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Consumers' Choice between Real Estate Investment and Consumption: A Case Study in Taiwan

Wei-Ling Tsou and Chen-Yi Sun *

Department of Land Economics, National Chengchi University, Taipei 11605, Taiwan; linda760530@gmail.com
* Correspondence: justin.sun.tw@gmail.com; Tel.: +886-909-619-196

Abstract: Real estate has two major characteristics, representing a consumption good and an investment good. Family housing demands are affected by various factors such as family members, the stage that the current house is at in its life cycle, income, location preferences, and so on. To understand which kind of homebuyer backgrounds will increase the proportion of residential investment, this study applies a multinomial logit model to analyze the probability of investment or consumption decisions made by home buyers from different backgrounds in Taiwan. Empirical data show that middle-aged singles and middle-aged couples are less likely to purchase houses to be their personal residence. For young couples and young families, having a personal residence is still a primary consideration, which means that this need is a result of how they are in the early stages of their life cycle when they are not yet financially stable and may expect to have (or already have) children. Families with children show a higher demand for changing residences, which is why full-nest families and three-generation families are more frequently the owners of their personal residence. In addition, the purchase motives of full-nest families include their view of real estate as an investment good, which means that the purchasers have a stable family structure and a degree of financial stability. It also means that with their children growing up, these purchasers exhibit a higher demand for purchasing real estate as an investment the next time they change residence.

Keywords: hedonic pricing; housing; life cycle; multinomial logit

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1. Introduction

There are two essential elements in real estate purchasing; one is consumption and the other is investment. The 2010 population and housing census data show that the home ownership rate in Taiwan has reached as high as 80%, indicating that the Taiwanese people tend to purchase their own homes, and the traditional concept of having real estate as true wealth also reflects in most Taiwanese preferring to use real estate as an investment. On one hand, they can accumulate wealth; on the other hand, it can also be used for owner-occupancy. If the buyer's home purchase motivation is further subdivided into four major types, the first category (pure owner-occupancy) and the second category (partial owner-occupancy) account for the majority, followed by the proportion of the third category (partial investment) and the fourth type (pure investment). In one paper, investment choices are classified in to seven categories, and elements affecting investment choices are determined by analyzing with multinomial logit models the data obtained from 1300 public surveys conducted in Istanbul and its results show that investment choices of households are affected not only by economic factors but also by social and personal factors [1].

Residential housing is a high-involvement product, and the decision-making process is longer and more complex when consumers purchase such products. The study points out that the psychological research of consumer behavior should be targeted at families (or households) rather than individuals, and family decision making is typical group decision making, especially with high-involvement products such as housing, which are mostly

decided by both spouses. As a result, the family has gradually become the main target of consumer behavior research [2]. The life cycle is an important perspective for foreign research [3,4]. The family's residential needs are affected by factors such as life cycle stage, demographic characteristics, income, and location preference. The life cycle stage represents the size of the household population and will directly affect the demand for residential space. Residential preference, to some extent, reflects a preferred lifestyle, such as the preference for natural or urban environments, convenience or comfort factors, and physical or mental factors.

One study uses a model to derive revenue sources that affect both residential investment and consumer behavior [5]. On the other hand, in one study of Japan, the differences in residential preferences as a result of household attributes such as age, household structure, housing ownership, and residential periods are not apparent [6] because homebuyers have increased their chances of buying new homes due to their different life cycles, resulting in the inability of existing homes to meet their needs. Therefore, this study still regards the "life cycle of family" as an important factor.

The dual motives of housing behavior, consumption, and investment make the analysis of housing purchases quite difficult. Nevertheless, the results of a study in France show that the difference between the two demands cannot in itself explain housing purchases [7]. The results of another study suggest that investment demand is more sensitive to wealth and income than is consumption demand, but that consumption demand is more sensitive to demographic variables and proximity to urban suburbs [8]. For mapping out and encapsulating the multidimensional spectrum of factors which shape the attractiveness of alternative real estate options, one study proposes an integrated complex evaluation model, real estate investment choices, and decision support system [9].

Logit model analysis was often used in epidemiological studies in the early years. It has been widely used in housing research in recent years. Foreign studies focus on living and migration and residential choice, while domestic studies are conducted on the variables affecting the choice of residential locations [10,11]. One paper uses logistic regression and a series of micro data sets of Australian households and examines the investment decision of residential rental property investors over the period 1990–2004, and its results indicate that wealth-related factors are the dominant factors driving these investments; nevertheless, life cycle factors such as marriage and children play a less important role [12]. Another article focuses mainly on permanent (and current) income, household structure, life cycle, and differences between local market characteristics, and applies multinomial logistic regression to analyze factors that increase the probability of young heads of household becoming homeowners [13]. The other paper used an estimated mixed multinomial logit model of household housing demand to examine the impact of four housing market-related policies on a stated preference survey sample in Shanghai, China [14]. A multinomial logit regression model established differences in the launching likelihood between different categories of housing size projects. The geographically weighted regression model revealed that larger dwellings were launched more in upper-income, lower formal employment rate, and lower infrastructure coverage regions of Belém [15].

Therefore, this study used a multinomial logit model to understand the probability of investment and consumption of home buyers through the life cycle. The purpose of our research is to provide the government with clarification and understanding of the intent of home buyers from different backgrounds in Taiwan as well as practical policy recommendations. In addition to the introduction in the first section, the second section covers materials and methods, the third section contains the results, and the final section presents the conclusions of the research.

2. Materials and Methods

2.1. Data Interpretation and Empirical Model

The data sources of the questionnaires used in this paper are the "Housing Demand Survey" produced by the Construction and Planning Agency of the Ministry of the Interior,

the Institute for Physical Planning and Information, and the Taiwan Research Center for Real Estate of National Chengchi University. The research objects are mainly the new borrowers whose home purchase loans have been approved by the 16 domestic banks of Taiwan from 2006 to 2009. The questionnaire is targeted at these homebuyers.

The questionnaire has 12 questions, divided into 5 parts. The first question of the questionnaire is the purpose of buying a house. The second part of the questionnaire, comprising questions 2–8, relates to the characteristics of the target before and after the house purchase, including location, size, price, loan amount, product type, location, market type, etc. The third part is search behavior, including search time and search quantity, which is question 9 of the questionnaire. The fourth part is the buyers' view on the price trend of the real estate market, representing the 10th question of the questionnaire. The last part is the basic information of the home buyer, including family type, income, age, occupation, etc., covering questions 11–12.

The survey areas cover 5 metropolitan area of 5 cities, including Taipei, New Taipei, Taoyuan, Hsinchu, Taichung, and Kaohsiung. Using the "Housing Demand Survey" criteria, invalid samples and extreme values were removed so as not to affect the predictive power of the model. A valid sample size was 8970.

2.2. Empirical Model

In this paper, the dependent variable is the motivation to buy a house, which is divided into pure owner-occupancy, partial owner-occupancy, partial investment, and pure investment. It is a categorical variable rather than a continuous variable, so it is not suitable for a linear regression model. However, when the category of the dependent variable is greater than or equal to three, and there is no order or correlation between the categories; thus, it can be applied to multiple logistic regression analysis.

In this paper, the dependent variables are: (1) "pure owner-occupancy", (2) "partial owner-occupancy", (3) "partial investment", and (4) "pure investment". "Pure investment" is set as the reference item; therefore, the four options were formed into three sets of equations as follows:

$$\ln\left[\frac{p(y=1\,|\,x)}{p(y=4\,|\,x)}\right] = \alpha_1 + \sum_{\kappa=1}^{\kappa} \beta_{1\kappa}\chi_\kappa \tag{1}$$

$$\ln\left[\frac{p(y=2\,|\,x)}{p(y=4\,|\,x)}\right] = \alpha_2 + \sum_{\kappa=1}^{\kappa} \beta_{2\kappa}\chi_\kappa \tag{2}$$

$$\ln\left[\frac{p(y=3\,|\,x)}{p(y=4\,|\,x)}\right] = \alpha_3 + \sum_{\kappa=1}^{\kappa} \beta_{3\kappa}\chi_\kappa \tag{3}$$

The independent variable of home buying motivation is x_K, including search time, search quantity, life cycle, location, market type, product type, unit price, occupation, and income. The model setup is as follows:

$$\begin{aligned} Pr(EXP) = \beta_0 + \beta_1(TIME) + \beta_2(F) + \beta_3(LE) + \beta_4(LO) + \beta_5(MA) + \\ \beta_6(SQ) + \beta_7(UP) + \beta_8(JO) + \beta_9(IN) \end{aligned} \tag{4}$$

where EXP is the respondent's home buying motivation and β_0~β_9 is the estimated coefficient of the independent variable.

2.3. Variable Selection and Processing

2.3.1. Dependent Variable

The item in the questionnaire was: "What is the purpose of your home purchase by mortgage loan? The four possible answers are: 1. Pure owner-occupation; 2. Partial owner-occupation; 3. Partial investment; and 4. Pure investment". In this paper, "pure investment" is the reference item.

2.3.2. Independent Variable

- Life cycle

This article uses the items in "Housing Demand Survey" from 2006 to 2009—i.e., "How old are you (the age of homebuyer)? What is the family type of this house? The possible answers are: 1. Single; 2. Couple; 3. Couple and unmarried children; 4. Couple and Married children; 5. Three-generation families; and 6. Others"—supplemented by a consumer-oriented, 8-stage family life cycle [16]. In the meantime, we modulated the division method based on the current domestic situation and divided the life cycle into nine types, shown in Table 1, where "young single" was used as the reference item.

Table 1. Definition of life cycle types.

Life Cycle Type	Definition
Young Singles	There is only one single family member and the homebuyer under the age of 35 may be unmarried, divorced (separated), or widowed.
Young Couples (without children)	The homebuyer and his/her spouse are legally married. The homebuyer is under the age of 35 and has no children.
Young Families	The homebuyer and his/her spouse are legally married. The homebuyer is under the age of 35 and has unmarried children.
Full-Nest Families	The homebuyer and his/her spouse are legally married. The homebuyer is between 36–60 years old and has unmarried children.
Mature Families	The homebuyer and his/her spouse are legally married and have married children.
Middle-Aged Singles	There is only one single member, and the homebuyer is over 36 years old, who may be unmarried, divorced (separate), or widowed.
Middle-Aged Couples (Without Children)	The homebuyer and his/her spouse are legally married. The homebuyer is over 36 years old and has no children.
Three-Generation Families	The homebuyer and his/her spouse are legally married, and residing with family members that include children, parents, grandparents, or grandchildren.
Others	The homebuyer may not be among those listed above, but may belong to a skipped generation family, step-parent family, adoptive family, same-sex family, second marriage (without legal marriage), and cohabitation relationship of relatives (friends).

- Location

Location is a key factor affecting housing prices. Research indicates that closer proximity to a central business district (CBD) or downtown area has a positive effect on housing prices, due to lower transportation costs, high availability of transportation vehicles, and short commute time [17]. Central cities include Taipei City, Chungli City, Taoyuan City, Hsinchu City, Taichung City, and Kaohsiung City. Due to the fact that non-metropolitan district samples have been removed, the remaining are all satellite towns.

- Unit Price

The product value comes from the collection of its various attributes. When a consumer purchases a product, he or she also purchases the attributes of the product, but these various attributes cannot be directly measured. For example, purchasing a house is, in fact, also purchasing other related public facilities, neighboring environment, and transportation

convenience connected with the house, thus resulting in intertwined influence of individual attributes or overall attributes on the price of the residential house. Therefore, the Hedonic Price Model was created. Related research on the Hedonic Pricing Model shows that the differences formed by these factors will ultimately be reflected in the level of residential prices [18–22]. Housing price and quality shall be positively related.

This article uses the average unit price in the region from 2006 to 2009 as a benchmark. The unit price that is higher than the average one in the region is a high unit price, and the rest are low unit prices. The average unit price in Taipei City is 300,000 TWD/pyeong (a pyeong is equal to 3.3 square meters); the average unit price in New Taipei County is 180,000 TWD/pyeong; the average unit price in Taoyuan and Hsinchu is 120,000 TWD/pyeong; and the average unit price in Taichung and Kaohsiung is 110,000 TWD/pyeong. One study provides a model that can also be extended to address the correlation between prices and time-to-sale [23]. Higher-priced homeowners and higher-priced renters are more willing to live in property with a larger number of bedrooms, proximity to a major employment center, park, or school, as well as a location in a school attendance zone with higher school quality [24]. High-priced products are used as the reference items.

- Product Type

According to data from the 2010 population and housing census, there are more cases of two to four people living in a house. House size has been one of the oldest concerns whereby people regret their dream home selection after some time due to lack of space [25]. House size influences the demographics and residential housing decisions [26]. Therefore, this paper classifies the product types into two types of medium-sized products: 20 to 40 pyeong and 40 to 60 pyeong, which are more in line with the current living conditions in Taiwan. Houses with an area larger than 60 pyeong are classed as large-area products, while houses with an area smaller than 20 pyeong are classed as small-area products, which are implied as suite products. The main buyers of the suite products may use them mostly for the purpose of investment. Products with an area under 20 pyeong are used as the reference items.

- Market Type

Sale before completion (i.e., presale) is a common practice that real estate developers use to sell residential units. Since presale buyers are unable to inspect uncompleted units, developers may take advantage of asymmetric information and release information about quality to the market selectively [27]. Developers sell their property before building to acquire financing for their companies and to reduce the risk of building property that might remain empty in Taiwan, Korea, and China [28]. Specifically, Chinese prefer new houses rather than second-hand houses, both speculative and self-housing; besides, new house prices are lower than second-hand house prices since the new houses are off-plan properties [29].

Buying a court (or bank) auction house has certain price advantages. According to one study, loss given default is in the 5–10% range for senior creditors and in the 30–50% range for subordinated creditors based on an analysis of a sample of 2590 residential mortgages between January 2006 and January 2009 in Korea [30].

There is an important difference between the foreclosure processes in the U.S. and Taiwan. In the U.S., foreclosed properties are auctioned only once, and if there is no bidder willing to pay more than the foreclosing lender's reservation price, the lender takes the title [30]. In Taiwan, foreclosed properties are auctioned again and again until they eventually sell, following a schedule of minimum bid prices set by the court. Basically, the first minimum bid price is on par with the appraisal value. After four times being auctioned, if there is no bidder willing to pay more than the foreclosing lender's reservation price, the lender takes the title. The second auction is set typically at 80% of the appraisal value. In this paper, presale housing is used as the reference items.

- Search Time and Search Quantity

The objectives of purchasing will affect search efficiency. The greater the efficiency, the longer the search time. Generally, the duration of search by a house buyer is measured in two ways: in terms of time and in terms of the number of houses seen [31]. The study points out the fact that search time of owner-occupied homebuyers is 1.07 times that of investment-oriented homebuyers. The reason for this is that the home purchased is used by all family members for a long period of time, and it is necessary to satisfy the needs of all family members. One study argues that search affords investors the ability to influence the selling price so that individual marketing efforts can offset the negative price trend of a declining market and compounds the positive price trend of a growing market [32].

- Occupation

The young self-employed or employed heads of household imply low income and less migration. One research found that an income unit's wealth is the dominant sociodemographic factor motivating property investment; meanwhile, wealth is captured by the variables for permanent income, transitory income, and full-time employment (albeit negatively) [12]. The questionnaire used in this study classifies military officers and governmental officials, non-government institutions, and others with fixed occupations and earnings into the fixed occupational staff, and house wife/husband, freelancers, and unemployed people with non-fixed occupations and earnings into the people without fixed occupation and earnings. However, the people without fixed occupations are the respondents of the homebuyer's questionnaire survey. Therefore, unlike unemployed people without economic capability, it is speculated that the people with no fixed occupation are professional investors, so the people with no fixed occupations are used as the reference item.

- Average Household Monthly Income

At the level of the individual household, the decision to become a homeowner has immediate repercussions on disposable income and long-term implications for the accumulation of assets [33]. One the other hand, a study created a model to identify a powerful driver of the housing market: the ability of young households to afford the down payment on a starter home, and in particular, their income [34]. There is even a study that shows that higher-income households exhibit a higher willingness to pay for green features (eco-labelled buildings) [35], even if the results of the study show that the cost of a building with a green label is not more expensive [36]. One paper focusing on house prices and household income in Taiwan found that the slow increase in income may just sustain the long-run trend in house prices [37]. Due to real estate's high price tag, it is not an average micro investment tool. A high entry threshold and a large accumulation of funds are required to invest. Monthly income exceeding NTD 150,000 is used as the reference item.

2.4. Descriptive Statistics

There were 8970 valid samples, of which 5433 (60.6%) were homebuyers for pure owner-occupancy, 2023 (22.6%) were homebuyers for partial owner-occupancy, 1146 (12.8%) were homebuyers for partial investment, and 368 (4.1%) were homebuyers for pure investment. Table 2 contains the descriptive statistics for the continuous variables. The one-way analysis of variance for each variable shows significant differences in the search time and search quantity of the four categories. Pure owner-occupancy (6.33 months) and partial owner-occupancy (6.36 months) are similar in terms of average search time, and pure investor search time (4.49 months) is the shortest. For the number of home searches, the average search quantity of pure owner-occupancy (10.17 houses) is the highest, and there were 1.68 more than the average number of searches (the search quantity for pure investment is 8.49).

Table 2. Descriptive statistical analysis table of continuous variables.

Variable		All Samples	Pure Owner-Occupancy	Partial Owner-Occupancy	Partial Investment	Pure Investment	F
Search Time (Month)	Average	6.14	6.33	6.36	5.35	4.49	16.205 *
	Standard Deviation	6.46	7.08	5.72	4.73	4.71	
Search Quantity (House)	Average	9.87	10.17	9.92	8.76	8.49	1.455 *
	Standard Deviation	17.15	20.21	11.23	9.97	11.25	

The F value here is the verification of the continuous variable, which is a statistically significant difference between the four items of pure owner-occupancy, partial owner-occupancy, partial investment, and pure investment. The null hypothesis is that four samples have the same mean value of continuity attribution. * An asterisk indicates that the analysis result is significant.

Table 3 shows the descriptive statistical results of category variables. At a significance level of 5%, there is significant difference in life cycle, location, unit price, market type, product type, occupation, and income. Unlike the home buying motivation of the other three buyers, the motivation of homebuyers at the life cycle of young for home purchase is mostly owner-occupancy and pure investment, accounting for about 11%. The proportion of full-nest households in various types of home buying motives accounts for more than 27% and represents the highest proportion. The proportion of middle-aged singles was close to that of other households in the home purchase motivations.

In terms of location, there was a relatively large number of investment homebuyers (partial investment and pure investment) purchasing houses in major metropolitan centers, accounting for more than 52.7%. On the contrary, the owner-occupancy homebuyers (partial self-occupiers and pure self-occupiers) have a higher percentage of purchasing houses in satellite towns, accounting for more than 45.9%. In terms of market type, pure owner-occupiers have a higher percentage of buying new houses (45.7%), while partial investors have a higher proportion of buying second-hand houses (47.9%). The proportion of pure investors' buying court/bank-auctioned foreclosure houses and presale houses were equal (12.0%). In terms of product type, the houses with an area of above 61 pyeong account for about 10% regardless of the home purchase motivation. The houses with an area of 21–40 pyeong are favored among a variety of home buying motivations, accounting for more than 56%. Up to 63.7% of partial owner-occupiers would buy such products.

In terms of unit price, the purchase proportion of high-priced and low-priced products is fixed and about 57% vs. 43%. Pure owner-occupiers are the primary buyers of low-priced products, accounting for 46.3%. High-priced products are favored by partial investors, accounting for 58.8%. In terms of occupation, the majority of homebuyers were job-holders, averaging 85.9%. The proportion of pure investors with no fixed occupations is significantly higher than that of homebuyers with the other three types of home purchase motivations, accounting for 30.2%. The proportion of pure investors with a fixed occupation is much less than that of the homebuyers with the other three types of home purchase motivations. In terms of household average monthly income, pure investors' average monthly income of 150,000 or more accounts for a maximum of 21.2%, which is far greater than that of the homebuyers with the other three types of home purchase motivations. The average monthly income of all types of homebuyers is mainly distributed between NTD 30,000 and 60,000 and between NTD 60,000 and 90,000, and the ratio between the two is about 30%.

Table 3. Descriptive statistical analysis table of categorical variables.

Variable	Category	All Samples	Pure Owner-Occupancy	Partial Owner-Occupancy	Partial Investment	Pure Investment	Chi-Square Value
Life Cycle Search Time (Month)	Young Singles	9.2%	8.3%	11.2%	9.1%	11.1%	479.096 *
	Young Couples	17.1%	19.6%	17.4%	8.2%	7.6%	
	Young Families	14.5%	16.0%	15.70%	8.20%	6.00%	
	Full-Nest Families	28.8%	28.6%	27.30%	32.40%	27.70%	
	Mature Families	7.2%	6.8%	7.2%	8.8%	7.3%	
	Middle	3.6%	2.9%	3.3%	6.5%	7.6%	
	-Aged Singles	8.3%	6.9%	8.7%	12.7%	13.6%	
	Middle	7.3%	8.0%	6.8%	5.9%	4.6%	
	-Aged Couples	3.9%	2.8%	2.5%	8.3%	14.4%	
Location	Metropolitan Centers	47.6%	46.5%	45.9%	53.8%	52.7%	26.697 *
	Satellite Towns	52.4%	53.5%	54.1%	46.2%	47.3%	
Market Type	Presale Houses	11.3%	11.2%	10.0%	13.9%	12.0%	310.026 *
	New Houses	42.6%	45.7%	42.7%	32.3%	29.3%	
	Second-Hand Houses	43.6%	41.7%	45.8%	47.9%	46.7%	
	Court/Bank-Auctioned Foreclosure Properties	2.4%	1.4%	1.4%	5.9%	12.0%	
Product Type	Under 20 Pyeong	5.1%	3.9%	4.2%	10.2%	11.7%	123.459 *
	21–40 Pyeong	61.2%	61.1%	63.7%	59.2%	56.0%	
	41–60 Pyeong	23.4%	24.7%	22.1%	20.1%	22.3%	
	Over 61 Pyeong	10.3%	10.3%	10%	10.6%	10.1%	
Unit Price	High Unit Price	55.5%	53.7%	57.9%	58.8%	57.9%	18.133 *
	Low Unit Price	44.5%	46.3%	42.1%	41.2%	42.1%	
Occupation	With No Fixed Occupation	17.0%	14.8%	16.6%	24.1%	30.2%	105.450 *
	With Fixed Occupation	83.0%	85.2%	83.4%	75.9%	69.8%	
Income (NTD)	<30,000	3.1%	3.2%	3.4%	2.7%	1.6%	341.029 *
	30–60,000	32.8%	34.8%	35.5%	23.5%	17.7%	
	60–90,000	31.4%	32.8%	30.7%	27.6%	25.0%	
	90–120,000	18.8%	18.20%	17.70%	22.30%	22.60%	
	120–150,000	7.0%	5.8%	6.3%	12.4%	12.0%	
	>150,000	6.9%	5.2%	6.3%	11.5%	21.2%	

The chi-square test here is a homogeneity test, verifying whether the category variables—pure owner-occupancy, partial owner-occupancy, partial investment, and pure investment—are statistically significant in different categories. The null hypothesis is that there are no differences in the attributions of the four categories of homebuyers. * An asterisk indicates that the analysis result is significant.

3. Results

The sample size is 8970, and the model fit reaches a 5% significance level. The significance value of variance is 1.000, which is greater than 0.05, with model effectiveness. With multi-collinearity diagnosis, the tolerance of all independent variables is greater than 0.4, indicating that there are no multi-collinearity issues between the independent variables, as shown in Table 4. From the results in Table 5, it is evident that search time is significant in terms of search behavior. The details show that the probability of a long search time for the home buying motivations of pure owner-occupancy, partial owner-occupancy, and partial investment are higher than that of pure investment buyers. Since the three housing purchase motivations all contain the owner-occupancy motivation, and owner-occupancy homebuyers need to meet the common needs of certain family members, the correctness

of home purchase decisions has a broad impact on various aspects, and thus, their search period is longer than that of investment homebuyers.

In terms of life cycle, young couples, young families, middle-aged singles, middle-aged couples, and three-generation families all exhibit statistical significance. Among them, the coefficients for middle-aged singles and middle-aged couples are negative, indicating that middle-aged singles and couples are less inclined to purchase houses for owner-occupancy. Upon careful examination, one will realize that middle-aged singles are less likely to be partial owner-occupiers than young singles, implying that real estate is expensive and requires a certain degree of capital accumulation before investments can be made. Middle-aged people are older and more advantageous in terms of rank, status, and income than young people. At the same time, they do not need to bear the expenses of children, thus increasing the possibility of investing in real estate. The reasons why middle-aged couples do not rely on owner-occupancy as their main demand are the same. They do not need housing replacement because they do not have children. If both spouses have income, it is easier to meet the real estate investment threshold, and the possibility of real estate investment will increase.

Table 4. Multi-collinearity test.

Pattern	Multi-Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Life Cycle	0.961	1.040
Location	0.994	1.006
Market Type	0.920	1.087
Product Type	0.876	1.141
Unit Price	0.910	1.099
Occupation	0.978	1.023
Income	0.868	1.152
Time	0.895	1.118
Quantity	0.900	1.111

The home buying motivation for owner-occupancy of young couples and young families (pure owner-occupancy and partial owner-occupancy) is statistically significant compared to pure investment, which is related to the fact that they are at early life cycle stages. They do not yet have a stable economic foundation and will likely have children (or already have children) in the future; hence, owner-occupancy is still their main consideration.

The probability of full-nest families and three-generation families purchasing houses for owner-occupancy is relatively high, which is 1.950 times and 2.770 times that of pure investment, respectively. This result confirms that the families with children mostly have the demand for house replacement. At the same time, for the three-generation families, since their adult children are financially independent and can provide financial support, the possibility of changing residences increases. This result also shows that two-generation families living in the same house will reduce loan pressure through mutual financial assistance. In addition, full-nest families have significant motives for partial investment in the purchase of homes. The results have implications of their stable family patterns. The homebuyers are above middle age and have a certain economic foundation. As their children grow up, they will be able to change homes for the next time. In addition to owner-occupancy, their home purchases also include some investment motivations.

In terms of location, owner-occupiers do not tend to choose major metropolitan centers. The subdivision of house purchase motives is not significant, indicating whether a house is in a metropolitan center does not affect the probability of investment or consumption, because the three home buying motivations for pure owner-occupancy, partial owner-occupancy, and partial investment all include the property for owner-occupancy, implying that homebuyers return to the nature of residence and pay attention to whether the houses can meet their needs. In terms of market type, new homes are more favored by

owner-occupiers than presale homes. The coefficients of court/bank auctioned foreclosure houses are all negative. Compared with presale houses, the possibility of profiting from price differences is greater because of the low purchase prices of court/bank auctioned foreclosure houses. Besides, the number of such houses is lower in the market, and they are less likely to be used for owner-occupancy, partial owner-occupancy, and partial investment; therefore, they become the objects of pure investment. This product type has significance in the classification of home purchase motivations related to the nature of owner-occupancy, indicating that, regardless of their sizes, such houses have a consumer base. The unit price is not significant, implying that homebuyers for pure owner-occupancy, partial owner-occupancy, and partial investment may not choose low-priced products.

Table 5. Empirical results.

Title 1	Owner Occupation vs. Investment			Pure Owner-Occupancy vs. Pure Investment			Partial Owner-Occupancy vs. Pure Investment			Partial Investment vs. Pure Investment		
	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)
Intercept	−1.399	0.000 *		−1.653	0.000 *		−2.070	0.000 *		−0.436	0.226	
Time	0.032	0.000 *	1.033	0.064	0.000 *	1.066	0.067	0.000 *	1.069	0.040	0.012 *	1.041
Number of Houses	0.006	0.054	1.006	0.004	0.455	1.004	0.002	0.710	1.002	−0.003	0.621	0.997
Young Couples	0.892	0.000 *	2.439	1.228	0.000 *	3.415	0.800	0.003 *	2.226	0.276	0.346	1.318
Young Families	0.779	0.000 *	2.180	1.322	0.000 *	3.753	1.002	0.001 *	2.725	0.572	0.066	1.772
Full-Nest Families	0.143	0.227	1.154	0.668	0.002 *	1.950	0.298	0.184	1.347	0.535	0.022 *	1.707
Mature Families	−0.006	0.969	0.994	0.496	0.075	1.642	0.237	0.412	1.268	0.544	0.069	1.722
Middle-aged singles	−0.586	0.000 *	0.556	−0.451	0.104	0.637	−0.639	0.031 *	0.528	0.098	0.738	1.103
Middle-aged Couples	−0.294	0.030 *	0.745	−0.033	0.891	0.967	−0.135	0.591	0.873	0.297	0.253	1.346
Three-generation Families	0.409	0.011 *	1.506	1.019	0.001 *	2.770	0.538	0.102	1.713	0.601	0.080	1.824
Others	−0.988	0.000 *	0.373	−0.936	0.000 *	0.392	−1.367	0.000 *	0.255	−0.125	0.639	0.882
Metropolitan Centers	−0.220	0.000 *	0.803	−0.134	0.241	0.874	−0.163	0.172	0.849	0.097	0.429	1.102
New Houses	0.417	0.000 *	1.517	0.299	0.119	1.349	0.362	0.073	1.436	−0.127	0.536	0.881
Second-hand Houses	−0.026	0.789	0.974	−0.240	0.198	0.786	0.013	0.949	1.013	−0.183	0.357	0.833
Foreclosure Properties	−1.592	0.000 *	0.203	−2.292	0.000 *	0.101	−2.029	0.000 *	0.132	−0.853	0.002 *	0.426
21–40 pyeong	0.888	0.000 *	2.430	0.960	0.000 *	2.611	1.041	0.000 *	2.832	0.124	0.551	1.132
41–60 pyeong	1.167	0.000 *	3.214	1.172	0.000 *	3.227	1.146	0.000 *	3.145	0.000	1.000	1.000
>61 pyeong	1.140	0.000 *	3.125	1.319	0.000 *	3.740	1.396	0.000 *	4.041	0.265	0.347	1.304
Low Unit Price	0.100	0.126	1.105	0.129	0.301	1.137	−0.080	0.537	0.923	−0.040	0.764	0.961
Occupation	0.718	0.000 *	2.050	1.116	0.000 *	3.053	0.974	0.000 *	2.650	0.461	0.001 *	1.586
<30 thousand NTD	1.735	0.000 *	5.671	3.070	0.000 *	21.538	2.788	0.000 *	16.248	1.632	0.001 *	5.116
30–60 thousand NTD	1.624	0.000 *	5.072	2.598	0.000 *	13.443	2.358	0.000 *	10.573	1.207	0.000 *	3.344
60–90 thousand NTD	1.267	0.000 *	3.551	2.073	0.000 *	7.952	1.798	0.000 *	6.036	0.981	0.000 *	2.666
90–120 thousand NTD	0.798	0.000 *	2.220	1.414	0.000 *	4.114	1.191	0.000 *	3.289	0.758	0.000 *	2.134
120–150 thousand NTD	0.254	0.050 *	1.289	0.792	0.000 *	2.208	0.692	0.003 *	1.998	0.703	0.002 *	2.019

* An asterisk indicates that the analysis result is significant.

In terms of occupation, people with fixed occupations tend towards owner-occupancy, while those who do not have fixed occupations favor purely owner-occupancy, partial owner-occupancy, and partial investment compared with pure investment. This result implies that real estate investment is time-consuming and labor-consuming, and the transaction cost is high. It is not easy for those who have fixed jobs to use real estate as an investment, whereas those without fixed jobs have more time and energy to select products for investment.

In terms of income, compared with a monthly income of more than NTD 150,000, homebuyers with a monthly income less than NTD 150,000 tend towards owner-occupancy, which is significant. Compared with the high-income group, the lower the income has a greater probability of purchasing a home for pure owner-occupancy. The proportion of pure owner-occupiers with income of less than NTD 30,000 is 21.538 times that for pure investment; moreover, the average household monthly income of investors is relatively high. The lower the income is, the higher the priority is to meet the demand for owner-occupancy, as their funds have not accumulated to a certain degree and cannot be invested. This is in line with Maslow's hierarchy of needs theory—priority is given to the lower level of demand.

4. Conclusions

The study has brought to light the fact that families (or households) should be the object of consumer behavior psychological research rather than individuals, and family decision making is a typically group decision, especially for the high involvement product of real estate. Family is also the main consideration affecting home purchase. The housing needs of a family are affected by factors such as demographic characteristics, life cycle, income, location preference, etc. The empirical results of this paper are as follows.

Young couples, young families, middle-aged singles, middle-aged couples, and three-generation families are all statistically significant. Among them, middle-aged singles and couples are less likely to purchase homes for owner-occupancy and have a negative coefficient. The result implies that the value of real estate is high, and it needs a considerable accumulative amount of capital to invest. Middle-aged singles have a certain economic foundation due to their older age and no burden of children, so the possibility of investing in real estate increases. Middle-aged couples have little or no demand for changing houses as they have no children; furthermore, if both spouses have income, they can more easily reach the threshold for real estate investment, thus increasing the possibility of investing in real estate. Since young couples and families are in the early stages of their life cycle, they have no stable economic foundation and may have children in the future (or possible already have children); thus, owner-occupancy is still their main consideration.

There is a higher probability of home buying motivation for pure owner-occupancy among full-nest families and three-generation families, because they have children and there is a need to change their housing. The adult children of three-generation families are financially independent and able to provide financial support. Therefore, the possibility of changing houses increases, which is consistent with the research findings on the domestic front. A two-generation family living in the same house will have reduced loan pressure through mutual financial assistance. In addition, full-nest families have significant home buying motivation for partial investment, which is related to the stability of their family structure. Moreover, these homebuyers have a certain economic foundation, and their children are growing up. For the next house replacement, the motivation for buying houses contains investment components.

Residents usually do not prefer to live in central cities; whether a piece of real estate is in a central city does not influence its investment or purchase outcomes. Because real estate buyers nowadays tend to consider purchases from a residential perspective, they generally focus on whether a property meets their own needs. In terms of market type, residents prefer new-construction properties over pre-construction properties. Real estate-owned or bank-owned properties are typically the target of investment because of their relatively low prices and higher possibility for buyers to earn the spread, and because few such properties are circulated on the market. Therefore, they are unlikely to be purchased by buyers who buy properties solely for dwelling, partially for dwelling, or partially for investment. In terms of income, buyers with low incomes are more likely to purchase properties purely for dwelling than buyers with high incomes. Low-income buyers generally prioritize their residential needs, a trend consistent with Maslow's hierarchy of needs. In addition, low-income buyers are unable to make such investments because they have not accumulated sufficient capital. By contrast, investors tend to have relatively high average household monthly income.

Finally, according to the results of this research, young couples and young families tend to buy houses for self-use rather than investment. Therefore, this study suggests that housing policies should pay attention to the needs of self-use, with young couples and young families as the main caregivers. The government should target buyers with unstable economic foundations and replace mortgage interest subsidies with rent subsidies to reduce the burden of buying houses.

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