

A Spatial Analysis on GIS-Hedonic Pricing Model on the Influence of Public Open Space and House Price in Klang Valley, MALAYSIA

A. MZainora^{a,*}, M. N. Norzailawati^a, & P. Tuminah^a

^a Kulliyah of Architecture and Environmental Design, International Islamic University Malaysia, Jalan Gombak, 53100, Kuala Lumpur, Malaysia - (zainora, norzailawati)@iium.edu.my

* Corresponding author

1.0 Introduction

Presently, it is noticeable that there is a significant influence of public open space about house price, especially in many developed nations. Literature suggests the relationship between the two aspects give impact on the housing market, however not many studies undertaken in Malaysia. Thus, this research was initiated to analyse the relationship of open space and house price via the techniques of GIS-Hedonic Pricing Model (HPM). In this regards, the GIS tool indicates the pattern of the relationship between open space and house price spatially. Meanwhile, Hedonic Pricing Model demonstrates the index of the selected criteria in determining the housing price. This research is a perceptual study of 200 respondents who were the house owners of double-storey terrace houses in four townships, namely Bandar Baru Bangi, Taman Melawati, Subang Jaya and Shah Alam, in Klang Valley. The key research question is whether the relationship between open space and house price exists and the nature of its pattern and intensity. The findings indicate that there is a positive correlation between open space and house price. Correlation analysis reveals that a weak relationship ($r_s < 0.1$) established between the variable of open space and house price ($r_s = 0.91$, $N = 200$, $p = 0.2$). Consequently, the rate of house price change is rather small. In overall, this research has achieved its research aims and thus, offers the value added in applying the GIS-Hedonic pricing model in analysing the influence of open space to the house price in the form of spatially and textually.

Context of the Study

1. an increasing awareness that urban environmental quality is highly favoured by the existence of accessible, protected and well maintained green spaces within cities, eg, parks, green provisions and fields
2. there is a growing trend in the Malaysian housing price.
3. not many studies undertaken to examine the relationship between the provision of open space and house price in the Malaysian context

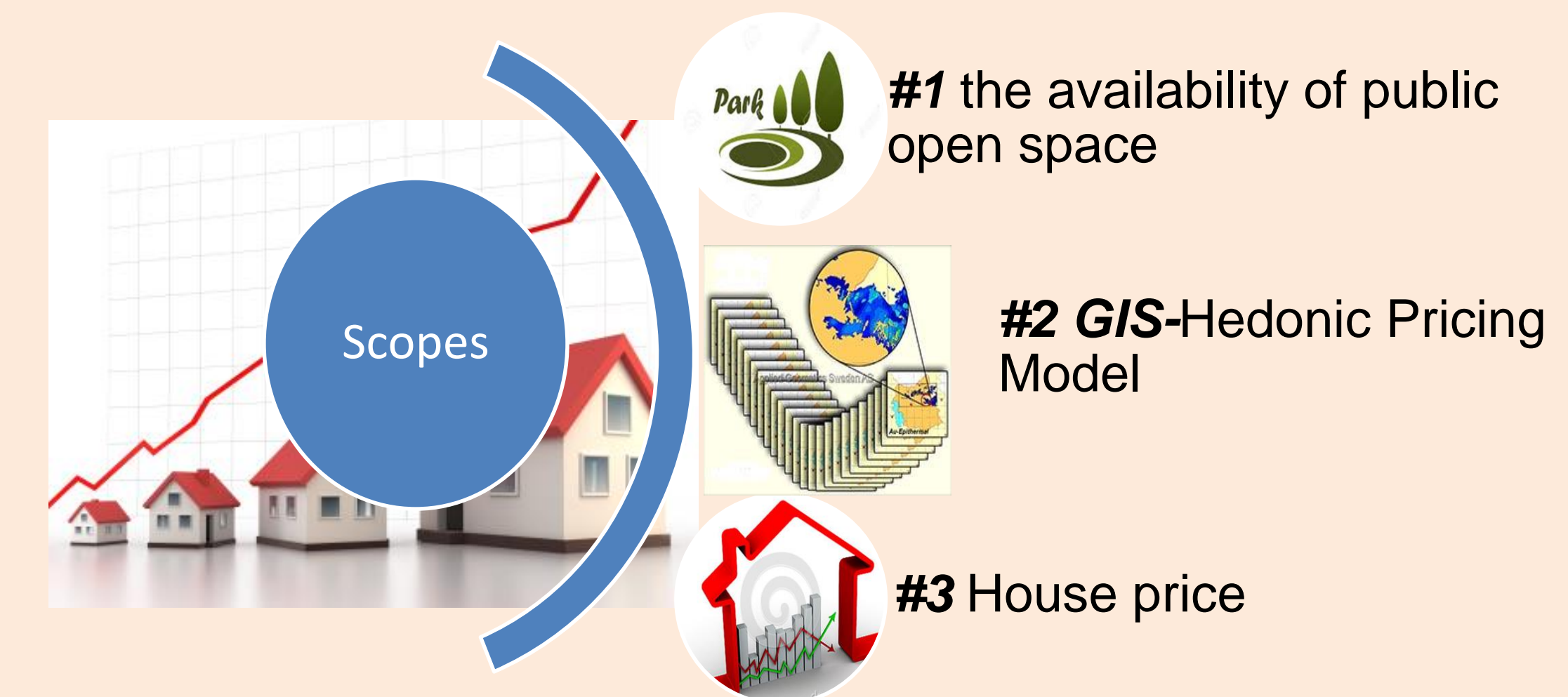


Fig. 1: Scopes of the study

Literature Review on GIS-HPM, Open Space and House Price

1. GIS application in determining house price
2. Public Open Space as an Environmental Goods
3. Factors contribute to the quality of open space

2.0 Research Methodology

Questionnaire Survey

- the 'structured and close-ended' questionnaire survey (N=200 population)
- the targeted population selected encompassed by those reside in Shah Alam, Subang Jaya, Taman Melawati & Bandar Baru Bangi, located within the areas of Klang Valley (Figures 2,3,4 & 5).
- three sections: backgrounds of respondents; information on the house; and factors influence the house price
- the HPM is used to measure the relative importance through the use of regression analyses of variables on house and property prices and the price of a house
- $P = f(x_1, x_2, \dots, x_n)$
- Where P is the market price of the housing and x_1, x_2, \dots, x_n are the characteristic contained in the property. The average house price of per residential district as the housing price (P); location (LST), size (ADS), hierarchy (HCU), facilities (FSSU), maintenance (RM) and cleanliness (CWK).

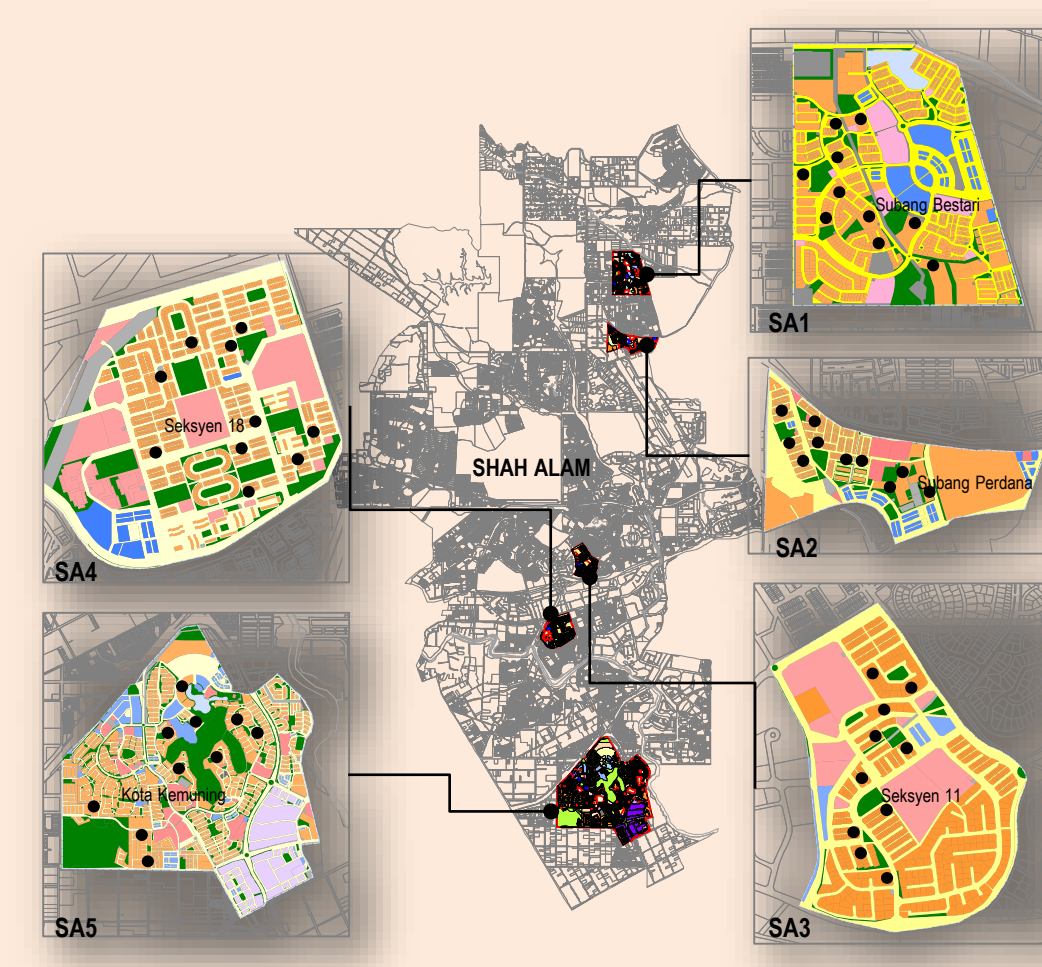


Fig. 2: Shah Alam

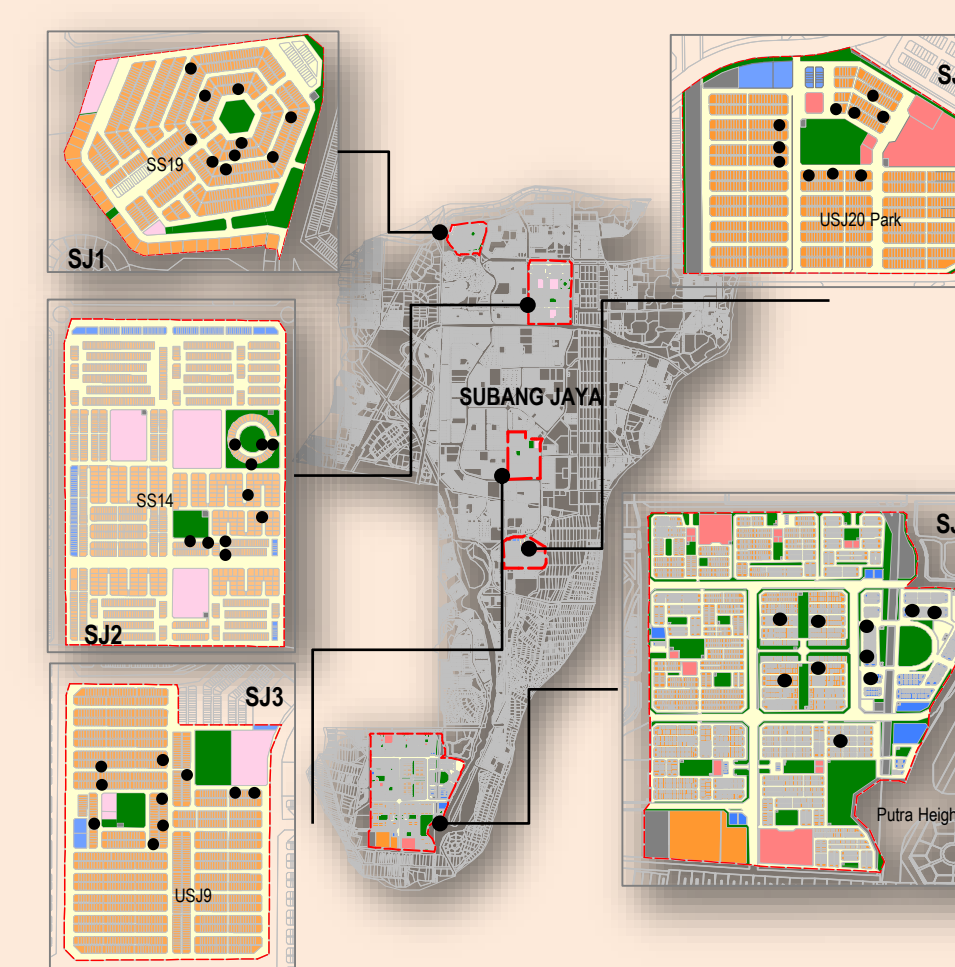


Fig. 3: Subang Jaya

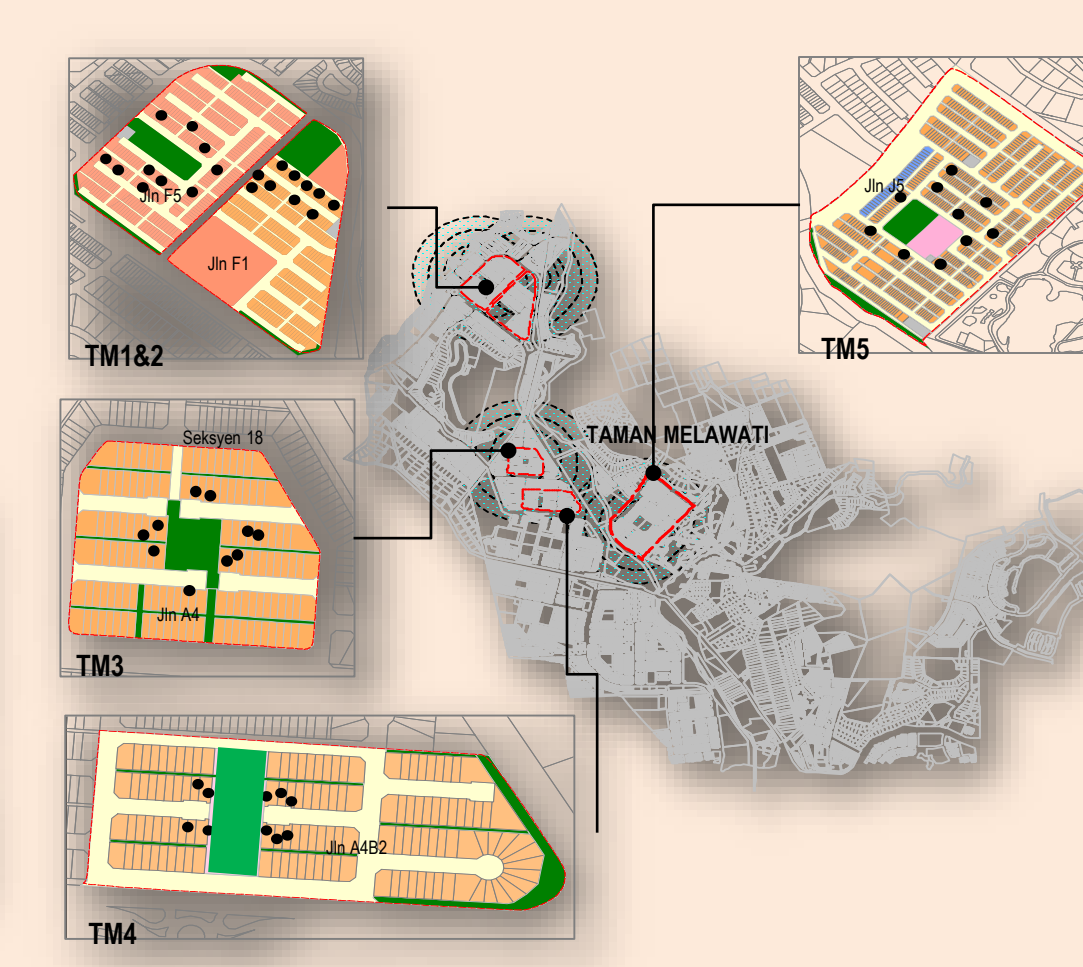


Fig. 4: Taman Melawati

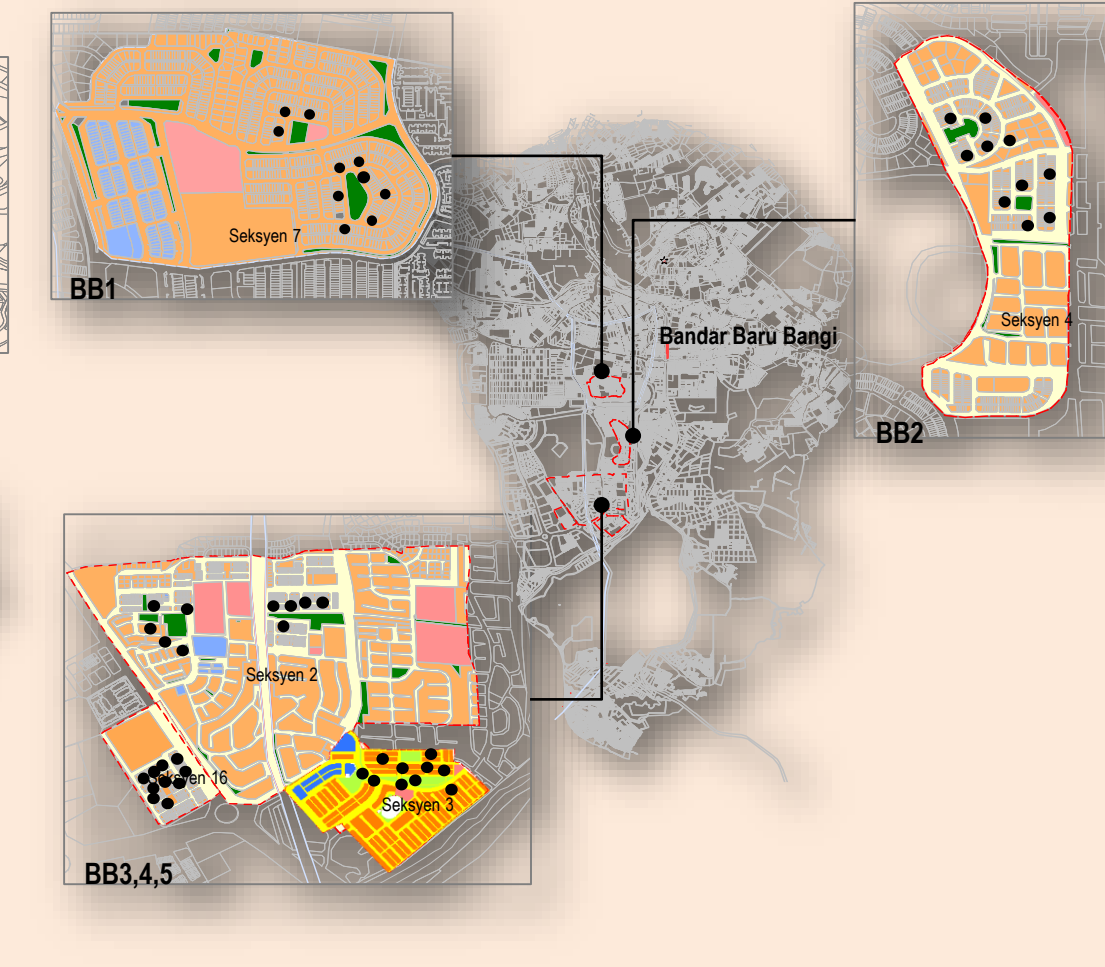


Fig. 5: Bandar Baru Bangi

3.0 Research Findings

Prioritising elements of open space

Elements of Open Space	Extremely Important (5)	Very Important (4)	Moderately Important (3)	Slightly Important (2)	Not Important (1)	Relative importance Index (RII)
Management aspect						
1. Cleanliness is well kept (CWK)	114	68	16	2	0	0.894
2. It has regular maintenance (RM)	100	84	14	2	0	0.882
3. The facilities provided are sufficient and suitable to the users (FSSU)	89	93	16	1	1	0.868
Planning aspect						
1. The location is strategic (LST)	76	98	23	2	1	0.846
2. The size is adequate (ADS)	67	103	25	3	2	0.830
3. The hierarchy fulfils the catchment area of users (HCU)	55	84	53	5	3	0.783

Table 1: The importance of elements of open space

- ✓ the key element of open space opted by the community is the aspect of cleanliness whereby its RII is 0.894.
- ✓ The users are looking for a well-kept open space that is 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.
- ✓ they preferred to have the proper management of the open space for sustainable use of their family members-conforms to a study by Bedimo-Rung, Mowen and Cohen (2005) in the USA, demonstrates the importance of the management aspect of open space is highly regarded by the users.

The Influence of Open Space to House Price

Spearman's Rho		Will the existence of open space to increase the price of your house?	Offered price of house (if plan to sell)
Will the existence of open space to increase the price of your house?	Correlation Coefficient	1.000	.091
	Sig. (2-tailed)	.	.199
The offered price of a house (if plan to sell)	Correlation Coefficient	.091	1.000
	Sig. (2-tailed)	.199	.
		N	200

Table 2: Correlation between existence of open space and offered price

- ✓ The relationship between the existence of open space with the offered price was conducted using a Spearman correlation analysis.
- ✓ The results from the correlation analysis revealed ($r_s = 0.091$, $N = 200$, $p = 0.2$) that is a weak relationship ($r_s < 0.1$) between these two variables (Table 2).
- ✓ The result suggests that there is a low concern within respondents on the existence of open space in term of deciding to offer price if they plan to sell their houses.

4.0 Conclusion

The modelling results could be used to inform policy decisions concerning urban open space preservation and allocation. Using a GIS-supported spatially explicit approach in the HPM could also help in targeting specific locations for the construction of urban open space. This study also applied GIS techniques of Klang Valley open spaces to measure the impact our residential on property value. This study not only provides a better understanding of the relationship between house prices and open spaces in Klang Valley but it also a new perspective on investment strategy on urban open spaces for the city policy makers. This study shows that the environmental dimension plays a significant role in the spatial structure of residential house prices. Moreover, the significance of interactive variables shows that the consideration of combined influences is useful for a better understanding of the residential market.

Selected References:

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