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Senior Condominium Choice for Low-to Mid-Income Future Elderlies: A Case Study of Encouraging Affordable Senior Living in Bangkok, Thailand

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The aim of this study is to examine the factors that influence the senior condominium choices of low-to mid-income future elderlies who range between 50-59 years old in Bangkok, Thailand. As the Thai population ages, policy analysts are deeply concerned with issues related to housing the elderlies. Condominiums are the best living choice for elderlies who need to live in the urban city close to their own home and family. In addition, they encourage the elderly to live in supportive communities and reduce the difficulties of independent living, such as loneliness, isolation, lack of medical facilities and mental health issues. The independent variables of demographic characteristics and the factors associated with senior living choice which are locational attributes, physical and social environments, and safety and security are examined as measures for the relocation of future elderlies to senior condos. In this research work, 348 respondents are instructed to rate 22 statements (on a Likert scale of 1-5) on aspects related to senior living choices. The researcher of this study provides evidence of the characteristics of low-and mid-income future elderlies who intend to move to a senior condo after retirement and their preferences around senior condos. A binary logistic analysis is used to investigate the factors that have impacts on the senior condo choice of low-to mid-income future elderlies. The results indicate that demographics, physical environment, and safety and security influence why low-to mid-income future elderlies choose a senior condo for future residence.

Keywords

Low-to mid-income future elderlies, Senior condos, Senior living choice, Binary logistic model, Bangkok

1. Introduction

Thailand is considered as one of the world's most rapidly aging society. The National Statistical Office of Thailand states that those who are 60 and over currently constitute about 20% of the population in Thailand (National Statistical Office, 2021). In addition, most of them are also low- and mid-income groups who cannot fully afford their living expenses. This will become a serious issue in Thailand in the near future. Data recorded for 2020 show that the number of elderly (60 years old or older) was 11,627,130, which was 18% of the entire population of Thai citizens (Department of Older Persons (DOP), 2021). It is expected that the number of elderly who are 60 and older would only increase. This prediction was realized as Thailand is already a "complete-aged society" (proportion of individuals in a population who are 60 and older is 20%,) in 2021, and now predicted to become a "super-aged society" in 2031 (proportion of those 60 and over is 28% or 65 and over is 20%). These demographic changes show that policymakers are facing great challenges in their plans for senior residences. According to data on the low affordability of seniors housing by the Office of the National Economic and Social Development Council (2019), Thai households have a relatively low rate of saving, and are unlikely to meet future living requirements when they are elderly. The data also show that only 120,000 households (0.5% of the total households) in Thailand have an income of more than 2.8 million baht[1] (Office of the National Economic and Social Development Council, 2019) which is considered a good income for retirement. Therefore, the percentage of those who can afford to plan their long-term retirement living is low. The Department of Older Persons (2016) (Thailand) reports that many elderlies now and in the future will be living in vulnerable and difficult circumstances. It is estimated that one-third of them are living below the poverty line. In the past, elderly members of the household could ask for financial support from the younger generation. This type of old age security is a Thai cultural norm. However, the problems of declining birth rate and out-migration of adult children have been critical because they mean that elderlies are now living alone in the city. During 1980-2017, the average Thai household size decreased from 5.2 to 3.09 people (Kasikorn Bank, 2018) Moreover, the percentage of elderlies who live by themselves also increased from 3.6% to 8.6% during 1997-2014 (Kasikorn Bank, 2018). It is predicted that 1.3 million elderlies would need assisted living (Kasikorn Bank, 2018). All of these create challenges for urban policy planning and senior residential project developers who are interested in developing future senior living communities in Thailand.

In Bangkok, the capital city of Thailand, the proportion of the elderly (60 years old and over) is the highest compared to other cities. In 2020, there are 1,108,219 elderly individuals (19.83% of the total population in Bangkok) (National Statistical Office, 2021). It can be said that Bangkok is a complete-

[1] 33.11 baht = 1 USD (as of February 8, 2022)

aged society. The rate of growth of the elderly population has also been rapid at 16.57% within a period of 5 years from 2016 to 2020. Therefore, Bangkok now needs to urgently make plans to accommodate the aging population. However, the price of land and residential projects is still higher in the inner and outer zones of Bangkok. This directly affects low-and mid-income older adults who are searching for senior living in the city (Firoozi et al., 2020). The Thai government issued numerous policies and measures in response in 2013, particularly with the Floor Area Ratio (FAR) Bonus, which offers extra construction area as an incentive. If real estate developers develop a condominium project in central Bangkok for low-income earners by offering at least a 20% lower selling price per square meter than the market price, they will receive extra construction area of a maximum of 20% of the total project area (Department of City Planning and Urban Development, 2013). In addition, the Thai government and private sectors invested in affordable senior condominium projects for low-and mid-income elderlies in 2020. However, they lack information on the living choices of the elderly. So, this research aims to find the factors that influence senior condominium choices, and examine the needs of future elderlies who are currently 50-59 years old.

2. Literature Review

The literature review mainly examines two areas of study. The first are the main types of senior condos which are given an introduction while the second area ranges from actual and potential movers to those who are aging in place.

2.1 Types of Senior Condos

Senior living condos are similar to private residences but with care-giving. Elderlies can purchase or rent a private room but access shared common areas. They can develop friendships with their neighbors. They enjoy mutual support but maintain a sense of independence. There are numerous activities offered in these senior condos. In summary, there are three types of condos for the elderlies: 1) retirement condos – are like a retirement community with residents over the age of 55 and units are rented or purchased. The homeowner's association create the rules and regulations for using the property and living on the premises. Exterior maintenance is provided but interior maintenance such as cleaning and caregiving is the responsibility of the residents themselves. Some offer medical facilities and health checkups; 2) assisted living condos – provide a wider range of assistance elements and services, such as cleaning, cooking, laundry and medical aid; and 3) senior apartments – the same as senior condos in terms of individual living but smaller in space like an apartment complex. The elderlies do not own but rent the unit. The rental fee for these apartments is more affordable than owning or renting a condo (Witt and Hoyt, 2020).

2.2 Previous Research Work Related to Senior Living Choices

A number of studies have mainly focused on the demographic characteristics of seniors that influence decisions to move into senior housing. Granbom et al. (2018) find that demographics such as gender, age, and income influence relocation decisions of seniors. Besides, elderlies who are living alone or with their family with no proper assistance-living facilities might choose to move into senior housing (Chaulagain, 2019). Koss and Ekerdt (2017) find that marital status has an impact on relocation. A spouse and child(ren) influence the decision of seniors to age in place. Darunwat (2017) also finds that the single elderly who are living alone tend to move to senior living after retirement.

Recent studies have also found that senior living choices are affected by physical and locational attributes and social environment characteristics. In terms of the living choice related to physical and locational attributes, Frew and Jud (2003) find that physical attributes affect the senior choice of living including house size, age and functional area design. Wiles et al. (2012) examine the physical attributes that influence the living choices of seniors and find that house size, location of bathrooms and accessibility (multi-storied buildings with stairs but no elevator) influence their choice. Darunwat (2017) indicates that senior living locations near markets, hospitals, parks, and tourist attractions attract the elderlies to move there. Maloney et al. (1996) report that insufficient information on home health care options, and improper housing conditions and physical structure area the main barriers of aging in place. However, all of them prefer fewer barriers of aging in place to relocation. As for the choice-related social environment characteristics, Fernández, Perez and Abuin (2003) and Kahana et al., (2003) indicate that the sense of homeownership, social environment and support, favorable location of the house, sense of security, easy access of services from home, neighborhood areas, proper size and type and design of house, support aging in place. Earhart and Weber (1996) find that the proximity from senior housing to areas with family and friends has an impact on the living choice of seniors. In terms of safety and security, the Department of Older Persons (2016) reports that safety and security features are necessary for senior living. Some security measures should be seriously taken into consideration, such as secured access, smoke detectors, hallway handrails and well-lit areas. Kelly (2019) mentions 6 safety risks that are most prevalent among seniors: “1) poorly-maintained flooring surfaces, 2) inadequate safety measures in bathrooms, 3) chairs and seating that inhibit the ability to stand, 4) obstructions in walkways and entryways, 5) poor lighting in living areas and 6) lack of safety alert systems in living spaces”. O’Hara (2019) recommends 5 assisted living security systems needed in senior living: “specialized access control for memory care, perimeter access control, fire alarm and detection, in-room patient monitoring and video surveillance”. Pinyo (2009) proposes that the location of elderly residences should be easily accessible to public services. Some facilities such as wheelchair parking spaces,

elevators, sloped pathways and handrails should be provided. Emergency alarm and fire prevention systems should be installed inside.

This empirical approach is motivated by previous studies that attribute the following factors as having an effect on senior living choices: demographic characteristics, physical environment, locational attributes, social environment and security and safety characteristics. They are used as independent variables in the analysis model of this study.

3. Research Methodology

This paper investigates the factors that influence the living choice of low-and mid-income future elderlies who are 50-59 years old in high-rises in Bangkok, Thailand. The data are collected by using a questionnaire survey with 348 respondents; 291 who answered an online questionnaire and 57 who were interviewed by phone. The survey was done from October to December 2020. As for the online data collection, the questionnaires were sent to emails and through a LINE app used by future elderlies who are permanently living in Bangkok. The data were randomly collected from respondents in many areas of Bangkok. The screening criteria of the respondents are their age, income, location of current home and the possibility of moving to a senior condo after retirement. These show that they are the perspective research samples. The questionnaire consists of 3 parts: 1) individual data of the respondent: gender, occupation, status, number of family members, education level, income, and current type of residence, 2) the selection of high-rise senior living in the future, and 3) the attitude or factors related to senior living choices of high-rises. Twenty-two (22) questions in 4 variable groups were used to collect the data; see Table 2. Each attitudinal statement represents each independent variable. The variables related to senior living choices are based on previous research and data from the interviews with some low-to-mid income future elderlies before adding some contents in the questionnaire such as NEAR_OLDH, SUR_AREA, NO_STEP, NO_WALL and COM_RATIO (definitions in Table 2). The statements were rated by the respondents on a five-point Likert scale, which ranges from “strongly disagree” (=1) to “strongly agree” (=5) as shown in Table 1.

The subjects are grouped according to their income, which consists of: (1) low income (less than 20,000 baht/month (604.05 USD/month)), (2) middle income (20,000-50,000 baht/month (604.05 to 1510.12 USD/month)) and (3) high income (more than 50,000 baht/month (1510.12 USD/month)).

Table 1 Scoring Range of Likert Scale of Survey

Evaluation criterion	**Value**	**Range**
Strongly Disagree	1	1.00-1.80
Disagree	2	1.81-2.60
Neither/Nor Agree	3	2.61-3.40
Agree	4	3.41-4.20
Strongly Agree	5	4.21-5.00

Table 2 Questions About Factors That Affect Senior Living Choices

Variable group	**Variable**	**Attitudinal statement on factors that affect choosing to live in senior condo**
Locational attribute	NEAR_RAIL	You would live in a senior condo if it is within acceptable walking distance.to the urban rail station.
	NEAR_PARK	You would live in a senior condo if it is within acceptable walking distance to the public park.
	NEAR_HOSP	You would live in a senior condo as opposed to your current home if a hospital is near the condo.
	NEAR_OLDH	You would purchase a senior condo if it is near your current home.
	NEAR_MARK	You would live in a senior condo instead of your current home if the market is near the condo.
Physical attribute of property	SIZE	You would live in a senior condo if the rooms are larger.
	SURR_AREA	You would certainly live in a senior condo if a large common area and open space are provided.
	FUNC_DES	You would move to a senior condo if the functional room design of the condo unit is favorable.
	NO_STEP	You would live in a senior condo if there are no stairs.
	FAC_ROOM	You would want to live in a senior condo if fully-assisted living elements are installed in the bedroom and living room.
	FAC_BATHROOM	You would live in a senior condo if fully assisted-living elements for elderlies are installed in the bathroom.
	NO_WALL	You would live in a senior condo if the rooms have no walls or partitions.

(Continued...)

(Table 2 Continued)

	QUA_MAT	You would live in a senior condo if the rooms are constructed of high-quality materials.
	NAT_DES	You would live in a senior condo if a nature friendly room is provided.
Social environment	LIVELY	You would live in a senior residential project if the environment of the premises is peaceful.
	GOOD_COM	You would prefer to live in a senior condo if both the retirement community and neighborhood are favorable.
	GOOD_REL	You would prefer to live in a senior condo if activities are provided for senior residents.
	COM_RATIO	You would prefer to live in a senior condo if there are more common areas than private living space.
Security and Safety	MED_CENT	You would prefer to live in a senior residential project if there is 24-hr health care services in the residence.
	MED_STAF	You would prefer to live in a senior condo if there are all-day medical staff available.
	SEC_STAF	You would prefer to live in a senior condo if there are experienced security guards.
	SEC_EQUIP	You would prefer to live in a senior condo if there are security facilities all over the property such as an access control for memory care, perimeter access control, fire alarm and detection, in-room patient monitoring and video surveillance.

Income classification is based on the minimum monthly wage rate and monthly income of Bangkok residents (Ministry of Labor of Thailand, 2012; National Statistical Office, 2013). As for the data analysis, the compared means of attitude of low-and mid-income individuals towards choosing high-rise senior living is evaluated by using a t-test analysis. If there is statistical significance, the two groups ("Condo" and "Not Condo") are significantly different on the exploratory variable. The finding factors that affect their decision to live in senior high-rise is estimated by using a binary logistic regression model. The number of effective samples in the analysis model should be at least ten times higher than the number of independent variables (Peduzzi et al., 1996). The data analysis and model estimation are conducted by using SPSS Version 17. The binary logistic regression model is expressed as:

$$\ln\left(\frac{p_1}{1-p_1}\right) = X\beta + L\alpha + V\lambda + W\eta + \varepsilon \quad (1)$$

where p_1 is the probability of choosing to live in a high-rise senior community; *X, L, V* and *W* are the vectors of factors related to the factors of living in senior high-rises, including: locational, physical environment, social environment, and security and safety attributes; ε is a logistically distributed error term; and β, α, λ and η are the vectors of the model parameters.

4. Data

According to the summarized data in Table 3, there are 348 effective respondents (around 94% of the total). These effective respondents are 50-59 years old, low-to mid-income earners (not more than 50,000 baht/month (1510.12 USD/month) and are inclined to move to a senior residence after retirement. They make up the perspective sample who provides the data for this research. Most of them are female, living with family members, have low income, are office employees and prefer a house price of 1-3 million baht (MB; 30,202.36-99,607.07 USD)[2]). Among them, 142 respondents (40.80%) who have a low-to-mid income are thinking of moving to a senior condominium after retirement. Most of them are female and living alone, earn a middle income (20,000-50,000 baht (604.05-1,510.12 USD)/month)), and are an office employee. Over 70% prefer a house price of 1-3 MB and almost 20% prefer a house price of 3-5 MB (30,202.36-151,011.78 USD)). While the female respondents are more inclined to move to a senior condo, the males are inclined to move to other types of residences (single-detached house, town home or low-rise residence). Elderlies who are living alone prefer to move to a condo but those living with family want to live in a house. Most of the middle income respondents would prefer living in a condo while most of the low income respondents (< 20,000 baht/month (<604.05 USD)) prefer living in a senior residence. Obviously, those who are working as office and state enterprise employees prefer living in a condo the most while government officials prefer living in other types of dwellings, and inclined to pay between 1-3 MB and 3-5 MB respectively for their senior residence.

5. Model Estimation and Results

5.1 Means and Compared Means of Attitude on Senior Housing Choice

Before the data analysis is carried out, we determine the reliability and internal consistency of the questionnaire by using a Cronbach's alpha coefficient (Cronbach, 1951). The value is 0.88, or over 0.8 or 80%, which means that the questionnaire and samples are suitable. According to the means of attitude towards the 22 statements related to factors associated with senior living choice (Table 4), "Security and Safety (SS)" is more likely to be rated high among

[2] 33.11 baht = 1 USD (as of February 8, 2022)

Table 3 Summary of Respondent Characteristics

Variable	Overall	Condo	Not Condo
Number of participants (persons)	348	142	206
Gender			
Female (%)	61.21	69.72	55.34
Male (%)	38.79	30.28	44.66
Living alone			
Yes (%)	22.13	25.35	19.90
No (%)	77.87	74.65	80.10
Income			
Low income (less than 20,000 baht) (%)	54.89	45.07	61.65
Middle income (20,000-50,000 baht) (%)	45.11	54.93	38.35
Occupation			
Government official (%)	26.44	19.01	31.55
Business owner (%)	19.54	19.72	19.42
Office employee (%)	35.06	39.44	32.04
State enterprise employee (%)	11.78	14.79	9.71
Other (%)	7.18	7.04	7.28
Preferred Housing Price (Million baht: MB)			
1-3 MB. (%)	76.43	71.83	79.61
3-5 MB. (%)	13.22	17.61	10.19
5-7 MB. (%)	7.76	8.45	7.28
7-9 MB. (%)	2.59	2.11	2.91

Notes: 33.11 baht = 1 USD (as of February 8, 2022)

condo residents and also because the average score of all aspects of "SS" is over 4.2, which indicates that the respondents "Strongly agree" with having SS. As for the "Condo" group, the three highest average scores are given to "SEC_EQUIP", "MED_STAFF" and "FAC_ROOM", that is, 4.669, 4.655 and 4.641, respectively. The lowest average scores are for "NO_WALL", "NEAR_OLDH", "GOOD_COM", that is, 3.824, 3.951 and 4.077, respectively. As for the "Not Condo" group, the 3 highest average scores are for "SEC_EQUIP", "SEC_STAF", and "MED_STAF", that is, 4.782, 4.777 and 4.704, respectively. The lowest average scores are for "NO_WALL", "NEAR_OLDH", and "GOOD_COM", that is, 3.709, 3.786 and 4.058, respectively. These imply that future elderlies choose senior condos based on the availability of safety and security facilities provided such as access control for memory care, perimeter access control, fire alarm and detection, in-room patient monitoring and video surveillance. In addition, fully-assisted living and all-day medical services are other highly important aspects of senior condos. On the contrary, future elderlies would not prefer to live within proximity of their previous home, have an airy room (no walls/partitions) and to be

Table 4 Means and Compared Means of Attitudes on Factors Associated with Senior Housing Choice

	Variable	"Condo"		Response	"Not Condo"		Response	t	p
		Mean	SD		Mean	SD			
Locational	NEAR_RAIL	4.099	0.870	A	4.136	0.932	A	-0.38	0.706
	NEAR_PARK	4.535	0.554	SA	4.451	0.613	SA	1.30	0.194
	NEAR_HOSP	4.507	0.592	SA	4.680	0.527	SA	-2.79	0.006**
	NEAR_OLDH	3.951	0.775	A	3.786	0.822	A	1.88	0.062
	NEAR_MARK	4.176	0.756	A	4.214	0.857	SA	-0.42	0.674
Physical	SIZE	4.275	0.706	SA	4.505	0.668	SA	-3.09	0.002**
	SURR_AREA	4.218	0.782	SA	4.141	0.823	A	0.88	0.379
	FUNC_DES	4.577	0.575	SA	4.563	0.701	SA	0.20	0.840
	NO_STEP	4.592	0.609	SA	4.524	0.757	SA	0.88	0.379
	FAC_ROOM	4.641	0.481	SA	4.675	0.519	SA	-0.62	0.538
	SUPP_TOILET	4.472	0.660	SA	4.529	0.730	SA	-0.75	0.455
	NO_WALL	3.824	0.902	A	3.709	1.140	A	1.05	0.294
	QUA_MAT	4.211	0.770	SA	4.519	0.638	SA	-3.93	0.000**
	NAT_DES	4.359	0.718	SA	4.675	0.581	SA	-4.35	0.000**
Social	LIVELY	4.620	0.555	SA	4.670	0.615	SA	-0.78	0.437
	GOOD_COM	4.077	0.725	A	4.058	0.788	A	0.23	0.818
	COM_REL	4.282	0.688	SA	4.529	0.645	SA	-3.42	0.001**
	COM_RATIO	4.465	0.501	SA	4.500	0.548	SA	-0.62	0.535
Security	MED_CENT	4.563	0.577	SA	4.573	0.657	SA	-0.14	0.890
	MED_STAF	4.655	0.520	SA	4.704	0.489	SA	-0.89	0.371
	SEC_STAF	4.599	0.492	SA	4.777	0.429	SA	-3.49	0.001**
	SEC_EQUIP	4.669	0.472	SA	4.782	0.459	SA	-2.21	0.028**

Notes: SA = Strongly agree, A = Agree, N = Neither/Nor agree, D = Disagree, and SD = Strongly disagree. ** and * Significant at 0.01 and 0.05.

surrounded by a good retirement community in a senior residential project. After comparing the means between the two groups, there are 8 aspects found in which the "Condo" group has a higher mean than the "Not Condo" group. According to the results of the "Condo" group, there are 8 aspects that show significant differences between the means of the two groups: "NEAR_HOSP", "SIZE", "QUA_MAT", "NAT_DES", "COM_REL", and "SEC_STAF" are lower than those of the "Not Condo" group with significance at $p < 0.01$ and the mean of "SEC_EQUIP" is lower with significance at $p < 0.05$.

5.2 Factors that Influence Low-to Mid-Income Future Elderlies in Purchasing Senior Condo

The questionnaire survey provided all 348 interviewed respondents with the possibility (Yes or No) of choosing a senior condo after retirement, in which 142 indicate that they would live in a senior condo. As for the binary logistic regression model in Table 5, the coefficient values are estimated by using the maximum likelihood method provided by the collected data. The demographic characteristics (gender and living alone) and 22 aspects related to senior residential choice are the independent variables while choosing to purchase a senior condo (Yes/No) is the dependent variable. The significant factors in the model are the factors of senior residence choice that influence low-to mid-income future elderlies to choose purchasing in a senior condo. The results show that the coefficients for the explanatory variables including "Gender", "NO_STEP", "NO_WALL", "QUA_MAT" and "SEC_STAF" are statistically significant at $p< 0.05$. "NO_STEP", "NO_WALL" and "SEC_STAF" show a positive coefficient sign while "Gender" and "QUA_MAT" have a negative coefficient sign. This implies that low- and mid-income future elderlies are inclined to purchase a senior condo if the rooms have fewer barriers and experienced security guards are available nearby. On the contrary, if the elderlies are male, they are less likely to purchase a senior condo. If a room is constructed of high-quality materials, they are less inclined to purchase a senior condo as well. Among the other significant predictors, "NO_STEP" is the best predictor of purchasing a senior condo because of the magnitude of the coefficient. If the rooms are designed and constructed without steps, they are more likely to purchase a senior condo. The odds ratio value associated with "NO_STEP" is the highest at 2.350. If there are senior condos without steps raised by 1 unit, the probability that low-to mid- future elderlies would choose to purchase and live in a senior condo is 2.35 times more likely.

Table 5. Binary Logistic Regression Results

Variable	B	S.E.	*p*	Exp(B)
Demographic characteristic				
Gender (Male =1)	-.974	.277	.000**	.377
Alone (Male =1)	.360	.302	.233	1.433
Locational attribute				
NEAR_RAIL	-.033	.195	.968	.660
NEAR_PARK	.373	.301	1.452	.804
NEAR_HOSP	-.195	.291	.823	.466
NEAR_OLDH	.627	.244	1.872	1.161
NEAR_MARK	-.584	.248	.558	.343
Physical environment				
SIZE	.186	.272	.495	1.204
SURR_AREA	.101	.206	.624	1.106
FUNC_DES	-.513	.429	.232	.599
NO_STEP	.854	.420	.042*	2.350
FAC_EQUIP	-.988	.415	.288	.372
SUPP_TOILET	-.199	.350	.570	.819
NO_WALL	.308	.136	.024*	1.361
QUA_MAT	-.558	.267	.036*	.572
NAT_DES	-.293	.300	.328	.746
Social environment				
LIVELY	.100	.333	.764	1.105
GOOD_COM	-.290	.226	.199	.748
COM_REL	-.384	.273	.160	.681
COM_RATIO	.296	.371	.426	1.344
Security and safety attribute				
MED_CENT	-.017	.325	.958	.983
MED_STAF	-.370	.412	.370	.691
SEC_STAF	.474	.446	.017*	1.606
SEC_EQUIP	-.209	.393	.594	.811
Constant	6.281	1.936	.001**	534.510
Number of observations		348		
Chi-square		71.680		
Initial -2 Log Likelihood		470.593		
Step 1 -2 Log Likelihood		398.914		
Cox and Snell R Square		0.186		
Nagelkerke R Square		0.251		
Percentage correct (%)		72.4		

Notes: ** and * significant at $p < 1\%$ and $p < 5\%$

6. Conclusion

This research work aims to study how residential property aspects are associated with senior housing choice and the factors that affect senior condo choice of low-and mid-income individuals who are 50-59 years old. They are currently the largest group in Thailand (15% of the population in total) (National Statistical Office, 2021), compared to any of the other age groups of 40-69 and 60-69 years old. Almost 65% of those in this age group are prepared to live in a senior condo after retirement (Chaisombut and Yana, 2019). Over 40% indicate that they will purchase a new senior residence after retirement, while 31% would like to live in a new residential location with elderly-friendly facilities (Bangkok Business Media Co., Ltd., 2021). The research results are useful for developers to develop condominium projects suitable for low-and mid-income future elderlies. In addition, any residential projects can solve the current social issue of a completed aged society in Thailand. The growth of low-and mid-income seniors are increasing at a higher rate. They also run a higher risk of social isolation and loneliness. More seniors tend to live alone while social support projects by either the government or private sector still lack the relevant facilities, and in particular, affordable senior housing in the urban areas. Recently, the Thai government has been working on providing incentives to property developers to build affordable homes for senior citizens while the country is becoming an aging society. However, to meet Thai senior housing demands, developers should study the property attributes that the elderlies need after retirement. Senior condo development has just begun in Bangkok and metropolitan provinces where there is a higher density of senior population.

In this research, 348 low-and mid-income future elderlies are thinking of moving to senior housing after retirement (60 years old). Some of them (41%) want to move to a senior condo while the majority (59%) want another type of dwelling, such as single-detached house, town home or other senior low-rise residence. In terms of their characteristics, most are female, living alone, with a middle income (20,000-50,000 baht/month (604.05-1,510.12 USD)[3]), and are office employees. Most of them prefer to purchase housing that ranges from 1-3 MB (30,202.36-99,607.07 USD)). The future elderlies who are more inclined to live in a senior condo are female, live alone, earn a middle income, and work as office or state enterprise employees. Almost 90% prefer to purchase a condo that ranges from 1-3 MB (30,202.36-99,607.07 USD)). As for their attitude towards the property attributes, “security and safety” and available staff in senior residential projects are the most important criteria. Security equipment such as the access control for memory care, perimeter access control, fire alarm and detection, in-room patient monitoring and video surveillance should be provided. Moreover, fully-assisted living and all-day medical staff are also prioritized demands. In terms of factors that affect these low-to mid-income

[3] 33.11 baht = 1 USD (as of February 8, 2022)

elderlies moving to a senior condo, it is found that if they are female, then a room without stairs and walls, a lower cost (not constructed of high-quality materials which reduces the price) and experienced security staff would entice them to make the move.

As with many studies, there are limitations. This research work is a case study, and the sample is not representative of future elderlies in Bangkok. However, the research findings provide initial recommendations for real estate developers to design senior condos that are suitable for low-to-income future elderlies. First, they should pay more attention to safety and security than aesthetics. Second, since functional areas are provided in the condo, future elderlies prefer an airy room or a room with neither walls nor steps. Third, assisted facilities for elderlies should incorporate daily personal and grooming services, such as bathing, dressing and walking aids, housekeeping and laundry services, emergency call system in each room and health and wellness programs with helpers who provide scheduled assistance to prevent accidents, which are preferred, even though the respondents are independent now. Fourth, the respondents in this study do not wish that the senior dwelling be located near their previous home. This is entirely different from current elderlies (over 60 years old) who strongly desire to stay in their current home or move to a retirement home near their previous home. Therefore, they would like the new housing conditions and environment to be the same as their previous home (Ngamanyan and Phaophu, 2012). However, even though the female respondents indicate that they are inclined to purchase a senior condo, the ratio of rooms for males and females should be the same to promote gender equality within the community. In future research, the factors that affect the choice of future elderlies of type of senior condo (retirement condo, assisted living condo or senior apartment) will be investigated.

References

Bangkok Business Media Co., Ltd. (2021) *Factors Influencing Purchasing New Home of Thai Elderly.* Available at: https://www.bangkokbiznews.com/business/935677.

Chaulagain, S. (2019). 'Motivational Factors and Barriers Affecting Seniors' Decision to Relocate to a Senior Living Facility', *Electronic Theses and Dissertations*. Available at: https://stars.library. ucf.edu/etd/6463/

Chaisombut, D. and Yana, B. (2019). 'Factors Related to the Preparation for Aging among Pre-aging Propulation', *Nursing Journal of the Ministry of Public Health*, 29(3). pp. 131-143.

Cronbach, L. J. (1951). 'Coefficient Alpha and the Internal Structure of Tests', *Psychometrika*, 16(3), pp. 297-334.

Darunwat, B. (2017). *The Crucial Factors for Buying a House After Retirement of the Socio-economic Status-ses Class B Who Live in Bangkok and Metropolitan Area*. MBA Thesis. Thammasat University. Available at: http://ethesisarchive.library.tu.ac.th/thesis/2017/TU_2017_5902010189_8065_6903.pdf

Department of City Planning and Urban Development (2013). *Bangkok Comprehensive Plan 2013.* Available at: https://webportal.bangkok.go.th/cpud/page/sub/18991/ผังเมืองรวมกรุงเทพมหานคร-พศ2556 In Thai.

Department of Older Persons (DOP) (2016). *Senior Complex Final Report.* Available at: http://www.dop.go.th/th/know/4/109 In Thai.

Department of Older Persons (DOP) (2021). *Older Statistics.* Available at: https://www.dop.go.th/th/know/side/1/1/335 In Thai.

Earhart, C. C. and Weber, M. J. (1996). 'Attachment-to-Home: A Contributing Factor to Models of Residential Mobility Intentions', *Family and Consumer Sciences Research Journal*, 24(4), pp. 422-437. doi: https://doi.org/10.1177/1077727X960244007

Fernández, G. F. M., Perez, F. R., and Abuín, J. M. R. (2003). 'Components of the Residential Environment and Socio-Demographic Characteristics of the Elderly', *Journal of Housing for the Elderly*, 18(1), pp. 25-49. doi: https://doi.org/10.1300/J081v18n01_03

Firoozi, F., Jalilvand, A., Lien, D. and Oliver, M. (2020). 'The Impact of Population Aging on Housing Prices: A Comparative Study of Singapore and the U.S', *International Real Estate Review*, 23(4), pp. 467-482. doi: https://doi.org/10.53383/100310

Frew, J. and Jud, G. D. (2003). 'Estimating the Value of Apartment Buildings', *Journal of Real Estate Research*, 25(1), pp. 77–86.

Granbom, M., Perrin, N., Szanton, S., Cudjoe, T. K. M. and Gitlin, L. N. (2018). 'Household Accessibility and Residential Relocation in Older Adults', *The Journals of Gerontology: Series B*, 74(7), pp. 72-83. doi: http://doi.org/10.1093/geronb/gby131

Kahana, E., Lovegreen, L., Kahana, B., and Kahana, M. (2003). 'Person, Environment, and Person -Environment Fit as Influences on Residential Satisfaction of Elders', *Environment and Behavior*, 35(3), pp. 434-453. doi: https://doi.org/10.1177%2F0013916503035003007

Kasikorn Bank. (2018). *Senior living business in Thailand.* Available at: https://kasikornbank.com/international-business/th/Thailand/IndustryBusiness/Documents/201811_Thailand_Elderly_TH.pdf In Thai.

Kelly, M. (2019). *Six Safety Hazards in Assisted Living Facilities to Watch Out For*. Available at: https://home.akitabox.com/blog/safety-hazards-in-assisted-living-facilities

Koss, C. and Ekerdt, D. J. (2017). 'Residential Reasoning and the Tug of the Fourth Age', *The Gerontologist*, 57(5), pp. 921-929. doi: https://doi.org/10.1093/geront/gnw010

Maloney, S. K., Finn, J., Bloom, D. L. and Andresen, J. (1996). 'Personal Decisionmaking Styles and Long-Term Care Choices', *Health Care Financing Review*, 18(1), pp. 141.

Ministry of Labor of Thailand (MOL) (2012). *The Nation Employment Minimum Wage Rate*. Available at: https://www.mol.go.th/wp-content/uploads/sites/2/2019/07/Wage_MOL_2556_v1_for22Nov2012.pdf In Thai.

National Statistical Office (NSO) (2013). *Summary of Socio-economic Statistic Data of Thailand*. Available at: http://service.nso.go.th/nso/nsopublish/themes/files/socioSum56-1.pdf In Thai.

National Statistical Office (NSO). (2021). *Demography Population and Housing Branch.* Available at: http://statbbi.nso.go.th/staticreport/page/sector/en/01.aspx

Ngamanyan, A. and Phaophu, N. (2012). 'Thai Senior Citizens: Financial Preparation for Retirement and Required Retirement Housing Features', *Thammasat Business Administration Journal*, 35 (136), pp. 62-87.

Office of the National Economic and Social Development Council (NECDC). (2019). *Poverty and Inequity Report.* Available at: https://www.nesdc.go.th/ewt_dl_link.php? nid=10857

O'Hara, M. (2019). *5 Security Measures Every Assisted Living Facility Should Take*. Available at: https://www.actsecurity.net/assisted-living-facility-security-measures

Peduzzi, P., Concato, J., Kemper E., Holford, T.R. and Feinstein, A.R. (1996). 'A Simulation Study of the Number of Events per Variable in Logistic Regression Analysis', *Journal of Clinical Epidemiology*, 49(12), pp. 1373-1379. doi: https://doi.org/10.1016/S0895-4356(96)00236-3

Pinyo, S. (2019). *Living Condition of the Elderly in Residential Condominiums: A Case Study of Residential Condominiums in Lumphini Sub-district, Pathumwan District, Bangkok metropolis*. MA Thesis. Chulalongkorn University. Available at: http://cuir.car.chula.ac.th/bitstream/123456789/16931/1/sanida_pi.pdf

Wiles, J. L., Leibing, A., Guberman, N., Reeve, J. and Allen, R. E. (2012). 'The Meaning of "Aging in Place" to Older People', *The Gerontologist*, 52(3), pp. 357-366. doi: https://doi.org/10.1093/geront/gnr098

Witt, S. and Hoyt, J. (2020). *Senior Condos*. Available at: https://www.seniorliving.org/condos/