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Dilemma of Housing Demand in Taiwan

Chin-Oh Chang

National Chengchi University, NO.64, Sec.2, ZhiNan Rd., Wenshan District, Taipei City 11605, Taiwan (R.O.C.). Email: jachang@nccu.edu.tw.

Shu-Mei Chen

Kun Shan University, No.195, Kunda Rd., Yongkang District, Tainan City 710, Taiwan (R.O.C.). Email: mayc2110@mail.ksu.edu.tw.

This paper discusses the contradicting phenomenon of housing demand in Taiwan. First, an introduction is given on the three primary characteristics of the housing market in Taiwan, which are a high housing vacancy rate, high housing prices and high home ownership. Secondly, we explore the motivation and preferences behind housing purchase. Since the housing price-income ratio continues to increase, unaffordable housing prices cause households to suffer from poor quality of life. The issues of housing justice are highlighted. Recently, the demographics and social values have rapidly changed. Therefore, even if homebuyers face unaffordable housing prices, they still prefer to buy housing instead of renting due to the traditional cultural belief that “to have land is to have wealth”. This has resulted in the phenomenon with high home ownership rate yet high housing prices. On the other hand, the low holding cost of housing and imbalance in urban and rural development perpetuate the high housing vacancy rate in the housing market. This results in an unhealthy housing market and misallocation of resources. Finally, recommendations for related government policy making are made based on the findings.

Keywords

Housing Demand, Taiwan, Housing Price, Housing Vacancy Rate, Home Ownership Rate

1. Introduction

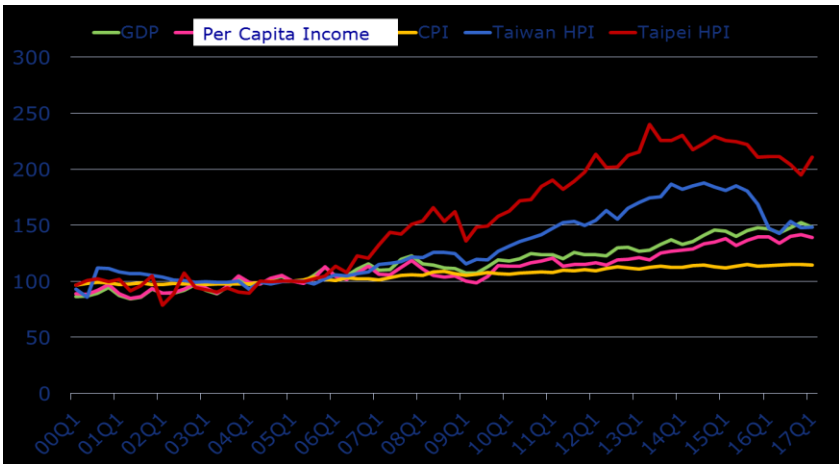
The concurrence of high housing prices and a high home ownership rate in Taiwan is a contradicting phenomenon. While the housing prices are highly unaffordable, the irony is that there is a high home ownership rate in Taiwan; that is, 85.36% in Taiwan and 84% in Taipei in 2016. The high housing price-income ratio has become a heavy burden to homebuyers. Also, the problems of housing vacancy are found in almost all metropolitan areas in Taiwan. Many house owners would rather keep the house vacant instead of renting the house when the rental rates are low and there might be the possibility of bad tenants and management difficulties. The low mortgage interest rate and property taxes in Taiwan have created a favorable environment for holding property. With less industry activities and lower housing demand in the smaller urban areas, the housing vacancy is higher and housing prices are lower. Therefore, higher housing vacancy means lower housing prices. Nevertheless, the problems of high housing prices, high owner occupancy and high housing vacancy are common in the major cities in Taiwan but differ in severity. These three characteristics of the housing market in Taiwan reveal an inefficient housing market with unutilized property and inappropriate allocation.

This study therefore aims to contribute with some feasible suggestions to the government for alleviating the three problematic characteristics of the housing market when developing reform policies. These three problematic characteristics of the housing market create a dilemma for homebuyers who hope to purchase housing but cannot afford to do so. Moreover, the three problematic characteristics of the housing market also reveal an inefficient housing market with unutilized property and inappropriate allocation. Despite the different characteristics of the local housing markets in Taiwan, this study shows that there is a common trend of high housing prices, high home ownership, and high housing vacancy rate. The study provides an analysis of this specific phenomenon and explores its impact on society. Some feasible solutions are provided which might improve the functioning of the housing market.

2. Housing Market Dilemma in Taiwan

2.1 Three Problematic Characteristics of Housing Market in Taiwan

Despite the stable house prices in Taiwan, the rate of increase of housing prices still greatly exceeds the rate of income increases. The housing prices have been generally increasing in Taiwan, but specifically skyrocketing in Taipei. Nevertheless, GDP and per capita income growth have been gradual and the consumer price index (CPI) has remained steady. When the rate of increase of housing prices exceeds that of the per capita national income and CPI, the result is soaring housing price. Figure 1 shows the gradual rise of housing prices from 2000 to 2017.

Figure 1 Relationship between Taiwan Housing Prices and GDP

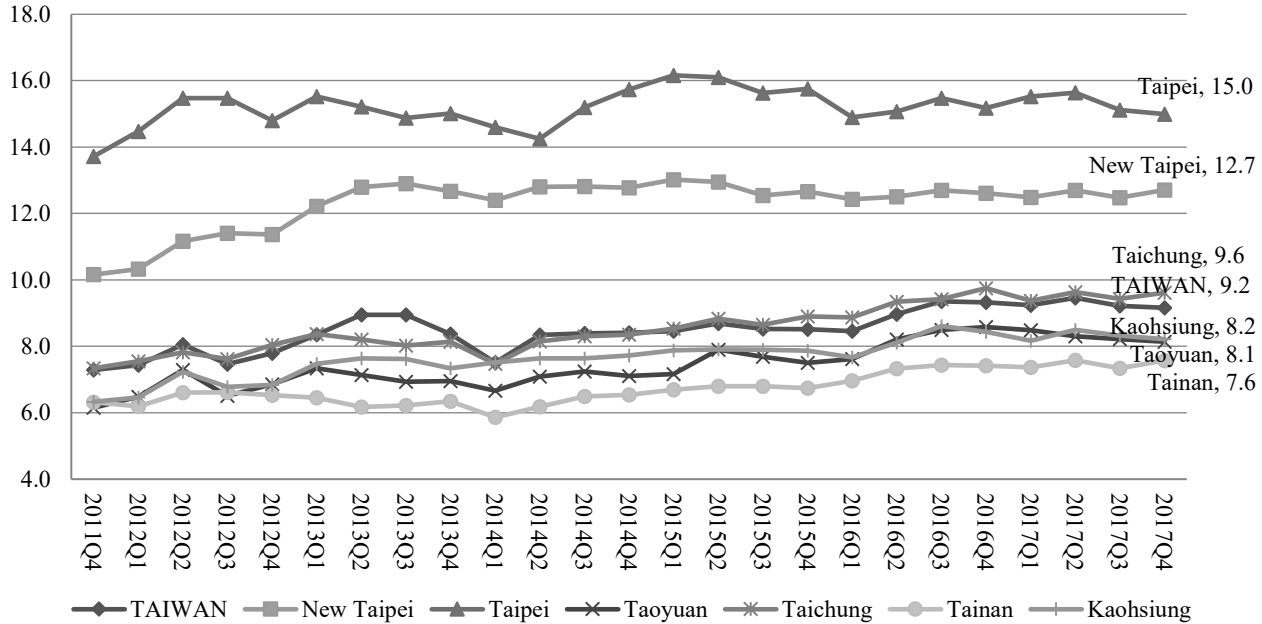
Sources: GDP, Per Capita Income, and CPI based on Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Taiwan. The HPI is derived from housing price index of real estate information platform of Ministry of Interior, Taiwan (<http://pip.moi.gov.tw/V2/E/SCRE0201.aspx>)

Note: GDP: gross domestic product, CPI: consumer price index, and HPI: housing price index

The price-income ratio in the six municipalities in Taiwan (Taipei, New Taipei, Taichung, Kaohsiung, Taoyuan, and Tainan) is 7 times higher than that of the average of Taiwan, which is unaffordable especially when compared to international standards. A high price-income ratio has become a common phenomenon in Taiwan but differs in severity depending on the region. It has ultimately become more difficult for young people and the middle class to purchase housing at such unaffordable prices.

The soaring housing prices have added to the burden of housing purchase. According to the third quarter of the 2017 Housing Affordability Index released by the Construction and Planning Agency of Ministry of Interior (M. O. I.) in Taiwan, the housing prices are 9 times the general income in Taiwan, 7.6 in Tainan, 12.7 in New Taipei and almost 15 in Taipei (Construction and Planning Agency of Ministry of Interior, 2017). The rising housing prices mean that the housing price-income ratio continues to increase. Housing therefore becomes increasingly more unaffordable (Figure 2).

Figure 2 Trend of Housing Price-Income Ratio in 6 Municipalities of Taiwan and Taiwan



Source: Construction and Planning Agency of Ministry of Interior, Taiwan (2017)

According to the 14th Annual Demographia International Housing Affordability Survey (2018), Hong Kong is the least affordable city, with a Median Multiple (median price of house divided by gross annual median income of household) of 19.4, followed by Sydney at 12.9, Vancouver at 12.6, San Jose at 10.3 and Melbourne at 9.9 (Table 1). That the housing prices in Taipei are on par with those of the least affordable cities in the world highlights the high housing price-income ratio in Taipei, which has become a heavy burden on homebuyers.

Table 1 All Housing Markets: 10 Least Affordable

Rank	Nation	Metropolitan Market	Median Multiple
283	U.S.	Salinas-Monterey, CA	9.1
283	U.S.	San Francisco, CA	9.1
285	U.S.	Honolulu, HI	9.2
286	U.S.	Los Angeles, CA	9.4
286	U.S.	Santa Barbara, CA	9.4
288	Australia	Melbourne, VIC	9.9
289	U.S.	San Jose, CA	10.3
290	U.S.	Santa Cruz, CA	10.4
291	Canada	Vancouver, BC	12.6
292	Australia	Sydney, NSW	12.9
293	China	Hong Kong	19.4

Source: Demographia (2018).

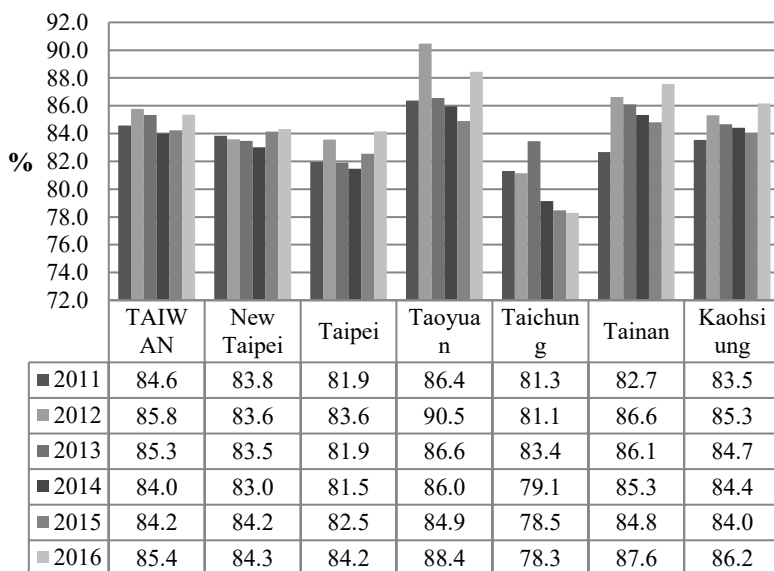
Household income is fundamental for housing affordability and the base value of housing prices. Chang *et al.* (2009) carry out a study on housing bubbles in Taipei, Taiwan, and find that when the home ownership rate is high, as with the increase of housing prices in 2008, the housing bubble prices are close to 38% of the housing prices. While the per capita national income is not as high as that of other countries, the housing prices to income ratio is close to that of the least affordable cities, which poses a negative effect on housing demand.

The coexistence of high housing prices and high home ownership rate in Taiwan is a contradicting phenomenon. While housing is highly unaffordable, the dilemma appears to be the high home ownership rate in Taiwan, which was 85.36% in Taiwan and 84% in Taipei in 2016 (Figure 3). The high home ownership rate is attributed to the traditional cultural belief that “to have land is to have wealth”. The Taiwanese prefer to purchase a dwelling instead of renting one. Housing is also a common and popular commodity of investment. Due to the low housing quality of rental units, the low interest rate of home mortgages due to subsidization of the government, and low property taxes, most Taiwanese prefer to purchase a house. Hua (2001) indicates that the continuous supply of housing and the government policy of subsidizing the interest rate of home mortgages have increased home ownership. It is also common for parents to buy a dwelling for their child(ren). In Taiwan, home ownership is defined as a household arrangement in a residence owned by family members who all live

together. Therefore, the high home ownership rate not only reflects the high demand for ownership or investment, but also the traditional Chinese family value of shared property and housing owned by family members.

The problem of housing vacancy can be found in almost all metropolitan areas in Taiwan. With less industry activities and lower housing demand in the smaller urban areas, the housing vacancy is higher and housing prices are lower. Therefore, higher housing vacancy means lower housing prices there. According to the census of the M.O.I., the housing vacancy rate in Taipei was 13.8% in 2010, which is the lowest among the municipalities/cities in Taiwan. However, compared to the natural vacancy rate of 5%, this percentage is still high (Figure 4). Peng (2005) points out that the vacancy rate and the changes in housing prices are negatively correlated. The lack of urban development in the rural areas of Taiwan has resulted in a higher housing vacancy rate. However, the gap in housing demand between the urban and rural areas is another issue. Hua (2017) further points out that lagged urban renewal efforts are the main factor for an excessive housing supply. Over the past decade, there have been about 100 to 120 thousand units of new housing per year, most of which are newly constructed instead of the reconstruction of demolished houses. Given that the housing vacancy continues to increase and poor quality older housing are not reconstructed, vacancy is therefore one of the main reasons for low housing prices in the rural areas.

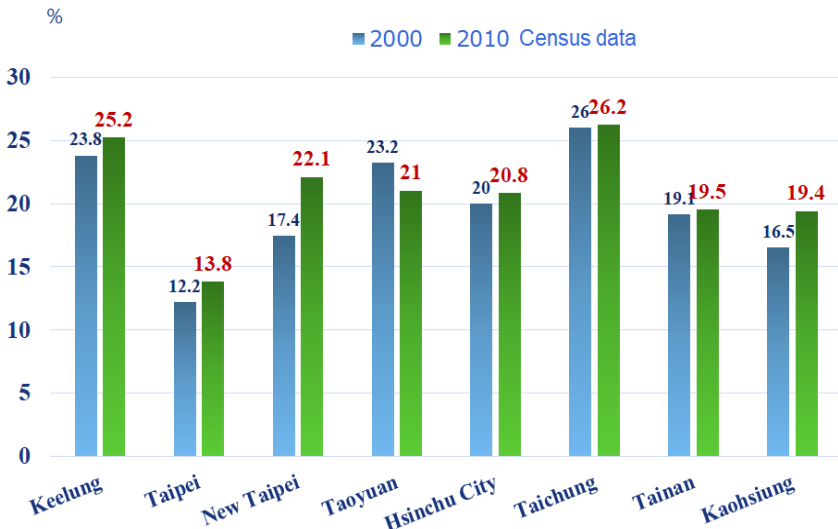
Figure 3 Percentage of Owner-Occupied Residences in 6 Municipalities of Taiwan and Taiwan



Source: Directorate- General of Budget, Accounting and Statistics, Executive Yuan, Taiwan (2010).

Therefore, the problems of high housing prices, high owner occupancy and high housing vacancy are common in the major cities in Taiwan but with different severity. Foreign investment in Taiwan's housing market is low because there is a lower return compared to other cities in the world. Furthermore, Taiwanese laws have strict stipulations on property purchases by the Mainland Chinese. Only those who work in Taiwan or have substantial investment can purchase a housing unit for their own occupancy, and cannot be rented out or used for non-residence purposes, and also cannot be transferred within three years after its purchase. Therefore, it is not easy for Chinese buyers to purchase property or invest in property in Taiwan. Overall, the housing market in Taiwan is more a closed domestic market and the high housing prices are not attributed to investors from Mainland China.

Figure 4 Changes in Housing Vacancy in Primary Cities in Taiwan



Source: Directorate- General of Budget, Accounting and Statistics, Executive Yuan, Taiwan. (2010)

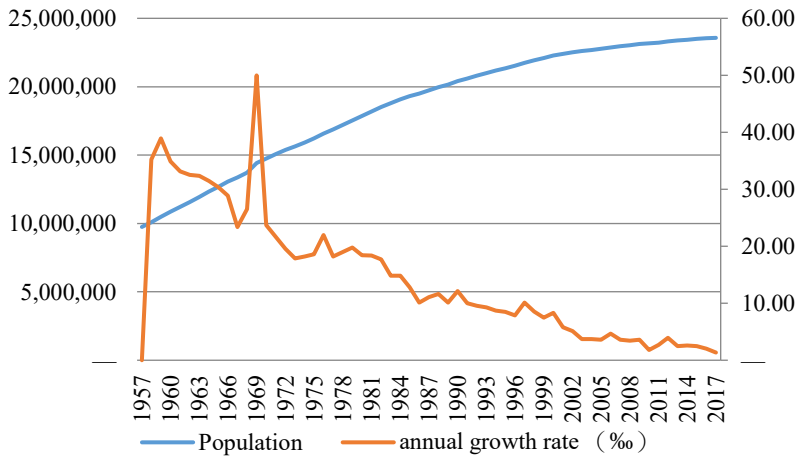
2.2 Quantity and Quality of Housing Demand in Taiwan

2.2.1 Housing Demand and Population Growth

Demographic changes have a variety of impacts on housing demand. The population growth in Taiwan has been on the decline. According to statistics from the Department of Household Registration, M.O.I., the total population in Taiwan has increased from 21,742,815 individuals in 1997 to 23,571,227 people in 2017. However, the population growth percentage has decreased from 10% in 1997 to 1.33% in 2017 (Figure 5).

Population growth in Taiwan has been stagnating in recent years. Yet even with an aging society, late marriages and low birth rate, the number of households continues to grow (Figure 6). However, statistics from the Department of Household Registration, M.O.I., show that the average number of household members has declined from 5.56 per household in 1960 to 2.72 in 2017. This shows that the family structure in Taiwan has changed from nuclear families to families with fewer members. Although population growth has been stagnating, housing demand is based on the number of households. Therefore, changes in family structure influence housing demand and consumption. In a housing market with high prices and small households, small houses will be more favored.

Figure 5 Population Growth Trends in Taiwan



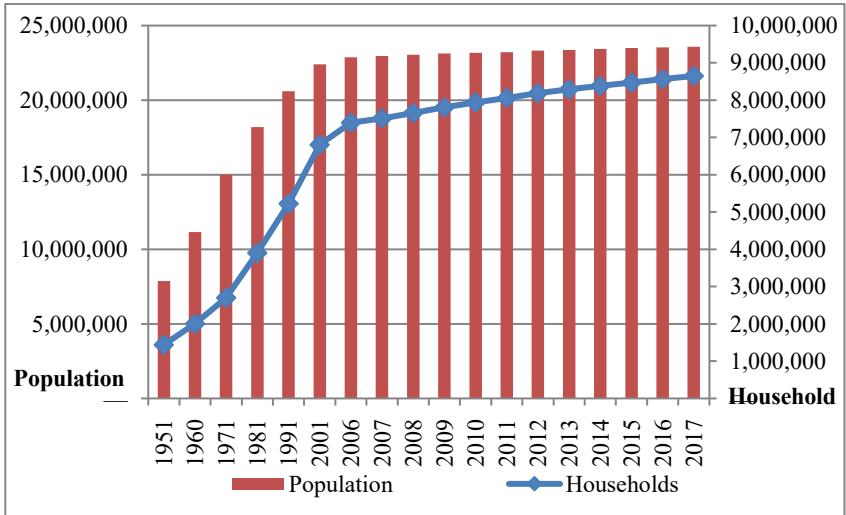
Source: Department of Household Registration, M.O.I., Taiwan (2017)

2.2.2 Consumption Motivation

As a result of the unaffordable housing prices and the changes in demographics, first-time homebuyers have been on the decline while second-time (or more) homebuyers have been increasing. Meanwhile, with the reform on income tax for real estate transactions, there are fewer individuals who purchase property for investment. Purchasers of owner-occupied residences are mainly found in the current housing market in Taiwan. While the number of first-time homebuyers has decreased slightly because of the high housing prices, the number of second-time (or more) homebuyers who are purchasing for their own occupancy has been increasing. According to a housing demand survey conducted by the M.I.O., first-time homebuyers who are purchasing for their own occupancy account for 44.3% of buyers in the first half of 2017, 38.7% are second-time (or more) homebuyers and 16.4% are investors. Among them, the first-time and second-time (or more) homebuyers who are purchasing for their

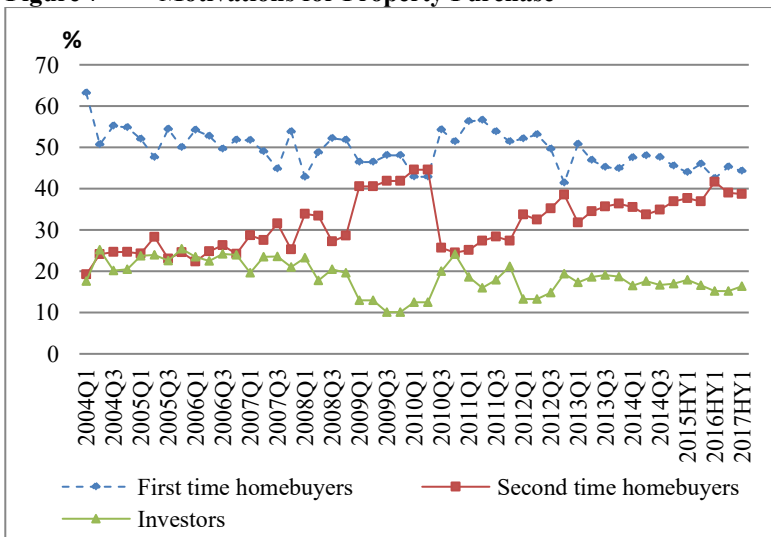
own occupancy account for 83% of the buyers (Figure 7). The number of investors has slightly decreased after the government increased the income tax for real estate transactions. Hence, purchasing for self occupancy and also for improving living environment are the main motivations behind housing consumption.

Figure 6 Population and Household Growth Trends in Taiwan



Source: Department of Household Registration, Ministry of the Interior, Taiwan (2018).

Figure 7 Motivations for Property Purchase



Source: Construction and Planning Agency, Ministry of Interior (2017)

Reasons for Occupancy and Non-occupancy Purchases

The quality of the living environment is one of the main concerns of most of the homebuyers in urban areas in Taiwan. Urban renewal is not an easy task in Taiwan, and therefore there is a considerable number of older housing. About one third or 34% of owner occupied purchases are made to improve current living environment. In contrast, the number of property investment buyers who expect to profit from capital gain have decreased because of the increase in income tax of real estate transactions. One third or 33% of non-owner occupied purchases are for rental purposes, followed by buying for resale value or making a profit (28.3%). The changes in motivation behind non-owner occupied purchases have contributed to increasing the number of rentals in the housing market, which also provides opportunities for rental market development (Table 2).

2.2.3 Preferences in Housing Type and Size

The preferred housing type and size differ in the urban and rural areas in Taiwan depending on the degree of urbanization and volume of land supply. In urban areas such as Taipei City and New Taipei City, the housing prices are higher so apartments are preferred. On the other hand, the housing prices are more affordable in the less urbanized areas of Taoyuan, Taichung, Tainan and Kaohsiung, so that townhouses are preferred, among which the highest demand is in Tainan (49.6%), followed by Taichung (45.5%) and then Taoyuan (38.9%); see Table 3.

Moreover, the demographic structure has been changing in Taiwan. The population has increased very slowly while the number of households has increased. Since the number of members in a household has declined, the preference is medium or small houses. According to the housing demand survey carried out by the Construction and Planning Agency, M.I.O. (2017), the preferred house size ranges from 83 m² to 116 m² (39.5%), followed by 116 m² to 149 m² (23.4%), and then 50 m² to 83 m² (16.0%). Apartments that range from 83 m² to 116 m² is also most in demand in all areas, among which the highest demand is in New Taipei City (44.9%). The demand for apartments less than 83 m² in New Taipei City (27.4%) and Taipei City (26.6%) is higher than that in central and southern Taiwan; that is, Taoyuan, Taichung, Tainan and Kaohsiung, as shown in Table 4.

Table 2 Comparison of Main Influential Factors behind Owner-Occupied House Purchase by Municipality

	Main Factor	Average	Municipality					
			Taipei	New Taipei	Taoyuan	Taichung	Tainan	Kaohsiung
Owner-Occupied	Improving living environment	34.0	29.3	32.2	34.0	40.5	34.3	33.9
	For child(ren)	16.8	17.8	18.6	20.8	14.7	13.1	15.7
	For parents (to reside)	8.4	8.3	7.5	7.9	7.7	10.6	8.5
	Area with more employment opportunities	13.1	14.9	11.7	12.2	12.4	16.3	10.5
	Marriage	21.6	22.1	24.1	21.1	18.9	21.5	21.4
	Recreation / Retirement	4.8	5.4	4.6	2.6	4.2	3.5	8.9
	Miscellaneous	1.3	2.2	1.3	1.3	1.5	0.6	1.2
Non- Owner Occupied	Capital gain	26.8	21.6	20.0	33.3	28.3	27.4	23.8
	Rental yield	33.3	32.4	35.0	29.0	30.0	27.4	54.8
	Gift for children	11.2	10.8	12.5	8.7	11.7	15.1	7.1
	Protection against inflation	28.3	35.1	32.5	29.0	30.0	28.8	14.3
	Miscellaneous	0.3	0.0	0.0	0.0	0.0	1.4	0.0

Source: Construction and Planning Agency, Ministry of Interior (2017).

Table 3 Preferred Housing Type by Municipality

Housing Type (Unit: %)	Average	Municipality					
		Taipei	New Taipei	Taoyuan	Taichung	Tainan	Kaohsiung
Townhouse	29.4	4.4	4.0	38.9	45.5	49.6	30.6
Apartment without Elevator	12.7	23.4	18.0	9.0	8.2	9.6	8.6
Apartment with Elevator	57.2	71.6	77.4	51.0	45.7	39.5	60.9
Other	0.7	0.6	0.5	1.0	0.6	1.2	0.0

Source: Construction and Planning Agency, Ministry of Interior (2017).

Table 4 Preferred Housing Size by Municipality

Size (Unit: %)	Average	Municipality					
		Taipei	New Taipei	Taoyuan	Taichung	Tainan	Kaohsiung
Under 50 m²	1.3	1.2	2.7	0.8	0.9	1.2	1.0
50 m²– 82 m²	16.0	25.4	24.7	10.8	11.4	11.4	13.3
83 m²- 115 m²	39.5	42.8	44.9	39.3	34.2	36.8	39.0
116 m²- 148m²	23.4	18.9	19.7	24.4	25.1	26.9	25.0
149 m²– 181 m²	8.0	5.7	2.9	8.3	10.5	9.2	11.7
182 m²– 214 m²	6.9	3.6	3.2	7.8	10.2	9.4	6.5
Over 215 m²	4.9	2.4	1.9	8.6	7.6	5.1	3.6

Source: Construction and Planning Agency, Ministry of Interior (2017).

3 Reasons behind Contradicting Phenomenon

3.1 Reasons for High Housing Prices

The large number of property buyers, whether they buy for owner-occupancy or investment, is one of the main factors behind the high housing prices and even housing bubble prices in Taiwan. When housing becomes a marketable commodity, property buyers expect to gain profit from investing in property. However, owner occupied purchasers are limited by their income, and therefore would choose housing that would maximize their benefits. Chang *et al.* (2009) develop a model for fundamental house value to analyze housing bubbles from the perspectives of rent profit and household income. They apply the state-space model to test for housing bubble prices. Their findings show that there was a housing bubble in Taipei from 1988 to 1990, which accounted for 47% of the housing price from the housing income model and 54% from the rent model. Moreover, housing prices in Taipei rose in 2008 and the bubble prices estimated by the income model were close to 38% of the housing price and 27% by the rent model. These show that the housing bubbles at the time given the close estimates from either the housing income model or the rent model. The rental market in Taiwan is different from that in other countries. With the traditional cultural belief that “to have land is to have wealth”, homebuyers would rather pay for long-term home loans even if their income is not sufficient enough to manage such high housing prices. The tenure choice model cannot fully account for this phenomenon. Teng *et al.* (2017) also report that bubble prices have diffused from the city center of Taipei City to the surrounding area of the New Taipei City.

3.2 Reasons for High Home Ownership Rate

The Taiwanese, regardless of their income, prefer to have their own property due to a traditional cultural belief. Another reason is the significantly high appreciation profit so that property has been a favored investment item among all of the other types of investment products.

Unaffordable high housing prices generally discourage homebuyers from purchasing property. However, high housing prices and high homeownership are concurrently found in Taiwan. Therefore, Lin *et al.* (2014) use the ordinary least squares model and quantile regression to analyze the individual household housing price-to-income ratio (PIR) or micro PIR. Their empirical results show that homebuyers with a higher micro PIR tend to be those with a higher budget but lower income and buy new houses that are large in size in the downtown region. However, they may also be purchasing housing for investment. Therefore, the PIR is not a precise enough indicator of housing affordability in Taiwan. Other factors that account for high housing prices and high housing affordability could be purchasing for family members and financial reasons rather than income in Chinese society.

Chen *et al.* (2007) apply four tests, including the cointegration, stochastic break, Perron and vector autoregression tests, to examine the long-run equilibrium relationship between housing prices and household income. Their research shows that a slow increase in income and volatile housing prices is attributed to their long-run equilibrium relationship. Besides, temporary monetary variables and housing prices are significantly correlated after the financial liberalization in Taiwan. The deviation between housing prices and income has become a phenomenon specific to Taiwan so that the supply the capital stimulates increases in housing prices.

3.3 Reasons for High Vacancy Rate

Low mortgage interest rates and property taxes in Taiwan have created a favorable environment for holding property. According to regional statistics of Asian countries found on the Global Property Guide website (<https://www.globalpropertyguide.com/>) the gross rent multiplier (GRM) in Taipei is the highest in Asia. Housing rent is negligible compared to high housing prices which means that housing appreciation profits far exceed rental revenue. Many housing owners would rather keep the house vacant instead of renting the house when the rental rates are low and there might be the possibility of bad tenants and management difficulties (Table 5). Property taxes also have some impacts on housing investment. The land value and housing taxes in Taiwan used to be low for homeowners. The cost of owning real estate was less than that of owning a car. Besides, the mortgage interest rate in Taiwan is less than 2% and flexible-payment mortgage is available as a repayment method. Due to the low mortgage interest rate and low cost of holding housing, property investment buyers do not need to use rent to offset the operating costs and expenditures, which contributes to the high rates of housing vacancy in investment property.

Table 5 Gross Rent Multiplier and Property Returns in Different Asian Cities/Countries

City/Country	Rent Multiplier (Year)	Rental yields (%)
Taiwan	64	1.57
China	48	2.10
Hong Kong	38	2.62
Singapore	39	2.54
Malaysia	27	3.72
Japan	38	2.66
Thailand	19	5.13

Source: Global Property Guide (2018).

4 Impacts of Contradicting Phenomenon on Housing Demand

4.1 Characteristics of Housing Demand Decisions in Taiwan

In the past, traditional filial piety in Chinese society meant that three generations lived together under the same roof. However, the reason that many families who live together nowadays is because they want to save money on the everyday living expenses due to the high housing prices. When households make mobility decisions or housing adjustments, they generally consider household demand, the limitations of income, and quality of the living environment. Extended families with three generations living under one roof mean that there are more family members and more sources of income. Therefore, mobility decisions have to be able to meet the needs of the different generations. The older generation with more social and economic capital usually has more influence in the decision-making process. Family ties and the principles of filial piety are also very important when making mobility decisions. The sandwich generation with inferior financial capacity choose to live with the older generation instead of moving out. However, the older generation usually makes the decisions based on the needs of the sandwich and young generations (Chang *et al.*, 2003), which shows that the mobility decisions of married couples are influenced by the financial support from their parents.

4.2 Life-Cycle Hypothesis and Adjustments in Housing Demand

Households usually adjust their housing demand based on changes in their life cycle. When they want to improve the quality of their housing, different factors will be taken into consideration such as more employment opportunities in the Taipei urban areas, housing prices and their own income. New Taipei City and Taoyuan City have become favored options for households with lower income, where more affordable housing units are available. The housing market has different housing prices, which are categorized as different submarkets according to the different purchasing powers. Chen and Chang (2002) indicate that household income and life cycle influence mobility decisions. Households may make the decision to move to a different environment based on their income. Therefore, there are different housing markets that accommodate the different needs. The suburban areas (such as Taipei County) are relatively less expensive which attract a younger population while good schools and convenient commuting system in Taipei City attract families with a certain lifestyle and social status.

Chen *et al.* (2004) state that the residential quality depends on the stage of the family life cycle and the household would therefore make amends in choosing the housing that would fit their needs. For instance, younger families are probably first-time homebuyers, who are more likely to compromise on where

they live as opposed to families with school-age children. The elderly are more likely to move to smaller housing because their children may have moved out, or move to the suburbs where housing is cheaper as they are on limited income after they retire. Therefore, the type of residence may depend on the different stages of the family life cycle and housing needs. Moreover, income is a key factor in housing demand. Households with sufficient financial ability have the means to move to housing with a larger living space and one that has better quality.

The housing affordability index among the six municipalities in Taiwan varies greatly. The constraints of income and demands in the different life cycle stages influence housing demands. Young households may move to New Taipei City and Tao-yuan City, which are the suburbs of Taipei City, because they cannot afford the housing prices in Taipei City. This has created a one-day living sphere in northern Taiwan in which people work in Taipei City but buy property and live in New Taipei City and Taoyuan City. Although people spend more time and money on commuting, these have not been deterrents, and the population in New Taipei City and Taoyuan City continues to grow. However, high housing prices have led to a population outflow from Taipei City, which has resulted in the highest population of elderly people in Taipei City among the six municipalities.

4.3 Impact of High Housing Prices on Fertility Behaviors

Purchasing housing and bearing children are important decisions for households, both of which require substantial spending of funds. The arrival of children motivates property purchasing because home ownership provides stability. However, high housing prices and the high cost of bearing children have led to exclusion effects. Unaffordable housing prices seem to be the factor for low birth rates in Taiwan. Therefore, high housing prices not only affect the housing demand but also fertility behavior. According to Lin (2015), the probability of first-time home buying increases with a gradual decrease after the birth of the first child in the household, which means that the exclusion effects weaken over time. The effects of resource exclusion and stimulus that motivates house buying change over time and there are different effects in terms of the order of house buying and fertility behaviors. Even though there are now more members in the family and the need for more living space, the consumption of the family resources delays housing changes. However, the short amount of time for families with children to purchase housing means that they need housing urgently, which reduces the effects of resource exclusion on fertility behavior. One of the reasons might be the expectation of higher prices causes them to purchase housing as early as possible. The burden of high prices is thus heavier than that in a normal price period.

Lin and Chang (2016) explore the possible consequences of housing purchase on the fertility behavior of households. The findings show that when housing is viewed as a daily life commodity, the cost of housing purchase would consume

more household resources which results in a resource exclusion effect on childbearing, thus reducing the rate of fertility as couples “dare not have children after buying a house”. On the other hand, when housing is viewed as a precondition of childbearing, the purchase of a house would be part of the costs of having a child, which means “no house, no children”. Lin and Chang (2016) find that many married young couples who cannot afford the high housing prices still live with their parents. Compared to the married couples who did not purchase housing, couples who purchased a house delayed having their first child, especially when purchasing housing in a market with soaring prices. The lack of financial support from the older generation also means that married couples who live in rental housing delay childbirth, compared to those who live with their parents.

Fertility behavior is distorted when the costs of housing purchase exclude those of childbearing. This is a unique phenomenon in that the housing market has a negative influence on population growth, which also highlights the negative effects of unreasonable housing prices.

4.4 Impact of High Housing Prices on Housing Arrangements of Elderly

High housing prices in the urban areas are changing the traditional family arrangement of the elderly living with their children in the same residence. As a result of the housing prices, the elderly cannot depend on their children and share the same residence. Housing demand determines the number of households. While it is common for three generations to share the same residence in Chinese society, shared property and co-residence influence the decisions on housing tenure. To alleviate the high living expenses in urban areas, the elderly are more likely to live with their children, where there are more good schools and employment opportunities. Traditional Chinese family values dictate that the elderly rely on their children in their old age and it is expected that more of the elderly would move in to live with their adult children as they become older. However, with the soaring housing prices in urban areas, many young married couples purchase or rent housing that can only accommodate their own family with no space for their parents. Thus, more and more of the elderly are unable to live with their adult children (Chang and Chang, 2010). Economic factors have therefore become more important in modern society. Economic power and autonomy are the two main factors that affect the changes in the living arrangements of the elderly. Some of them would rather live alone or with their spouse to maintain their autonomy if they are economically able to do so; others with fewer resources do not want to give up their freedom and live with their adult children even if they do not have the financial means. Since it costs more to live in the urban areas, it is less likely that the elderly would live with their adult children in the urban areas. They would probably live elsewhere that is more economical.

5 Possible Solutions to Contradicting Phenomenon

5.1 Housing Should Be Consumption Good

Housing can be both a consumption and investment good. While housing is a basic necessity, there should be sufficient quality housing as options. Meanwhile, housing is also a commodity for trading, which can be considered as an investment asset. Taiwan implemented the Equal Land Rights Regulations after World War II based on the socialistic philosophy of Dr. Sun Yat-sen in landownership policy. However, the traditional Chinese cultural belief “to have land is to have wealth” meant that people were eager to own property. When land and housing are marketable commodities, they have skewed influence on housing demand. The government should construct a tax system to de-commodify land and housing, collect taxes on the profits gained from the transaction of land and housing, all of which could be used for public facilities (La Grange *et al.*, 2005). The land appreciation taxes in Taiwan are so low that there are barely any taxes collected from asset appreciation, which encourages the commodification of housing and land, and property investment. Unlike other investment commodities, the beneficiaries are the powerful minority when land and housing are commodified. However, this has negative impacts on the middle class and those who are disadvantaged. Therefore, establishment of relevant policies should be carried out.

5.2 Reduce Demand in Housing as Investment and De-Commodification of Housing

The failure of the housing market has great impacts on the house purchasing behaviors of households. We suggest the following specific policies which need to be promoted: a higher mortgage rate for non-owner-occupied properties to protect and benefit house buyers who plan to occupy the house themselves; incur higher property taxes on real estate that is non-owner occupied; incur higher income taxes on those who profit from short-term property transactions (those who flip houses); and provide a lower mortgage ratio and higher interest mortgage rate on non-owner occupied properties. These policies therefore penalize non-owner occupied properties as they increase their transaction and holding costs. Policy intervention is necessary to re-regulate the housing market back to affordable prices.

5.3 Improve Mechanisms of Housing Market, Use Vacant Housing Efficiently and Promote Transparent Real Estate Information

High housing vacancy is a waste of resources in the urban areas in Taiwan, which is especially serious in the rural areas and countryside. It is therefore recommended that the government provides transparent and complete information about the housing market, especially information on vacant houses for residential use. Appropriate measures should be taken to encourage the leasing of vacant houses in the rental market to solve the housing problems of

young and disadvantaged people in the urban areas. It will also address the waste of housing resources at the same time. Moreover, developing more industries and reinvigorating the economy in the rural areas and the smaller cities are critical for addressing housing vacancy.

5.4 Rental Market Improvements - Multiple Subsidies for Disadvantaged Families

A high homeownership rate and high price-rent ratios are symptoms of the problems of high housing prices and low housing rent. Since most households prefer to own their residence, rental housing demand is reduced, which leads to low housing rent. Besides, the poor quality of rental housing also discourages most households from renting. It is therefore recommended that the government establishes legislation on the rental housing market, which explicitly stipulates the rights and duties of the landlords and tenants, provides incentives in terms of taxes and loans for house repairs, and prosecutes illegal housing and poor quality rental housing to improve the rental market. Only when the rental market provides higher quality rental housing and charges a reasonable rent would there be more inclination to rent instead of purchasing housing. Furthermore, low-income and economically disadvantaged people face a greater likelihood of rejection when they attempt to rent, so the government should provide different types of subsidies for renting and increase social housing for those who are unable to purchase or rent appropriate housing in the market.

6 Conclusion

The problems of the three primary characteristics of the housing market in Taiwan, which are a high housing vacancy rate, high housing prices and high home ownership are found in the major cities but with different severity. These are macro level problems. Therefore, this study has provided some feasible solutions for the government to use as reference when deciding on the relevant housing policies.

We suggest that the government provide a clear definition of housing as home ownership instead of a marketable commodity. To do so, a policy needs to be in place that allows different home mortgage interest rates and taxes for owner-occupied and non-owner occupied houses. As for the housing vacancy in the urban areas and suburbs, we recommend that the government provide transparent housing market information and increase housing demand in the rural areas and the smaller cities by developing more industries and reinvigorating the economy. As for the soaring housing prices, it would be more practical and efficient to establish and develop a healthy rental housing market because the housing price to income ratio is too high for affordability. Therefore,

the alternative solution would be to either develop an affordable rental housing market or strengthen the local economy and increase income.

The high housing price-income ratio is a problem in the major cities in Taiwan. The unaffordable housing prices are almost on par with those in the least affordable cities in other parts of the world, such as Sydney, Vancouver and Hong Kong. However, high home ownership is attributed to fewer investment channels in the past as well as the traditional culture of home ownership because property is a favored and important asset that can be passed on to children like most other Asian countries. Therefore, there is substantial investment on property which results in high levels of owner-occupancy and the purchase of property as an investment for profit. Meanwhile, the large number of buyers who purchase a house for investment leads to high housing vacancy. Moreover, low property taxes in the past and low housing rental revenues are other two reasons behind the high housing vacancy. Although high housing prices and high home ownership are also found in major cities in China, high housing vacancy and low rental revenue are specific to Taiwan but in different severity, depending on the region.

This study makes a major contribution to the analysis of the three primary characteristics that are problematic and specific to Taiwan's housing market. In Taiwan, freehold property rights mean outright ownership of land or property for an unlimited period of time, as opposed to China and Hong Kong which only offer leaseholds that have a limited duration. Despite the different property and land systems, the housing is also unaffordable in Hong Kong and certain parts of China. Therefore, we recommend that the government provide effective measures to avoid the pitfalls of the housing market. The three primary characteristics of housing in Taiwan have inhibited the young, disadvantaged and even middle-class from purchasing property. Excessive capital and investment in the housing market are also misallocation of resources, which impede a normal development of the housing economy. This study suggests that the government adopt measures and propose policies to de-commodify land and housing, which coincide with the recent state policy of the Chinese government to maintain a stable and healthy housing market. The policy orders crackdowns on flipping property and illegally profiting from property investment. In addition, housing prices and housing vacancy are the results of supply and demand in the housing market. Therefore, the Taiwanese government is obliged to provide relevant policies to solve the problems. Social housing and subsidies for rentals are solutions for affordable housing for young people and the disadvantaged. Moreover, this study also suggests that the government disclose clear and updated housing information so that homebuyers would not be in a disadvantaged position because of asymmetric information. The suggestions proposed in this study can serve as valuable recommendations to solve the problems of high housing prices and high housing vacancy, which might be found in any city with similar housing problems.

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