Preferred Housing Attributes among Elderly in Malaysia

Choong Weng Wai and Cham Qiao Wei
Department of Real Estate
Faculty of Geoinformation and Real Estate
Universiti Teknologi Malaysia
81310 Skudai, Malaysia
Email: cwengwai@utm.my

Abstract

Over the past century, the global ageing population with strong saving and pension fund has increased. In Malaysia, the property developers have targeted the emerging demand from silver-haired market by offering retirement residential. One of the challenges for them are to provide housing feature and environment that favour elderly market. This paper investigates the preferred housing attributes among Malaysian elderly by using choice-based questionnaire and conjoint analysis. Two categories of housing attributes have been investigated, namely dwelling features and environment features. The result reveals that the most preferred housing attributes among elderly in Malaysia are typed of dwelling, price, built up area and the disability convenience features. As for the environmental feature, the most preferred attributes are living convenience, followed by security, amenities in the neighbourhood, building density and public transport. Finally, this study generates preferred profile among the elderly which serve as an important reference for developers in designing and marketing their product to elderly.

Keywords: Elderly Market, Housing Attributes, Preference Study, Conjoint Analysis

1. Introduction

A house symbolizes the passage from the public area to private and from the external world to the internal world (Cristoforetti, Gennai, & Rodeschini, 2011). It is regarded as a safety shelter, a place to provide the sense of security, protection as well as to the vulnerable people, including the elderly group. As people entering the aging process, a suitable and comfortable place is necessary to cater their retirement lifestyles.

As far back as 1875, in Britain, the Friendly Societies Act, enacted the definition of old age as, "any age after 50", yet pension schemes mostly used age 60 or 65 years for eligibility (Roebuck, 1979). The World Health Organization claimed majority of the developed countries in the world concurs that whenever a person reaches the chronological age of 65 years, he or she is an elderly by all means necessary as it does not have a standard definition for the elderly cut-off age. On July 1, the minimum retirement age for most private-sector workers will be set at age 60 under the Minimum Retirement Age Act 2012 in Malaysia. However, no statutory minimum age existed, but in practice, most employers set it at age 55 for their employees (US Social Security Administration, 2013). Throughout this paper, any man or woman exceeding the age of 55 years is classified as an elderly, and considered as a soon retirement group which the developer will target for their retirement housing project.

Referring to the Malaysian 2010 census, there is a substantial change in Malaysian population structure over past few decades mainly as a result of the 'demographic transition' experienced since the 1960's and 70's. The change saw a decline in fertility rates from 36.1 in 1965 to 23.2 in 2002. The advancement of modern medication and technology have able to extend life expectancy, the overall life expectancy as recorded by the World Bank (2014) for Malaysia is 75 as compared to Japan, at 83 through five years average data (2010 to 2014). See Table 1 for the population projection by age group, as the elderly population growth to 11.4% from year 2010 to 2014. The increasing of elderly group and soon retirement group among Malaysian population should be regarded as important segment to be considered by policy makers for such trend will have long term implication towards nation economics.

Table 1: Population projection by age group, Malaysia 2010-2040

Year	0-14 ('000)	%	15-64 ('000)	%	65+ ('000)	%	Median age
2010	7822.1	27.4	19341.4	67.6	1425.1	5.0	26.3
2015	7733.4	25.4	20971.9	68.8	1779.9	5.8	28.2
2020	7780.7	24.0	22455.9	69.2	2214.6	6.8	29.9
2025	8009.5	23.4	23533.4	68.6	2751.3	8.0	31.5
2030	8087.9	22.5	24542.0	68.2	3335.7	9.3	33.0
2035	7893.4	21.1	25606.1	68.5	3889.9	10.4	34.5
2040	7537.2	19.6	26615.6	69.0	4405.1	11.4	36.0

(*Source*: Statistic Department of Malaysia)

Considering upsurge statistics of world ageing population, the Malaysia government had introduced the 'Silver Hair' programme in 1996 to promote the country as a destination choice for foreigners to retire (Ho & Teik, 2008). The programme was rebranded as the Malaysian My Second Home (MM2H) Programme in 2002. Also, the nation ageing trend has attracted developers to focus on the emerging demand for the retirement residential communities. As now, there has been a few pertinent proposals of pipeline projects in place, for instance, the Green Leaf Retirement Resort Community in Sepang, Selangor and Platinum Residence, Johor Bahru where both focus local Malaysian ageing group. The Green Leaf and Platinum Residence are retirement resort community which designed to address the changing-care needs of discerning retirees. As a total-care residence, their concept of 'whole-listic' retirement allows their residents the security of 'aging-in-place' amidst familiar surroundings within a supportive community setting.

Several studies have focus on the preferred housing attributes among elderly, included those conducted in China (Wang & Li, 2004; Wang & Li, 2006); Netherland (Jong, Rouwendal, & Hattum, 2012); Japan (Seko & Sumita, 2007) and Korea (Kim, et, al, 2003). However, no previous study in Malaysia has investigated the preferred attributes among Malaysian Elderly. Investigating of preferred housing attributes will serve as important reference for developers in designing and marketing their housing products to the elderly and soon retirement group. Therefore, the main aim of this paper is to identify the preferred housing attributes among Malaysian elderly.

2. Housing attributes for Elderly

As pointed by Yam, L. H. & Ismail (2008), housing developments in Malaysia have experienced significant transformation from 1985–2004, where the buyer preferences changed from basic shelter to quality living environment. Boumeester (2011) stated that, the preferences among buyers can be researched by studying the choices that people make. In which the choice is a good reflection of a person's preferences. In the research conducted by Wang & Li (2006), they state that buying a house is a multi-elements exercise, involve considering a list of choices or attributes, including tenure options, housing types, neighbourhood, location, etc. Different age category such as elderly or youngster will ascribe different values to these attributes in which, influence their purchasing decision.

Housing attributes have been shown in many literatures ranging from intrinsic housing attributes such as interior living spaces (Cupchik, Ritterfeld, & Levin, 2003), extrinsic attributes such as exterior design and exterior space (Bhatti & Church, 2004) to neighbourhood and locational indicators such as environmental qualities. Boumeester (2011) has summarize that there are two types of housing features, known as dwelling and environmental features, which would become the fundamental framework for developing the attributes for this study.

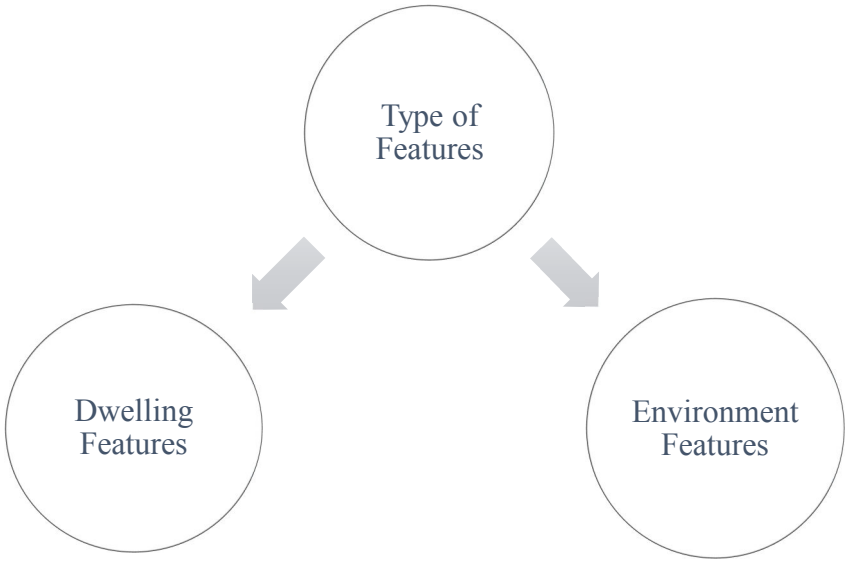

Figure 1: Types of housing features that will influence the preference of Elderly

(*Source***:** Boumeester, 2011)

3. Methodology

Traditionally, housing preferences are addressed by using descriptive analysis or Multi-Dimensional Scaling (MDS). However, the drawback of these methods are they not able to represent the reality in which the buyers are offered a mixed of attributes profile. Previous methods treat each choice or attributes differently, and it only provides individual ranking on the attributes itself. Recently, in examining senior citizen's housing preference, Choice-Based Conjoint Analysis as developed by (Green & Vithala, 1986) has been used. The CBC is more realistic as it reflects what is happening in the real world. This technique is also able to identify the relative preference that respondents place on rejected alternatives (Orme, 2009). In this study, a Choice-Based Conjoint Analysis (CBC) has been selected to examine the preferred housing attributes among elderly in Malaysia, and thus find out the attributes that influence the buying decision of the elderly the most.

Conjoint analysis is able to determine the trade-off among attributes. It is usually used to estimate utility scores, called part-worth, for product or service characteristics. Utility scores are subjective measures of how important each characteristic is to the respondent's overall preference for a product and is determined by the particular combination of attributes and the personal characteristics of individuals. By combining the utilities for different attributes, the individual's overall relative utility is provided. Furthermore, Conjoint Analysis can then be used to decompose the judgment data into components, based on the qualitative attributes of the products. A numerical part-worth utility value is computed for the levels of each attribute. Large part-worth utilities are assigned to the most preferred levels, and small part-worth utilities are assigned to the least preferred ones. The attribute with the largest part-worth utility range is considered to be the most important in predicting preference (Kuhfeld, 2005).

CA has been a popular analytic method in the past decades for preference studies (Low et al., 2013). Recently there are studies using conjoint approaches to identify consumer's preferences to find important features of Intellectual Properties (IP) training course (Mok et al., 2010); to find the housing preference in a traditional housing system in China (Wang & Li, 2004); preferences of older people for environmental attributes of local parks (Alves et al., 2008); to support real estate design decision (Marmolejo-Duarte & Ruiz-Lineros, 2013); to find the retirement housing preferences of the rural elderly (Joseph & Hollett, 1992); the housing references of an ageing population (Jong et al., 2012); socio-economic differential and stated housing preference in Guang Zhou (Wang & Li, 2006) to name a few.

In this research, there are two housing features (dwelling features and environmental features) has been identified in the literature. There were four main attributes with different levels for dwelling features; and five

main attributes with different levels for environmental features. The questionnaire is generated using Sawtooth Software, and will then be tested using the same software. The table 2 and table 3 summarizes the compilation of dwelling and environment features in housing preference research in related to elderly housing attributes. Then, the Figure 2 provide examples of choice-based conjoint (CBC) question developed for this study. The designed questionnaires has been distributed to the age group ranging from 55 – 60, a total of 210 set of questionnaire has been collected.

Table 2: Attributes and levels of dwelling features

Attributes	Level
Type of dwelling	a) Landed
	b) High-rise
Built-up Area	a) Below 900sf
	b) 901sf-1000sf
	c) 100sf-1100sf
	d) 1101sf and above
Price	a) RM300,000 to RM400,000
	b) RM401,000 to RM 500,000
	c) RM501,000 to RM 600,000
	d) RM601,000 and above
Disability Features	a) Wide doorways and hallway
	b) Lift
	c) Ramp
	d) Handrails on both sides of staircase
	e) Good lighting
	f) Alarm buttons

Table 3: Attributes and levels of environmental features

Attributes	Level
Amenities in the neighbourhood	a) Recreational park
	b) Jogging track
	c) Swimming pool
	d)Tennis/Badminton court
Public transport	a) Bus
	b) LRT/Monorail
	c) Taxi
Security	a) Gated and guarded
	b) Without gated and guarded
Living convenience (location)	a) Near to medical centre
	b) Near to the place of worship
	c) Near to daily market
	d) Near to workplace
Building density	a) High density
	b) Medium density
	c) Low density

If these were your only options, which would you choose?
(1 of 12)

(Attributes)	(Package A)	(Package B)	(Package C)
Type of dwelling:	Landed	High-rise	NONE: I wouldn't choose any of these.
Built up area of the dwelling:	Below 900 sf	901sf - 1000sf	
Price:	RM 300,000 to RM 400,000	RM 601,000 and above	
Disability features:	Wide doorways & hallway	Handrails on both sides of staircase	
	○	○	○

Figure 2: Example of Choice-Based Conjoint (CBC) question

4. Results and findings

The CBC analysis shows average utility values for the levels of each attribute and the calculation of the average importance of the attributes. Average Utility Value are subjective measures of how important each characteristic is to the respondent's overall preference for a product and is determined by the particular combination of attributes and the personal characteristics of individuals(Mok et al., 2010). According to (Orme, 2011), the average utility values are calculated from the individual utilities estimates derived from the part-worth utility analysis.

Part-worth utilities are used to estimate the relative strengths of preferences towards a product. Part-worth utility value is estimated based on the value placed on each level of the individual attribute and is expressed in a relationship reflecting the manner in which the utilities are scaled sum to 0 within each attributes, or in the other words, zero-centered. There are positive and negative values for the levels of an attribute. The positive value shows the most preferred levels while the negative value does not indicate it is undesirable, instead it reveals that it is slightly less desirable in comparison to the other levels within the same attribute (Low et al., 2013). Besides, the measures for some levels will contribute more to this total utility than will others. Therefore, if one level contributed more than another did to total utility, that level was more important or in other words, more preferred. Thus, we can say that conjoint provide measure of importance.

In this study, part-worth utilities were used to discover respondent's preferences for each housing attributes. The part-worth utility analysis indicates the respondent's preferences allocated on each of the attribute levels and, therefore, the higher the utility values, the more the level is preferred by the respondents in attracting them to buy a house. In this paper, the part-worth utility analysis for each respondent was built using 20,000 iterations, with 3 concept per task and 15 versions of questionnaires. The Table 4 summarize the average importance of dwelling and environmental feature, whereas the Table 5 and Table 6 indicates the average utility values for the levels of each attributes, both for environmental feature and dwelling feature.

Table 4: Average Importance of Dwelling and Environmental Feature

Dwelling features	**Average Importance**	**Environment Feature**	**Average Importance**
Types of dwelling	36.38711	Living Convenience (Location)	26.05751
Price	24.19214	Security	22.38148
Built up Area	21.41962	Amenities in the neighbourhood	20.14982
Disability Feature	18.00113	Building density	18.92761
		Public Transport	12.48403
Total	100%		100%

Table 5: Average Utility Values for the levels of each attributes in dwelling

Attributes	Level	Average Utilities
Type of dwelling	a) Landed	18.53
	b) High-rise	-18.53
Built-up Area	a) Below 900sf	-30.31
	b) 901sf-1000sf	9.85
	c) 100sf-1100sf	9.44
	d) 1101sf and above	11.01
Price	a)RM300,000-RM400,000	25.62
	b)RM401,000-R500,000	2.09
	c)RM501,000-RM600,000	-9.77
	d) RM601,000 and above	-17.95
Disability Features	a) Wide doorways and hallway	9.60
	b) Lift	6.28
	c) Ramp	-10.14
	d) Handrails on both sides of staircase	-14.01
	e) Good lighting	5.98
	f) Alarm buttons	2.29

Table 6: Average Utility Values for the levels of each attributes in dwelling

Attributes	Level	Average Utilities
Amenities in the neighbourhood	a) Recreational park	11.11
	b) Jogging track	13.47
	c) Swimming pool	-12.19
	d)Tennis/Badminton court	-12.39
Public transport	a) Bus	-18.00
	b) LRT/Monorail	14.34
	c) Taxi	3.67
Security	a) Gated and guarded	49.55
	b) Without gated and guarded	-49.55
Living convenience (location)	a) Near to medical centre	-2.96
	b) Near to the place of worship	-30.37
	c) Near to daily market	30.88
	d) Near to workplace	2.45
Building density	a) High density	-18.37
	b) Medium density	1.36
	c) Low density	17.01

5. Discussion

As discussed before, this study set out with the aims to identify the preferred attributes among elderly in Malaysia. The discussion will be divided into two major sections; the first are to discuss the dwelling attributes, another address the environmental attributes.

5.1 Dwelling Attributes

The results indicates that the most important attribute that will affect the elderly in making their house buying decision is the Types of dwelling with the highest average importance value of 36 percent in comparing to the other four attributes in dwelling features. The current study found that landed property has the highest utility values (18.53) than the high-rise property which has the negative value for its utility value. In our study, we found that the elderly prefer landed property more. A possible explanation of these results are the landed property convenience for the elderly group to access the property, as they do not have to take escalator and staircase. The discussion with some of the respondents reveals that they think that by staying in the condominium, they will have less chance to mingle or interact with their neighbour.

Another important finding reveal that the price was the second attribute influence them to purchase. It has the average importance value of 24 percent. In this study, the elderly reveals that property with lower price range tends to be more favourable to them. As refer back to the average utility values for the price attribute, the property which range between RM300,000 to RM 400,000 has the highest average utility value while the property which cost RM 601,000 and above has the negative average utility value of (-17.95). The results may be explained by the fact that the respondents are come from the category of retired, which means they already stop working and thus, they have limited income and opt for affordable property.

The built up area of a property comes after the price. Interestingly, among the four levels for built up area, the elderly placed higher utility value on the property with 1101sf and above (11.01), rather than a small property which is below 900sf (-30.31). This is contrast to many believed that elderly prefer a smaller house. Talking about this issues, a respondent said that with larger house, it would able to house more family members and thus can stay together. This findings was unexpected and might due to Asian family has stronger bond, in which elderly prefer to stay with their family members.

Another unexpected finding was that the disability feature has the lowest average importance value where it has only 18 percent out of 100 percent for the average importance values. This also indicates that this feature has the least influence towards the elderly buying decision. Based on the findings, the highest average utility values falls on the wide doorways and hallway, next is the lift, good lighting, followed by alarm button, ramp as well as the handrails on both sides of staircase feature.

5.2 Environmental Attributes

The current findings found that the most important environment attribute is the living convenience (location) with the highest average importance value of 26 percent. The level which affect the most towards the living convenience attribute is the 'near to daily market' level with average utilities value of 30.88. These results match those observed in early study by Wang and Li (2006) that in China, living convenience to daily goods shopping is an important consideration for homeownership preference. The second highest average utilities value for living conveniences is the 'near to workplace' level. The outcome might be explained by the fact that nowadays, those who have reach the age of retirement are still being employed.

The second important environmental attributes are the security concern. It has average importance value of 22 percent. In general, the two common types of security services provided in the Malaysia are gated and guarded and without gated and guarded. Developers nowadays enhance the security of a development to assure the residents are secure, safe, and their well-beings are guaranteed. Considering the average utility values for gated and guarded level is positive, we are in the opinion that the gated and guarded security system plays an important role in influence elderly group purchasing decision. Elderly group will consider buying a house with gated and guarded features as it can reduce the cases of house break-ins, snatch thefts, assaults and rampant (Tan, 2011a).

The amenities in the neighbourhood have the average importance of 20 percent. After retirement, the elderly would have more time to enjoy parks, recreational activities, and other community facilities (Mohammad & Abbas, 2012). For example, jogging track can be one of the best amenities that the developer can offer for them. Based on the result, the most preferred level for amenities is the jogging track, followed by recreational park, swimming pool and also tennis/badminton court. The elderly have less desirable towards swimming pool or tennis/badminton court as those activities are intense and more appropriate for the young adult rather than elderly group who process of ageing. They prefer recreational sport and relaxing activities such as jogging and walking. The findings further support that recreational park or gardens are important for the

elderly group, notably in supporting social sustainability. The study confirms the findings from Luttik (2000) that people willing to pay more for garden and green space.

The fourth attribute that influence the purchasing decision of elderly is building density. With the average importance value of 19 percent, a 1 percent lower than the amenities in the neighbourhood level. The result shows the low density is more preferable by elderly rather than the building with medium or high density. This results may be explained by the fact that the elderly group are seeking a novel environment for their retirement. They are trying to stay away from the hectic lifestyle which we commonly can see in the residential area nearby Central Business District. The reason most of the elderly prefer to move from a high density to a lower density area for they are trying to have a slower pace of lifestyle to age in place.

The public transport is the least important attribute, for it has the average importance of 13 percent. There are 3 levels can be found in this attribute that are the bus, taxi and LRT/Monorail. The levels, that has the highest average utility values, is the LRT/Monorail whereas the negative average utilities values is the bus. The findings does not support statement that the accessibility is the central influence in the urban theory of property location (Hamid, 2006), it seems possible that these results are due to many of the elderly own car and in Malaysia, car is a more convenient transport mode to move around.

6. Conclusion

The findings have important implications for the developers to offer and to target the silver-hair market and soon retirement group. This research is carried out in order to determine the preferred housing attributes among Malaysian elderly. Two preferred profiles has been created from this analysis, see Table 7 and Table 8.

Table 7: Elderly preferred profile for dwelling features

Dwelling Features	Levels
Type of dwelling	Landed
Price	RM300,000-RM400,000
Built up area	1001sf and above
Disability feature	Wide hallways and doorways

Table 8: Elderly preferred profile for environment features

Environment Features	Levels
Living convenience	Near to daily market
Security	Gated and guarded
Amenities in the neighbourhood	Jogging track
Building density	Low density
Public transport	LRT/Monorail

The two generated profile must be interpreted together and with careful. The profile indicates that the elderly group prefer dwelling with price ranged between RM300,000 – RM400,000, landed property and with built up are 1,001 above. By interpreting other findings of the environment profile features, it reveals that the elderly prefer low-density development and for the living convenience category, near to daily market is the major concern. Reading these results together, it is possible that developers who target the silver-haired market to offer retirement residential/housing project, mostly landed property located in the satellite town/sub urban area. The rationale is because the land price in Central Business District is expensive, and thus cannot fulfill the price range as required by the elderly. The elderly are not against to stay far from CBD, as many of them own cars, and the findings indicates public transportation have lesser influence on purchasing decision. Furthermore, the proposed project should be enhanced by environmental attributes such as near to local fresh market, a safer neighbourhood such as gated and guarded security features, and relaxing and recreational sports facilities.

Acknowledgement

Authors would like to acknowledge that this work is supported by MOE through Fundamental Research Grant Scheme with vote No 4F217 and Universiti Teknologi Malaysia.

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