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## Buyer's Conjoint Preference for the Attributes of Condominium Properties

Abdul Hamid b. Hj. Mar Iman (Ph.D.), Norhaya bt. Kamarudin (Ph.D.), and Seah Lay Hoon

Centre for Real Estate Studies Faculty of Engineering and Geoinformation Science Universiti Teknologi Malaysia Skudai, Johor, Malaysia

#### Abstract

The choice of an accommodation is influenced by a multitude of product attributes whereby buyers make trade-off between these attributes in their buying decision. This study examines attribute preference for condominium properties among a group of seventy-six middle-income earners in Johor Bahru, Malaysia. Adopting the traditional full-profile conjoint method, the respondents were required to state their cardinal preferences for eighteen sets of profiles of three most important attributes of condominium properties. The regression analysis confirmed that pertinent attributes of condominium properties most preferred by the respondents were related to price, built-up area, and location. This study discovered that apart from the subjective approach to understanding buyers' behaviour, conjoint method helps property marketers assess the utility of typical house buyers with regards to certain combinations of product attributes in their purchase decision.

Keywords: conjoint method, condominium, consumer behaviour, preference, utility

#### Introduction

Property marketing can be problematic when developers do not have a complete picture of what consumers want, particularly with respect to preferred property attributes. The existence of gap between what consumers expect and what developers provide in terms of product attributes is partly reflected in the prevalence of unsold properties in Malaysia. Therefore, in understanding consumer purchasing behaviour, there is a need for assessing consumer's preference and utility towards certain attributes of properties offered in the market. This paper presents the application of conjoint method for evaluating buyer's preference for real estate attributes by taking condominium properties in the city of Johor Bahru, Malaysia, as a study case.

The conjoint method is basically used to analyse buyer's behaviour. In marketing, it is used as an important tool to support product development, pricing and positioning (Natter and Feurstein, 2002). It recognises the fact that buyers will not get all-the-best from a certain product, rather, a 'trade-off' between different attributes that a product may yield. The process of making selections among different attributes of a product would reveal their real value (Orme, 1996). Buyers' value of the product will help a marketer identify the product quality that buyers are after (Green and Wind, 1975). In the real estate context, this analysis has been used widely such as in condominium design and pricing (Fiedler, 1972), site evaluation (Knight and Menchik, 1974; Lerman and Louviere, 1978), individual preference of housing model (Louviere, 1982; Findikaki-Tsamaourtzi, 1982), selection of old folks home, and selection of manufacturer's factory relocation (Levy, 1995).

The next section will examine the literature of the conjoint method in order to identify the framework of the study. Section three dwells into the study method. Section four analyses the outcome of the survey. Findings and conclusions are presented in the last section of this paper.

## **Background of the Conjoint Theory**

The conjoint method that originates from Luce and Tukey (1964) is one of many techniques for dealing with situations in which a decision-maker has to choose among options that simultaneously vary across two or more attributes (Green *et al.*, 1999). It is a scientific strategy of studying trade-offs among independent variables that maintain a dependent attribute constant (Luce, 1996). To be more specific, it is a qualitative multivariate technique that is used to measure trade-offs made by a person when choosing from a total of alternative profiles in a product (Kruskal, 1965; Green and Wind, 1975; Green and Srivinasan, 1978).

The basic characteristics of conjoint method are succinctly described by Orme (2006) as follows: "...respondents evaluate product profiles composed of multiple conjoined elements (attributes or features). Based on how respondents evaluate the combined elements (the product concepts), we deduce the preference scores that they might have assigned to individual components of the product that would have resulted in those overall evaluations" (p. 25).

Conjoint method was first proposed in marketing by Green and Rao (1971). Its concept is rooted from the fact that buyers will not always get the best of what they desired. They will have to make a 'trade-off' between the best attributes in a certain product when making decision to buy the product and the true value will be known from this process (Orme, 1996). Attributes are known as characteristics, factors, or quality in property (Kinnard and Boyce, 1984; Lancaster, 1996).

This concept is based on the integration of information which says that users will integrate information on a set of determinant attributes, which will form an overall opinion on the product profiles (Louviere, 1998). In this way two assumptions have been made out of this technique (Gill and Sanchez, 1997). Firstly, a product is a synthesis of a combination of various levels of a set of attributes. Secondly, the level of attributes determines overall user's opinion in the product. The objective of this technique is to identify the combination of attributes that gives the highest utility to users and to determine the relatively important attributes in the form of their contribution in the total utility derived. In general, the outcome from the analysis assists in marketing by resolving problems such as identifying the favourite shares, competitor analysis, design of product, advertising strategy, elasticity analysis, and marketing map.

The literature review suggests that conjoint method originates from the economic theory of utility. The utility function of individuals or users can be determined using structural valuation method of priority. Users will determine the level of utility of each attribute of a product and will then make a selection based on the rule of compensation (Mowen, 1990). The normal rule is that the decision to purchase a product follows the maximisation utility rule. According to Samuelson (1938), the rules assumes that every user will select a product with the highest utility or part-worth between alternative products offered in the market as users are known to be wealth-maximisers. In the process of comparing the utility of different attributes and in making selection to maximise utility, a 'trade-off' between the attributes will occur. Similarly, in the process of selecting and buying properties, one will have to evaluate and select the different attributes that make up the property in order to maximise his utility.

#### **Real Estate Purchase and Conjoint Analysis**

Real estate purchase is a complex decision-making process requiring buyers to pass through a number of steps (Hamid, 2000). It starts with requirement identification of product profiles and then searching for information on the related profiles. The set of information gathered will

consequently enable buyers to evaluate these profiles based on certain criteria and hence to make product choice before completing the purchase cycle with an after-sale evaluation (Figure 1).

At the evaluative criteria level, the product characteristics required by buyers are searched so that they will react with the problems of real estate purchase identified and these characteristics are evaluated in terms of type, number and importance (Hawkins *et. al.*, 1989). Type comprises known characteristics (e.g. price, design, floor size) and unknown characteristics (e.g. style, prestige, image). Number relates to the total evaluative criteria considered in a particular purchase decision-making while importance concerns the influence that each criterion has in the comparison process.



Figure 1: Purchase Decision-Making Process (Louviere, et al., 2000)

The accuracy of evaluation of product alternatives is situational. One situation is where product evaluative criteria do not give any impact on product choice due to identicalness of the levels of these criteria between two competing alternatives. Situational factors also affect the importance of a certain evaluative criterion. Location, for example, can be considered as an important criterion if time factor is ignored.

Having compared all the evaluative criteria for each alternative, buyer's priority against a particular alternative is formed based on the total utility derived from attributes that form that alternative. A low level of total utility reflects less degree of importance and vice versa. This forms a basis for assessing buyer's preference for the choice of attributes of real estate products. The question is that, which evaluative method should be used to arrive at an objective approach to deriving buyer's attribute preference. The process of selecting and evaluating product profiles suggest that there will be some trade-off between the profiles, making conjoint analysis relevant in determining the design of properties to be developed based on market study.

## Condominium Marketing

Condominium living has gained its popularity in Malaysia since in the late 1980s particularly in the densely populated urban areas such as Kuala Lumpur, Penang, and Johor Bahru. In Kuala Lumpur, for example, the most expensive condominium units are located in prime areas followed by those in secondary and other outskirt city areas. The target buyers in such areas are mainly expatriates and those earning very high income. Their demand forms a high-end market as compared to that which is affordable by the local people. However, in many ways, the preferences given to condominium properties are similar for all categories of buyers. In Johor Bahru, the condominium market had experienced a slow growth compared to other residential

property markets. Between 2003 and 2004, three out of seven projects completed have achieved a sale of less than fifty percent (Property Market Report, 2004). Besides, four projects could not reach an ideal sale target during their first launching and had required a re-launching.

In the effort to increase sale performance, various measures have been taken by developers, including offering reduced property prices, although it was rather costly and risky. Many reasons were given for the poor sale performance of condominium properties such as non-strategic location and unreasonably high price. This phenomenon indicates that to build devoid of buyer's requirements means to result in marketing failure. As such, greater attention must be focused on some aspects of buyer's behaviour. Among other things, these are buyer's need and selection criteria. Developers in Malaysia have adopted various methods to understand buyer's evaluation of property attributes in their purchase process. Some use gut feelings while others may resort to professional advice of the property consultants. Many others tend to follow their market competitors albeit the myopic and reactive nature the strategy might be. Direct query on the prospective buyers also tends to be a popular approach in property marketing. With the last approach, Glowa (2002) has identified its three weaknesses. Firstly, buyers might select all the attributes as important since buyers are utility-maximsers. Secondly, buyers might not know the real reasons for their purchase (March et al., 1987). Finally, even if they can identify the reasons for purchase they may not be able to rank the importance of their selection. The market-test approach is also popular among developers. However, it is disadvantaged by a high level of risk and cost.

## Pertinent Attributes of Condominium Properties

The characteristics of condominium properties in many ways are similar to general housing characteristics. Two most common characteristics of condominiums are the sharing of facilities and the co-ownership of common properties. The pressure of modern living with busy lifestyle has encouraged developers to develop properties that are self-contained. This promotes the concept of living, working, leisure and entertainment all at one place. The facilities, design, location, prices, privacy and convenience are some of the selling points of developers when marketing condominium units. Condominium buyers consider a number of attributes before making decisions.

Major factors that influence property buyer's in choosing a living place are location, building size, type of unit, the number of bedrooms, design and layout, amenities, facilities, view, density, developer's reputation, promotional effort, security, and convenience (Chua,1988; Hasmah and Ariffian, 1999; Wong, 2001; Chau *et al.*, 2002; Chau *et al.*, 2004). Other attributes that may contribute to dwelling choices are workplace accessibility (Quiqley, 1985) and environmental quality (Bendre et. al., 2000). These attributes form the market values of the goods. The market is important as it enables buyers and sellers to estimates the most probable price of goods. In an experiment on determinants of buyers aspiration and reservation price of condominium, Kristensen and Garling (1996) disclosed that indicated aspiration prices and their estimates of sellers' reservation prices were both similarly affected by an estimated market price. Advantages and disadvantages in these factors create buyers' motivation or demotivation in selecting a living place.

## The Basic Conjoint Method

The method comprises five main steps as shown in Table 1. The fist step identifies respondent's level of utility using the part-worth model. This enables a number of parameters to be measured (Green and Srinivasan, 1978). This model assumes that the relationship between utility and

each attribute is linear. The straight-line curve connects the utility points to the different attribute level.

Table 1: Steps in Performing a Conjoint Analysis			
Main steps	Methods		
Consumer's selection	Part-worth model		
Forming consumer's stimulus	Full-factorial design		
Data collection	Full-profile approach		
Measurement scale of dependant variables	Rating evaluation scale		
Data analysis	Multiple regression analysis		

Table 1: Steps in Performing a Conjoint Analysi	s
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In forming the stimulus, the full factorial design enables the main effect and the interactive effects of the factors to be studied. Divisional factorial could not be used effectively as it will always confound the main effects of certain variables with the effect of interaction with other variables. This could result in inaccuracy in interpreting the findings (Sudman and Blair, 1988). The main step in this part is to determine the suitable attributes of condominium and the specification the level of reasonable attributes (Hair et.al. (1992).

Let p = 1, 2, ...t denote the set of t attributes that are used in the study design. Let  $y_{jp}$  denote the level of the  $p_{th}$  attribute for the  $j_{th}$  stimulus; we first assume that  $y_{jp}$  is inherently continuous. The vector model assumes that the preference s<sub>i</sub> for the j<sub>th</sub> stimulus is given by

$$\mathbf{s}_{j} = \sum_{p=1}^{t} \mathbf{w}_{p} \mathbf{y}_{jp}$$

where w<sub>p</sub> denotes respondent's weight for each of the t attributes. The ideal point model posits that preference  $s_j$  is negatively related to the weighted squared distance  $d_j^2$  of the location  $y_{jp}$  of the j<sup>th</sup> stimulus from the individuals' ideal point  $x_p$ , where  $d_j^2$  is defined as

$$d_{j}^{2} = \sum_{p=1}^{t} w_{p}(y_{jp} - x_{p})^{2}$$

The part-worth model assumes that

$$\mathbf{s}_{j} = \sum_{p=1}^{t} \mathbf{f}_{p}(\mathbf{y}_{jp})$$

where f<sub>p</sub> is a function denoting the part-worth of different levels of y<sub>jp</sub> for the pth attribute. In practice,  $f_p(y_{jp})$  is estimated for a selected set of discrete levels of  $y_{jp}$ . The buyer's utility function from choosing a set of conjoint attributes, x is given as:

$$r_i(x,z,s,p)=\phi[U_i(x,z,p,s)]$$

where  $r_i$  is the rating for product i, z is a composite product, and p is product price. Ratings are regressed on the attributes describing the alternative choices of product attributes. Then the general model for estimating marginal utility with respect to a certain combination of product attributes can be specified as follows:

$$\mathsf{R} = \beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k + \mathsf{e}$$

where R = level of cardinal preference; x = product attributes;  $\beta$  = conjoint marginal utility; and e = error term. The estimation of the model follows the ordinary least squares (OLS) technique. The estimated model is then statistically evaluated in the conventional way based on R<sup>2</sup>, Fvalue, t-values and some diagnostic tests.

## The Case Study

To examine attribute preference in selecting condominium properties, a group of seventy-six middle-income earners in a neighbourhood in Johor Bahru, Malaysia, was selected as a study case. The respondents were asked to rank the levels of attributes of condominium units that affect their choice according to their preference (Appendix I). In order to reduce respondent's confusion in evaluating too many prospectuses, only three most important attributes were selected, namely price, location, and floor area (Appendix II). In order to select an attribute level, consideration was given to the difference in the average score for each attribute level with the control attribute level (the attributes with a low score level). The attribute level with a difference in score of less than one was selected. The condominium attributes selected in this study are as listed in Table 2.

Attribute	Description	Attribute level
Location	Physical distance	Near to workplace (W)
Price	Low (L)	RM125,000-RM150,000
	Medium (M)	RM150,000-RM175,000
	High (H)	RM175,000-RM200,000
Floor area	Small (S)	800-1000 sq. ft
	Medium (D)	1001-1200 sq. ft
	Big (B)	1202-1400 sq. ft

#### **Table 2:** Product Attributes and their Levels

Location was assessed in two ways, namely nearness to workplace (W) and nearness to public transportation (T). Per unit condominium price was assessed at three levels, namely lower cost (L) (RM125, 000 to 175,000); medium cost (M) (RM 150,000 to 175,00); and high cost (RM175, 000 to 200,000). Floor area was assessed by its size, namely small (S) (800 to 1000 sq. ft.); medium (1,001 to 1,200 sq. ft.); and large (1,200 to 1,400 sq. ft.) The attributes (and their levels) in Table 2 can be re-arranged to form eighteen combinations of factors based on matrix of marketing stimulus as shown in Table 3.

	Nea	Nearness to workplace (W)		Nearness to public transport (T)		
	Low (L)	Medium (M)	High (H)	Low (L)	Medium (M)	High (H)
Small (S)	WLS	WMS	WHS	TLS	TMS	THS
Medium (D)	WLD	WMD	WHD	TLD	TMD	THD
Big (B)	WLB	WMB	WHB	TLB	TMB	THB

Table 3: Matrix of Marketing Stimulus

The above matrix represents the complete profiles of condominium units in Johor Bahru whereby the interviewed respondents were able to evaluate a set of factors simultaneously. In order to elicit respondent's level of utility, these profiles were included in the questionnaires. The profiles were arranged at random. The technique used to measure utility was an 11-point rating scale. Respondents were asked to give their scores for the profiles with a 10-point score represents very high preference while a 0-point score non-preference. This technique was chosen since it was easy to administer and minimised the effect of bias during interviews.

Since the targeted respondents have similar characteristics, the cluster sampling technique was selected. The respondents were grouped and interviewed one by one based on a questionnaire.

The data from the interviews were analysed using the Statistical Package for Social Science (SPSS). The multiple regression analysis was used to analyse data on respondent's utility. The independent variables used in this study were the level of price, location, and building size. The

dependent variable used was respondent's utility for the stated levels of attributes. This procedure uses "1" to represent available factors and 0 for non-available factors. The analysis yielded a regression model to calculate the expected value of the dependent variable with the pre-determined levels of property attributes.

The analysis proceeded further to measuring total utility and the order of preference to determine how ideal attributes of condominium units make up buyer's utility profile. The total utility of eighteen condominium's attribute profiles was calculated by using dummy variables in the respondent's preference equation whereby "1" represented factor level that was present while "0" represented factor level that was not present in the profile. The total utility was then arranged based on the rules of maximum utility. It assumed that respondents will select the product that will yield the highest utility (part-worth). Number 1 rank represents the most important profiles while number 18 rank represents the least important profile.

#### Analysis and findings

#### Brief Sample Profile

Table 4 shows the profiles of the respondents. More than half of them were female Chinese mostly within the age range of 25 to 34 years old. Semi-professionals, low rank manager, senior executives, university graduates, manager, and executives made up the majority of the respondents. With less than six years of working experience, about two-thirds of the respondents were still new in the work force. The income level of the majority of respondents was in the region of RM 2, 000 to RM5, 000 per month. The majority were singles, living either in a rented property or with parents.

l able 4: Respondent's profile		
Demography	Frequency	Percentage (%)
Sex		
Female	43	56.6
Male	33	43.4
Age group		
<25	16	21
25-34	52	68
35-44	5	7
45-54	3	4
Race		
Chinese	61	80
Malay	6	8
Indian	7	9
Others	2	3
Marital status		
Single	68	89
Married	8	11
Occupation		
Semi-professionals, clerical	1	1
Skill worker, chief clerk, secretary, low rank officers	9	12
Semi-professional, low rank manager, senior executives	15	20
University graduates, manager, executives	46	61
Qualified professionals	5	7
Work experience		
<2 years	16	21
2-5 years	36	47

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5-10 years	19	25
> 10 years	5	7
Monthly income		
RM2, 000-4,000	70	92.1
RM4001-6000	3	4
RM6001-8000	2	2.6
RM8000 and above	1	1.3
Home ownership status		
Family home	24	32
Own home	7	9
Rented home	45	59

## **Conjoint Marginal Utility**

To determine the marginal utility derived from purchasing a certain combination of attributes of condominium units, an ordinary least squares regression was performed. The model explained about 91%-94% variation in buyers' preferences for condominium units in the study area. The sum squared error (SSE) and standard error of estimate (SEE) for the model were 0.41 and 2.00 respectively. All variables were statistically significant and have the correct signs.

Individual marginal utility based on a particular attribute level of condominium unit in the study area is represented by the regression coefficient. For example, the marginal utility of purchasing a condominium near the workplace was 0.556; the marginal utility of purchasing a unit with a price of RM 125,000 to RM 150,000 was 2.500, and so on.

	Table 5. Basic Regression Results (Dependen	il. Preierence)			
$R^2$	0.939				
Adj. R <sup>2</sup>	0.914	0.914			
F-value	37.133				
SSE	0.408				
SEE	2.000				
Variable	Coefficient	t-value			
Constant	2.500	10.607			
Location1	0.556	2.887			
Price1	2.500	10.607			
Price2	1.167	4.950			
Area2	1.333	5.657			
Area3	1.833	7.778			

**Table 5:** Basic Regression Results (Dependent: Preference)

Notes: Location1 = nearness to workplace; Price1 = RM 125,000 to RM150,000 per unit; Price2 = RM 150,000 to RM 175,000 per unit; Area2 = 1,001 to 1,200 sq. ft. per unit; Area3 = 1,202 to 1,400 sq. ft. per unit.

Table 5 indicates that price range of RM 125,000 to RM 150,000 was the most important factor influencing buyer's purchasing preference. Although the three price levels were affordable to the respondents, they have preferred units with the lowest price range. Interestingly, location near the workplace was found to be the least important factor influencing buyer's preference. This result did not seem to auger well with the traditional locational theory. This may have arisen from the fact that the respondents were mainly young people who own transport and have reasonable access to public facilities. The respondents were also particular about building size whereby large built-up area was the second most preferred attribute in choosing condominium units.

This study shows that house buyers are utility-maximisers. However, marginal utility could not describe buyers main preference as in the real world, they could not get all the best in a certain product. The finding from this study was important in determining priority equation. The theory of information integration says that priority formation is effected when users combine all information on a set of attributes. Thus, the equation derived was used to calculate respondents' priority by combining their marginal utility on each evaluated attribute level.

#### Total Utility and Order of Preference

Based on the part-worth utility concept, the eighteen attribute profiles of condominium units can be shown to determine the order of preference. The results are given Table 6. Table 6 suggests that buyers have shown most preference for condominium with profile G since they combine the most ideal attribute levels. However, ideal situations seldom exist forcing buyers to go for the next scale of preference should the most ideal one is not present. This will give rise to 'trade-off' for less preferred attribute combinations. For example, the trade-off between different combinations of attribute levels has resulted in the selection of condominium with profile D, P, H, and so on. This selection process will continue until all eighteen attribute profiles were evaluated. In our case here, the least preferred profile of condominium attribute level was profile L.

Profile	Location	Price	Building area	Total	Rank
		(RM'000)	(Sq. ft)	utility	
А	Near to workplace	125-150	800-1,000	5.556	5
В	Near to workplace	150-175	800-1,000	4.223	13
С	Near to workplace	175-200	800-1,000	3.056	17
D	Near to workplace	125-150	1,001-1,200	6.889	2
E	Near to workplace	150-175	1,001-1,200	5.556	5
F	Near to workplace	175-200	1,001-1,200	4.389	11
G	Near to workplace	125-150	1,201-1,400	7.389	1
Н	Near to workplace	150-175	1,201-1,400	6.056	4
_	Near to workplace	175-200	1,201-1,400	4.889	10
J	Near to public transport	125-150	800-1,000	5.000	8
K	Near to public transport	150-175	800-1,000	3.667	16
L	Near to public transport	175-200	800-1,000	2.500	18
М	Near to public transport	125-150	1,001-1,200	3.833	14
Ν	Near to public transport	150-175	1,001-1,200	5.000	8
0	Near to public transport	175-200	1,001-1,200	3.833	14
Р	Near to public transport	125-150	1,201-1,400	6.833	3
Q	Near to public transport	150-175	1,201-1,400	5.500	7
R	Near to public transport	175-200	1,201-1,400	4.333	12

#### Table 6: Total utility and the order of preference

Conforming to the neo-classical theory, Table 6 reveals that buyers were utility-maximisers whereby the objective of purchase is to maximise utility at the lowest cost. The finding also shows that certain utility function have the same ranking such as that shown in profiles A, E, J, M, and O. This means that buyers can become indifferent to certain combinations of levels of product attributes, making them difficult to choose.

#### The Real Value of User's Preference

Theoretically, when users have to 'trade-off' among different product attributes in a purchase decision, the true value of product attributes will be known (Bryan, 1996). To observe the

'trade-off' pattern in the process of selecting condominium, two aspects of choice have to be examined. Firstly, the attribute that a buyer finds it difficult to choose. Secondly, the attribute that a buyer finds it easy to make concession. The level of concession can be known for each attribute considered. These aspects were examined through four main condominium profiles that have been ranked according to respondents' level of preference (Table 7).

No	Location	Price (RM'000)	Building area (sq. ft)	Utility	Rank		
G	Near to workplace	125-150	1,201-1,400	7.389	1		
D	Near to workplace	125-150	1,001-1,200	6.889	2		
Ρ	Near to public transport	125-150	1,201-1,400	6.833	3		
Н	Near to workplace	150-175	1,201-1,400	6.056	4		

**Table 7:** Attribute Preference of the Respondents

Profile G was treated as a control profile in this study since it was assumed to be "too perfect" and seldom exist in the real world. The game 'what if' was used to observe the 'trade-of' pattern of respondents' selection. The game began by eliciting respondents' choice if profile G is not offered. The true ale of respondents' selection was that units with price range of RM 175, 000 – RM 200,000 and building area of 800-1,000 sq.ft were not considered when other attribute levels were offered. The attribute level whereby concession was easy to make was units with building size of 1,202-1,400 sq. ft. This could be attributed to the fact that most of the respondents were singles or have a small family size. The concession that was made on building size was up to 1,001-1,200 sq. ft only where respondents decided to let go locational attribute. The price attribute level of RM 125, 000 -RM 150,000 was mostly considered by the respondents and was most difficult to make concession for.

## Implications and Further Discussion: Conjoint Analysis and Marketing Strategy

The marketing strategy discussed here refers to the marketing mix that is normally used in marketing properties, namely product, price, promotion, positioning. The findings of this study have at least two important implications in condominium marketing. Firstly, product's characteristic mapping. Secondly, buyer's demographic mapping.

Condominium units with a built-up area of more than 1,000 sq. ft. could have been most favoured by middle-income buyers. Units of this size can accommodate two to four bedrooms. On the aspect of location, although results showed that nearness to workplace and public transport was less important for reasons already stated, the surrounding area still needs to be provided with good infrastructure and facilities. For example, it should be well-located to ensure good access to main public facilities, business area, learning institution and recreational area.

This study revealed that the most considered price range of condominium units was between RM 125, 000 to RM 150,000. In order to increase buyer's utility, the price range have to be maintained even if expectations for other quality attributes such as building area, location and product concept will have to concede.

Since pricing is the most important factor of housing demand, it will have to be properly determined for the product and be emphasised in advertising campaign. True-to-words messages such as "enjoyable condominium lifestyle for the best price" or "in-the-sky facilities with most affordable price" can then be used to effect sales. Price determination should also reflect the actual benefits from bank's involvement to convince buyers that financial assistance is part of the affordable price concept.

Product positioning strategy encompasses five elements, namely marketing mapping, product strategy, price strategy, promotional strategy and distribution strategy (Hamid, 2002). Some of these strategies have already been mentioned above. Respondents' profile showed that the majority of condominium buyers or tenants could have been middle-income young executives, professionals, and singles who may have not owned a house yet. Based on their demographic characteristics and priority (e.g. the lifestyle of this group is mainly related to career, shopping, and recreation), strategy can be planned to meet their needs. For example, these groups will normally prefer condominium units with the lowest price but reasonably spacious.

## Conclusion

Understanding consumer needs and wants is vital in condominium marketing. This can only be achieved by studying buyers' behaviour. This study has demonstrated the use of conjoint analysis to determine buyers' priority in selecting condominium units. It was discovered that buyers were utility-maximsers. The results also showed that pricing was the most important aspect of condominium marketing followed by building size and location. However, in facing the reality of life, some 'trade-off' between different attribute profiles of condominium will have to be exercised.

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# Appendix I

	Factors Used to Elicit Respondents' Preferences for Condominium Attributes					
Location	Factors Used to Elicit Respondents'          Near city centre         Near working place         Near public transport         Near shopping area         Near recreational centre         Near amenities centre         Othere (apopify);	Preferences for C Price	Condominium Attributes         RM 125 000 – RM 150 000         RM 150 000 – RM 175 000         RM 175 000 – RM 200 000         RM 200 000 – RM 225 000         RM 225 000 – RM 250 000			
Density	High Density  Medium Density  Low Density	Floor Level/ Height	Below 4 <sup>th</sup> Floor $5^{th} - 10^{th}$ Floor $11^{th}$ & above			
View	Facing Swimming Pool     Facing Town Area     Facing Green Scenery     Facing Sea/River/Lake     Facing Hill	Built-up Area	800-1000 sq. ft.         1001 - 1200 sq. ft.         1201 - 1400 sq. ft.         1404-1600 sq. ft.         1601 & above sq. ft.			
Design	Balcony         Large Window         Good Sound Proofing         Marble/Ceramic/Mosaic Flooring         Others       (specify):	Unit Types	2 bedrooms     3 Bedrooms     4 Bedrooms			
Amenities	24Hours Guard/ Surveillance         Nursery         Launderette         Cafeteria         Car         Mini Market         BBQ Area         Others (Specify):	Facilities	High Speed Modern Lift         Parking Space         Swimming Pool         Wading Pool         Function Hall         Tennis/Squash/Badminton Court         Gymnasium         Sauna         Children Playground         Jogging Track         Gazebo         Others (specify):			

# Appendix II

Reference Cards Used for Eliciting Respondent's Attribute Preference for Condominium Units				
Very low preference	0 1 2 3 4 5	6 7 8 9 10	Very high preference	
[A] Price: RM125,000 – RM150, 000 Location: Near to working place Built-up Area: 800 sq. ft. – 1000 sq.ft Score =	[B] Price: RM150,000 – RM175,000 Location: Near to working place Built-up Area: 800 sq. ft. – 1000 sq.ft Score =	[C] Price: RM175,000 – RM200, 000 Location: Near to working place Built-up Area: 800 sq. ft. – 1000 sq.ft Score =	[D] Price: RM125,000 – RM150, 000 Location: Near to working place Built-up Area: 1001 sq. ft. – 1200 sq.ft Score =	
[E] Price: RM150,000 – RM175, 000 Location: Near to working place Built-up Area: 1001 sq. ft. – 1200 sq.ft Score =	[F] Price: RM175,000 – RM200, 000 Location: Near to working place Built-up Area: 1001 sq. ft. – 1200 sq.ft Score =	[G] Price: RM125,000 – RM150, 000 Location: Near to working place Built-up Area: 1201 sq. ft. – 1400 sq.ft Score =	[H] Price: RM150,000 – RM175,000 Location: Near to working place Built-up Area: 1201 sq. ft. – 1400 sq.ft Score =	
[I] Price: RM175,000 – RM200, 000 Location: Near to working place Built-up Area: 1201 sq. ft. – 1400 sq.ft	[J] Price: RM125,000 – RM150, 000 Location: Near to Public Transport Built-up Area: 800 sq. ft. – 1000 sq.ft	[K] Price: RM150,000 – RM175, 000 Location: Near to Public Transport Built-up Area: 800 sq. ft. – 1000 sq.ft	[L] Price: RM175,000 – RM200, 000 Location: Near to Public Transport Built-up Area: 800 sq. ft. – 1000 sq.ft	
Score =	Score =	Score =	Score =	
[M] Price: RM125,000 – RM150, 000 Location: Near to Public Transport Built-up Area: 1001 sq. ft. – 1200 sq.ft Score =	[N] Price: RM150,000 – RM175, 000 Location: Near to Public Transport Built-up Area: 1001 sq. ft. – 1200 sq.ft Score =	[O] Price: RM175,000 – RM200, 000 Location: Near to Public Transport Built-up Area: 1001 sq. ft. – 1200 sq.ft Score =	[P] Price: RM125,000 – RM150, 000 Location: Near to Public Transport Built-up Area: 1201 sq. ft. – 1400 sq.ft	

[Q] Price: RM150,000 – RM175, 000 Location: Near to Public Transport Built-up Area: 1201 sq. ft. – 1400 sq.ft Score =

[R] Price: RM175,000 – RM200,000 Location: Near to Public Transport Built-up Area: 1201 sq. ft. – 1400 sq.ft Score =