

**BUYER'S CONJOINT PREFERENCES FOR ATTRIBUTES
OF CONDOMINIUM PROPERTIES IN PENANG**

By

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ABSTRAK

KECENDERUNGAN KONJOINT PEMBELI UNTUK CIRI-CIRI HARTANAH KONDOMINIUM DI PULAU PINANG

Sangatlah mustahak bahawa pemaju-pemaju mesti memahami kecenderungan pembeli-pembeli mereka terhadap ciri-ciri kondominium yang ditawarkan oleh mereka kepada pembeli-pembeli mereka. Malangnya, masalah ialah tiada terdapat banyak kajian penyelidikan untuk memahami kecenderungan-kecenderungan pembeli-pembeli terhadap pasaran hartanah kondominium berharga sederhana di Pulau Pinang. Kajian ini adalah satu percubaan penulis bagi mengatasi masalah ini dan menyumbangkan kepada kesusasteraan akademik yang sedia ada.

Objektif-objektif kajian ini ialah menentukan paras-paras kecenderungan dan prioriti kecenderungan pembeli terhadap ciri-ciri kondominium dan menentukan profil untuk ciri-ciri konjoint kondominium yang paling dikecenderungkan oleh pembeli di pasaran hartanah kondominium berharga sederhana di Pulau Pinang. Methodologi yang digunakan ialah menjalankan satu 'survey' untuk mendapat profil dan ciri-ciri pembeli dan paras-paras kecenderungan-kecenderungan pembeli-pembeli terhadap ciri-ciri kondominium dan prioriti kecenderungan-kecenderungan pembeli-pembeli terhadap ciri-ciri kondominium dan ciri-ciri konjoint kondominium.

Satu skala Likert 5-paras digunakan untuk mendapat kecenderungan-kecenderungan pembeli terhadap ciri-ciri kondominium (harga, luasan lantai, lokasi, paras lantai, pandangan dan 'facilities/amenities'), dan responden-responden diminta memberikan markah kecenderungan bagi setiap ciri kondominium; 1-markah untuk yang kurang dikecenderungkan dan 5-markah untuk yang paling dikecenderungkan. Untuk mendapat kecenderungan pembeli terhadap ciri-ciri konjoint kondominium, 27 profil-

profil (harga, luasan lantai dan lokasi) digunakan dan responden-responden diminta memberikan markah kecenderungan bagi setiap profil; 1-markah untuk yang kurang dikecenderungkan dan 10-markah untuk yang paling dikecenderungkan.

Setelah 'survey' ditamatkan, daripada 550 naskah Pertanyaan yang telah disebarkan, 440 (80 peratus) naskah Pertanyaan yang diisi dengan sempurna telah berjaya diterima daripada responden-responden. Markah-markah kecenderungan pembeli terhadap ciri-ciri kondominium dan ciri-ciri konjoint kondominium yang diperolehi melalui 'survey' digunakan untuk mengira 'relative importance index' untuk menentui paras-paras kecenderungan-kecenderungan dan prioriti kecenderungan-kecenderungan pembeli yang berdasarkan persepsi-pesepsi mereka terhadap kepentingan relatif ciri-ciri kondominium dan ciri-ciri konjoint kondominium.

Kajian ini memaklumkan bahawa terbanyak pembeli paling suka unit kondominium mereka di tingkat dua belas dan keatas dengan pandangan menhadapi laut dan prioriti pertama mereka ialah diberikan dua tapak meletak kereta untuk seunit kondominium. Prioriti kedua terbanyak pembeli ialah kolam renang, diikuti oleh jacuzzi dan sauna. Bagi ciri-ciri konjoint kondominium, terbanyak pembeli paling suka unit kondominium mereka berharga diantara RM150,000 – RM225,000 seunit, luasan lantai 1,000 – 1,200 persegi dan berdekatan dengan tempat kerja mereka masing-masing.

ABSTRACT

BUYER'S CONJOINT PREFERENCES FOR ATTRIBUTES OF CONDOMINIUM PROPERTIES IN PENANG

It is important that developers should understand their buyers' preferences in relation to the condominium attributes that they are offering to their buyers. The problem is that there are not many research studies conducted to understand the buyer's preferences for condominium attributes in the context of the medium price-range condominium property market in Penang. This study is the writer's endeavor to address this problem and to contribute to the existing academic literature.

The objectives of this study are to determine the buyer's levels of preferences and priority of preferences for condominium attributes and the buyer's most preferred profile for conjoint condominium attributes in the context of the medium price-range condominium property market in Penang. The methodology involves conducting a survey to elicit the buyer's profile and characteristics, levels of preferences for condominium attributes and priority of preferences for condominium attributes and conjoint condominium attributes.

A 5-level Likert rating scale was used to elicit the buyer's preferences for condominium attributes (price, built-up area, location, floor level, view and facilities / amenities), and respondents were asked to give their preferential score for each of the condominium attributes; 1-point for the least preferred to 5-point for the most preferred. As for eliciting the buyer's preferences for conjoint condominium attributes, 27 profiles (price, built-up area and location) were used and respondents were asked to give their preferential scores for each of the profiles; 1-point for the least preferred to the 10-point for the most preferred.

At the end of the survey, out of 550 copies of the Questionnaire distributed, 440 copies (80%) properly filled-in Questionnaires were successfully collected from the respondents. The buyer's preferential scores for condominium attributes and conjoint condominium attributes elicited via the survey were used to calculate the relative importance index to determine the buyer's levels of preferences and priority of preferences based on their perceptions of the relative importance of the condominium attributes and conjoint condominium attributes.

This study reveal that most buyers prefer their condominium unit to be on the 12th floor and above with a view facing the sea and their top priority is to be provided with 2 car parks per condominium unit. The second priority of most buyers is the swimming pool, followed by the jacuzzi and sauna. As for the conjoint condominium attributes, most buyers prefer their condominium unit to be in the price-range of RM150,000 – RM225,000 per unit, with a built-up floor area of 1,000 sq. ft. – 1,200 sq. ft and located near to their respective work place.

CHAPTER 1: INTRODUCTION

1.1 Research Background

The aim of this chapter is to outline the structure of this research study and to provide an overview of the residential property market in Penang. During the concerted search for relevant extant literature and research materials for this thesis, the writer realized that using the conjoint analysis approach to conduct research studies for medium price-range condominium properties is very rare among local researchers and only a few academic research papers had been published in this area.

A research study to determine the buyer's conjoint preferences for attributes of condominium properties in Johor Bahru was carried out by Hamid et al in 2008. This is probably the first time that a research study using the conjoint analysis approach for medium price-range condominium properties in Penang is being carried out at PhD level at Universiti Sains Malaysia. The purpose for conducting this research study is to determine: what are the buyer's levels of preferences for condominium attributes, which is the buyer's most preferred profile for conjoint condominium attributes and what is the buyer's priority of preferences based on the relative importance of condominium attributes and conjoint condominium attributes.

A buyer usually has to go through a decision making process when faced with an option to purchase a product e.g. a personal computer or the services of an internet provider (Moven, 2009). A purchase of a condominium property involves a huge financial commitment on the part of the buyer. Hence, the buyer needs to consider very carefully in terms of the price that he or she is required to pay for the purchase of the condominium unit and the condominium attributes offered by the developer.

Before reaching a buying decision, a buyer usually has to consider some sorts of trade-offs (Hamid et al, 2008:2). According to Rehda bulletin, [3], 2009:1, the highly-priced landed residential and high-end stratified properties in Penang Island are not within the budget of the majority of local buyers. Thus, there is a demand for medium price-range condominiums and it is important for developers to know what are the factors influencing the decision making process of their prospective buyers in terms of the prices and attributes of medium price-range condominium properties. This information will be of contributing value to developers and will enable them to plan their projects better with the aim of marketing all the units of their projects successfully and achieving the success of their respective companies.

1.2 An Overview of the Residential Property Market in Penang

According to the 2008 Penang Economic Report (PER), published by the Socio-economic and Environmental Research Institute (SERI) in the Jan. 2009, Vol.11 [1] issue of the Penang Economic Monthly (PEM), the overall performance of the residential property market in Penang had been relatively encouraging for the first half of 2008. This was attributed to a positive spill-over effect from a relatively buoyant 2007 which saw an encouraging performance in Malaysia's equity markets and demand for selective (medium to high-value) properties in Penang. There was, of course, the factor of heightening interest shown by both locals and foreigners, particularly in the completed and soon to be completed high-end residential property market which encompasses condominiums as well as landed property in the residential sub-sector. It was widely expected that there would be an increasing overhang in the lower to medium range stratified property across all areas as demand may taper due to investors remaining cautious for 2009. There was also a

widely expected decline in new planned supply of residential property in Penang for the second half of 2008 onwards, as both potential buyers and developers were remaining cautious due to the unpredictable impact of the global financial crisis on the local property market. The supply of residential properties in Penang up till and including the first half of 2008 stood at a total of 320,565 units, which included both landed and stratified properties. There are five administrative districts for the state of Penang (See Plates 1.1 and 1.2). Table 1.1 shows the existing supply of residential units in state of Penang. In the first half of 2008, the North-East District, (NED) has the highest number of residential units, coming in at 130,692 units as well as the highest number of stratified units (112,154 units) 85.8%. Seberang Perai Tengah (SPT) has the second highest number of residential units, with a total of 73,335 stratified and landed residential units as compared to the other districts.

Seberang Perai Tengah (SPT) has the highest number of units of landed property, 47,205 units (64.4%). Seberang Perai Utara (SPU) has 26,746 units (63.9%), and Seberang Perai Selatan (SPS) has 30,635 units (88.7%). SPS has the lowest number of high-rise residential property in stock, with only 3,906 units of stratified housing recorded; mainly Government issued low-cost units. In the first half of 2008, a total of 51,038 units were recorded as being 'incoming' (Table 1.2). This number was comparatively close to 54,910 units recorded for the first half of 2007. The first half of 2008 had been relatively buoyant in view of the confident sentiment in the property market. NED has recorded the highest completion of a total of 16,397 new residential units (93.9%), and the majority of these new units were low-cost units. 996 units of new landed properties mainly located in Seri Tanjung Pinang (NED) and at the DBD border of Pantai Jerjak contributed to the incoming supply figures.

Plate 1.1 Map showing the North East District (NED), Barat Daya District (DBD) and the Districts of Seberang Perai Utara (SPU), Seberang Perai Tengah (SPT) and Seberang Perai Selatan (SPS)



(Source: <http://www.Invest Penang Properties.com>)

Plate 1.2 Map showing the North East District (NED) and Barat Daya District (DBD) on Penang Island



(Source: <http://www.Invest Penang Properties.com>)

Table 1.1 Existing Supply of Residential Units in Penang (First half of 2007 vs first half of 2008)

Review Period	District	Total Landed (Units)	Share (%)	Total Stratified (Units)	Share (%)	Total (Units)
1 st half of 2007	North-East (NED)	18,058	14.4	107,075	85.6	125,133
(Jan - Jun)	Barat Daya (DBD)	14,200	36.7	24,459	63.3	38,659
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	24,482	63.5	14,096	36.5	38,578
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	45,712	64.3	25,428	35.7	71,140
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	29,162	88.3	3,846	11.7	33,008
	Penang	131,614	42.9	174,904	57.1	306,518
1 st half of 2008	North-East, NED	18,538	14.2	112,154	85.8	130,692
(Jan - Jun)	Barat Daya, DBD	14,827	37.0	25,286	63.0	40,113
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	26,746	63.9	15,138	36.1	41,884
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	47,205	64.4	26,130	35.6	73,335
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	30,635	88.7	3,906	11.3	34,541
	Penang	137,951	43.0	182,614	57.0	320,565
Overall increase in total units of 4.58% (first half of 2007 vs first half of 2008)						

Source: National Property Information Centre Penang (NAPIC Penang), and Valuation and Property Services Department, Ministry of Finance, Malaysia

Table 1.2 Incoming Supply of Residential Units in Penang (First half of 2007 vs first half of 2008)

Review Period	District	Total Landed (Units)	Share (%)	Total Stratified (Units)	Share (%)	Total (Units)
1 st half of 2007	North-East (NED)	1,151	6.2	17,344	93.8	18,495
(Jan - Jun 2007)	Barat Daya (DBD)	1,433	27.66	3,768	72.4	5,201
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	8,464	68.9	3,821	31.1	12,285
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	6,980	59.6	4,737	40.4	11,717
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	6,459	89.6	753	10.4	7,212
	Penang	24,487	44.6	30,423	55.4	54,910
1 st half of 2008	North-East (NED)	996	6.1	15,401	93.9	16,397
(Jan - Jun 2008)	Barat Daya (DBD)	1,663	35.1	3,078	64.9	4,741
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	7,532	68.3	3,488	31.7	11,020
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	6,408	60.1	4,252	39.9	10,660
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	7,449	90.6	771	9.4	8,220
	Penang	24,048	47.1	26,990	52.9	51,038
Overall increase in total units of 4.41% (first half of 2007 vs first half of 2008)						

Source: National Property Information Centre Penang (NAPIC Penang), and Valuation and Property Services Department, Ministry of Finance, Malaysia

SPU and SPT had contributed a total of 11,020 and 10,660 units respectively. 7,532 units or 63.3% of the share of total incoming supply were located in SPU. These consisted of mainly single, 2-3 storey terraced houses and low cost houses. 6,408 units or 60.1% of the share of total incoming supply were located in SPT, and these consisted of mainly terraced and 2-3 storey semi-detached houses. 7,449 units or 90.6% of the share of total incoming supply were located in SPS, and these were mainly single terrace and low-cost houses. The high number of landed property located on the mainland in relation to the island was mainly due to cheaper land.

Table 1.3 shows the planned supply of residential units for the first half of 2007 and 2008. Due to a buoyant economy in the first half of 2008, the number of planned supply for residential units in Penang had increased by 2.66% in overall terms. The number of planned residential units (including new planned supply) was well spread out in the first half of 2008, with the highest number located in the NED. These were mainly high-rise units (9,812 units) 79.8% of the overall total. SPT has also recorded a higher number of units (8,939 units), comprising of landed property (4,952 units) 55.4% and stratified property (3,987 units) 44.6%.

Planned supply of residential units in DBD had also increased significantly in the first half of 2008 as compared to the corresponding period in 2007. This is particularly evident in the total number of stratified units (3,766 units) as well as landed property (1,821 units), both of which outperformed the respective records of the corresponding period for 2007. An increase in the number of landed property under this category was evident in SPT (4,812 units) and SPS (5,372 units) when compared to the corresponding period for 2007. Table 1.4 shows the new planned supply units of residential property in Penang for the first half of 2007 and 2008.

Table 1.3 Planned Supply of Residential Units in Penang (First half of 2007 vs first half of 2008)

Review Period	District	Total Landed (Units)	Share (%)	Total Stratified (Units)	Share (%)	Total (Units)
1 st half of 2007	North-East (NED)	1,937	16.3	9,982	83.7	11,919
(Jan - Jun 2007)	Barat Daya (DBD)	1,669	38.7	2,639	61.3	4,308
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	3,181	61.3	2,010	38.7	5,191
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	3,812	49.2	3,937	50.8	7,749
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	4,921	95.5	232	4.5	5,153
	Penang	15,520	45.2	18,800	54.8	34,320
1 st half of 2008	North-East (NED)	1,978	20.2	7,834	79.8	9,812
(Jan - Jun 2008)	Barat Daya (DBD)	1,821	32.6	3,766	67.4	5,587
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	3,527	67.5	1,697	32.5	5,224
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	4,952	55.4	3,987	44.6	8,939
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	5,372	94.7	300	5.3	5,672
	Penang	17,650	50.1	17,584	49.9	35,234
Overall increase in total units of 2.66% (first half of 2007 vs first half of 2008)						

Source: National Property Information Centre Penang (NAPIC Penang), and Valuation and Property Services Department, Ministry of Finance, Malaysia

Table 1.4 New Planned Supply of Residential Units in Penang (First half of 2007 vs first half of 2008)

Review Period	District	Total Landed (Units)	Share (%)	Total Stratified (Units)	Share (%)	Total (Units)
1 st half of 2007	North-East (NED)	322	10.5	2,732	89.5	3,054
(Jan - Jun 2007)	Barat Daya (DBD)	800	53.1	706	46.9	1,506
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	910	45.5	1,091	54.5	2,001
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	883	83.8	171	16.2	1,054
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	1,426	100.0	0	0	1,426
	Penang	4,341	48.0	4,700	52.0	9,041
1 st half of 2008	North-East (NED)	15	8.6	160	91.4	175
(Jan - Jun 2008)	Barat Daya (DBD)	42	4.5	888	95.5	930
	<i>Sebarang Perai</i>					
	<i>Utara (SPU)</i>	309	78.6	84	21.4	393
	<i>Sebarang Perai</i>					
	<i>Tengah (SPT)</i>	871	100	0	0	871
	<i>Sebarang Perai</i>					
	<i>Selatan (SPS)</i>	397	100	0	0	397
	Penang	1,634	59.1	1,132	40.9	2,766
397						
Overall decrease in total units of 326.86% (first half of 2007 vs first half of 2008)						

Source: National Property Information Centre Penang (NAPIC Penang), and Valuation and Property Services Department, Ministry of Finance, Malaysia

A dramatic decrease in new planned supply of landed and stratified property was evident in all districts of the state of Penang, cumulating into a 326.86% overall reduction of such units when compared to the corresponding period in 2007 (see Table 1.4). In terms of new planned supply of landed property, the most affected districts included NED (15 units), DBD (42 units), SPU (309 units) and SPS (397 units). In contrast, SPT (871 units) was the only district which had recorded a gradual softening in supply, probably due to property developers having committed to carrying out existing development plans already in place in that area.

On a positive note, when analyzing the type of property in the planned supply of 2,766 residential units, DBD has recorded the highest number of new stratified units (888 units), which represent 95.5% of the total number of new planned units in that area. Given the average rate of 60% high-rise units in the previous years, this represents an upward trend of demand for such properties in the area. It is also noteworthy that the new planned supply of property in both SPS and SPT are largely concentrated on landed residential units, as no stratified development had been expected to be recorded in those areas at that particular time.

In 2007, a total of 310 units of completed property remained unsold, with a market capitalization of RM69.27 million. This averages out to RM223,550 per unit which may indicate that the majority of these units are double storey terrace houses which were located in Seberang Perai, or single storey terrace houses and apartments located on the island. Out of the 310 completed units, 116 were condominiums and apartments of which 67 were priced at more than RM250,000 per unit. 88 units were double storey houses, of which 67 units fall within RM100,001 – RM200,000 price range. These were the bulk of the completed overhang units in 2007.

In 2007, 854 units under construction were not sold as compared to 1,156 in the second quarter of 2008. Of the 854 units, 302 units were 2-3 storey terraced houses and 230 units of flats located on the mainland. Also in 2007, the launched projects as well as properties yet to begin construction brought the total of overhang to 407 units, of which 206 units were 2-3 storey terrace units. Again, a majority of these units were on the mainland sector of the State of Penang. Given the expected softening of the overall Malaysian economy in late 2008, developers had taken heed of the market conditions and hence had slowed down the number of development projects, particularly in relation to those terraced properties located on the mainland.

1.3 Problem Statement

It is incredible that while the Penang State Government is trying to attract more foreign investments, the people who are the core of the engines of growth such as the manufacturing industries, the service sector and commercial sector – the young graduates and professionals - are finding it difficult to afford houses suitable to their needs and expectations. As reported in PEM, August 2009, Vol. 11 (8) issue, “the poor Penangites are not the only group who faces problems of housing affordability. Due to the high prices of landed residential property on Penang Island, even these young graduates and professionals with a monthly income of RM2,500 to RM4,500 are finding it difficult to afford the purchase of a landed residential property.

Existing terrace houses in popular NED and DBD residential areas are priced above RM850,000 each and new terrace houses and bungalows e.g. the D’Residence landed properties at Bayan Mutiara are priced at above RM1,000,000 each. Even new condominiums in the lower middle class DBD areas (e.g. Gelugor) are priced

above RM400,000 each (see, Plate 1.3). Unless these young graduates and professionals who are earning a monthly income of RM2,500 to RM4,500 have rich parents to subsidize them, they will have to look to the mainland to buy houses". Making things worse, in recent years, a growing number of developers are building condominiums to cater for the very rich Malaysians and foreigners. For instance, the high-end condominiums in the middle class areas such as Tanjung Bungah, Tanjung Tokong, Gurney Drive cost more than RM 2,000,000 each (see, Plate 1.3).

Fortunately, there are developers who are aware that the high prices of landed properties and high-end condominiums are not within the budget of the local middle-income buyers and have developed a variety of condominiums with prices ranging from RM150,000 to RM375,000 per unit to cater for this category of buyers. Developers should be perceptive of their buyers' preferences of condominium attributes and plan their projects accordingly, so that all units of their projects will be successfully sold in order to ensure the success of their respective companies.


Hence, it is essential for developers to have access to information pertaining to the types of condominium attributes preferred by the buyers, the buyer's levels of preferences for condominium attributes, the buyer's most preferred profile for conjoint condominium attributes and the buyer's priority of preferences of the condominium attributes and conjoint condominium attributes. The problem is that there are not many academic research materials or conjoint analysis research studies conducted to address these concerns of developers. This study is the writer's endeavor to address some of these concerns of developers and to contribute to the extant academic literature on condominium marketing research in terms of the buyer's conjoint preferences for attributes of condominium properties in Penang.

Plate 1.3 Map showing the locations of some of the newly constructed high-niche condominiums and highly-priced landed residential properties in the NED and DBD districts of Penang Island

The Cove Condominium
Price: RM 2,500,000
Built-up area: 6,000 sq. ft
Location: Tanjung Bungah
Facilities/Amenities: Two covered car park, swimming pool, wading pool, putting green, gymnasium, sauna, community hall, landscaped garden, tennis court, BBQ pit, cafe / restaurant and smart security system



The Millenium Tower
Price: RM 2,500,000
Built-up area: 6,000 sq. ft
Location: Gurney Drive
Facilities/Amenities: Three parking spaces for each unit, garden rock climbing wall, 25 meter infinity swimming pool, 2 private spa suites, Jacuzzi, sauna steam bath and massage beds and fully equipped gymnasium





Bayswater Condominium
Price: above RM 400,000
Built-up area: 4 types - 1,173, 1,303, 1,313 and 1,636 sq. ft
Location: Gelugor
Facilities/Amenities: Multi-storey car park, basketball court, tennis court, sauna, gymnasium, swimming pool, jacuzzi, landscape garden, multi-purpose hall and 24-hour security system



Platino Condominium
Price: above RM850,000
Built-up area: 2 sizes - 1,819 -1,659 sq.ft.
Facilities/Amenities: Similar to Bayswater Condominium



D' Residence
Linked -Terraces, Semi-Ds and Bungalows
Price: above RM 1,000,000
Built-up area: above 3,000 sq. ft
Location: Bayan Mutiara
Facilities/Amenities: Exclusive private sea-front enclaves, luxuriant streetscapes and verdant landscaping environs with gated security system



Light Linear Condominium
Price: above RM 550,000
Built-up area: 2 types - 1,475 and 1561 sq. ft
Location: Near to Penang Bridge
Facilities/Amenities: Swimming pool, multi-storey car park, basketball court, tennis court, sauna, gymnasium, jacuzzi, landscape garden, multi-purpose hall and 24-hour security system



(Sources: <http://www.apartment.penang.blogspot.com> and <http://www.invest penang properties.com>)

1.4 Research Questions

The research questions for this research study are as follows:

- a) What are the buyer's levels of preferences for condominium attributes in terms of medium price-range condominium properties in Penang?
- b) Which is the buyer's most preferred profile for conjoint condominium attributes in terms of medium price-range condominium properties in Penang?
- c) What is the buyer's priority of preferences based on the relative importance of condominium attributes and conjoint condominium attributes in terms of medium price range condominium properties in Penang?

1.5 Research Objectives

The research objectives for this research study are as follows:

- a) To determine the buyer's levels of preferences for condominium attributes in terms of medium price range condominium properties in Penang.
- b) To determine the buyer's most preferred profile for conjoint condominium attributes in terms of medium price range condominium properties in Penang.
- c) To determine the buyer's priority of preferences based on the relative importance of condominium attributes and conjoint condominium attributes in terms of medium price range condominium properties in Penang

The desired outcome of the research findings in respect of the above objectives is that it should serve as useful information to assist developers to understand what the buyer's preferences are, so that they could build projects that could be successfully sold to ensure the success of their respective companies. The research findings of this research study can be made available to academicians and developers via the publishing of a research paper in the academic and property market literature.

1.6 Scope and Limitation of Research Study

The scope of this research study shall be limited to the medium price-ranged condominiums properties located in the NED and DBD districts of Penang Island and the price per unit shall be in the price-range of RM150,000 to RM375,000.

1.6.1 Buyer's Preferences for Condominium Attributes – Parameters

The condominium attributes to be used for eliciting the buyer's preferences shall consist of the price, built-up area, location, floor level, view and facilities/amenities. These condominium attributes are used because they are the attributes of condominium properties that the buyers would most likely take into consideration when faced with a decision to purchase a condominium unit. In a similar study to elicit buyer's preferences for attributes of condominium properties in Johor Bahru, a precedent for using the price, built-up area, location, floor level, view and facilities /amenities attributes had been set by Hamid et al (2008), see Table 2.4.

1.6.2 Buyer's Preferences for Conjoint Condominium Attributes – Parameters

The profiles to be used for eliciting the buyer's preferences for conjoint condominium attributes shall be based on the price, built-up area and location attributes. A precedent had also been set by Hamid et al (2008); their profiles were also restricted to the price, built-up area and location (nearness to work place and public transport). However, for this thesis, nearness to work place, educational institution and shopping area shall be used for eliciting the buyer's preferences for the location attribute instead of just nearness to work place and public transport as was done in Hamid et al's (2008) study (see, Tables 2.5, 2.6 and 2.7).

1.7 Organization of Thesis

Chapter 1: Introduction

This chapter shall outline the structure of this research study and provide an overview of the residential property development in Penang, the problem statement, research questions, research objectives, scope and limitation of research study.

Chapter 2: Buyer's Preferences for Product Attributes

This chapter shall review relevant literature relating to the buyers' preferences for certain product attributes based on their perceptions of the relative importance of these product attributes, with particular emphasis on the buyers' preferences based on their perceptions of the relative importance of certain condominium attributes.

Chapter 3: Methodology

This chapter shall review relevant literature relating to the methodologies used by other researchers to conduct conjoint analysis studies and describe the methodology to be used for conducting the empirical research for this research study.

Chapter 4: Empirical Research Results and Data Analysis

This chapter shall discuss the empirical research results, data analysis and interpretation of the results of the empirical research study.

Chapter 5: Research Findings and Conclusion

This chapter shall discuss the research findings of this research study, implications of the research findings for academicians and developers, contribution of research study, state the conclusion of this research study, summary of literature, critique of research objectives, and suggest recommendations for further research.

CHAPTER 2: BUYER'S PREFERENCES FOR PRODUCT ATTRIBUTES

2.1 Introduction

The aim of this chapter is to review literature relating to the buyer's preferences for certain product attributes based on the buyer's perception of the relative importance of these product attributes, with particular emphasis on reviewing those literature relating to the buyer's preferences for certain condominium attributes based on the buyer's perception of the relative importance of these condominium attributes.

2.2 Buyer's Preferences for Product Attributes

In a South African research study carried out by De Vos (2002) to analyze buyers' preferences in the apparel market based on the importance they attach to certain product attributes when making a buying decision, he lists the following reasons why researchers, local manufacturers and retailers, for example, could use the information from a conjoint analysis study to understand buyers' preferences.

- 1) To gain a better understanding of buyers' selection criteria when purchasing clothing or apparel
- 2) To plan their apparel merchandise mixes more efficient
- 3) To plan their promotional messages and strategies more effectively
- 4) To refine their training strategies for sales consultants

Although the apparel industry has reach maturity and growth is very slow, fashion trends are accelerating. The presence of more brands has created a competitive environment unheard-of in the past (Rutter and Edwards, 1999:31). Table 2.1 below summarizes a hypothetical situation in relation to prospective female apparel buyers, indicating some attributes and attribute levels that might be considered during the process of deciding to purchase a white shirt for everyday wear.

Table 2.1 Attributes Considered By Prospective Apparel Buyers

Attributes	Levels
Price	R90 R170 R350
Brand	Designer Private label Unbranded
Style	High fashion Classical Comfortable

(Source: North and De Vos, 2002:33)

From the information given in Table 2.1, a reasonable assumption would be that many buyers would probably prefer the cheaper to medium-priced private shirt that is comfortable. This may, however, not necessarily always be the case because the premium priced shirt might be more comfortable owing to excellent design and craftsmanship. Prospective buyers may therefore find it necessary to trade off some of one feature to secure more of another. The key question then, is to determine how the buyers value these specific attributes. For example, is low price considered more important or valued more highly, or are the consumers willing to pay a higher

price to secure some of the other features. In the shirt example, the respondents are asked to rank the descriptions or attributes in order of preference. Thus, the shirt description can be constructed by using all 27 possible combinations of levels ($3 \times 3 \times 3 = 27$). Each combination is then written on a separate card.

The following are some examples of such cards:

<p>Price R170 Designer brand Classical style</p>
--

Another card can look as follows:

<p>Private label Comfortable style Price R170</p>

The 27 cards are then arranged in random order, and the respondents are asked to rearrange and rank the cards from the least preferred to the most preferred. The mean rankings for the various levels are determined and the buyers' preferences for the attributes are then calculated with the aid of computer programs. A summary of conjoint analysis outlining its nature and use is given in Table 2.2.

Table 2.2 Buyer's Preferences and the uses of the Conjoint Analysis Technique

	Its relevance to Buyer's Preferences	In what context can it be used for
The Conjoint Analysis Technique	Allows for the buyer's preferences for a product to be broken down into its individual attributes and trade-offs among its individual attributes, without separating those individual attributes from the context in which overall judgments for the product are made	Optimizing product configurations: Allows for the studying of price elasticity of demand; simulating market response to new or modified offerings; diagnosing competitive strengths and weaknesses with the view of improving the products.

(Source: North and De Vos, 2002:34)

According to North and DeVos (2002:33), the information gained from a conjoint study could also be used for the development of a theoretical model towards understanding consumer apparel. There seems to be a lack in marketing theory when it comes to explaining what is important to consumers purchasing decisions concerning clothing or apparel, as well as how they make trade-offs between various product attributes when purchasing clothing or apparel.

Market-centric concepts are essential and have been fundamental in devising marketing strategies. However, it is no longer sufficient to segment a market based on demographics, socio-economic class, and other segmentation variables only. Today, it is obvious that the apparel market place is characterized by higher levels of diversity in terms of buyer's preferences (DeVos, 2002:34).

According to Sheth and Sisodia, (1999), the results of a conjoint analysis study could be used as a basis for segmenting the women's everyday wear apparel market and it would be appropriate to use a construct such as attribute importance as a basis for segmentation. In a study on the South African apparel market trends, Burger and Herst (2002) endeavor to determine the relative importance of certain product attributes, such as style, price and outlet choice in order to understand the buying preferences of South African teenagers when purchasing jeans. Teachers from two Afrikaans and two English schools in Pretoria region acted as interviewers and presented 213 (13-16 years) secondary school pupils with 25 hypothetical pair-wise product profiles. The results of their study indicated that the brand name (*Levi* or *Diesel*) is the most important attribute teenagers consider before making a purchase. *Diesel* was the most popular brand, followed by the brand, *Calvin Klein*.

In another South African study conducted by Schutte (1990) to determine the role of price sensitivity in the demand for accommodation by local visitors to the Kruger National Park in South Africa, he listed the following to indicate the value of using conjoint analysis to assist marketers in providing solutions and answers when strategic marketing and selling decisions have to be made:

2.2.1 Understanding buyer's preferences

When a product has, say five key attributes: price, quality, style, brand and packing, these product attributes and their associated attribute levels represent the factors that materially affect the buyer's preferences (Wyner, 1995).

2.2.2 Predicting market choices

The conjoint analysis approach offers the researcher opportunities to apply certain simulations. The simulation capability of the conjoint analysis approach enables the research analyst to explore alternative market scenarios. The impact on market share or changes in the product attributes can be assessed and the impact of competitive market moves can then be anticipated (Wyner, 1995).

2.2.3 Developing market strategies

It can aid marketers to identify product attributes that are extremely attractive from the buyer's perspective. Product attributes that are not technically or financially feasible can be eliminated. The best of the remaining products attributes can be selected, and then the attributes of this product can be fine-tuned to achieve the stated objectives. A series of simulation test can then be run to identify the point at which the product performs best in the market place (Wyner, 1995)

2.2.4 Segmenting the market

The results from a conjoint analysis study are very useful for segmentation purposes. Buyers may be segmented on the basis of preferential scores or attribute importance scores. Thus simulations can be viewed as segmentation analyses that group people together according to their most preferred product attributes among other substitutes or competitive products attributes (Wyner, 1995).

The research problem in the Kruger National Park case stems from the fact that the Kruger National Park had experienced a decline in the demand for accommodation by local visitors after 1995. Schutte (1990) stated that prior to this period demand for accommodation exceeded the supply. This was especially true for the months of December, April, July and October holidays. During the July holiday period, for example, the demand was 5 times greater than the supply.

It was hypothesized that costs or pricing factors may be one of the reasons for the decline in the demand of accommodation. After discussing with the senior members of the Park's management team, the need to conduct a price sensitivity study became apparent. During the quantitative research phase a survey was conducted with the aid of a questionnaire in which respondents were requested to participate in a pair-wise trade-off conjoint analysis in which a real purchase situation was simulated. This was done because conjoint analysis is generally regarded as the most used category of price sensitivity measurement methods. One of the objectives of the research study was to measure the preferences of tourists by making trade-offs between combination of conjoint attributes at various attribute levels, enabling them to make complex decisions not only on one factor but conjointly on several

factors. The conjoint analysis experiment was designed according to the guidelines offered by Hair et al (1998: 564-581). The data collection survey was conducted in six camps of the Kruger National Park among 428 respondents in the late 1990s. The 428 respondents were requested to indicate their preferential scores by ranking a number of combinations of attribute levels on a 9-point Likert scale. The following is a summary of some of the findings of the study:

- 1) Overall, the respondents were satisfied with the quality of accommodation in the Park.
- 2) They were not satisfied with the general price level for accommodation, and specifically the prices of meals in restaurants and goods sold in the shops.
- 3) As expected, the majority of the respondents preferred the more luxurious type of accommodation (cottage, hut with private ablution) to the less luxurious, more economical type of accommodation.

2.3 Application of Conjoint Models to Practical Problems

2.3.1 Consumers' Evaluations of Public Bus Options

Louviere (1988:63) reported that in a 1971 study sponsored by the U.S. Department of Transportation on consumer evaluation of public bus options (Louviere et al., 1973; Norman and Louviere, 1974), three attributes of public bus services were varied in a 3³ factorial design to produce different bus “systems”. Buses were described by fare (three levels: \$0.15, \$0.25, \$0.35); service frequency (three levels;

15, 30, 60 minutes); and walking distance to the bus stop from home (three levels: ½, 3, 9 blocks). Subjects were a group of paid University of Iowa student volunteers; each completed 12 replications of the design. The order of treatments and of factors within treatments was randomized separately for each subject and replication. Subjects rated each treatment combination by making a slash mark on a 150 millimeter line scale label at either end by “definitely would never use this bus” and “definitely would always use this bus.” Rating was recorded to the nearest millimeter and assumed to be interval measures.

Analysis of variance was used to analyze both individual subjects and the whole group. Individual subject results suggested that each treated the attributes as complements; and a multiplicative model was a good approximation to the data. All two-way and three-way interactions were significant, and all displayed a convergent graphical form for undesirable attribute levels and a divergent form for desirable levels, indicating that subjects treated all of the attributes as complements.

A new bus system was introduced soon after the conjoint analysis study was completed, replacing poor service with good service. Results of the conjoint analysis study were consistent with the performance of both systems: The old system had a 25 cents fare, 60-minute frequency of service, and poor route coverage. The new system had a 15 cent fare, many routes had a 15-minute service, and many residences were within two blocks of a bus stop. The old system was used by fewer passengers, while the new system was used by more passengers. Additional studies of consumer evaluations of public transport systems have repeatedly supported the conclusion that consumers treat the attributes of these systems as complements.

Further more, a number of studies have reported excellent correspondence between the predictions of conjoint analysis models and individuals' mode choice behavior. Some of these research studies include Louviere et al. (1974); Levin and Herring (1981); Louviere et al (1981); Meyer et al (1978); Norman (1977); Louviere and Kocur (1983); Kocur et al (1982) and Bradley and Bovy (1985).

2.3.2 Evaluations of Towns as Possible Residential Sites

In a behavioral study, Lerman and Louviere (1978) studied the residence choice behavior of workers in the U.S. Rocky mountain states in which there was considerable resource development activity requiring importation of skilled laborers both to develop sites and to operate them once developed. There were a few large towns in the study region, and the workers rarely were able to live at the rural work sites. Thus, the workers had to choose among residential options that differed in driving time and/or distance, town size, and amenities offered.

Lerman and Louviere (1978) conceptualized the workers' decision problem as a trade-off between town size and associated urban amenities, and the commuting distance to and from work. U.S. Census of Business data were used to estimate linear regression models to predict the number of facilities expected to be in various retail business classes (e.g. supermarkets, gas stations, and pharmacies), based on six town population sizes ranging from 250 to 25,000.

The predicted number of facilities was used to create six levels of the composite variable "population plus associated amenities" such that population and each urban amenity were perfectly linearly related. A range of six-driving distance levels (5 to

150 miles) was used to reflect the existing driving conditions; a 6 x 6 factorial design was created to vary the town size and commuting distance descriptions. The respondents were instructed to assume that they were employed as rural 'workers' at a rural resource work site but could not live there, and were asked to rate the thirty-six town-and commuting distance combinations as potential and favorable residential places to live on a 150-millimeter line mark scale.

The rating scale was labeled at either end with the phrases, "definitely won't like to live here" or "definitely would like to live here." The respondents were a convenience sample of 75 faculty, students and staff from the University of Wyoming familiar with problems faced by rural workers in Wyoming. An analysis of variance revealed that there was a significant interaction between town size and commuting distance, consistent with a multiplicative or complementary relationship between the two attributes. Based on this diagnosis, a nonlinear multiplicative conjoint analysis model was fit to the aggregate data. Validation data were available from a U.S. Commerce Department survey of non-local workers employed at several rural locations in U.S. West: the proportion of non-local who chose to reside in each town and the driving distance from each town to the employment work sites.

These data permitted Lerman and Louviere (1978) to test the conjoint model on a parallel set of data. Louviere and Piccolo (1977) reported a significant rank-order correlation (0.92) between the mean rating observed in the U.S. Commerce Department survey data. This research finding suggested that the empirical survey data could be approximated by a statistical choice model specified in a similar way to the equation derived from the conjoint analysis empirical data.

2.4 Conjoint Analysis Theory, Attributes and Levels

According to Orme (2002) the underpinning theory of conjoint analysis states that buyers view products as composed of various conjoint attributes and levels. Defining proper attributes and levels is arguably the most fundamental and critical aspect of designing a good conjoint study. An *attribute* is a characteristic of a product (e.g. color), made up of various *levels* (there must be at least two for each attribute) or degrees of that characteristic (e.g. red, yellow, blue). Buyers place a certain value on each of those characteristics, and can determine the overall preference of any product by summing up the value of its parts. In conjoint experiments, respondents express their preferences for products described by varying levels of attributes. By observing how respondents evaluate products in response to changes in the underlying attribute levels, the impact of each attribute level has upon overall product preference can be estimated. Once the respondents' preferences for the various attribute levels are ascertained, how the consumers might respond to *any* potential combination of choices in a conjoint analysis study can be predicted (Orme, 2002). For example, Huber (2005) explains that consumers rating a fast-food outlet might indicate their priorities are taste, speed, price, cleanliness, and location. This would indicate to the marketer that taste and speed are of primary importance. However, when considered together, the conjoint combination of taste and location may rank significantly higher than taste and speed. Conjoint analysis requires respondents to make a series of trade-offs. According to Huber (2005), it is common practice in recent years to present trade-offs as a choice behavior exercise and that the analysis of these trade-offs will reveal the relative importance of component attributes. As for condominium property, the attributes that are most likely to be taken into consideration by the buyer are as follows: