FACTORS INFLUENCING THE CHOICE OF HOUSING AMONG NON-REGISTERED POPULATION IN BANGKOK: A CASE STUDY OF CONDOMINIUM

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ABSTRACT

The purpose of this research was to study the factors influencing the choice of accommodation among the non-registered population on condominium type residences in the Bangkok area using primary data from the survey research collected from March 2021 to June 2021, with the application of the Stated Preference (SP) and Revealed Preference (RP) methods.

The results of a study of factors influencing the purchase of condominiums of the non-registered population by stated preference (SP) methodology found that in simulated scenarios under the conditions of living space size restrictions, in case of purchasing condominiums near sky train stations, factors with a statistically significant level of 0.01 were price_condo and income had a positive influence. On the likelihood of purchasing a condominium along the mass transit lines, time_travel and exp_travel had a negative influence on the probability of purchasing a condominium along the mass transit lines. Under budget constraint for buying condominiums near BTS stations, factors with a statistically significant level of 0.01 were dist_mall had a negative influence on the probability of purchasing condominiums along the mass transit lines, while factors affecting statistically significant level at 0.05 were room_size and bedrooms has a positive influence on the probability of purchasing condominiums along the mass transit lines. In the Revealed Preference Methodology Study (RP), factors that influence the decision to purchase condominium housing at a statistically significant level of 0.01 are individuals with a bachelor's and postgraduate degrees (edu), positively influencing the probability of deciding to purchase a condominium compared to undergraduately educated individuals, and the duration of travel by private car to work (time_cars) positively influences the probability of deciding to buy a condominium. Statistically significant level of 0.05 include females having a negative influence on the probability of deciding to buy a condominium compared to males, individuals whose occupations work in limited companies and general hire occupations (occup), negatively influence the probability of deciding to buy a condominium compared to a person who has a career in government, monthly income (inc), positive influence on the probability of deciding to buy a condominium, and the number of personal hire cars (freq_taxi), negatively influence the probability of deciding to buy a condominium. Factors with a statistical significance level of 0.10 include the number of household members (hh_menbers), the cost of using a private hire car (exp_taxi), the size of residence (house_size), and the distance from residence to shopping mall (dist_mall), positively influencing the probability of deciding to buy a condominium, while the housing price per square meter (price_sqm) negatively influences the probability of deciding to buy a condominium. From the analysis of the results, the Stated Preference (SP) and the Revealed Preference (RP) study revealed that the factors of accommodation price, travel time, travel expenses, monthly income, residential size, and distance from residence to shopping mall resulted in negatively effect of choosing to buy condominium. It was concluded that the results of both SP and RP were consistent in the study of factors affecting on the decision-making. Choosing to buy condominium type residences where the SP study results have shown can be put to practical use. As for making policy recommendation to the government sector and real estate operator.

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Keywords: Non-Registered Population, Condominium, Stated Preference, Revealed Preference

INTRODUCTION

Bangkok is the capital city of Thailand. There are many government departments located in the Bangkok area. For this reason, Bangkok has become an economic and commercial center. The study implicitly made Bangkok the most densely populated province in Thailand, with large numbers of people from the provinces moving to live in the area. In such areas, there is a large amount of employment, resulting in the population in the provinces migrating to find work in the Bangkok area, and making people moving to live in the Bangkok landscape. The purpose of the stay in Bangkok includes further education, The non-registered population is a resident in Bangkok whom often necessary chooses a residential location in Bangkok, In choosing a residential location for the non-registered population, currently most Bangkok residential properties are developed into condominium formats. It has been found currently that land prices in the Bangkok area are revealed to be so expensive that those who want to buy housing do not have the financial ability to buy a household in urban areas, thus resulting in the habit of buying houses and changing to condominiums instead, since it is cheaper to buy these types of places to live in.

In addition, nowadays, the behavior of people's housing selection has changed from the past, where the behavior of the general public prefers to choose housing type of residency that is more of a condominium style housing; resulting in real estate operators creating a large number of condominium projects to meet the needs of those who want to buy condominium types of residence. The non-registered population whose domicile is outside the Bangkok area will be one group that has a desire to buy condominiums and another group of the non-registered population who has a desire to rent a place in the Bangkok area as well.

For this reason, there's an interest to study the factors influencing the choice of housing with the non-registered population in Bangkok who rent condominiums and then decide to buy condominium-type residences in a simulated scenario. The Stated Preference method was used to analyze the behavior and location of the non-registered population in Bangkok and to study the factors influencing the selection of the former non-registered population and the present. The factors affecting the decision-making behavior in choosing accommodation and location help make policy recommendations to the government sector and real estate operators.

Objectives

1. To analyze the factors affecting the decision to buy condominiums of the non-registered population in Bangkok by using Stated Preference (SP) method.
2. To analyze the factors affecting the purchase decision of the former non-registered population and the rental of the non-registered population in the condominium category in Bangkok by using the Revealed Preference (RP) method.
3. To analyze the factors affecting the moving of residence of people domiciled in the provinces. change to choose to live in Bangkok.

LITERATURE REVIEW

There are two types of study methods used to study the behavior of choosing the accommodation of the general public (Jacobsen ,2014): RP and SP. The RP study is an observational method of the behavior of the interested population. The RP study can be divided into the Hedonic Pricing Method and the Travel Cost Method. The RP is limited in the study of the decision-making behavior of individuals because it cannot be used to study the behavior of decision-making in housing that is not available in the housing market in relation to that area.

The SP method is to find willingness to pay when the residence or environment changes, which assumes a hypothetical situation for those who will decide to buy condominium housing

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in various events. This can be divided into studies with SP methods, including event fictitious methods and experimental methods of alternative behaviors, for example, by way, SP has been developed to correct the shortcomings of RP methodology studies, which the SP method can be used to study the behavior, deciding the housing of interested and flexible populations in the study. It is also commonly used in the study of unprecedented alternatives to policy decision-making by SP. It is criticized for its use in simulations where the actual behavior cannot be observed. However, the SP method can be used to measure non-use behavior in housing selection and can be used for studying factors that change with other attributes that are changing simultaneously. The main factors affecting the change in demand are income levels, prices for complementary or substituting goods, tastes, number of buyers and expectations about future price changes (Alia ,2018). However, study participants should be careful about the different bias due to the behavior of respondents and in data collection.

The selection behavior experiment was to determine the willingness to pay when the location of residence and amenities changed, with hypothetical scenarios to allow the interested population to make more informed choices. In this study, several alternatives could be assessed simultaneously, in which the hidden cost of the features that make up the accommodation choice could also be found. The aggregate decision-making of the change in the characteristics of the accommodation can be the main basis of choice, which is the random preference theory, whereas the satisfaction function is randomly characterized by the accommodation decision-makers. Each individual is exactly the same, but may decide to choose different accommodation under the same circumstances. Under which the same accommodation the decision-maker may decide to purchase different accommodation at different times, in which selection is available where the home buyer decides to purchase the property in an option that maximizes the utility within the constraints of the homebuyer in terms of time and income (Thurstone ,1927). Also, the theory of demand is with the housing characteristics, whereas the buyer's satisfaction with the purchase of the dwelling depends on the properties of the residential place (Lancaste ,1966). In the study done by alternative experimental methods, residential decision-makers choose shelters with the highest satisfactory characteristics, with all options indicating the level of utility consisting of two parts: deterministic element or systematic component and unexplained part (Stochastic Element or Random Component) (Adamowicz ,1998).

The choice of a person's residence is based on the concept of consumer behavior influenced by factors (Christopher, 2008). This has been applied by consumer behavior concepts in research to lead to the search for factors that affect the decision to choose accommodation in housing choices for the next population.

METHODOLOGY

This is a survey research study, in which the populations studied are divided into 2 groups: 1. The non-registered population demographic in Bangkok residential condominiums for objective analysis, one is the primary data of 200 samples, and 2. The demographics used to be former non-registered populations in Bangkok and non-registered populations in Bangkok for analysis of objective where two are a primary data of 400 samples.

The research tool was a questionnaire. Data were collected from the sample group who wanted to study the factors affecting the selection of condominium accommodation of the non-registered population in Bangkok. and the sample group who used to be the former non-registered populations in Bangkok who choose to buy condominiums. The structure of the questionnaire consists of 4 parts as follows: 1. Personal information of the respondents 2. Information on behavior in choosing the accommodation (RP) (Marcel ,1966). It includes travel information, residential information, residential location information and information on housing expenses. 3. Behavioral information on choosing a residence in a scenario (SP) (Thomas ,2003) It consists of a simulation under the conditions of space constraints and a

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scenario under the constraints of the budget for the purchase of a residence. 4. Satisfaction in choosing accommodation and travel (Earl,2010).

The data obtained from the questionnaire was obtained from the questionnaire of the target sample to decide on a residence based on the scope of a defined research study that separated the method of data collection into two population samples:

1. The non-registered population in Bangkok was used to analyze the effects of both SP and RP. The SP data collection was a survey of decision-making data under unprecedented situations that would create a simulation. Choose, which will create a scenario to choose from in a variety of alternatives based on two hypotheses: a simulation under the size constraint of living space and a simulation under the budget constraint of buying a home using an econometric method of estimating with a multinomial logistic regression (MLR) model, as shown in the simulation structure of Figure 1 below.

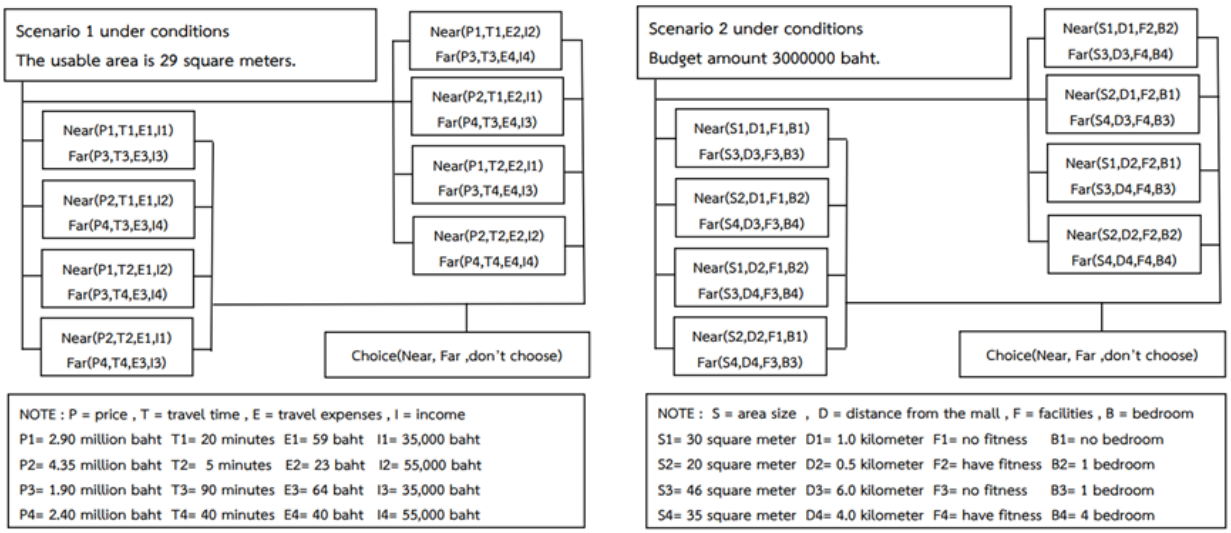

FIGURE 1
SHOWS THE STRUCTURE OF THE SCENARIO IN CHOOSING A RESIDENCE UNDER TWO CONSTRAINTS

Source: Design Researcher

2. The population that used to be the non-registered population in Bangkok and the former non-registered population in Bangkok had the data collected with the RP method, which is a survey of information about purchasing and renting condominium-type residences in Bangkok by using the econometric analysis method in interpolation with the Binary Logit Model

Research Outcomes

The results of the data analysis from the questionnaire were divided into 2 groups: 1. The results of the data analysis from the data collection of the non-registered population in Bangkok who chose to rent condominiums. 2. The results of the data analysis from the data collection sample of condominium buyers who used to be the former non-registered population, and the sample of the condominium tenants who were the non-registered population living in the Bangkok area

Results of Data Analysis of Non-Registered Population Samples

The results of the data analysis from the SP method, the simulation situation under the constraints on the size of the usable area that determines the option to buy a condominium unit

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of 1 room with a usable area of 29 square meters, with a total of 3 options are as follows: 1. Choosing to buy a residence along the sky train line. 2. Buying a place outside the sky train line and 3. Not buying a place to stay. The results of the study can be written to show the probability of choosing a residence for the non-registered population in Bangkok as shown in Figure 2.

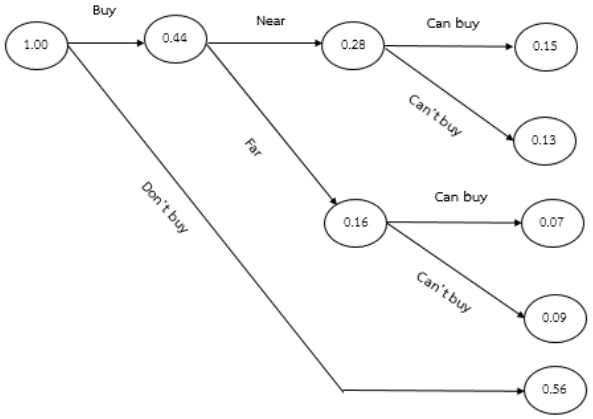

FIGURE 2
SHOWS THE PROBABILITY OF MAKING A DECISION TO BUY A DWELLING OF THE NON-REGISTERED POPULATION UNDER THE CONSTRAINTS OF LIVING SPACE SIZE

Source: from the calculation

The study found that 56% of the non-registered population were deciding not to buy a place to live in a simulated scenario, and 44% of a simulated housing decision group, in which the sample who made the decision to buy a condominiums, would choose to make the purchase. 28% of the respondents who bought condominiums along the mass transit lines lines had the ability to afford housing that is equal to 15%, and the 13% of the respondents who chose to purchase a condominiums along the mass transit lines were the ones who did not have the ability to buy a home that were based on the home-buying ability criteria on the respondents' monthly income. Another 16 % of the respondents were the group who decided to buy a condominiums to live outside the mass transit lines. The sample group who chose to buy a condominiums along the mass transit lines had the ability to buy a condominiums equal to 7%, and the sample group who bought a residence along the mass transit lines had the ability to buy a residence at 9% was not able to buy a condominiums to live.

Research Model

Buy a condominium = f(price_condo, time_travel, exp_travel, income)

where 'Buy a condominium' is an option to buy a residence with 3 options

price_condo is the price of a condominium type of residence (hundred thousand baht)
time_travel is the travel time (minutes)
exp_travel is the travel expenses (baht)
income is monthly income (thousands of baht)

Table 1
SHOWS THE RESULTS OF THE ANALYSIS IN THE SIMULATION UNDER THE CONSTRAINTS ON THE SIZE OF THE USABLE AREA. CONDOMINIUM TYPE

Number of obs 200					**Log likelihood = -2,349.6514**				
choice_1_Near****					**choice_2_Far******				
Variable	**dy/dx**	**Std. Err.**	**z**	**P>|z|**	**Variable**	**dy/dx**	**Std. Err.**	**z**	**P>|z|**
price_condo	0.0090	0.0010	8.84	0.000***	price_condo	-0.0075	0.0009	-8.90	0.000***
time_travel	-0.0100	0.0004	-23.82	0.000***	time_travel	0.0016	0.0002	8.43	0.000***
exp_travel	-0.0040	0.0005	-8.26	0.000***	exp_travel	0.0042	0.0005	8.33	0.000***
income	0.0032	0.0008	4.08	0.000***	income	-0.0017	0.0004	-4.53	0.000***

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Source: from the calculation

Note: The estimation result is a comparison with option 3 (not choosing to buy a residence).

*** means statistically significant at 0.01

** means statistically significant at 0.05

* means statistically significant at 0.10

From Table 1, it was found that the factors influencing the decision to choose a residence along the mass transit lines at a statistically significant level of 0.01 include condominium prices have a 0.90 percent increase in chance of deciding to buy, and the monthly income having a 0.32 percent has a chance of purchasing. Travel time has a 1.00 percent lower chance of purchasing decisions and travel expenses have a 0.40 percent chance of purchasing decisions,

It found that factors that influenced the decision to choose a condominium outside the mass transit lines was at a statistically significant level of 0.01, including price_condo and income negatively influenced the probability of deciding to buy a condominium along the mass transit lines, while time_travel and exp_travel positively influenced the probability of deciding to buy condominiums along the mass transit lines.

Analysis of data from the method (SP) scenario under budgetary constraint conditions for purchasing a residence that determines the option to purchase a condominium-type residence at a price of 3,000,000 baht per room with 3 options as follows: 1. Choosing to buy a residence along the sky train line. 2. Buying a place outside the sky train line and 3. Not buying a place to stay. The results of the study can be written to show the probability of choosing a residence for the non-registered population in Bangkok as shown in Figure 3.

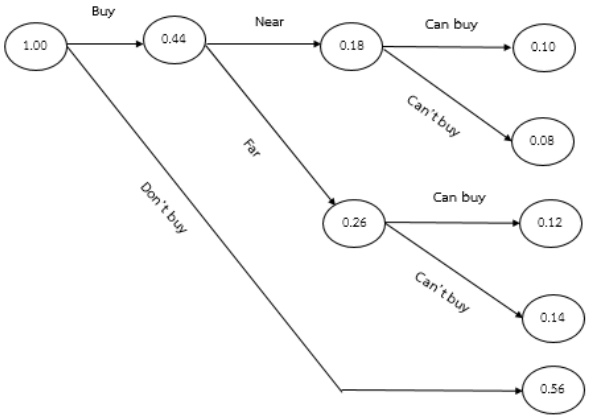

FIGURE 3
SHOWS THE PROBABILITIES OF PURCHASING DECISIONS OF THE NON-REGISTERED POPULATION UNDER BUDGET CONSTRAINTS

Source: from the calculation

The results showed that 56% of the non-registered population were deciding not to buy a condominium to live in a simulated scenario, and 44% were a simulated housing decision group, in which the sample who decided to buy would choose a condominium to live. Purchasing housing along the mass transit lines was 18 % , with the sample group purchasing housing along the mass transit lines with the ability to purchase housing equal to 10%, using the home-buying ability criteria based on their monthly income. Of the respondents and the sample group who choose to buy accommodation along the mass transit lines, another 8 % are incapable of purchasing housing, while another 26% of the sample group decides to buy a condominiums to stay outside the mass transit line. The sample who chose to buy a residence along the mass transit line had the ability to buy a residence equal to 12%, and the sample who purchased a residence along the mass transit line was 14% who did not have the ability to buy a condominiums to live.

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Research Model

Buy a condominium = f(room_size, dist_mall, fitness_pool, bedroom)

by Buy a condominium is the 3 options for purchasing a residence.

room_size is the size of the residential area (square meters)

dist_mall is the distance from the mall (km)

fitness_pool is a fitness facility and a swimming pool (have = 1)

bedroom is the number of bedrooms (rooms)

Table 2
SHOWS THE RESULTS OF THE ANALYSIS IN THE SCENARIO UNDER BUDGET CONSTRAINTS IN BUYING A CONDOMINIUM TYPE OF RESIDENCE

Number of obs 200					**Log likelihood = -2,389.0785**				
choice_1_Near****					**choice_2_Far******				
Variable	**dy/dx**	**Std. Err.**	**z**	**P>|z|**	**Variable**	**dy/dx**	**Std. Err.**	**z**	**P>|z|**
room_size	0.0012	0.0006	2.24	0.025**	room_size	0.0037	0.0012	3.08	0.002***
dist_mall	-0.0787	0.0080	-9.80	0.000***	dist_mall	0.0893	0.0055	16.18	0.000***
fitness_pool	-0.0057	0.0060	-1.04	0.298	fitness_pool	0.0137	0.0149	0.92	0.355
bedroom	0.0124	0.0056	2.19	0.028**	bedroom	0.0239	0.0140	1.71	0.087*

Source: from the calculation

Note: The estimation result is a comparison with option 3 (not choosing to buy a residence).

*** Means statistically significant at 0.01

** means statistically significant at 0.05

* means statistically significant at 0.10

From Table 2, it was found that the factors influencing the decision to choose a residence along the mass transit lines at a statistically significant level of 0.01. Distance from the department store has a probability of 7.87 percent lower chance of purchasing decision; statistically significant level of 0.05 include residential area size, probability on the chance of buying decision increased by 0.12 percent, and with the number of bedrooms, the probability of deciding to buy increased by 1.24 percent.

It was found that factors which influenced the decision to choose a residence the mass transit lines at a statistically significant level of 0.01, including room_size and dist_mall have positively influenced the probability of deciding to buy condominiums along the mass transit lines, while factors with a statistically significant level of 0.10 were bedroom have positively influenced the probability of deciding to buy a condominium along the mass transit lines.

The Results of the Data Analysis of the Samples that Used to be Former Non-Registered Population and Non-Registered Population Samples

The analysis of data from the Revealed Preference Method (RP) surveyed the decision-making data of the residential purchase of a sample that used to be a former non-registered population and the choice of rented a residential unit of a non-registered population sample of condominium types in Bangkok area with the following models used in the research:

Buy a condominium = f(female, age, married, edu, occup, inc, hh_inc, cars, hh_members, freq_bts, exp_bts, freq_taxi, exp_taxi, freq_cars, exp_cars, time_bts, time_taxi, time_cars, house_size, price_sqm, no_pool, dist_mall, exp_condo)

Let Buy a condominium is choice(name=1), female is gender(female=1), age is age, married is status, edu is education level, occup is occupation, inc is monthly income, hh_inc is Total household income, cars is the number of cars, hh_menbers is the number of household members, freq_bts is the number of times sky trains are used per month, exp_bts is the monthly cost of sky trains, freq_taxi is the number of private hire cars per month, exp_taxi is the cost of

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using a private hire car per month, freq_cars is the number of times a private car is used per month, exp_cars is the cost of using a private car per month, time_bts is the amount of travel time by sky trains to work per time, time_taxi is travel time by private car hire to work per time, time_cars is time taken by private car to work per time, house_size is residential size, price_sqm is housing price per square meter, no_pool is swimming pool, dist_mall is distance from residence to shopping mall, exp_condo is common cost per square meter

Table 3
SHOWS THE RESULTS OF THE ANALYSIS OF THE POPULATION SAMPLE IN PURCHASING CONDOMINIUMS

Number of obs 400		**Log likelihood = -236.8843**		
Variable	**dy/dx**	**standard error**	**z**	**P>|z|**
female	-0.0966	0.0474	-2.04	0.041**
age	0.0033	0.0036	0.91	0.361
status				
married	-0.1335	0.0856	-1.56	0.119
divorced	0.0352	0.1537	0.23	0.819
widow	-0.0368	0.1776	-0.21	0.836
edu				
Bachelor's degree	0.2443	0.0768	3.19	0.001***
Postgraduate	0.3184	0.1085	2.93	0.003***
occup				
Employees of a public limited company	-0.0708	0.0906	-0.78	0.435
Doing a private business	-0.0763	0.1048	-0.73	0.467
State enterprise employee	0.0643	0.1169	0.55	0.582
Limited company employee	-0.1779	0.0848	-2.10	0.036**
Other	-0.2966	0.1214	-2.44	0.015**
inc	0.0327	0.0143	2.30	0.022**
hh_inc	-0.0080	0.0052	-1.52	0.128
cars	-0.0086	0.0500	-0.17	0.863
hh_menbers	0.0722	0.0425	1.70	0.089*
freq_bts	-0.0051	0.0057	-0.91	0.364
exp_bts	0.0070	0.0057	1.22	0.221
freq_taxi	-0.0183	0.0087	-2.09	0.036**
exp_taxi	0.0086	0.0044	1.95	0.051*
freq_cars	-0.0040	0.0036	-1.10	0.272
exp_cars	0.0001	0.0016	0.00	0.996
time_bts	-0.0002	0.0018	-0.09	0.929
time_taxi	-0.0014	0.0015	-0.94	0.347
time_cars	0.0034	0.0012	2.72	0.007***
house_size	0.0043	0.0026	1.67	0.095*
price_sqm	-0.0182	0.0106	-1.72	0.085*
no_pool	-0.1409	0.1060	-1.33	0.184
dist_mall	0.0228	0.0134	1.70	0.090*
exp_condo	0.0030	0.0031	0.94	0.345
Prob > chi**2 = 0.00**01		AIC **: 1.**354	Count R2 **: 0.**665	

Source: from the calculation

Note: *** means statistically significant at 0.01
** means statistically significant at 0.05
* means statistically significant at 0.10

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From Table 3, factors with a statistically significant level of 0.01 include individuals with undergraduate and postgraduate degrees, the probability of deciding to buy increased by 31.84 percent and 24.43 percent, respectively, and the duration of travel by private car to work, the probability of deciding to buy increased by 0.34 percent.

Factors with a statistically significant level of 0.05 include females, the probability of deciding to buy decrease by 9.66 percent, individuals working limited and general hire companies, the probability of having a 17.79 percent decrease in purchasing decisions, respectively, monthly income the probability of having a 3.27 percent chance of purchasing decisions increased, and the number of personal hire car uses, the probability of deciding to buy decrease by 1.83 percent,

Factors with statistically significant level of 0.10 percent, including the number of household members the probability of deciding to buy increase by 0.80 percent. the cost of personal hire car, the probability of making a purchase decision increased by 0.86 percent, the size of the residence, the probability of making a purchase decision increased by 0.43 percent, the housing price per square meter, the probability of a purchase decision decreased by 1.82 percent, and from the residence to the mall, the probability of making a purchase decision increased by a percentage point of 2.28.

DISCUSSION AND CONCLUSION

The results of this research study were divided into 2 parts: 1. The study of factors influencing the decision to purchase condominiums by the SP, and 2. The study of factors influencing the decision to purchase and rent condominiums in the type of condominiums by RP method, which can be discussed and summarized as follows:

The results on the study of factors influencing the decision to purchase condominiums in the non-registered population in Bangkok by Stated Preference (SP) method in a simulated situation under the constraints on the size of living space determined that there is an option to buy a residence A condominium type of 1 room with a usable area of 29 square meters, in which the scenario will study the behaviors related to decision-making in the area of personal spending. It was found that the non-registered population would choose a place to stay near a BTS station over a residence that is far away from a BTS station because of the convenience and less time being spent when traveling by car. The data collection from the questionnaire illustrated that traveling by train can be calculated more accurately in travel time than traveling by car, which is consistent with the research by Jia Guo (2020). The estimation results show that condominium housing price factor affects the probability of purchasing a condominium which is in line with the research done by Jae Hong Kim (2005). Monthly income has an impact on the probability of making a decision to buy a condominium, which is consistent with the research from Patricio E. Pe´rez (2003). Travel time affects the probability of making a decision to buy a condominium, which is consistent with the research by Chaug-Ing (2006), and from Jonas De Vos (2016). The accommodation near the train station is in line with the income of the individual, indicating that if a person has enough income to buy a condominium near a train station, the person is more likely to buy a condominium near the station. The individual condominium takes into account the length of commuting time to work and the cost of travel as travel time is the opportunity cost of the time that the person will use for other uses and expenses. Traveling is a cost that a person has to pay on a daily basis. If a person chooses to buy a condominium near a train station, then the opportunity cost of travel time is reduced and the cost of commuting is reduced. The cost of buying a condominium near a train station (Ismir, 2020) is chosen because a condominium that is near the train station is more expensive than a condominium that is far away from the train station.

Scenario under budget constraints for buying housing that determines the option to buy condominium-type residences at a price of 3,000,000 baht per room. In such situations, behaviors related to decision-making in terms of comfort of living will be studied according to

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changes in housing size and facilities factors. By setting a fixed budget for condominium purchases, it is found that the non-registered population will Decide to buy a residence that is far from a BTS station rather than a residence near a BTS station because condominiums far from a BTS station will have a larger room space than condominiums near a BTS station. Skytrains are also cheaper than condominiums near BTS stations and have larger interior spaces, in line with research by (Jia) Guo, 2020). The model estimation results show that the condominium residential area size factor affects the probability of making a decision to buy a condominium (Jia Guo, 2020). The estimation results from the model show that the condominium residential area size factor affects the probability of making a decision to buy a condominium (Jia Guo, 2020). Distance from the mall affects the probability of deciding to buy a residence, the number of bedrooms affects the probability of deciding to buy a residence, in accordance with the research of (Carola de Groot,2011), which found that the non-registered population is more likely on deciding to buy a condominium according to the direction with the increase in size of the living space, thus indicating that under a limited budget the person is willing to choose a condominium with more living space instead of condominiums near the Skytrain station (Amy,2017). Since condominiums with a lot of living space will be able to do more activities in a person's leisure in exchange for travel convenience and travel time savings, it is also evident that the person who decides to buy a condominium near the Skytrain station will not prefer to choose a place near the mall, since condominiums near the BTS station are conveniently located, so there is no need to take into account walking to the mall (Vincent,2013).

Results of the study of factors influencing the decision to buy and rent condominium housing by means Reveled Preference (RP) revealed that there is a group deciding to buy condominiums and groups deciding to rent condominiums who are non-registered populations based on estimation models, with personal factors finding that females, undergraduate and postgraduate degrees, careers, limited and self-employed employees, monthly income and number of household members affect the probability of deciding to buy a condominium (Jonas De Vos,2020) , (Carola de Groot,2011), (Jia Guo,2019), (Gusti Ayu Andani,2020). As for behavioral factors in choosing a residence, it was found that the frequency of use of a private hire car and the cost of using a private hire car influenced the probability of deciding to buy a condominium in line with the research (Patricio,2003). The length of travel by private car to work affects the probability of deciding to buy a condominium (Chaug-Ing,2006). The size of the residence affects the probability of deciding to buy a condominium (Jae Hong Kim,2005). Residential prices affect the probability of deciding to buy a condominium (Jia Guo,2019). The distance from residence to shopping mall affects the probability of deciding to buy a condominium (Jia Guo,2019). The work found that female individuals are less likely to make condominium decisions than males because male individuals have a greater need for freedom of residence than females, resulting in men deciding to work farther from their homeland than women, and another reason families in Thai society are more concerned about women than men (Misa,2014). The level of education will affect a person's job duties and income, where higher income will affect the power to make more condominium decisions, since in commercial bank lending, income and job security are taken into account. Individuals working in limited companies do not have much income and welfare, as well as a small career security, which directly affects the decision to buy condominiums, as buying condominiums are less iquidity property that takes quite a long time to change hands. In addition, in applying for loans from commercial banks, the company's income and stability are considered which makes it less likely that individuals working in limited companies will pass through the loan. Self-employed individuals will be with uncertain incomes and clear sources of income, resulting in self-employed individuals not qualifying for loans from the commercial banks by most self-employed individuals who will buy condominiums with cash. Monthly income shows the power to purchase condominiums and regarded as the main factor in purchasing decisions, because the income will be both a factor in which a person will estimate their purchasing

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potential, and the bank also takes income into account as an important factor in the approval of loans. The number of uses of private hire cars tends to decrease when a person decides to buy a condominium, since the person who decides to buy a condominium in the area near the premises and the workplace can travel by using the public transportation system instead because the costs are a lot cheaper than using one's car to get around town (Zhou,2013). The cost of a private valet is likely to increase as most individuals who decide to buy condominiums apply for loans from commercial banks to buy condominiums. As a result, the person will have to pay off their monthly debt with the bank, whose debt obligations will cause the person in not choosing to buy a private car as it helps to reduce the monthly cost of installments and maintenance of owning a private car (Caroline,2020). The size of the living space will have a direct effect on the decision, since the general public has a need for a large living space, which will be more convenient for various activities in the room than a small living space. Condominium prices will be an important factor in purchasing decisions because individuals will have a limited income or budget to purchase condominiums. Individuals will most likely choose the residential location that they want first, and then the next factor would be on the consideration of price. The distance from the place of residence to shopping mall is likely to be with a person deciding to buy a condominium that is near the mall, because this individual will need to have a closer access to go shopping, make some financial transaction, or spend some leisurely free time at the mall.

From the analysis of the study results, it was found that the study by Stated Preference (SP) and the study by Revealed Preference (RP) were consistent in the study of factors influencing the decision to purchase condominiums. In the simulation scenario under the constraints on the size of living space, it was found that the factors of accommodation price, travel time, travel expenses and income were consistent with the results of the study. In terms of budget constraints, it was found that the size of the area, distance from shopping malls and swimming pools had consistent results. Therefore, the study of Stated Preference (SP) and Revealed Preference (RP) method provided consistent results.

Research Implications

From this research, it was found that most people would choose accommodation that can be traveled by train because of the convenience and speed of transportation. Therefore, the government should promote the construction and expansion of sky train routes in the Bangkok area. The government sector should extend the sky train line to the suburbs for the expansion of residence to the suburbs or nearby provinces for the purpose of reducing the population density in the inner Bangkok area through the expansion of the sky train route. Also, the government should encourage individuals to have greater access to condominium ownership as condominium prices in suburban areas are lower than condominiums in urban areas, which will result in better quality of life for non-registered population in Bangkok in terms of housing. Owning and having a home in a convenient area and getting access to fast commuting for the purpose of working in the inner city will lead to a better quality of life. In addition, in the real estate development sector, the study results can be used as a development guideline for a condominium project. The study indicates that non-registered populations in Bangkok are interested in purchasing condominiums along the mass transit lines under their ability in making a reasonable financial purchase. As for the factor of residence size and location near the shopping malls, it is important in attracting the non-registered population in Bangkok towards deciding to buy condominiums outside the mass transit lines.

Future Research

For the next research, there will be a study on the population of Bangkok residents who decide to rent condominiums and on the population of Bangkok residents who decide to buy

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condominiums in Bangkok, which should be added to compare the results of the study of the non-registered population who rent condominiums and those that used to be categorized as the non-registered population in Bangkok. In addition, studies should be added to the study of condominium real estate developers of the country's leading major operators and condominium real estate developers of major operators. The next study should be on the factors influencing the differences in corporate image and the credibility of the project developers in deciding to buy condominiums next.

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