

## THE RELATIONSHIP BETWEEN OPEN SPACES AND HOUSE PRICES IN SELECTED TOWNSHIPS IN KUALA LUMPUR, MALAYSIA

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### Abstract

Nowadays, there is a particular concern on the urgent need for open spaces within the urban fabric as it provides significant services to the environmental quality of the areas. The research problem addresses the issue of the loss of open spaces to give way to other developments is obviously occurred in Kuala Lumpur, Malaysia. In relation to the economic growth of the nation, it is considerably noticeable that currently there is an increasing trend in the Malaysian housing price. However, there are not many studies undertaken to investigate the relationship between the provision of open spaces and house prices in the Malaysian context. As such, this research attempts to study and examine the relationship between open spaces and house prices in the selected townships in Kuala Lumpur. The aim of this research is to study the relationship between open spaces and house prices in Kuala Lumpur. This leads to the objectives which are: (1) to determine the elements of open spaces which influence the house prices; and (2) to determine the key micro factors involved in purchasing a house in selected townships in Kuala Lumpur. Three methods were employed namely: (1) literature reviews; (2) structured close-ended questions in questionnaires survey; and (3) site observation. The selected townships are Bandar Baru Bangi, Taman Melawati, Subang Jaya and Shah Alam with a total respondent of 200. The reliability test was conducted and the results of Cronbach's alpha value for green areas and its independent variables were 0.895 and considered acceptable, allowing the research to retain all variables for the analysis. The basic criterion for the respondent refers to the house owners only to justify the validity of the feedback on the questions posed to them. Information on house showed that the majority, 35.5% and 22% of them had owned the house between 6-10 years and 11-15 years respectively. A total of 43.5% of the respondents opted for the transacted price for the houses range between RM201,000-RM300,000. Whilst, the majority (24.5%) informed that the offered price would be between RM501,000-RM600,000. Respondents were asked on their perception of the importance of open spaces in relation to determine the offered housing price within their townships. Of several elements of open space, the results showed that the respondents regarded cleanliness as the most important one; this is followed by regular maintenance, facilities provided for the users and the strategic location of open space. The respondents selected the aspect of proximity of open space as the sixth place. In relation to the micro factors influencing house prices, a set of nine factors were determined and posed to the respondents to get their perception. The key micro factor was high quality construction materials and followed by the provision of adequate infrastructure and public facilities. The aspect of proximity of adequate open spaces was selected as the sixth place out of nine micro factors. The finding suggested that the relationship between open space and house price in the selected township does establish in a positive pattern, however, it was not considered as a strong relationship. The results show that the local context with different culture, attitude and level of awareness on the importance of greeneries produced a weak relationship between open space and house price. As a conclusion, this research has met its two outlined objectives, proven that there is a weak positive relationship established between the provision of open spaces and house price in the context of Malaysian housing market.

**Keywords:** open space, house price, relationship, Kuala Lumpur

## 1 INTRODUCTION

There is an increasing awareness that urban environmental quality is highly favoured by the existence of accessible, protected and well maintained green spaces within cities, for instance, parks, green provisions, fields and others. In recent years, several urban sustainability initiatives have made a serious attempt to offer a more rigorous basis for green space planning. As a result, many initiatives and concepts such as urban planning with nature, garden city planning, brownfield-greenfield planning, urban green networks design, urban landscape ecology planning and so forth have been emerged globally (Beer, Delshammar and Scildwacht., 1993; De Sousa, 2003; MacHarg, 1971; Jim, 2004; Pauleit, 2003; Tjallingii, Green and Red, 2003).

Nowadays, there is a particular concern on the urgent need for open spaces within the urban fabric in Malaysia. The community acknowledges the importance of the provision of open spaces as it provides significant services to the environmental quality of the areas such as preserving wildlife habitat and enhancing quality of life. In relation to the economic growth of the nation, it is greatly noticeable that currently there is an increasing trend in the Malaysian housing price. Other researches show that the house price movements are very much influenced by both fundamental macro and micro factors such as real income growth, interest rate, supply and demand of housing units, location, house design and others. However, there are not many studies undertaken to investigate the relationship between the provision of open space and house price in the Malaysian context. Researches conducted by Anderson and Cordell (1988) and Morancho (2003) indicate that the relationship between green areas (open spaces) and house price do exist. They conclude that house price was influenced by the availability of green areas (open spaces) and other amenities and infrastructures.

The research problem addresses the issue of the loss of open spaces to give way to other developments is obviously occurred in Kuala Lumpur, Malaysia. Over the years, the loss of green space to give way to other developments is significantly taken place in Kuala Lumpur and its neighbouring areas such as Nilai and Seremban. This situation raises the question on the importance of green space for the key players in housing industry within Kuala Lumpur. Besides that, the questions on how much importance green area to economic matters including the factor for house pricing becomes one of the factor for implementation in planning and development decision. This includes residential areas in the developed townships.

Within the context of urban planning implementation policies, the issue of provision of green areas is normally associated with: the requirement mentioned in any proposal plan or development plan; and State Planning Authority should reserve the green areas as part of open spaces under section 62 and 204D, National Land Code 1956, i.e. common planning practice requires a 10% of the total development areas. In general, the current practice shows that the Federal Department of Town and Country Planning (FDTCP) has set a policy of 10 percent for open spaces for each development application. However, the 10 percent policy is merely a base reference only. In a common circumstance, the 'general approach' implemented by Negeri Sembilan and Kelantan is based on the basic 10 percent provision of open spaces for all types of residential development. The general approach is applied in total (stand-alone) or as a continuous policy as set by FDTCP.

As such, the aim of this research is to study and examine the relationship between open space and house price in the area of Greater Kuala Lumpur. At the international level, many studies on open space and house price were conducted with a mixed of findings, ranging from positive (see Mahan, Polasky and Adams, 2000; Zhang, Xie, Xia and Zhang, 2012) and negative pattern of relationship (see Weicher and Zerbst, 1973). Based on the stated research problem, the study aim and objectives have been determined for this research. The aim of this research is to study and examine the relationship between open space and house price in the area of Greater Kuala Lumpur in terms of its pattern and strength. This leads to the objectives which are:

- i. To determine the elements of open space which influence the house price;
- ii. To determine the major micro factors involved in purchasing a house; and
- iii. To discover the relationship between open space and house price in Kuala Lumpur.

## 2 REVIEWS ON OPEN SPACE AND HOUSE PRICE

This section addresses about the reviews on the key topics of the research, i.e., open space and house price. It is important to see the relevance of the subject, its significance and how it contribute to the analysis part in relation to see the relationship between open space and house price from the perspective of literature reviews that will cross-reference later with the results of analysis.

In the Malaysian local context, the definition of open spaces under Section 2 (1) Town and Country Planning Act 1976 (Act 172) is “any land that is enclosed or not enclosed, for use or reserved for the use in whole or in parts as public gardens, public parks, public sports and recreational fields, tourism areas, pathways or public places” (p. 15). In general, open spaces can be considered as an open area designated for the public to carry out their recreational activities.

## **2.1 Open Space as Environmental Goods**

The development of environmental awareness has resulted in a strong demand by urban residents for green space/open space for various purposes, including aesthetic enjoyment, recreation, and access to clean air or a relatively quiet environment (Miller, 1997; Tyrvaianen and Miettinen, 2000). In addition, according to McCormack, Rock, Toohey and Hignell (2010), the existence of open spaces also provide space for having physical exercise, enjoyment the nature and social interaction. However, amenity values attached to urban open spaces are considered as non-market price to the environmental benefits (Miller, 1997) that cannot be directly traded on an open market (More, Stevens and Allen, 1988). Such conflicting trends raise the need for green space protection and allocation, which in turn requires estimates of the recreational value of green spaces. The determination of the value to society of such non-market priced recreation resources is not a new concept to environmentalist and economists. The trend in the housing market shows that contingent valuation method is the most prevalent method used to estimate an economic value for environmental goods. The global environmental movement has led to the recognition of open space as significant environmental goods in order to enhance the quality of life of urban dwellers. Though the effect of open space as environmental goods is not strong enough, its provision within residential areas is given emphasis by the government.

## **2.2 The Benefits of Green Areas in the Housing Areas**

Green areas are important in the housing areas as they produce many positive implications to the overall development as suggested by many scholars. These elements include the importance of green areas in improving the quality of life, enhancing the environmental quality and conservation tool for sustainable development.

### **2.1.1 Improving Quality of Life (QoL)**

The presence of green areas in the housing neighborhoods can be seen as a kind of civic wealth within a community and thus contribute greatly to the quality of urban life (Shafer, Lee and Tumer, 2000; Biao, Gaodie, Bin and Canqiang, 2012). This is due to the fact that green areas provides sharing on the ownership of land which most of the time suggests the transfer of property from non-public to public use. Besides that, green areas proposes several functions as natural map where the unique nature and characteristics of green areas function as way finding devices which are not only useful to be the landmark for a residential neighborhood but also can become self and attainable destinations as well as social and political agent for the particular neighborhood. It is evident that the proximity of open space that having recreational facilities can influence the physical activity of the community and hence improve their health condition (Kaczynski and Henderson, 2007; McCormack, Rock, Toohey and Hignell, 2010).

### **2.1.2 Enhancing the Environmental Quality**

Planners and urban designers put high priorities worth on public open areas as a result of their contributions to the quality of life and social interaction of residents in urban development. Many urban theorists regard open area as a vital element of a healthy urban setting. Planning, development and maintenance of urban green area is among the key parts of sustainable urban development. Acknowledging and collaborating within the conservation and enhancement of the urban green space will improve the setting and offer huge edges to town dwellers.

### **2.1.3 Influencing the House Price**

It is found that the function of urban green areas is optimized in a reasonable time by acceptable distance as people are not willing to spend more time on reaching a green area closest to them. A study completed by the parks and public works commission found that there was ‘overwhelming evidence that well-designed and fastidiously integrated parks and public works projects maintain and enhance the long-term tax base of neighborhoods while improving their quality of life. It additionally found that those areas sustaining the best property values tended to be adjacent to well-connected parks with a range of community resources. Morancho (2003) suggested that green space supported with other amenities and infrastructure could influence the house price. For instance, a study conducted in the Netherlands by Luttik (2000) discovered

that the provision of open space could increase the house price within its vicinity between the ranges of 6-12%. This is supported by Crompton (2005) in which he said that the property value could increase up to 20% if the property fronting a passive park.

## 2.3 Planning on Open Space

It is noticeable that the provision of open spaces is merely to meet the approval requirements set by state governments and local authorities (LAs). Therefore, it is important that the state governments in Malaysia ensure that the implementation policy for its open spaces is in accordance with the provision in the Planning Standard Guidelines for Open Spaces and Recreation, second edition (JBPD 7/2006) issued by the Federal Department of Town and Country Planning (FDTCP) Peninsular Malaysia. The commitment by each LA to implement the open space policy within their respective jurisdiction is a key step in ensuring that the provision for open spaces is not ignored by the developers in their proposed developments. In general, FDTCP has set a policy of 10 percent for open spaces for each development application. However, the 10 percent policy is merely a base reference. According to FDTCP (2009), the states bound by the Town and Country Planning Act 1976 (Act 172) have the option of implementing the open spaces policy in various ways for development in their respective states.

Considering the provision of adequate open space for public use is not sufficient to ensure that the community will enjoy it at optimum level. There are several factors found to be important for use of open space. Sugiyama, Leslie, Giles-Corti and Owen (2008) and Payne, Orsega-Smith, Roy, and Godbey (2005) stated that good accessibility to parks is vital as it will motivate the users to come open space. People would be encouraged to go to any open space if they discovered that there will be easy access to the place. In addition, good and convenient features or facilities for instance, swings, paths, bike tracks and others are also regarded as essential element for having good open space as studied by Lloyd, Burden and Kieva (2008) and Giles-Corti et al. (2005). Meanwhile McCormack, Rock, Toohey and Hignell (2010) suggested that the element of condition (in relation to maintenance), aesthetics (environmental elements, for example ponds, birdlife, trees, bushes) and safety (such as lighting, traffic, broken glass) are amongst other important elements for open space to be considered as of high quality.

## 3 RESEARCH METHODS

This research applied three methods in gathering the relevant data for data processing and data analysis.

### 3.1 Literature Review

This research uses working documents from the subjects of open space and house price as evidential materials. In this regard, the literature review is considered as part of the document analysis. It plays an important role as it provides background information that provides a link with the analysis stage. A wide range of documents such as planning guidelines, government reports, plans, and journals related to open space and house price were referred to, such as the planning guidelines for recreational and open space (Department of Town and Country Planning, 2005). Other essential sources include the Property Market published by Valuation and Property Services Department (JPPH) under Malaysian Ministry of Finance and both the online and offline house for sale advertisements. In relation to the subjects concern with the research, numerous studies elsewhere use various techniques to investigate the relationship between a home's sale price and the availability of open space. Among others, the studies on the relationship between open space and house price using Hedonic analysis and contingent valuation are widely investigated by many researchers. (eg. Mahan, Polasky and Adams, 2000; Bolitzer and Netusil, 2000). The studies at the international level demonstrate the general pattern of relationship between open space and house price in which it explains the situation at a different context.

### 3.2 Questionnaire Survey

In obtaining the main primary data, the main source of information was the house owners in the selected sites because they have a major role in addressing the current issues pertaining to the relationship between open space and house price. The convenience non-random sampling was applied as this method refers to the situation whereby not everyone has an equal opportunity to be selected as samples (Shamhuri, 2004). In this regards, the basic criterion was the respondents are the house owners. As such, the non-house owners were disqualified to participate in the survey. The targeted total respondents are 200 due to time limitation and logistical difficulties. Though the number is not so robust to represent the scenario in Klang Valley, the analysis still can be considered as reflecting the house market in relation to the provision of open space. The

questionnaire form used 'structured and close-ended questions'. It included three sections: the respondents' profiles; information of the house; and the influence of open space and the micro factors associated with the house price. Therefore, the targeted population selected encompassed of those reside in Taman Melawati, Subang Jaya, Bandar Baru Bangi and Shah Alam which are located within the Kuala Lumpur metropolitan area. In this regards, the basic criterion was the respondents are the house owners of double-storey terraced house. As such, the non-house owners were disqualified to participate in the survey. Each site has been divided into five survey parcels determined by the researchers. Every parcel has been labeled with sequenced number based on each study area in order to ensure target respondents can be reached in optimum period and manner. For convenient purpose, 50 respondents were selected from each survey parcel representing their residential areas based on the distance to the open space.

### 3.3 Site Observation

Site observation was used to obtain information on existing physical conditions of open space in the selected sites, in which every survey parcel were observed. The researchers had observed the selected four sites, covering the ground work in Taman Melawati, Subang Jaya, Bandar Baru Bangi and Shah Alam. The provision of open spaces within the selected townships range from the quality of good, moderate and poor as the level of quality of open spaces could affect the house prices. The observations were done several times during the weekends and weekdays to see the generic situation of the sites. The information was recorded in the form of photographs and mapping system to locate the distribution of participated respondents in the questionnaire survey fieldwork. In addition, a checklist matrix was used to indicate the details of the open spaces, for instance the quality of the place in terms of the availability of facilities and so forth.

## 4 RESULTS AND ANALYSIS

### 4.1 Socioeconomic Profiles of Respondents

Several questions were asked on the socioeconomic profiles of the respondents. It is important to know the background of the respondents so that the feedbacks given on the other questions were valid for analysis. The reliability test was conducted and the results of Cronbach's alpha value for green areas and its independent variables were 0.895 and considered acceptable, allowing the research to retain all variables for the analysis. Table 1 shows the information on the profiles of the total of 200 respondents who are the owners of the houses. In terms of gender of respondents, 54% of them are male. The dominant age is mostly range between 41-50 years old (47.5%), indicating their maturity in their working experience and still active in the economic productivity. Working in private sector seems as the dominant working sector amongst the respondents (41%) and followed by government servants (26.5%).

Table 1: Socioeconomic profiles of respondents

Characteristics					
Gender	Male (54%)	Female (46%)			
Age	20-30 yr (3%)	31-40 yr (21%)	41-50 yr (47.5%)	51-60 yr (25%)	>60yr (3.5%)
Monthly income	<RM5,000 (48%)	RM5,001- RM10,000 (37%)	RM10,001- RM15,000 (14%)	RM15,001- RM20,000 (1%)	>RM20,001: %
Occupation	Government servant (26.5%)	Private worker (41%)	Self-employment (24%)	Retired (8.5%)	
Length of house ownership	1 <sup>st</sup> yr (3%)	2 <sup>nd</sup> -5 <sup>th</sup> yr (21.5%)	6 <sup>th</sup> -10 <sup>th</sup> yr (35.5%)	11 <sup>th</sup> -15 <sup>th</sup> yr (22%)	>16 <sup>th</sup> yr (18%)

In terms of monthly salary, the majority (48%) of them receive RM5,000/month and this is followed by 37% of them have their salaries between RM5,000-RM10,000/month. Meanwhile, information on house showed that the majority, 35.5% and 22% of them had owned the house between 6-10 years and 11-15 years respectively.

### 4.2 Trend of House Price

The Malaysia Valuation and Properties Services Department (JPPH, 2014) reported in its recent publication on the house price movement in Malaysia that the house price index increased by 8% (relatively in Q2 2013 to Q1 2014). A reasonable rate of increment of house price would be in the range 8-10%. A Property Market Report 2013 by C. H. Williams Talhar and Wong Sdn Bhd. stated that the house price for landed property will

continue to move upwards due to higher cost of land, construction material and labour cost. They anticipated the house price will increase by 7% annually.

When asked about the transacted price of their houses, 43.5% of the respondents informed that it was between the range of RM201,000-RM300,000. If they planned to sell their houses in the near future (by 2015), 24.5% of them would sell at the price between the range of RM501,000-RM600,000. It means that the difference of price would be RM300,000. Fig. 1 displays the pattern of transacted price and offered price of the houses. The result shows that the majority of respondents felt confident that their houses would be much expensive in the future whereby they considered the house price would be in the range between 401,000-RM700,000. It means that the rate of increment would be around 6% that reflects the same pattern of the anticipation made by C. H. Williams, Talhar and Wong Sdn Bhd.

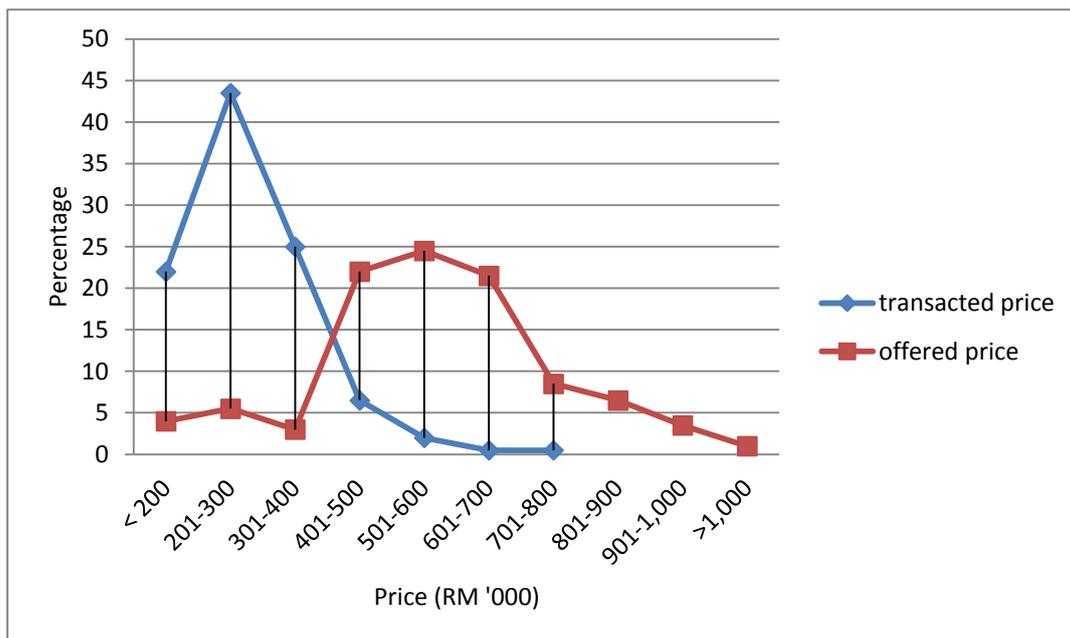


Fig. 1: The transacted price and offered price perceived by the respondents

Meanwhile, Fig. 2 shows the trend of house price for the selected areas for the year 2010 until 2014 as recorded by the Property Market Report produced by Institute of National Valuation. The average house price in 2010 is RM437,164 and it increased into RM795,520 in 2014 with the difference is RM358,356. This result reflects the same pattern as shown in Fig. 1 whereby the difference of increment in the house price is around RM300,000 as well.

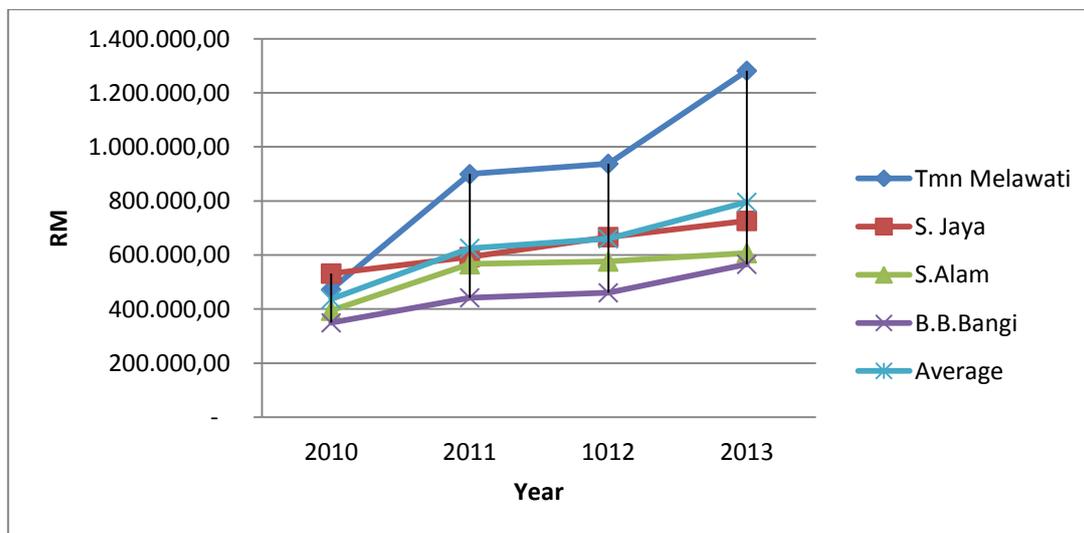


Fig. 2: The pattern of house price in the selected areas, 2010-2014

### 4.3 Prioritising Elements of Open Space

The considerations taken in the research cover the following elements: house design and size; location and distance; public facilities; accessibility; and the provision of open space.

Respondents were asked on their perception of the importance of open spaces in relation to determine the offered housing price within their townships. This research used Relative Importance Index (RII) as the technique to set the priority of elements of open space from the perceptions of the house owners. The results shown in Table 1 indicate the level of importance of elements of open space desired by the users/house owners. The selection of elements of open space that is considered important in making an open space a good environmental asset for the community as discussed in the section of literature review as suggested by many scholars.

Table 1: Elements of open space desired by the respondents

Elements of Open Space	FREQUENCY ANALYSIS (FA)										Relative Importance Index (RII)
	Extremely Important (5)	%	Very Important (4)	%	Moderately Important (3)	%	Less Important (2)	%	Not Important (1)	%	
1. Cleanliness is well kept	114	57	68	34	16	8	2	1	0	0	0.894
2. It has regular maintenance	100	50	84	42	14	7	2	1	0	0	0.882
3. The facilities provided are sufficient and suitable with the users	89	44.5	93	46.5	16	8	1	0.5	1	0.5	0.868
4. The location is strategic	76	38	98	49	23	11.5	2	1	1	0.5	0.846
5. The size is adequate	67	33.5	103	51.5	25	12.5	3	1.5	2	1	0.830
6. The proximity is within reasonable walking distance	57	28.5	102	51	35	17.5	4	2	2	1	0.808
7. The hierarchy fulfills the catchment area of users	55	27.5	84	42	53	26.5	5	2.5	3	1.5	0.783

In the context of Malaysian urbanised areas, the results demonstrate that the key element of open space desired by community is the aspect of cleanliness whereby its RII is 0.894. The users are looking for a well-kept open space that are free of the following problems: broken playground equipment, animal waste, graffiti, messy with litter, cracked concrete, overfull rubbish bins, missing nets, and uneven playing surfaces. The other element that has strong association with the element of cleanliness is the regular maintenance of the open space (RII is 0.882). Of the seven pre-determined elements, the proximity of open space is considered as the sixth place in which its RII is 0.808. It seems that the Malaysia community did not regard the distance of their house as a key influential factor in determining house price. This situation does not reflect the scenario at the international level though some experiences worldwide still record the insignificance relationship between open space and house price.

### 4.4 Prioritising Micro Factors

Apart from macro factors that play the roles in influencing the house price, there are some micro factors that also relevance in determining the pattern of house price. Table 2 shows the selected micro factors that are believed to have significantly influenced the house price as reviewed in many related literatures. The results of RII demonstrate that the most significant micro factor is the housing construction material is of high quality. It has 0.869 RII in which the respondents believe by having good quality of construction material, they could sell their property at higher offered price. The next important micro factors are provision of adequate infrastructure and public facilities (RII is 0.855) and strategic location of house (RII is 0.842). The respondents perceived that good infrastructure and good location are seen as an important micro factor for property investment whereby they selected these factors as amongst the important factor when dealing with house price. In the context of micro factor, the respondents did not see the proximity of adequate open

space as an important one. They selected it as the sixth place out of nine micro factors. This result reflect the earlier question on how they perceive the significance elements in making an open space a good place within the urban fabric pattern.

Table 2: Micro factors influencing the house price

MICRO FACTORS (House specific factor)	FREQUENCY ANALYSIS (FA)										Relative Importance Index (RI)
	Extremely Important (5)	%	Very Important (4)	%	Moderately Important (3)	%	Less Important (2)	%	Not Important (1)	%	
1. Construction material is of high quality	92	46	87	43.5	19	9.5	2	1	0	0	0.869
2. Provision of adequate infrastructures & public facilities	76	38	106	53	15	7.5	3	1.5	0	0	0.855
3. Strategic location of house	62	31	120	60	16	8	2	1	0	0	0.842
4. The number of rooms is adequate	68	34	102	51	24	12	6	3	0	0	0.832
5. Adequate size of built up & housing lot	40	20	132	66	26	13	2	1	0	0	0.810
6. Proximity of adequate open spaces	41	20.5	110	55	44	22	5	2.5	0	0	0.787
7. Attractive house design	32	16	85	42.5	72	36	11	5.5	0	0	0.738
8. The area has good view	37	18.5	70	35	68	34	24	12	1	0.5	0.718
9. LRT/MRT is located nearby	42	21	44	22	28	14	80	40	6	3	0.636

## 5 CONCLUSION

In essence, this research has addressed the issue of how the provision of open space could influence the house price in selected townships located in Kuala Lumpur metropolitan areas, covering Taman Melawati, Subang Jaya, Bandar Baru Bangi and Shah Alam. Reviews on various related studies undertaken by many scholars worldwide stated that there a tendency of open space being a factor in determining house price. The result for this research demonstrate the same pattern, however the RII result informs that the relationship between open space and house price is rather weak and not significant. This finding may reflect the local context of Malaysian community did not regard the importance of open space in contributing to the house price even though experiences from other international cities recorded that the relationship could be considered as strong.

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