0	0	1,332,263	1,193,841

Note: Appreciated Value = House Price - Principal Balance - 461,408 \* 30%

<sup>9</sup> The assumption is considered a typical loan condition based on a report published by the People's Bank of China et al. (2003).

The prices of existing homes in Shanghai have also been increasing. A price index of existing homes published by the Shanghai Economics Association indicated that the prices have doubled from 2003 to 2009. The value of homes basically moves according to the index because improvements hardly depreciate in accordance with their age in China. As shown in Table 5, the appreciated portion in 2009 or 724,264 RMB is calculated by subtracting the down payment and existing loan balance from the house price, which was approximately 4.5 times the annual household income. If the house price was to continue to grow at the same rate, the appreciated portion in 2012 would reach 1.19 million RMB, about 5.8 times the forecasted annual household income of the year.

Thus, this example suggests that well-to-do families can build their wealth from both their increasing annual incomes and appreciating home values. However, it seems difficult even for the rich to save enough for the down payment, which is four to five times more than their annual household incomes. Therefore, it would be challenging for households with average incomes to set a repayment plan, and only a limited number of households will be able to acquire private condominiums.

### **3. Survey Method and Questionnaire Outline**

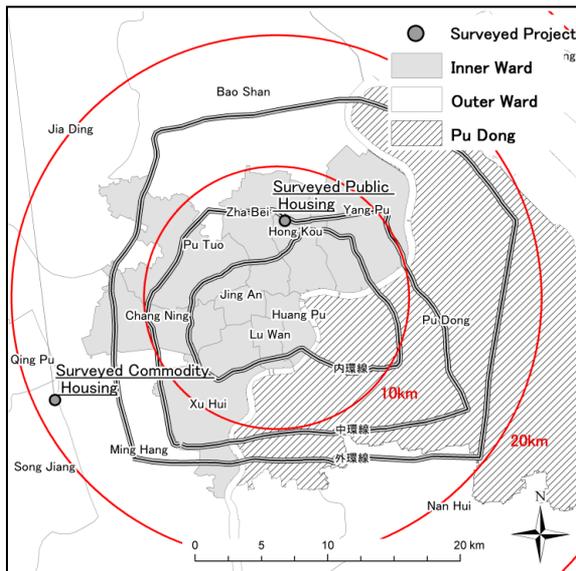
The previous section mentioned that only a limited number of families can afford to purchase properties. In this section, the typical process of buying commodity homes, especially condominium units, is investigated, and the relocation process that follows the acquisition is also analyzed. A questionnaire was prepared to determine the profiles of condominium purchasers as well as residents in public housing, who can be considered potential condominium purchasers. They were asked about their previous housing and future plans for housing tenure choice. The questionnaires were sent to residents in public housing in the Hong Kou District and those in commercial condominiums in the Song Jiang District. These questionnaires were delivered to each unit and collected from June to July in 2010. The questionnaire is outlined in Table 6.

**Table 6 Questionnaire Outline**

I. Household
<ol style="list-style-type: none"> <li>1. How many people are there in your household?</li> <li>2. How much is your current household income?</li> </ol>
II. Current Primary Residence
<ol style="list-style-type: none"> <li>1. When did you move to your current primary residence?</li> <li>2. How large (total floor area) is your current primary residence?</li> <li>3. Do you own or rent your current primary residence? <ol style="list-style-type: none"> <li>a. If you own it, how much did you pay for your current primary residence?</li> <li>b. If you own it, what were the sources of paying for your current primary residence?</li> <li>c. If you rent it, how much is the monthly rent of your current primary residence?</li> </ol> </li> <li>4. What were the major factors when you decided to move to the current primary residence?</li> </ol>
III. Previous Primary Residence
<ol style="list-style-type: none"> <li>1. How long did you live in your previous primary residence?</li> <li>2. How large (total floor area) was your previous primary residence?</li> <li>3. Did you own or rent your previous primary residence?</li> <li>4. What was the type of your previous primary residence?</li> <li>5. Where was the location of your previous primary residence?</li> </ol>
IV. Future Housing Plan
<ol style="list-style-type: none"> <li>a. When do you plan to move?</li> <li>b. Do you prefer owning or renting the new home?</li> <li>c. What is your budget for purchasing or renting the new home?</li> <li>d. What is the type of housing you are thinking about for the new home?</li> <li>e. What are the major factors to consider for purchasing the new home?</li> <li>f. To which area do you hope to move?</li> </ol>

#### 4. Survey Results of Residents in Public Housing

The surveyed public housing is a *gong fang* project located in the Hong Kou District, which is 5 kilometers (20 minutes) away from the People's Square subway station, and is convenient for commuting to the inner ward as described in Figure 1. In this residential development project, the first building was constructed at around 1960 by the Shanghai city government. Currently, the project contains approximately 2,000 units in total. It was originally built as rental residences for low income families. The units were gradually transferred from the government to the tenants after the late 1980s. In 1994, the Shanghai city government allowed those units to be sold on the market. In other words, the units with original ownership became marketable by the *guan yu chu shou gong you zhu fang de zan xing ban* [a transitional law of marketing public housing] legislated by the people's government of Shanghai. The average original price of these units was about 1,500 RMB per square meter in the late 1980s. The current market price is approximately 20,000 RMB per square meter.

**Figure 1** Location of Surveyed Projects

The summary statistics for the survey is shown in Table 7. The questionnaires were collected from 260 households. It is important to note that the households can be divided into two groups in terms of tenure choice: the owner group (owner-occupier) and renter group (tenant). Although the surveyed project was originally public rental housing, some of the units were transferred to private ownership. Of the 260 households, 216 (83%) belong to the owner group, 41 (16%) belong to the renter group, and the remaining three are unknown.

The average monthly household income of the whole sample is 10,134 RMB, which is 1.4 times that of the 2009 average in Shanghai (7,041 RMB). The average monthly household income of the owner group is 3,256 RMB more than that of the renter group. The average monthly household income range is also shown in Table 8.

With regards to the current floor area per person of the primary residences in Table 7, the average is 21.7 square meters for the owner group and 19.7 square meters for the renter group, which is larger than that in Shanghai (16.9 square meters) but smaller than that in Tokyo (28.8 square meters). In terms of the average floor size of previous primary residences, the renter group is larger than the owner group. However, the average floor area of the current units of the owner group in comparison to their previous residences has increased 29.7%, from 56.6 to 73.4 square meters, while that of the renter group decreased by 7.8%, from 58.0 to 53.5 square meters.

**Table 7 Summary of Statistics for Questionnaires in Public Housing Project**

	Owner Group	Renter Group
Household		
Household Size (person)	3.4	2.7
Average Monthly Income (RMB)	10,694	7,438
Current Primary Residence		
1. Move-in Year	Table 9	N/A
2-1. Average Floor Area (sqm)	73.4	53.5
2-2. Average Floor Area (per person)	21.7	19.7
3. Tenure (Number of Samples Collected)	216	41
a. Purchase Price	Table 9	N/A
b. Financial Source	Table 9	N/A
c. Average Monthly Rent (RMB per sqm)	N/A	31.0
4. Major Factors Considered for Residence	Table 10	Table 10
Previous Primary Residence		
1. Number of Years of Occupation	19.7	15.9
2. Average Floor Area (sqm)	56.6	58.0
3. Tenure of Previous Housing	Figure 2	Figure 3
4. Housing Type of Previous Housing	Figure 6	Figure 6
5. Location of Previous Housing	Figure 2	Figure 3
Future Housing Plan		
a. Time to Move	Table 11	Table 11
b. Preference: Own or Rent	Figure 6	Figure 6
c. Budget for Purchasing a New Home	Table 12	Table 12
e. Preferred Housing Type	Figure 6	Figure 6
f. Major Factors for a New Home	Table 13	Table 13
g. Preferred Location	Table 14	Table 14

**Table 8 Distribution of Household Incomes in Public Housing Project**

Monthly Household Income (RMB)	Owner Group n=216	Renter Group n=41
Less than 2,000	4.7%	12.2%
2,000-4,000	15.1%	7.3%
4,000-6,000	17.0%	19.5%
6,000-8,000	12.7%	24.4%
8,000-10,000	13.7%	17.1%
10,000-12,000	9.0%	9.8%
12,000-14,000	7.1%	4.9%
14,000-16,000	4.2%	2.4%
16,000-18,000	0.9%	0.0%
18,000-20,000	1.9%	0.0%
20,000 or More	13.7%	2.4%

The purchase prices of the housing units of the owner group in the public housing project varied quite widely in the past. Most of the residents who started living in their units before 1998, when the housing distribution policy was abolished, acquired them at a low price from the government. Table 9 shows the trends of the purchase prices. Before 1998, the average ranged from approximately 1,800 RMB to 5,700 RMB per square meter. On the other hand, most of the residents who purchased the units after the repeal of the housing distribution policy acquired them at a higher cost at market value from their first owners: approximately 6,500 RMB per square meter in the first half of 2000, and 11,300 RMB per square meter the latter half of 2000. The primary financial sources of purchasing a home are broken down in Table 9 where it can be seen that on average, mortgage finance accounts for 16.1% of the financial source. This suggests that housing loans, which can be traced back to the *gong ji jin zhi du* [the personal housing accumulation fund loan program] in 1991, were less common to individuals due to excessive demand, especially in larger cities.

**Table 9 Average Purchase Price by Move-In Year and Breakdown of the Financial Source in Public Housing Project**

Move-in Year	Number of Households n=199	Average Purchase Price (RMB per sqm)	Financial Source			
			Equity	Finance from Relatives	Mortgage	Others
-1989	33	2,536	70.6%	17.6%	0.6%	11.2%
1990-1994	10	1,822	53.0%	17.0%	0.0%	30.0%
1995-1999	19	5,698	52.9%	14.7%	11.6%	20.8%
2000-2004	53	6,503	62.6%	8.7%	19.7%	9.0%
2005-	82	11,300	54.9%	14.3%	23.3%	7.5%
Unknown	2	-	25.0%	0.0%	0.0%	75.0%
Average	-	7,588	59.0%	13.4%	16.1%	11.6%

**Note:** Unknown samples excluded.

Table 10 shows the major factors for the selection of current primary residences in the public housing project. The most frequently chosen response is “convenience of going to work”, followed by “price or rent” from both groups. “Convenience of going to work” is especially weighed heavily in the renter group more so than in the owner group. Items related to accessibility, such as “convenience of going to school” and “convenience of shopping”, are heavily weighed by both groups.

Figures 2 and 3 show the former locations and residential forms; that is, public/commodity and owned/rental, of the owner and the renter groups, respectively. Relocation from the inner wards is predominant among the former, whereas relocation from outside of the city is relatively high in the latter. As shown in Figure 2, the major previous housing location of the owner group is in the inner ward area (72%). On the other hand, as illustrated in Figure 3, the primary previous housing locations of the renter group are in the inner ward area (63%) and outside of Shanghai (26%).

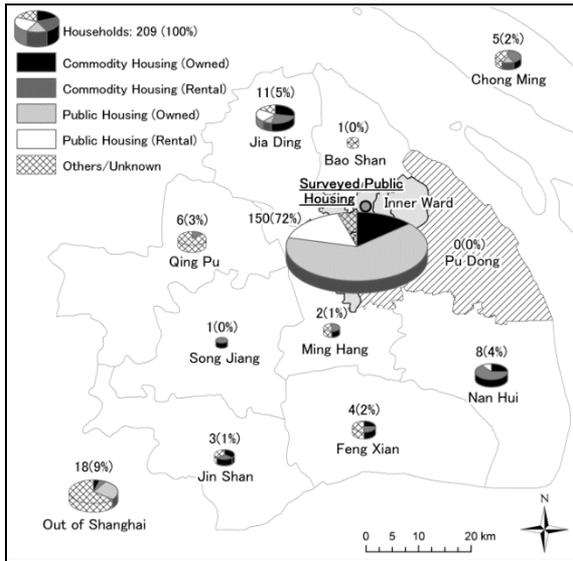
**Table 10 Major Factors for Selection of Current Primary Residence in Public Housing Project (multiple answers allowed)**

	(a) Owner Group (%) n=181	(b) Renter Group (%) n=31	(a)-(b)
Size	19.9%	9.7%	10.2%
Exterior Condition	8.3%	3.2%	5.1%
Building Amenities	3.3%	0.0%	3.3%
Building Quality such as Earthquake Resistance	2.2%	3.2%	-1.0%
Maintenance Condition	13.8%	3.2%	10.6%
Noise and Vibration from Traffic and Other Sources	5.0%	3.2%	1.7%
Age	19.3%	3.2%	16.1%
Natural Environment in Community	19.3%	9.7%	9.7%
Security in Community	21.5%	12.9%	8.6%
Public Services in Community	17.7%	9.7%	8.0%
Convenience of Going to Work	57.5%	67.7%	-10.3%
Convenience of Going to School	28.2%	16.1%	12.0%
Convenience of Shopping	41.4%	16.1%	25.3%
Proximity to Relatives	30.4%	9.7%	20.7%
Characteristics of Community	17.1%	9.7%	7.4%
Quality of Schools	18.8%	6.5%	12.3%
Price or Rent	45.9%	48.4%	-2.5%
Other	15.5%	6.5%	9.0%

*Note:* Unknown samples excluded.

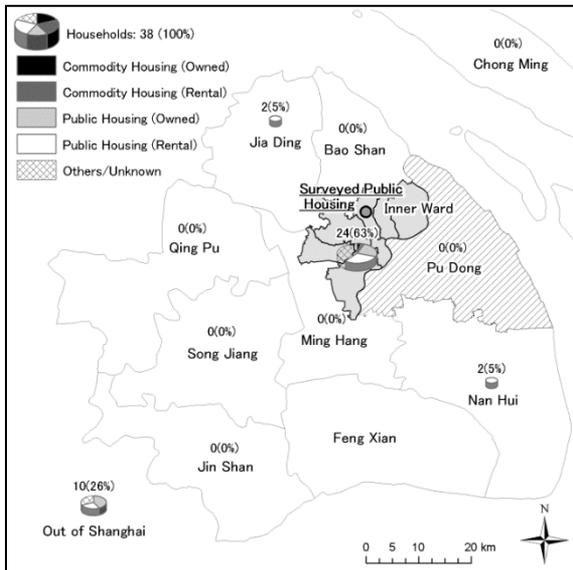
The eagerness of the respondents to purchase homes was observed. In both groups, approximately half of the households hope to move out as shown in Table 11. Of those households, 86 out of the 90 respondents in the owner group want to purchase homes, whereas 13 out of 22 want to do so in the renter group. There are 41.9% households in the owner group who plan to buy housing within 5 years, whereas there are 23.1% in the renter group. This indicates that the former is more willing to buy a new home and has greater chances of doing so. However, their household incomes are not necessarily high. The average monthly household income of those who plan to buy housing within 5 years is 8,836 RMB, which is approximately 20% less than that of the total of the owner group (10,694 RMB), and nearly the same as that of the same category in the renter group (7,933 RMB). Besides that, the budget to annual income ratio of this category is averaged to be 20.1. Although this result is inconsistent with the idea previously brought up in which it is highly difficult for everyday Chinese people to purchase commodity housing, this could be explained by taking the price appreciation of public housing into account. Public housing units like the surveyed project are located near the central district and have much potential for redevelopment, thus resulting in high market prices. It is said that some residents intentionally wait for a redevelopment. The average purchase prices of the respondents in the owner group of this project are 12,894 RMB per square meter in 2008 and 13,464 RMB per square meter in 2009, which exceed the average sales price of 12,840 RMB (Shanghai Statistical Year Book 2010) per square meter in Shanghai. Therefore, it is believed that residents in the owner group are able to purchase new housing by means of selling their current public housing units.

**Figure 2 Former Locations and Residential Forms of Owner Group in Public Housing Project**



*Note:* Unknown samples excluded.

**Figure 3 Former Locations and Residential Forms of Renter Group in Public Housing Project**



*Note:* Unknown samples excluded.

**Table 11 Future Residential Plans of Residents in Public Housing Project**

	Owner Group	Renter Group
Number of Households	216	41
Average Monthly Income (RMB)	10,694	7,438
Number of Households Who Hope to Move Out	90	22
Average Monthly Income (RMB)	13,281	8,447
Average Annual Income (RMB)	159,372	101,364
Number of Households who Hope to Purchase a New Home	86	13
Average Monthly Income (RMB)	13,565	7,639
Schedule for Purchasing a New Home		
(a) As Soon as it's Found	3.5%	0.0%
(b) Within 1 Year	1.2%	7.7%
(c) Between 1 and 5 Years	37.2%	15.4%
Between 5 and 10 Years	17.4%	15.4%
After 10 Years	3.5%	0.0%
Uncertain	37.2%	61.5%
Total	100.0%	100.0%

*Note:* Unknown samples excluded.

Table 12 shows the budgets for the next homes of the respondents. The average anticipated budget of the residents for their next home is 1.76 million RMB for the owner group, which is 13.7 times their average annual income (159,372 RMB). In contrast, the average is 980 thousand RMB for the renter group, which is 11 times their average annual income (101,364 RMB).

**Table 12 Budget of Residents in Public Housing Project for Next Home**

Budget for Next Home (thousand RMB)	Owner Group	Renter Group
Less than 500	4.8%	0.0%
500-750	4.8%	54.5%
750-1,000	12.0%	9.1%
1,000-1,250	14.5%	9.1%
1,250-1,500	0.0%	0.0%
1,500-1,750	15.7%	9.1%
1,750-2,000	2.4%	9.1%
2,000 or More	45.8%	9.1%
Total	100.0%	100.0%
Average (thousand RMB)	1,760	980

*Note:* Unknown samples excluded.

Table 13 shows the major factors for the selection of future residences of those in the public housing project. The most frequently chosen factor is “price or rent” for both groups. Residents in the renter group place more importance “price or rent” than the owner group. “Natural environment in community” is also frequently chosen, which indicates that the natural

environment is inadequate in public housing due to its proximity to downtown. Items related to accessibility such as “convenience of going to school” and “convenience of shopping” are heavily weighed by both groups, which is the same as the case in their current primary housing.

**Table 13 Major Factors for Selection of Future Primary Residence by those in Public Housing Project (multiple answers allowed)**

	(a) Owner Group (%) n=91	(b) Renter Group (%) n=21	(a)-(b)
Size	18.7%	9.5%	9.2%
Exterior Condition	9.9%	14.3%	-4.4%
Building Amenities	4.4%	4.8%	-0.4%
Building Quality such as Earthquake Resistance	5.5%	4.8%	0.7%
Maintenance Condition	13.2%	9.5%	3.7%
Noise and Vibration from Traffic and Other Sources	8.8%	4.8%	4.0%
Age	22.0%	4.8%	17.2%
Natural Environment in Community	39.6%	61.9%	-22.3%
Security in Community	28.6%	9.5%	19.0%
Public Services in Community	20.9%	14.3%	6.6%
Convenience of Going to Work	34.1%	9.5%	24.5%
Convenience of Going to School	18.7%	23.8%	-5.1%
Convenience of Shopping	45.1%	14.3%	30.8%
Proximity to Relatives	22.0%	14.3%	7.7%
Characteristics of Community	22.0%	4.8%	17.2%
Quality of Schools	16.5%	4.8%	11.7%
Price or Rent	46.2%	81.0%	-34.8%
Other	14.3%	0.0%	14.3%

*Note:* Unknown samples excluded.

The preferred location of the next home of the respondents is in the inner ward area for both groups as shown in Table 14. The inner ward area is predominantly selected by the renter group while the outer ward area is relatively selected more by the owner group.

**Table 14 Preferred Location for Future Home of those in Public Housing Project**

Location	Owner Group	Renter Group
Inner Ward	54.7%	71.4%
Outer Ward	20.9%	9.5%
Pu Dong	5.8%	0.0%
Others	1.2%	0.0%
Not Determined	17.4%	19.0%

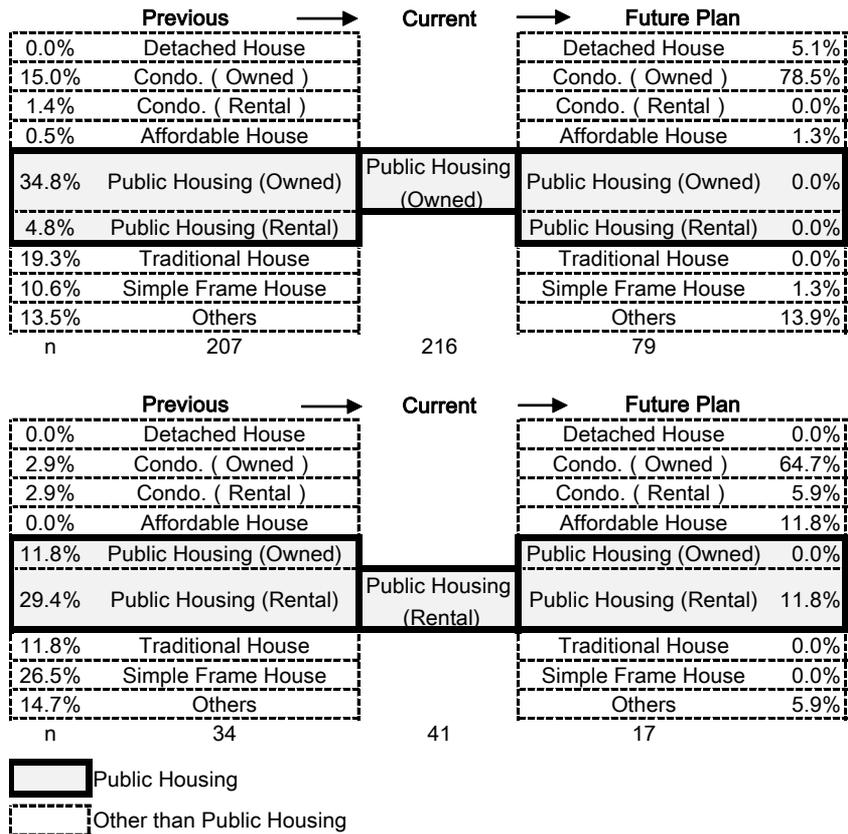
*Note:* Unknown samples excluded.

A relocation pattern of the owner group in this project in terms of housing type can be found, which is shown in Figure 6. Of all the respondents, 80% have previously owned homes and 35% lived in owned public housing. There

are 79% of the respondents who hope to purchase a condominium unit as their next home. There are a few indications of relocating from rental to owned public housing. We believe that most households in this category had acquired their previous or current homes from the government. There are also a few who have future plans to relocate to rental housing.

The transition of the renter group in housing type is also shown in Figure 6. Of all the respondents, 32% previously rented homes and 29% rented public housing. There are 41% of the respondents who previously lived in a simple frame home or other types of housing. According to Figure 3, 26% of the respondents moved to this project from outside of Shanghai. This may suggest that the renting of public housing is common among newcomers to Shanghai. While most of the residents, or 65% of the respondents, hope to purchase commodity housing in the future, they actually plan for affordable houses<sup>10</sup> and rental public housing as more realistic choices.

**Figure 6 Residential Relocation of those in Public Housing Project**



<sup>10</sup> An affordable house is a home provided by the government for welfare purposes.

## 5. Survey Results of Residents in Commodity Housing

The surveyed commodity housing is the *shang pin fang* project located in Jiu Ting Zhen, Song Jiang District, which is approximately 19 kilometers (50 minutes) away from the People's Square subway station as illustrated in Figure 1. Most of the residents in this project commute to the western inner wards, such as the Chang Ning District, where the Shanghai Hong Qiao International Airport is located, the Xu Hui and Jing Ang Districts, which require 30 to 40 minutes of travel time. This residential development project consists of 2,500 units on a 200,000 square meter site. It is regarded as a typical gated community in China. Most of the residential units are those in mid- and high-rise multi-family buildings. However, there are some detached and low-rise attached homes. The average sales price was around 8,000 RMB per square meter when the project was first marketed in 2005, and increased to 13,000 RMB in 2010. In other words, the market witnessed an increase in value of more than 60% within five years of time.

The summary statistics for the survey is shown in Table 15. A total of 327 households responded to our questionnaire. Among them, 145 (44%) belong to the owner group, 168 (51%) belong to the renter group, and the remaining 14 (4%) are unknown.

The average monthly household income of the entire sample is 8,248 RMB, which is approximately 1.2 times more than that of the 2009 average in Shanghai (7,041 RMB), and less than those in the public housing project (10,134 RMB). We believe that this is because the higher ratio of the renter group caused a smaller average income for the entire sample of this commodity housing project. The average income figures of the owner group in both projects are nearly the same, and we deemed that the income levels of both projects are not significantly different. The average monthly household income range is also shown in Table 16.

The average floor area is 101.3 square meters for the owner group and 84.1 square meters for the renter group per Table 15. The average floor size per person for the owner group is 28.1 square meters, which is nearly the same as that of Tokyo (28.8 square meters), and 22.9 square meters for the renter group, which is approximately 20% larger than that of the public housing project.

**Table 15 Summary Statistics of Questionnaire Respondents in Commodity Housing Project**

	Owner Group	Renter Group
I. Household		
Household Size (person)	3.6	3.7
Average Monthly Income (RMB)	10,719	6,255
II. Current Primary Residence		
1. Move-in Year	Table 17	N/A
2-1. Average Floor Area (sqm)	101.3	84.1
2-2. Average Floor Area (per person)	28.1	22.9
3. Tenure (Number of Samples Collected)	145	168
a. Purchase Price	Table 17	N/A
b. Financial Source	Table 17	N/A
c. Average Monthly Rent (RMB per sqm)	N/A	19.7
4. Major Factors Considered for Residence	Table 18	Table 18
III. Previous Primary Residence		
1. Number of Years of Occupation	8.8	5.8
2. Average Floor Area (sqm)	78.0	85.1
3. Tenure of Previous Housing	Figure 4	Figure 5
4. Housing Type of Previous Housing	Figure 7	Figure 7
5. Location of Previous Housing	Figure 4	Figure 5
IV. Future Housing Plan		
a. Time to Move	Table 19	Table 19
b. Preference: Own or Rent	Figure 7	Figure 7
c. Budget for Purchasing a New Home	Table 20	Table 20
e. Preferred Housing Type	Figure 7	Figure 7
f. Major Factors for a New Home	Table 21	Table 21
g. Preferred Location	Table 22	Table 22

**Table 16 Distribution of Household Income in Commodity Housing Project**

Monthly Household Income (RMB)	Owner Group n=145	Renter Group n=168
Less than 2,000	1.4%	6.9%
2,000-4,000	12.8%	24.3%
4,000-6,000	15.6%	27.7%
6,000-8,000	9.9%	15.0%
8,000-10,000	12.8%	5.2%
10,000-12,000	24.1%	11.0%
12,000-14,000	3.5%	1.7%
14,000-16,000	4.3%	3.5%
16,000-18,000	0.0%	0.0%
18,000-20,000	0.7%	0.0%
20,000 or More	14.9%	4.6%

In terms of the floor size of the previous primary residence, on average, the renter group lived in larger units than the owner group. However, the average floor area of the current units of the owner group increased 29.9% from 78.0 to 101.3 square meters while that of the renter group slightly decreased from 85.1 to 84.1 square meters.

The average purchase price of the units of the owner group is 7,614 RMB per square meter as shown in Table 17, which is slightly more expensive than that of the Shanghai units in 2005 (6,842 RMB per square meter). The primary financial sources of purchasing a home are broken down in Table 17 where it can be observed that equity comprises 51%; finance from relatives 4%; mortgage from financial institutions 40%; and other 4%. The proportion of mortgages is much higher than that of public housing. The largest source of financing came from equity, which is the same as the public housing project.

**Table 17** Average Purchase Price and Breakdown of Financial Source in Commodity Housing Project

Move-in Year	Number of Households n=133	Average Purchase Price (RMB per sqm)	Financial Source			
			Equity	Finance from Relatives	Mortgage	Others
2005-	133	7,614	51.0%	4.0%	40.0%	4.0%

*Note:* Unknown samples excluded.

Table 18 shows the major factors for the selection of the current primary residences by those in the commodity housing project. The most frequent response for selection of the current residence in the owner group is “price or rent” followed by “size”. On the other hand, “convenience of going to work” is mostly selected by those in the renter group, which is the same as those in the public housing project, and items related to residential environment, such as “natural environment in community” and “security in community,” are considered to be relatively more important even by those in the renter group.

Figures 4 and 5 show the previous locations and types of housing of the owner and the renter groups, respectively.

Most households in the owner group have moved from the outer ward area (52%) followed by the inner ward area (34%) as shown in Figure 4. Conversely, as indicated in Figure 5, the previous housing location of the renter group is mostly in the outer ward area (70%) and outside of Shanghai (17%).

The eagerness of the respondents to purchase homes can be observed, which resonates those in the public housing project. As shown in Table 19, more than half of the households in both groups hope to move out of their current homes. Of those households, 71 out of 82 in the owner group and 85 out of 122 in the renter group wish to purchase homes.

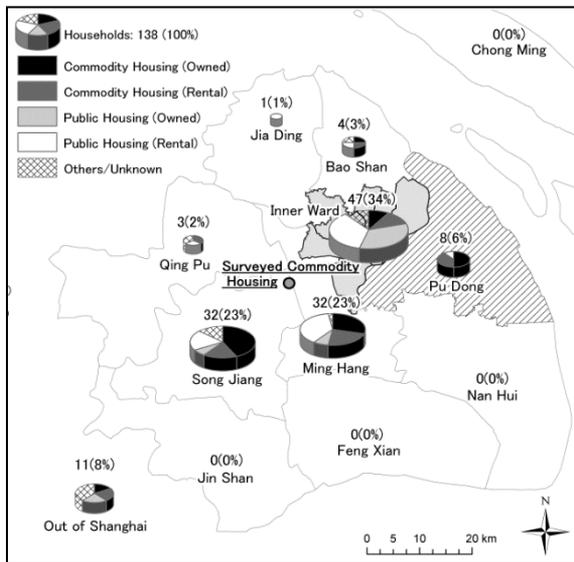
**Table 18 Major Factors for Selection of Current Primary Residence of those in Commodity Housing Project (multiple answers allowed)**

	(a) Owner Group (%) n=123	(b) Renter Group (%) n=146	(a)-(b)
Size	36.6%	15.8%	20.8%
Exterior Condition	10.6%	2.7%	7.8%
Building Amenities	8.1%	3.4%	4.7%
Building Quality such as Earthquake Resistance	10.6%	1.4%	9.2%
Maintenance Condition	23.6%	13.0%	10.6%
Noise and Vibration from Traffic and Other Sources	13.0%	10.3%	2.7%
Age	6.5%	3.4%	3.1%
Natural Environment in Community	34.1%	22.6%	11.5%
Security in Community	17.1%	20.5%	-3.5%
Public Services in Community	16.3%	4.8%	11.5%
Convenience of Going to Work	31.7%	50.0%	-18.3%
Convenience of Going to School	26.0%	22.6%	3.4%
Convenience of Shopping	23.6%	16.4%	7.1%
Proximity to Relatives	1.6%	4.1%	-2.5%
Characteristics of Community	11.4%	7.5%	3.8%
Quality of Schools	22.0%	5.5%	16.5%
Price or Rent	42.3%	28.8%	13.5%
Other	3.3%	1.4%	1.9%

*Note:* Unknown samples excluded.

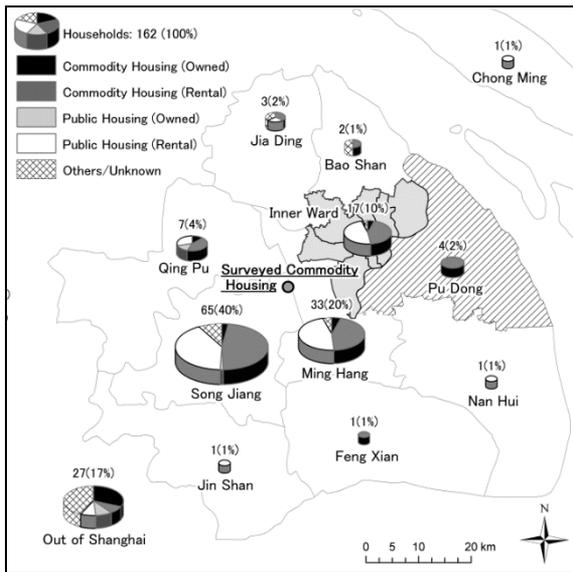
Table 20 shows the budget for the next home of the respondents. The average is 1.45 million RMB in the owner group, which is 11.3 times the average annual income (128,628 RMB). However, the average is 1.01 million RMB in the renter group, which is a staggering 13.5 times their average annual income (75,060 RMB).

**Figure 4 Previous Location and Type of Housing of Owner Group in Commodity Housing Project**



*Note:* Unknown samples excluded.

**Figure 5 Previous Location and Type of Housing of Renter Group in Commodity Housing Project**



*Note:* Unknown samples excluded.

**Table 19 Future Residential Plans of Residents in Commodity Housing Project**

	Owner Group	Renter Group
Number of Households	145	168
Average Monthly Income (RMB)	10,719	6,255
Number of Households Who Hope to Move Out	82	122
Average Monthly Income (RMB)	10,797	6,573
Average Annual Income (RMB)	129,564	78,876
Number of Households who Hope to Purchase a New Home	71	85
Average Monthly Income (RMB)	10,750	6,581
Schedule for Purchasing a New Home		
(a) As Soon as it's Found	1.4%	12.9%
(b) Within 1 Year	7.0%	5.9%
(c) Between 1 and 5 Years	53.5%	51.8%
Between 5 and 10 Years	14.1%	20.0%
After 10 Years	2.8%	0.0%
Uncertain	21.1%	9.4%
Total	100.0%	100.0%

*Note:* Unknown samples excluded.

Table 21 shows the reasons for the selection of the future primary residence by those in the commodity housing project. The most frequent responses by those in the owner group are “convenience of going to school”, followed by “natural environment in community”, then “maintenance condition” and finally “quality of schools”. “Natural environment of community”, “price or rent” and “convenience of going to school” are the top three factors selected

by the renter group. Items related to residential quality seem to be more important for the owner group than price. It is clear that items related to quality such as “maintenance condition” and “quality of school” are not as important for those in the renter group as opposed to those in the owner group.

**Table 20 Budget of Residents in Commodity Housing Project for their Next Home**

Budget for Next Home (thousand RMB)	Owner Group	Renter Group
Less than 500	4.0%	5.6%
500-750	6.7%	17.8%
750-1,000	4.0%	24.4%
1,000-1,250	28.0%	40.0%
1,250-1,500	1.3%	0.0%
1,500-1,750	21.3%	8.9%
1,750-2,000	1.3%	0.0%
2,000 or more	33.3%	3.3%
Total	100.0%	100.0%
Average (thousand RMB)	1,450	1,010

*Note:* Unknown samples excluded.

**Table 21 Major Factors for Selection of Future Primary Residence by those in Commodity Housing Project (multiple answers allowed)**

	(a) Owner Group (%) n=104	(b) Renter Group (%) n=154	(a)-(b)
Size	35.6%	22.7%	12.8%
Exterior Condition	13.5%	12.3%	1.1%
Building Amenities	6.7%	8.4%	-1.7%
Building Quality such as Earthquake Resistance	10.6%	5.2%	5.4%
Maintenance Condition	44.2%	16.9%	27.3%
Noise and Vibration from Traffic and Other Sources	17.3%	10.4%	6.9%
Age	11.5%	7.1%	4.4%
Natural Environment in Community	45.2%	51.9%	-6.8%
Security in Community	25.0%	25.3%	-0.3%
Public Services in Community	21.2%	13.0%	8.2%
Convenience of Going to Work	9.6%	11.0%	-1.4%
Convenience of Going to School	51.0%	40.9%	10.1%
Convenience of Shopping	26.9%	27.3%	-0.3%
Proximity to Relatives	6.7%	4.5%	2.2%
Characteristics of Community	26.9%	13.6%	13.3%
Quality of Schools	43.3%	21.4%	21.8%
Price or Rent	27.9%	43.5%	-15.6%
Other	4.8%	2.6%	2.2%

*Note:* Unknown samples excluded.

As for the preferred location of their next home, the outer ward area is predominantly selected by both groups as shown in Table 22. This shows that residents in this project tend to place importance on the residential environment.

**Table 22 Preferred Location for Future Home of those in Commodity Housing Project**

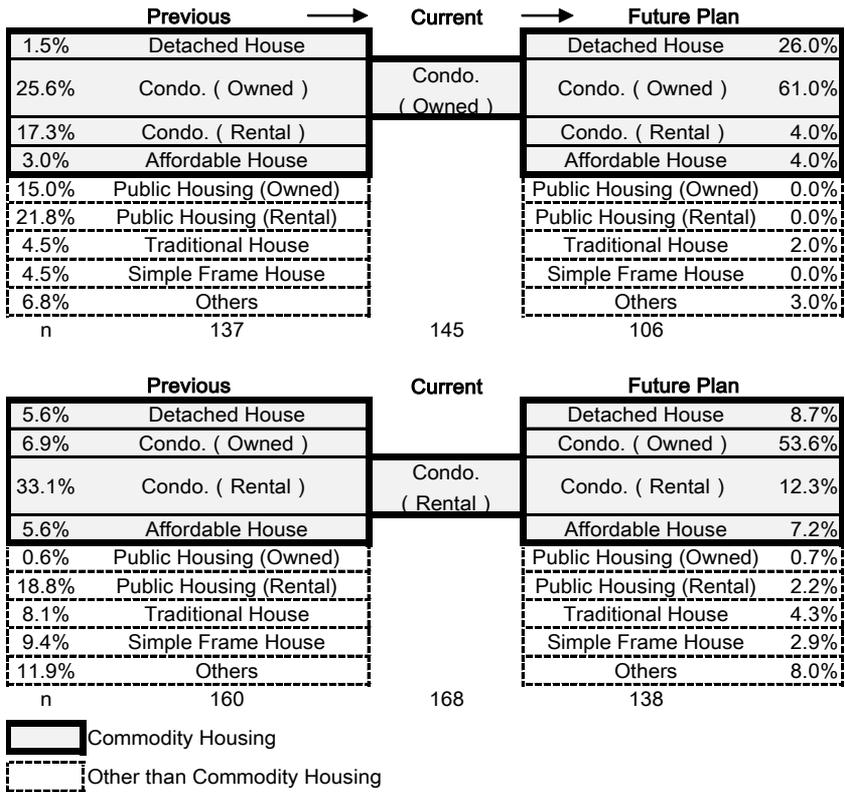
Location	Owner Group	Renter Group
Inner Ward	35.2%	11.3%
Outer Ward	42.6%	67.5%
Pu Dong	0.0%	0.0%
Others	3.7%	5.6%
Not Determined	18.5%	15.6%

*Note:* Unknown samples excluded.

The relocation of those in the owner group of the commodity housing project in terms of housing type is shown in Figure 7. There are 26% of the respondents who already own other condominium units and 15% own public housing units. In the future, 91% of the respondents want to own other commodity housing and 26% hope to live in detached homes, which are usually more expensive. We believe that those in this category are highly motivated to invest in better and more expensive houses. It should also be noted that 39% of the owner group have previously rented their homes and currently live in homes that they own.

The relocation pattern of those in the renter group is also shown in Figure 7. There are 52% of the respondents who previously either rented condominiums (33%) or public housing (19%). Few households have previously lived in public housing that they own. In other words, most do not own public housing units and were not able to raise funds to purchase commodity housing. There are 70% who hope to own commodity housing while 15% plan to continue to stay in rental housing.

**Figure 7 Residential Relocation of those in Commodity Housing Project**



## 6. Conclusion

The questionnaire survey has clarified (i) how residents in both public housing and commodity housing have come to reside in their current housing (past perspective), (ii) the current residential status of the respondents (present perspective), and (iii) their preferred type of home in the future (future perspective). All of these issues cannot be understood merely from the exterior appearance of housing.

In terms of the past perspective, the relocation pattern of the residents is investigated. In terms of the present perspective, the tenure choice, housing size, purchase price, etc. are examined. With respect to the future perspective, future relocation plans and housing preferences, especially for commodity housing, are researched. To focus on the acquisition process, these results show that it is highly difficult for everyday Chinese individuals to purchase commodity housing although they are interested in doing so. The ability to

purchase private commodity housing depends on whether the potential purchaser already has any real estate. Needless to say, the average annual income increased after commodity housing became available in the market. However, property values appreciated as well. We believe that commodity housing is usually purchased after selling previous homes. Without much equity in their prior houses, commodity housing seems beyond the reach for households with an average income. The reasons are as follows: the price of commodity housing is much higher than their income levels, approximately 9 to 14 times the average annual household income, and according to this survey, a purchaser uses his/her own money for more than 50% of the purchase price of commodity housing, thus resulting in a lower LTV ratio that ranges from 15% to 40%.

Although public housing units offered for sale by the government are usually old and functionally obsolete, their highly convenient locations and great potential for redevelopment have resulted in great appreciation in their value in recent years. Most of the older residents in Shanghai had acquired these public housing units, which makes it possible for them to purchase their new homes. On the other hand, most people, who used to live outside of Shanghai, rent commodity housing because the house prices are expensive even for those with more than average annual incomes. As a result, these people choose to continue to live in rental housing.

We believe that the path from renting public housing to owning commodity housing or commodity housing to a more luxurious home, which was witnessed in the 1980s in Japan when property values were on an upward trend (Suzuki and Tamaki 1987a and 1987b, and Ueda 1974), is considerably harder to be followed by regular residents in Shanghai. The affordability of housing to low and middle income families is so low that it is extremely difficult for them to buy homes (Kikuchi et al. 2012). As this survey suggests, the gap between home owners and potential first time buyers in Shanghai is widening in terms of home purchasing power. Due to an extremely high price, an increased supply of commodity housing will not benefit most renters, who may wish for a better residential environment. The remaining issue is to determine how this gap can be narrowed. It is inferred that a supply of affordable housing and the availability of housing finance could be the key, and these should be investigated in future research.

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