THE IMPACT OF PARK ON RESIDENTIAL PROPERTY VALUES

Noriah Othman[1], Farahwaheeda Shukur[2] and Abdul Hadi Nawawi[3]

[1,2,3]*Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA, Shah Alam, MALAYSIA*
noriaho @yahoo.com

ABSTRACT

Park and landscape has now become a prominent feature in the planning of residential area. The preservation of parks is now vitally considered to attract house buyers. This study attempts to evaluate the extent to which park give impact to residential property values in Bukit Jelutong Residential Area, Shah Alam, Selangor, Malaysia. The study is designed to achieve three main objectives which are first, to determine park related and non-park related factors that affect value of houses, second, to identify the importance of park to house buyers and third, to analyze the impacts of park related factors on value of houses. This research employed a multi-method approach included interviews with residential property developers, Geographic Information Systems (GIS) technique, a survey of resident house buyers and multiple regression hedonic pricing model. The survey results revealed that the five most important park related factors that are important to house buyers are conceptual or design of park and good development of park elements, near to park, existence of view to open space, active area of park facing house and existence of view to park. It also showed that for non-park related factors, locational topography and house size are the important factors. The multiple regression result revealed that the park has positive impacts on property values with near to park, existence of view to park, active area of park facing house and existence of view to open space identified as significant variables in the multiple regression hedonic pricing model which is consistent to the five most important park related factors from the house buyers survey.

Keywords: park, GIS, survey of residents, regression, property values

1. BACKGROUND AND OBJECTIVE

The planning of residential area, park and green spaces has now become prominent and recognized as an important feature. People are more aware to the benefits of parks in achieving comfort and quality of life. Studies on the important of preserving parks and other open space lands by Lo et al. (2003) found that people in compact city put more emphasizes on natural environment and comfort in the design of urban open spaces including parks. Their research resulted strongly to support that urban design should strike a balance between natural and man-made environment. They clearly show that people who live and works in a high density would looks for open spaces with plants, sunlight and wind. In another words, the preservation of parks and green spaces is very important.

According to Dehring and Dunse (2006), providing and maintaining parks are important because there are economic benefits as revealed through the increase in house prices. The value of a property is related to the number of factors such as the characteristics of the house, the characteristics of the residential environment and the location of the house. A recent study by Visser and Dam (2006) found that the sales price of a house is the sum of the value of its different attributes or characteristics. The influence of these attributes is important on house prices. They all have a positive effect on house prices and account for a premium depending on the way characteristics have been measured. Given that different attributes or characteristics will result in differences in property values, parks may have a positive impact on housing sales prices.

The argument that parks and open spaces have a positive impact on property values derives from the observation that people frequently are willing to pay a larger amount of money for a home located

ISSN 1675-5022

close to these types of areas, than they are for a comparable home further away. Crompton (2001) concludes that effects on property values reflect people's willingness to pay. Thus, real estate dealers have always drawn attention to green space near their properties for sale or rent and show that recreational features contribute to increased valuations for property near parks.

Bukit Jelutong Residential Area which is located in Shah Alam, Selangor, Malaysia is chosen as the research area (See Figure 1). Bukit Jelutong Residential Area has been selected as the research area because it is strategically known as the 'sub-city' to Shah Alam, Selangor, Malaysia. The development has started in 1995 is covering about 2,205 acres of area. In addition, Bukit Jelutong Residential Area has been selected due to its emerge as one of the best elite property development project in Klang Valley through its well planned and carefully designed layout. The design has been awarded the '*Best Town Planning Award'* in 1997, '*Best Neighborhood Landscape in Selangor Award'* in 2001 and *'Corporate Social Responsibility Award'* in 2004. By considering the awards achieved, the research area conform with a study by Nicholls (2002) which states that a well-designed and well-managed open space such as parks may not only improve resident's quality of life, but also enhance outsiders' perceptions.

As mentioned earlier, Bukit Jelutong Residential Area is a low-density and self-contained planned community. Bukit Jelutong Residential Area contains a variety of open spaces such as park, playgrounds and many large open green lungs. The park serves as the largest park to the community

which offers wetlands, water features, pergolas, other facilities such as reflexology paths, exercise stations, timber decks and gazebos. The whole park is also rich with variety of palms, trees, shrubs and groundcovers.

Nowadays, in the property sector, market demand for property is growing higher for the interest of quality of life. Current buyers seem more selective in choosing their residential property to justify their investment. Therefore, current developers that have noticed this kind of demands tend to improve the value of their property by introducing aesthetic elements such as natural, green spaces and parks allocation and also a sense of peace of mind to their design.

Unfortunately, most developers tend to provide a basic guideline approval in developing open spaces. They try to preserve the minimum space of green areas to save costs especially when it comes to environmental issue regarding green areas and parks. However, the situations will change if they noticed the economic value of green areas and parks (Naofumi, 2007). Fortunately, there are some developers who are still willing to allocate an extra cost to allocate an extra cost to improve the environmental aspects of their development schemes and willing to invest to a maximum cost for optimum results of parks. Various concepts have been introduced from other countries just because of their sensitivity on current trend and demand. According to Lee (2007), S P Setia Berhad is one of the local property developers that is committed to use the green theme in their development and have preserve the environment. Presently, they have proven their investment of worth and benefits to residents and as a result of their serious commitment towards environmental issue, they are now working out a growing number of international property projects.

Over the years, developers tend to develop their property by fulfilling the minimal local authority requirement for approval. However, the situations changed by the demand from a growing a well-educated society. Consumers' expectations have forced developers to address the issue seriously. Now, landscape is one of the most important selling points and has become a tool for developers to entice prospective buyers. Developers are not selling houses, but a planned community, house with an environment (Shariff, 2005).

According to Ng (2005), developers would emphasize on a greater need for security, luxury and greenery based on research on trends, doing by their own team. It was reported that the Gamuda Land, a leading developer has created an eco-friendly environment up to fourty percent (40%) of land which is dedicated to green features and open spaces in different housing projects. Therefore, the questions arise on the percentage of increment of the total property values once the environment aspect is taken into consideration.

The aim of this research is to evaluate the extent to which parks provide an impact to residential property values in Bukit Jelutong Residential Area, Shah Alam, Selangor, Malaysia. The objectives include the following:

1) To determine park related and non-park related factors that affect value of houses.
2) To identify the importance of parks to house buyers.
3) To analyze the impacts of park related factors on value of houses.

In order to answer the aim and objectives of the study, the research questions were developed as follows:

i) What is the determining park related and non-park related factors that affect value of houses?
ii) What kind of parks elements are preferred by residents in a residential area?
iii) Does park contribute as an important factor in increasing property values?
iv) Is there any positive impacts of parks on property values to house buyers?
v) Is there any significant relationship between park-related factors and house price?
vi) How much is the marginal implicit price of the total property values for houses located near to park?

This finding of the research would be useful to local authorities, urban planners, guideline on provision of parks to developers, corporate bodies, individuals and other related agencies involved in park and residential property development.

2. METHODOLOGY

The study employed a multi-method approach. The main elements of this research included:

a) Interviews with head of three departments of developer Bukit Jelutong Residential Area.
b) Geographic Information Systems (GIS) technique.
c) A survey of residents house buyers living in proximity to the park
d) A multiple regression hedonic pricing model.

2.1 Interviews with head of three departments of developer Bukit Jelutong Residential Area

Interviews were conducted with three departments of Property Development, Sales and Marketing, Environmental Management or Landscaping of Sime Darby Berhad. These departments are responsible for the development of the research study area and very familiar to the site. The initial face to face interviews commenced in June 2008 and completed over one month period. The interviews were conducted in average 1 to 3 hours. The interviews were aims to obtain their perceptions on the impact of park on property values. The interview, in addition will be a platform to gain actual insight to the study area and its important characteristics or features which might assist in survey process and the development of the multiple regression hedonic pricing model.

2.2 Use of Geographic Information Systems (GIS) techniques

The Geographic Information Systems (GIS) was used to determine radius size based on geographical factors, the number of respondents (houses) within the radius and to create distance. The radius of 600 m or 1,500 ft was chosen as the buffer zone from the selected point of park (Figure 2). A total unit of houses that has been identified is 449 houses.

2.3 Survey of residents house buyers

This survey was used to ascertain residents' perceptions to the impact of park on property values. The survey was conducted from July to September 2008 within 2 months. The total number of respondents that involved in this survey was 449. A set of questionnaire that contained three sections has been distributed to every house buyers living in Bukit Jelutong within 600 m radius. The questionnaire is divided into three sections. The first section deals with demographic background of the respondents. The second section deals with the factors that affect house values. The third section deals with the importance of park to house buyers.

2.4 Development of Multiple Regression Hedonic Pricing Model

Regression has been chosen to represent the best prediction of dependent variable from several independent variables. According to Lucey (2002), a model which incorporates several independent variables is known as hedonic pricing model. The hedonic pricing model is using to seek the marginal value or implicit prices of characteristics associated with proximity to a park within 600m radius. A site analysis and physical inspection was made by researcher to collect information for building, locational and neighborhood variables even though the data was collected earlier from developer and valuer.

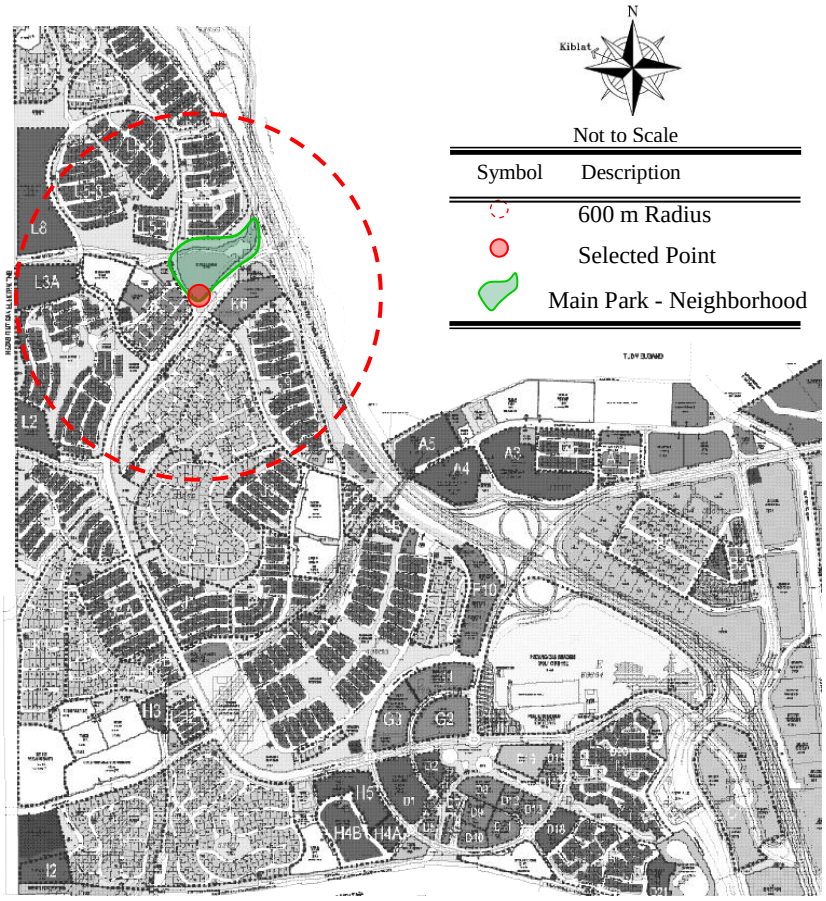

Figure 2: Map of Bukit Jelutong Township Development showing the radiuses of 600 m and the location of selected point of the park

3. RESULTS

3.1 Interview Results

Opinions from the head of department of Property Development, Environmental and Landscaping Management and Sales & Marketing of Sime Darby Berhad were fairly consistent regarding the impact that gives by the existence of park to Bukit Jelutong Residential Area. All of them agreed that park is one of the determine factors that normally affect the value of houses in that area. Sime Darby itself admitted that any of their houses located near to park will see a 10% increment. They already provided an additional percentage of green area to their development (normally 10% – guideline by local authority) purposely to increase the house value and to attract house buyer to their concept of green development. According to their Sales and Marketing Department, house located nearer to park is highly demand and fast in sale. However, more positive impact towards the value of houses can be seen if park is develops with a good design or concept and well-maintain. All of the representatives identified that the house values in the Bukit Jelutong neighbourhood was steadily increasing in real estate market. Meanwhile, they also felt that location of the neighbourhood and the prestige of Bukit Jelutong play a role in contributing to current market price. Lastly, they indicated that when giving presentations to potential house buyers, they would include and highlight the park as one of the neighborhood attractions.

3.2 Survey Results

The total number of respondents who participated in this study is 449 respondents which are residents house buyers within 600 m radius of the main park. Of these, a total of 289 questionnaires were completed for a response rate of 63.1% (Table 1).

Table 1: Survey Response Rate

Description	Frequency	% response
Answered	289	64.4%
Non-answered	160	35.6%
Total	449	100%

a) Mean Results for Determining Park Related and Non-Park Related Factors That Affect Value of Houses

i) Ranking of the Mean Results for Park Related Factors

Table 2 shows the ranking of the mean results of park variables. The analysis showed that the most influential or determine factor, according to the ranking of the mean results were conceptual or design of park and a good development of park elements. The second influential or determine factor related to near to park. The third influential or determine factor was the existence of a view to an open spaces. Meanwhile, to have an active area of park facing their houses and have an existence of a view to parks were ranked the fourth and fifth important factors. Furthermore, other factors, on average, rated moderate by respondents were the house with facing park, house backing park and to have a passive area of park facing their houses. The least influential i.e. not important rated by respondents was an accessibility to park.

Table 2: Ranking of the Mean Results for Park Variables

Park variables	Mean	Rank
Conceptual or design of park	4.42	1
Development of park elements	4.42	1
Near to park	4.28	2
Existence of view to open space	4.25	3
Active area of park facing house	3.79	4
Existence of view to park	3.77	5
Housing facing park	3.28	6
House backing park	3.21	7
Passive area of park facing house	3.10	8
Accessibility to park	2.45	9

Notes: Important rating scale is 1 = extremely not important, 2 = not important, 3 = moderate, 4 = important, 5 = very important.

ii) Ranking of the Mean Results for Non-Park Related Factors

Locational and Neighborhood Variables

Table 3 shows the ranking of the mean results for locational and neighborhood variables. The results obtained displayed locational topography was the most influential or determine factors on respondents' house buying decisions. The second factors related to privacy of neighborhoods. Security or safety of neighborhoods and maintenance level or quality of neighborhoods were ranked the third and fourth very important factors The next important factor were the prestige of Bukit Jelutong, proximity to park, proximity to public service, location of the house, proximity to religious house, accessibility to highways or major road and proximity to petrol pump station. The least influential or determine factors according to a ranking of mean was distance to central business district.

Table 3: Ranking of the Mean Results for Locational and Neighborhood Variables

Locational and Neighborhood Variables	Mean	Rank
Locational topography	4.52	1
Privacy of neighborhoods	4.49	2
Security or safety of neighborhoods	4.40	3
Maintenance level or quality of neighborhoods	4.39	4
The prestige of Bukit Jelutong	4.27	5
Proximity to public service	4.06	6
Location of the house	4.03	7
Proximity to religious house	3.94	8
Accessibility to highways or major road	3.88	9
Proximity to petrol pump station	3.52	10
Distance to Central Business District	2.32	11

Notes: Important rating scale is 1 = extremely not important, 2 = not important, 3 = moderate, 4 = important, 5 = very important.

Building Variables

Table 4 shows the ranking of the mean results of building variables. As can be seen from the table below, the most influential or determine factors was house size. The second factor was lot size and the third factors were sale or rent price and resale value or investment. All the above variables were rated as very important by respondents. Next important were factors related to the good design of house, number of room, number of bathroom, house type, state of repair, house extension, good exterior condition of house, parking, kitchen cabinet, floor finishes, kitchen extension, corner lot, green area in house lot, fence and intermediate lot. It is apparent from this table that majority of respondents rated house size as very important or determine factor.

Table 4: Ranking of the Mean Results for Building Variables

Building variables	Mean	Rank
House size	4.55	1
Lot size	4.54	2
Sale or rent price	4.53	3
Resale value or investment	4.53	3
Good design of house (interior or exterior)	4.48	4
Number of room	4.48	4
Number of bathroom	4.45	5
State of repair	4.43	6
House type	4.43	6
House extension	4.36	7
Good exterior condition of house	4.35	8
Parking	4.22	9
Kitchen cabinet	4.22	9
Floor finishes	4.18	10
Kitchen extension	4.10	11
Corner lot	4.09	12
Green area in house lot	4.07	13

Fence	3.83	14
Intermediate lot	3.74	15

Notes: Important rating scale is 1 = extremely not important, 2 = not important, 3 = moderate, 4 = important, 5 = very important.

Multiple Regression Result

The first part of the output shown in Table 5 shows the independent variables that were entered using the Stepwise method. The stepwise regression with linear functional form identified only 10 independent variables. The second part is shown in Table 6. The table below shows the model summary from model 1 to model 10. The model also reports the multiple R and R square which is the correlation between the predictor variables combined and the dependent variable. It can be seen from the table below, the model was highly significant with R Square value of 0.972 meaning that 97.2% of the variation in the house price was explained by the model and show the expected regression coefficient signs. Model 10 is better than other model can also be seen in Table 6 by the increase in the Adjusted R Square value and lower Standard Error of the Estimate.

Table 5: Variables Entered

Model	Variables Entered
1	Near to park
2	Privacy of neighborhoods
3	Existence of view to park
4	House to public service
5	Lot
6	Active area of park facing house
7	Existence of view to open space
8	Distance to Central Business District
9	Location of the house
10	Proximity to petrol pump station

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.820(a)	.673	.672	80816.538
2	.892(b)	.795	.794	64087.735
3	.934(c)	.873	.872	50525.459
4	.970(d)	.941	.940	34458.518
5	.980(e)	.961	.961	27919.613
6	.984(f)	.968	.967	25489.925
7	.985(g)	.971	.970	24361.796
8	.986(h)	.972	.971	24021.409
9	.986(i)	.972	.972	23762.223
10	.986(j)	.972	.972	23685.052

a. Predictors: (Constant), Near to park
b. Predictors: (Constant), Near to park, Privacy of neighborhoods
c. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park

d. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park, House to public service
e. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park, House public service, Lot
f. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park, House public service, Lot, Active area of park facing house
g. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park, House public service, Lot, Active area of park facing house, Existence of view to open space
h. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park, House to public service, Lot, Active area of park facing house, Existence of view to open space, Distance to Central Business District
i. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park, House to public service, Lot, Active area of park facing house, Existence of view to open space, Distance to Central Business District, Location of the house
j. Predictors: (Constant), Near to park, Privacy of neighborhoods, Existence of view to park, House to public service, Lot, Active area of park facing house, Existence of view to open space, Distance to Central Business District, Location of the house, Proximity to petrol pump station

The final table is entitled Coefficients and shown in Table 7. This table contains information needed to evaluate the significance of individual independent variable and for comparing the relative importance of each one. The Sig. value corresponding to each variable is to determine whether that variable is significantly related to the dependent variables or not. From this data, we can see that almost all independent variables were significantly contributing to the equation. According to the standardized coefficients in Model 10 from the table 7 below, the most influential factors on house prices for park related factors was distance to park. House that located near to park has a positive impact on house price. The marginal implicit price for houses located near to park added RM158,173.604 to the sale price.

Table 7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
10	(Constant)	571,990.687	6,591.346		86.779	0.000
	Near to park	158,173.604	4,738.456	0.463	33.381	0.000
	Privacy of neighborhoods	124,933.061	4,985.173	0.346	25.061	0.000
	Existence of view to park	152,713.045	6,051.108	0.279	25.237	0.000
	House to public service	99,392.044	3,281.392	0.352	30.290	0.000
	Lot	20,477.369	1,943.688	0.112	10.535	0.000
	Active area of park facing house	81,135.631	9,507.167	0.085	8.534	0.000
	Existence of view to open space	9,209.447	3,370.244	0.033	2.733	0.007
	Distance to Central Business District	-10,248.566	2,595.032	-0.093	-3.949	0.000

	Location of the house	7,037.399	2,089.774	0.045	3.368	0.001
	Proximity to petrol pump station	5,683.410	2,890.774	0.038	1.966	0.050

4. CONCLUSIONS

From the results of the survey, it is clear that the five (5) most important park related factors that are important to house buyers are conceptual or design of park and good development of park elements, distance to park, existence of view to open space or green area, active area of park facing house and existence of view to park. Residents house buyer also view the locational topography and house size as important factors for non-park related factors.

The results of multiple regression revealed that the park has a positive impact on property values. Running with a multiple regression hedonic pricing model with stepwise method, the significant variables according to standardized coefficient relates to the distance to park, existence of view to park, active area of park facing house and existence of view to open space or green area which is consistent to the five (5) most important park related factors from the house buyers survey.

REFERENCES

Crompton, J. L. (2001). The Impact of Parks on Property values: A Review of the Empirical Evidence. *Journal of Leisure Research,* 33(1): 1-31.

Dehring, C. and Dunse, N. (2006). Housing density and the effect of proximity of public open space in Aberdeen, Scotland. *Real Estate Economics,* 34(4): 553-556.

Lee, C. (2007). S P Setia excited about 'green' theme. The Edge Malaysia. August 6-August 12.

Lo, S.M., Yiu, C.Y. and Lo, A. (2003). An analysis of attributes affecting urban open space design and their environmental implications. *Management of Environmental Quality: An International Journal*, 14(5): 604-614.

Lucey, T. (2002). *Quantitative techniques. 6th Edition.* London: Thomson.

Naofumi, Y. (2007). *Evaluating the impact of green spaces on land piece in urban areas. A case study in Setagaya Ward, Tokyo, Japan.* Paper presented at 44th IFFLA 2007 World Congress, Kuala Lumpur and Putrajaya, Malaysia.

Ng, A. (2005). Gamuda offers vast expanse of green to home buyers. The Star-StarBiz. January 17.

Nicholls, S. (2002). Does open space pay? *Measuring the impacts of green spaces on property values and the property tax base*. Doctor of Philosophy. Texas A&M University.

Shariff, M. (2005). Guthrie properties supports Astro Ria "Ekspresi laman". Newsletter Volume 2, Shah Alam, Selangor.

Vissers, P. and Dam F.V. (2006). *The price of the spot. Neighborhood characteristics and house prices in Netherlands.* In: ENHR International Conference, Urban Planning Institute of the Republic of Slovenia, 2nd-5th July 2006, Ljubljana, Slovenia.