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Determinants of Housing Satisfaction in Klang Valley, Malaysia

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Abstract

Housing policies and programs have long been developed and implemented to ensure that all have access to adequate housing in Malaysia. Despite efforts by both public and private housing providers, there are various issues relating to the housing delivery system that have undermined the success of housing achievement for the past 30 years. In order to achieve sustainability in the housing industry, public and private housing providers should regulate their housing activities to suit homeowners' needs and wants by examining factors which account for housing satisfaction or dissatisfaction among homeowners. Determinants found significant in the study were housing, neighborhood, location and socio-demographic variables. In addition, the degree of housing satisfaction may depend on the types of externalities of homeownership that homeowners are expected to receive.

Introduction

Meeting housing needs has long been an objective of the national housing policy in Malaysia. Housing policies and programs are developed and implemented to ensure that all have access to adequate housing. The public sector holds an important social responsibility in fulfilling the housing needs for lower income groups by supplying public low cost housing. The public sector is also directly responsible for providing public housing in urban areas through the establishment of the various government and urban development agencies. The public

sector alone cannot meet the housing needs for all in the country. Thus, the private sector plays an important role in providing housing to all levels of society in the country. There are two distinct components within the private sector, and they are licensed private housing developers and construction firms. Private housing developers generally provide the organization, entrepreneurial skills and capital required for housing development including the purchase, conversion and subdivision of land, whereas construction firms usually build houses based on contracts given by housing developers.

Despite efforts by public and private sectors, there are various problems and issues relating to the housing delivery system that have undermined the success of housing achievement under various Five-Year Malaysian plans for the past 30 years. First, public sector and the private sectors have been giving low priority to the low-cost housing program. The completed low-cost houses fall below the targeted level. On the other hand, the construction of medium- and high-cost housing by both sectors has exceeded targeted level during the Five-Year Malaysia Plans (Malaysia 1986; Malaysia 1991; Malaysia 1996; Malaysia 2001; Malaysia 2006). Second, a massive over construction of medium- and high-cost housing has contributed to the problem of property overhang (Ministry of Finance's Valuation and Property Service Department 2009). The majority of overhang units remain unsold for reasons beyond the price factor, ranging from poor location to unattractive houses with lack of adequate amenities and facilities (Tan, 2008). These unsold houses do not attract the target market nor cater to the housing needs of the targeted house buyers. Another issue that undermines the success of meeting housing needs is the problem of abandoned housing projects (Ministry of Finance's Valuation and Property Service Department 2009). Owning a house is every person's dream, but their dreams have turned into nightmares after the homes they bought are left uncompleted. In most cases, the victims are the low and middle income groups. They start repaying their housing loans even though the houses they have purchased were nowhere near completion. There is also clear evidence that house owners face the problems created by errant house

builders. The problems range from the irritating ones like leaking roofs and uneven flooring to more serious ones like sub-standard house quality and unpleasant neighborhoods.

In order to achieve sustainability in the housing industry in Malaysia, the public and private sectors should regulate their housing activities to suit households' needs and wants. One way to meet households' housing needs is to examine factors which account for housing satisfaction or dissatisfaction among homeowners. In other words, public and private sectors should understand a detailed knowledge of housing satisfaction parameters to ensure that all Malaysians have access to adequate housing.

Housing satisfaction is recognized as an important component of home owners' general quality of life (Adam 1984). The degree to which home owners' needs and aspirations are met by their housing conditions is a concern for housing developers. Measures of housing satisfaction provide necessary information to evaluate the performance and success of the current and future housing projects (Preiser 1989, Natham 1995). Thus, the result of this study would assist housing developers in understanding and predicting the overall satisfaction of their housing development projects.

Literature Reviews

Housing and Neighborhood Characteristics

Most empirical studies have identified a number of important determinants of housing satisfaction, such as housing and neighborhood characteristics. Housing and neighborhood characteristics can be measured through objective and subjective attributes of housing (Francescato, Weidemann and Anderson 1989; Wiedemann and Anderson 1985). Objective measures refer to the evaluation of the physical characteristics, facilities, services and environment, whereas subjective measures refer to perception, emotions, attitudes, and also

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intention towards the housing attributes (Mohit *et al* 2009). Most housing satisfaction studies have integrated both objective and subjective attributes of housing for the assessment of housing satisfaction.

Savasdosara, Tips and Suwannodom (1989) found that friendly and helpful neighbors, public facilities such as recreational facilities and parking space, environmental conditions such as cleanliness, and housing and location characteristics are important considerations to the formation of housing satisfaction of 1100 households in Bangkok. Lu (1999) reported that housing and locational variables have significant effects on housing satisfaction using the data from the 1989 American Housing Survey. Elsinga and Hoekstra (2005), using eight EU countries data from the European Community Household and Panel (ECHP), found that housing quality is an important determinant of housing satisfaction. Their results also show that the housing quality index and the subjective perception of the dwelling size have the largest influence on housing satisfaction. Salleh (2008) found that the dwelling unit factor (area of the dining, kitchen and living room), the neighborhood factor relating to educational facilities, the neighborhood factor relating to security infrastructure (police, parking lot, fire brigade, facilities for the handicapped) and the neighborhood factor relating to central facilities (telephone, market, public transport) are the most important determinant of housing satisfaction among residents in private low cost housing in Malaysia. Similar findings in Spain were reported by Vera-Toscano and Alteca-Amestoy (2008) using the survey on Living Condition and Poverty, housing quality, the space available in the house, locational and neighborhood characteristics are significantly associated with housing satisfaction.

Socio-Demographic Characteristics

In addition to housing and neighborhood determinants, households' socio-demographic variable ought to be taken into consideration in evaluating housing satisfaction. Empirical studies have identified a

number of important households' socio-demographic determinants of housing satisfaction, such as age, educational attainment, income, and life cycle changes (Halimah and Lau 1998; Lu 1999; Amole 2009).

Among the individual and household socio-demographic characteristics, age shows a positive effect (Morris and Winter 1975; Rogers and Nikkel 1979; Galster and Hesser 1981; Lu 1999). Older people tend to be more satisfied with their dwelling than do younger people, ceteris paribus. However, a study by Mohit et al (2009) indicated that age of the households is negatively related to housing satisfaction.

Previous works by Campbell et al (1976), Galster and Hesser (1981), Morris and Winter (1975), Rogers and Nikkel (1979), Lu (1999), and Vera-Toscano and Alteca-Amestoy (2008) indicated that higher income households are generally satisfied with their housing conditions and neighborhood. Similarly, the higher the education level of the heads of the household, the more satisfied they are with their housing as compared to household heads with lower educational attainment (Vera-Toscana and Alteca-Amestoy 2008). However, Lu (1999) found that education appears to have insignificant effects on housing satisfaction.

Homeownership Externalities (Homeownership)

Homeownership or housing tenure has been shown to exert a profound influence on residential evaluation. Many studies reveal that housing satisfaction is much higher among homeowners compared to renters (Galster and Hesser 1981; Morris and Winter 1975; Roger and Nikkel 1979; Loo 1986; Rohe and Stegman 1994; Rossi and Weber 1996; Rohe and Basolo 1997; Lu 1999; Lu 2002; Barcus 2004; Elsinga and Hockstra 2005; Vera-Toscana and Alteca-Amestoy 2008). The most likely explanation for this is that homeownership gives homeowners a greater sense of control over their housing units. For example, homeowners have more control over who enters their units, and renovate their units they wanted (Kaitilla 1993; Lu 2002). Homeownership also provides a feeling of security and personal

identity, and therefore higher self-esteem (Rohe and Stegman 1994). Housing can act as means of establishing and communicating social status and this, in turn, impacts self-esteem. Self-esteem is an important factor in portraying individual wellbeing and is largely determined by how a person believes others see him. Homeownership may then have a feeling of achievement (Rohe, Van Zandt and McCarthy 2001).

Previous housing studies focused on the relationship between homeownership and housing satisfaction and test whether homeowners are satisfied with their housing and neighborhood conditions. Majority of the studies show that homeowners generally are satisfied with their housing. However, these studies do not explain to what extent homeownership affects housing satisfaction. It is reasonable to believe that the degree of housing satisfaction may depend on types of externalities of homeownership that homeowners are expected to receive.

There is much evidence that homeownership is associated with externalities. Households choose how to behave from among alternative courses of action based on their expectations of what there is to gain from each action. In this case, households choose to be homeowners because they see a favorable combination of what is important to them and what they expect as a reward or benefit. Externalities of homeownership can be found in many housing surveys, ranging from social to economic benefits. There is little empirical evidence to explain to what extent expected externalities of homeownership influence housing satisfaction. Therefore, this paper intends to fill the gap that currently exists in housing satisfaction literature by developing an understanding on which expected externalities of homeownership contribute to overall satisfaction of home owners in Malaysia.

Homeownership programs have been often justified by claim that it is beneficial to both household and society, ranging from socio to economic benefits. Rohe and Steward (1996) confirmed that a higher rate of homeownership is often thought to promote the stability in the

neighborhood. The study suggests that householders normally buy their house units only if they are committed to remaining in a neighborhood for a long time as transaction costs associated with buying and selling houses are relatively high. Buying a house involves a lot of transaction costs such as legal fees, stamp duty and mortgage processing fees, as well as hidden costs such as the time it takes to find the right house. Households choose to be homeowners only when they are reasonably sure that they will not incur such costs again for a long time. The length of stay in residence may be shown to have a positive association with housing satisfaction. The longer the homeowners stay the more satisfied they become. One possible explanation is that through the passage of time homeowners are adapted to the living conditions of their housing environment (Kasarda and Janowitz 1974; Amole 2009; Mohit, Ibrahim and Rashid 2009). Given the reduced mobility that homeowners possessed, it is reasonable to believe that duration of residence is a predictor of housing satisfaction.

They also argued that homeowners are more likely to invest in their property maintenance and improvement at a higher standard. The reasons of investing in their properties are due to the fact that homeowners can obtain potential financial benefits of owning a house. From an economic perspective, it has become important to consider homeownership as an investment for which home owners will receive attractive and positive financial returns. The financial returns from residential housing take the form of income and capital growth. The income may be actual income through rental payments from tenants. The capital growth is achieved through inflationary gains or through increased price of the property due to higher demand. According to Hutchison (1994), property values tend to appreciate over a longer period of time and the income yield is higher than those from other forms of investment, such as shares or bonds. Besides the financial returns, owning a house is proved to be an effective instrument to hedge against inflation as compared to other assets (Fama and Schewert 1977; Rubens, Bond and Webb 1989; Bond and Seiler 1998). The effect of property values appreciation of homeownership might be expected to

influence housing satisfaction. There is little empirical evidence to support the claim that property appreciation of homeownership has positive effects on housing satisfaction. Housing satisfaction might be expected to rise with higher property appreciation. In Malaysia, housing is proved to be a good investment asset to hedge against inflation (Tan 2008). Additionally, Malaysian homeowners are more likely to maintain and improve their properties at a higher standard because the condition and overall attractiveness of their houses reflect their social status (Tan 2010). Therefore, it is reasonable to assume that homeowners are generally satisfied if these investments are reflected in the form of higher property values.

In addition to household stability and property value appreciation of homeownership, homeownership creates incentives for homeowners to improve the quality of their communities and also to improve homeowners' connection to their neighbors. Rossi and Weber (1996) and DiPasquale and Glaeser (1999) found that homeowners are believed to be more likely to participate in local neighborhood organizations (local amenities investment), and to associate informally with their neighbors (social capital investment). There are reasons to explain why homeowners are more likely to participate in voluntary and local political organizations and to interact frequently with their neighbors. It is found that participation in local improvement organizations is able to ward off outside threats by both public and private entities and inside threats such as poor property maintenance by homeowners (Rohe and Steward 1996) as a mean of protecting their properties. Social ties with neighbors living nearby may mitigate neighborhood instability and promote neighborhood cohesion by encouraging households to stay as they can derive financial and emotional support from its social networks (Kan, 2007). Additionally, moderate neighborhood organization attachment and frequent interaction with neighbors are found to be associated with positive health outcomes of households (Carpiano 2007; Poortinga, Dunstan and Fone 2008). In summary, the equity homeowners have in their homes is affected by conditions in the surrounding neighborhood, thus homeowners work to influence these

conditions through participating in local amenities and social capital investment.

Although there are no specific studies in literatures that examine the effect of local amenities investment on housing satisfaction, the argument seems to be that increased local amenities investment in the neighborhood may lead to higher satisfaction. As mentioned in literature review, participation in local improvement organizations is able to minimize threats in the neighborhood. Homeowners will benefit both economically and socially if these types of neighborhood organization attachments are successful. Local improvement organizations, such as residential associations will perform their duties to solve the problems of negative externalities on their housing and neighborhood conditions. Therefore, it is reasonable to believe that homeowners who participate in local amenities investment have higher satisfaction. Evidence about the relationship between social capital investment and housing satisfaction is less extensive. Vera-Toscana and Alteca-Amestoy (2008) have shown that homeowners evaluate their housing situation based on social interaction with others using 4,285 respondents from the survey of Living Conditions and Poverty, Spain. Thus, increased social capital investment may contribute to higher housing satisfaction.

The general hypothesis tested in this paper is used on the proposition that housing satisfaction is affected by the homeowners' perceived levels of satisfaction with expected externalities of homeownership, as defined by local amenities investment, social capital investment, household stability, and property values appreciation of homeownership.

Methodology

Variables Used in this Study

Housing Satisfaction

The construct of housing satisfaction used in all previous studies is an index or highly correlated items rather than a single-item variable. As pointed by Carvalho, George and Anthony (1997) and Wiedemann & Anderson (1985), an index increases the reliability of the criterion. Following Amole (2009), housing satisfaction is operationalized as an index based on three questions. Responses to all these questions are measured on a Likert-type scale. An index of housing satisfaction is computed to each respondent as the mean of their total scores on these questions.

Housing, Neighborhood, and Locational and Socio-Demographic Attributes

The survey contains information relating to households' socio-demographic characteristics, and housing, neighborhood, and locational attributes. These variables are included in the analysis to control for possible differences in the assessment of housing satisfaction by homeowners with different housing and neighborhood preferences and household backgrounds.

The degree of housing satisfaction may tend to vary by house types, property types, and life cycle attributes. Therefore, a number of variables are included in this study. These include housing and neighborhood attributes (landed property, gated-guarded property, freehold property, number of EPF withdrawal for house purchase and monthly housing expenditure), locational attributes (distance to the workplace, retailing outlets, the hospital, and sport centers), and socio-demographic characteristics (marital status, income, age, and education). Additionally, the relative prices of dwelling are included in

this study, and the estimation of these implicit prices can be done by regression market values of house price as a function of various housing attributes. Besides, some relationships are expected between housing satisfaction with a 10-90 housing buying system, and the imposition of real property gain tax (RPGT).

The government should be sensitive to the problems faced by house buyers caused by errant and irresponsible housing developers who have abandoned their projects. One measure to address this problem is to change the house buying system from a progressive system to a 10-90 system. The progressive payment system offers no protection to failed projects and financially unsound housing developer as house buyers are saddled with housing loans that are partially disbursed and for which they have to continuously pay interests. In the 10-90 system, buyers sign the Sale & Purchase Agreement and pay a deposit of 10% of the selling price. They do not make any more payment until the houses are completed with the certificate of completion and compliance, availability of water and electricity as well as vacant possession with keys. There is no empirical evidence to assess whether the 10-90 system will contribute to higher housing satisfaction of homeowners. Thus, this research is undertaken to examine the relationship between the 10-90 house buying system and housing satisfaction.

The effect of the real property gain tax (RPGT) on housing satisfaction is also taken into consideration. The RPGT was originally abolished in 2007, but the reintroduction of RPGT in Budget 2010 has caught some by surprise. Effective from 1 Jan 2010, gains rising from property disposal within the first five years are subject to five percent tax (Phun 2010). Although there is no empirical study being conducted to investigate the effect of RPGT on housing satisfaction in Malaysia, it is reasonable to believe that the five percent RPGT contribute to lower housing satisfaction among Malaysian homeowners.

Table 1 shows the summary and definition of housing and socio-demographic variables included in this study.

Table 1: Summary of the Housing, and Socio-Demographic Variables

Housing, neighborhood and locational characteristics variables		
Descriptive		*Mean (%)*
Landed	1 if you own a landed property; 0 otherwise	0.8587
G & G	1 if you own gated-guarded property; 0 otherwise	0.4647
Freehold	1 if you own freehold property	0.6022
Price	Market Price (RM 000)	520.798
EPF	1 if you have withdrawn EPF funds for home purchase; 0 otherwise	0.5279
S10-90	1 if you prefer 10-90 buying system; 0 otherwise	0.6952
RPGT	1 if the imposition of the 5% Real Property Gain Tax (RPGT) starting from 1 Jan 2010 will not discourage me from buying property; 0 otherwise	0.6097
Workplace	1 if the distance to the workplace is less than 5 km; 0 otherwise	0.5019
Retailing	1 if the distance to retailing outlets is less than 5 km; 0 otherwise	0.5613
Hospital	1 if the distance to the hospital is less than 5 km; 0 otherwise	0.5130
Sport	1 if the distance to sport and recreation centers is less than 5 km; 0 otherwise	0.5130
Households' socio-demographic characteristics		
H.Exp	1 if your monthly housing expense is more than RM 2500; 0 otherwise	0.1933
Married	1 if you are married; 0 otherwise	0.7063
< RM 2500	Monthly income < RM 2500 (Reference Group)	0.5193
RM 2500 – RM 4000	Monthly income RM 2500 – RM 4000	0.2602
RM 4000 – RM 8000	Monthly income RM 4000 – RM 8000	0.3383
> RM 8000	Monthly income > RM 8000	0.1822

Age < 30	Age of the respondents in years	0.2491
Age 30 – 50	Age of the respondents in years	0.5613
Age > 50	Age of the respondents in years (Reference Group)	0.1896
Primary	Primary education	0.0149
Secondary	Secondary education (Reference Group)	0.2453
Tertiary	Tertiary education	0.7398

Homeownership Externalities (Homeownership)

The homeownership variable used in all previous works is measured in a dichotomous code. In this paper, homeownership is a subset of 23-items/ questions deriving positive externalities of homeownership. Homeownership externalities are used in the survey as a surrogate of the homeownership variable.

All questions used in the survey are guided by the literature review pertaining to externalities of homeownership and housing satisfaction with slight modifications from the works of Francescato et al (1989), Rohe and Steward (1996), Rossi and Weber (1996), DiPasquale and Glaeser (1999), Evan, Wells, Chan and Saltzman (2000), Amole (2009), and Tan (2010). In this survey, a person's viewpoint is reflected in his feeling of agreement or disagreement with externalities of homeownership and housing satisfaction. Responses are scored on a five-point scale ranging from 1 for "strongly disagreed", 2 for "disagreed", 3 for "neutral", 4 for "agreed" and 5 for "strongly agreed". Table 2 shows the descriptive statistics of various survey questions used in this study.

Table 2: Descriptive Statistics of 23 Questions Relating to Homeownership Externalities and Housing Satisfaction

Survey Questions	Mean	Std. Deviation
Q1: I spend an evening out with my neighbors	2.9600	.89083
Q2: I socialize with my neighbors	3.2680	.84797
Q3: I enjoy gardening with my neighbors	2.9000	.91507
Q4: My neighbors are friendly	3.6000	.83594
Q5: My neighbors are helpful	3.5720	.76888
Q6: My neighbors are members of residential association	3.2240	.89050
Q7: My neighbors look after my property when I am away	3.6520	.84246
Q8: Property is a major source of wealth	3.8880	.77321
Q9: Property has the potential for income gains	4.0160	.72792
Q10: Property has the potential for capital gains	4.0520	.73992
Q11: Property is a good investment to hedge against inflation	4.0200	.69681
Q12: Property is a good investment for retirement	4.1360	.65054
Q13: Property is a good investment for children education	3.8160	.75924
Q14: I have participated in the local community projects	3.1320	.94134
Q15: I am a member of residential association	2.9680	.98939
Q16: I contribute time and efforts to improve my neighborhood	3.2000	.83594
Q17: I involve in local improvement groups in my neighborhood	3.1000	.86545
Q18: I stay in the neighborhood longer due to my neighbors	3.1880	.93603
Q19: I stay in the neighborhood	3.3440	.88362

longer due to amenities		
Q20: I stay in the neighborhood longer due to high relocation costs	3.3680	.84107
Q21: I am satisfied with living here in general	3.8240	.75052
Q22: I intend to buy another property in the same neighborhood	3.1480	.80541
Q23: I will recommend my friends to move into my neighborhood	3.5520	.89583

Model

Housing satisfaction (HS) in this study is assumed to be affected by homeownership externalities, as defined by local amenities investment (LCI), social capital investment (SCI), household stability (S), and property Appreciation (PA). Additionally, there are many housing and neighborhood attributes, and household socio-demographic characteristics that could affect housing satisfaction. A functional relationship between them can be developed and represented by:

$$HS_i = f(LCI_i, SCI_i, S_i, PA_i, HN_i, D_i)$$

where LCI_i is Local Amenities Investment of Homeownership, SCI_i is Social Capital Investment of Homeownership, S_i is Household Stability of Homeownership, PA_i refers to Property Appreciation of Homeownership, HN_i includes housing, neighborhood and locational related variables, and D_i refers to the vector of households' socio-demographic variables.

The Sample

The respondents, who are eligible to participate in the survey, are householders in Malaysia; therefore, the sampling frame for any probability sample is a complete list of all householders in the population from which the sample is drawn. According to the 2000 Population and Housing Census of Malaysia, there were 4.9 million

householders in Malaysia. However, a list of householders is not available to the researchers, so samples are selected from a multistage area sampling procedure. The sample of householders is randomly selected via a series of steps. First, an area sample is used to interview households from Kuala Lumpur and Selangor. These two states are selected in this study because the total number of these households accounted for 31% of overall households in the country (Department of Statistics Malaysia 2000). Second, districts within these two states are chosen to ensure that different areas are represented in the sample. In this case, two districts in each two states are identified, namely Cheras and KL City in Kuala Lumpur and Subang Jaya and Petaling Jaya in Selangor state. As a final step, householders within these 4 districts are interviewed by using stratified random sampling. The interviews are conducted in identified residential areas near major retailing centers in each district. The interviews are conducted via a face-to-face approach. In this survey, 100 households within each district are chosen. In total, 400 copies of survey forms are being distributed to respondents. Out of 400 copies of survey forms, 269 forms are returned. The response rate of 67% can be attributed to the enthusiastic support from respondents. However, 19 of them are discarded due to missing information in the survey forms. The sample size of 269 is deemed adequate and sufficient for further inferential statistics (Hair, Anderson, Tatham and Black 1998).

Results and Discussion

Confirmatory Factor Analysis

There is a clear implication that the latent variables of respective hypothetical concepts are converged in their respective factors. The results in the matrix are consistent with the literature. As reported in Table 3, the indicators are then confirmed to manifest a specific factor, now called a construct, where the factor loadings are the highest. Indicators are then omitted from further analysis if they do not show a unique manifestation of a single factor.

In this survey, construct 1 is associated with social capital investment. In line with the findings of previous works, the greater commitment that households have towards their neighbors shows clearly in greater socialization in the community. Four social capital investment items are grouped into a single construct that include the following item: "I socialize with my neighbors", "My neighbors are friendly", "My neighbors are helpful', and "My neighbors look after my property when I am away" with factor loadings of 0.720, 0.770, 0.700, and 0.688 respectively. Cronbach's alpha value (0.856) of this construct is also reported in Table 3, which suggests that the inter-correlation of three questions measure the same thing.

Construct 2 consists of items relating to property values appreciation. This construct is based on five items: "Property has the potential for income gains" with a loading of 0.800, "Property has the potential for capital gains" with a loading of 0.890, "Property is a good investment to hedge against inflation" with a loading 0.797, "Property is a good investment for retirement" with a loading of 0.783, and "Property is a good investment for children education" with a loading 0.676. Generally, respondents believe that owning a house is a good investment instrument to accumulate wealth, and to hedge against inflation over time. Cronbach's alpha value of this construct is reasonably high, which is 0.849.

Malaysian households generally agree that homeownership increases the neighborhood stability through higher participation in local improvement organizations. As indicated in Table 3, construct 3 comprises four survey items regarding local amenities investment, namely "I have participated in the local community project" with a loading of 0.761, "I am a member of residential association" with a loading of 0.779, "I contribute time and efforts to improve my neighborhood" with a loading of 0.819, and "I involve in local improvement groups" with a loading of 0.849. Cronbach's alpha value

is greater than 0.890, which suggests that these three questions are one dimensional and may be combined in a scale.

The results of previous studies show that the length of stay is related to neighborhood stability, which is also corroborated by this study. In this study, household stability of homeownership (construct 4) is based on three items: "I stay in the neighborhood longer due to my neighbors" with a loading of 0.687, "I stay in the neighborhood longer due to amenities" with a loading of 0.814, and "I stay in the neighborhood longer due to high relocation costs" with a loading of 0.691. Cronbach's alpha value of this construct is 0.760.

It is common to use several highly correlated questions rather than a single-question to measure housing satisfaction. In this case, housing satisfaction construct has Cronbach's alpha value of 0.662, and is based on the following items: "I intend to buy another property in the same neighborhood", and "I will recommend my friends/ relative to move into my neighborhood" with factor loadings of 0.653 and 0.644 respectively.

Table 3: Confirmatory Factor Analysis

	1	2	3	4	5
Construct 1: Social Capital Investment (SC)					
SC1: I socialize with my neighbors	.720				
SC2: My neighbors are friendly	.770				
SC3: My neighbors are helpful	.700				
SC4: My neighbors look after my property when I am away	.688				

Construct 2: Property Appreciation (PA)

PA1: Property has the potential for income gains	.800	
PA2: Property has the potential for capital gains	.809	
PA3: Property is a good investment to hedge against inflation	.797	
PA4: Property is a good investment for retirement	.783	
PA5: Property is a good investment for children education	.676	

Construct 3: Local Amenities Investment (LA)

LA1: I have participated in the local community projects	.761	
LA2: I am a member of residential association	.779	
LA3: I contribute time and efforts to improve my neighborhood	.819	
LA4: I involve in local improvement groups in my neighborhood	.849	

Construct 4: Household Stability (S)

S1: I stay in the neighborhood longer due to my neighbors		.687
S2: I stay in the neighborhood longer due to amenities		.814
S3: I stay in the neighborhood longer due to high relocation costs		.691

Construct 5: Housing Satisfaction (HS)					
HS1: I intend to buy another property in the same neighborhood					.653
HS2: I will recommend my friends to move into my neighborhood					.644
Cronnbach's alpha	0.856	0.849	0.893	0.760	0.662

The factor analysis has been concerned with data deduction and identification of various constructs of homeownership externalities that influences the degree of housing satisfaction. Results that are obtained from the analysis subsequently led to the construction of five composite indices, representing various aspects of homeownership externalities and housing satisfaction. All the variables which have been identified as having the same underlying pattern are grouped together to construct an index. The index value is computed as an average score of values for all the variables included in each construct.

Correlation Analysis

After all the indices are constructed, correlation analysis is performed to examine the strength of association between homeownership externalities and housing satisfaction. Table 4 presents the correlation matrix of homeownership externalities and housing satisfaction. It appears that all homeownership externalities, as defined by social capital investment, property appreciation, local amenities investment and household stability were significantly and positively correlated to housing satisfaction at the 0.01 level.

Table 4: Correlation Analysis

	HS	*SCI*	*PA*	*LAI*	*S*
HS	1	.502[**]	.162[**]	.472[**]	.455[**]
SCI	.502[**]	1	.239[**]	.441[**]	.464[**]
PA	.162[**]	.239[**]	1	.213[**]	.270[**]
LAI	.472[**]	.441[**]	.213[**]	1	.431[**]
S	.455[**]	.464[**]	.270[**]	.431[**]	1

** Significant at the 0.01 level; * significant at the 0.05 level

Regression Analysis

In order to assess whether the model suffers from the problem of multicollinearity, Variance Inflation Factor (VIF) is performed. Results show all VIF values of variables are less than 5, indicating there is no multicollinearity problem in the model.

Table 5 shows the coefficient parameter estimations obtained for two regression equations. The first equation only shows the coefficient of the effect of homeownership externalities on housing satisfaction without housing and households' characteristics, whereas the second equation is to examine the effect of homeownership externalities on housing satisfaction taking housing, locational, and neighborhood, as well as socio-demographic variables into consideration. The results reveal that the explanatory power of the regression equation with housing, locational, neighborhood, and socio-demographic variable increases by nearly 30 percent (Adjusted R square = 0.651).

The second equation seems to be more appropriate for discussion as there is no specification error in the model as Ramsey RESET was performed to test for specification error in the model (p=0.1188, do not reject HO= no specification error). Therefore, only their results in equation 2 will be examined in details in the following analysis. Most of the signs of the effects of housing satisfaction determinants in equation 2 are consistent with previous studies.

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As shown in the survey, homeowners who live in a gated-guarded neighborhood are 1.27 times (e $^{0.239}$) more likely to be satisfied with their housing and neighborhood situations as compared to homeowners who do not live in a gated-guarded neighborhood holding all other things constant. Homeowners in this survey want to live in the gated and guarded neighborhood because such neighborhood offers recreational facilities and landscaped lung spaces. Additionally, houses in the gated and guarded neighborhood tend to have higher price tag than similar houses outside of gates as house buyers are willing to pay 18.1% more to live in such neighborhood with the landscaped compound (Tan 2011).   Additionally, owning the gated-guarded property is not only for those who would like to deal with security issue in the neighborhood, but also it is for those who plan to stay in the neighborhood for a long time as higher costs associated with buying the gated-guarded property (Tan 2010).

Similarly, homeowners who own freehold properties are 1.23 times more likely than homeowners who own leasehold properties to be satisfied with their housing and neighborhood conditions. Homeowners favor freehold properties rather than leasehold properties because they own everything that is on the land for life (Tan 2011). Additionally, they generally stay in their present homes longer as there is no time limit for them until they transfer it to someone else. Given the reduced mobility that households posses, they are more likely to associate with their neighbors and to participate in local improvement organizations to increase the attractiveness of the neighborhood which may result in higher housing satisfaction.

It is generally believed that homeowners of landed properties are more likely to be satisfied with their housing situations. As pointed by Glaeser and Sacerdote (2000), homeowners of landed property types, particularly single-family detached dwelling make better citizen by involving in local amenities investment as they have more connection to surrounding local services.   However, the survey shows that property

type (landed property) is not a significant predictor of housing satisfaction.

In line with previous studies, the price of dwelling units has found to affect housing satisfaction. As expected, the higher the price of home households pay, the more likely they are satisfied. This is due to the fact that high house prices are associated with better quality housing (Lu 1999).

As shown in Table 5, EPF withdrawal seems to be an important predictor of housing satisfaction, assuming all other factors constant. Homeowners who have withdrawn EPF funds for home purchase are 1.23 times more satisfied with their housing situations as compared to homeowners who have not withdrawn EPF for home financing. Meeting housing needs for all requires affordable housing financing. The government should increase the availability of alternative home financing by liberalizing EPF withdrawal for down payment and mortgage payment.

Based on the findings of the locational attributes, homeowners are only satisfied with the house that is situated within 5 km from the workplace. It is reasonable to believe that long distance to the work place means incurring more travelling time and cost. However, the results show that the distance to retailing center, to the hospital, and to sport centers are statistically insignificant related to housing satisfaction.

According to this survey, homeowners are generally more satisfied (1.41 times) if they are given an opportunity to purchase their homes using the 10-90 system. As indicated earlier, the 10-90 system offers protection from failed and abandoned housing development projects. In order to address dissatisfaction from abandoned housing projects, the housing industry should change the house buying system from the progressive system to a 10-90 system. The government should also provide incentives to housing developers to adopt the new house buying system to phase out the progressive payment system. The quality of

houses may be improved with the implementation of the 10-90 system because developers will not risk the likelihood of dispute with buyers over quality during vacant possession. Presently buyers having paid up 95% prior to hand over time, have little or no bargaining power over the quality of their houses. With the 10-90 concept developers have to seriously focus more on building better quality houses and executing greater care and responsibilities in ensuring that the houses are constructed in accordance with specification and proper workmanship.

There was some apprehension on the announcement of the RPGT being imposed again. However, the impact of the reimposition of 5 percent real property gain tax (RPGT) on housing satisfaction is not statistically significant, indicating the 5 percent tax rate will not significantly affect housing satisfaction in the survey.

Among household socio-demographic characteristic, only age shows significant effect on housing satisfaction, all other thing being equal. The abundant studies that have employed housing satisfaction models tend to indicate that household income, marital status, education background, and monthly housing expenditure appear to be significant determinants to explain the difference in the assessment of housing conditions. Based on this survey, income and life cycle changes are not important determinants of housing satisfaction. As argued by Lu (1999), the inconsistencies in empirical findings may be explained by the fact that specific groups of people may evaluate similar housing and neighborhood situations differently due to their own housing needs and neighborhood preferences.

The results in Table 5 reveal that social capital investment is significantly, consistently and positively related to housing satisfaction at the 0.01 level. In line with the findings of Vera-Toscana and Alteca-Amestoy (2008), these results may suggest that households in this survey evaluate their housing satisfaction based on social interaction with others from the same neighborhood. As indicated earlier, households are able to reach a desired social status by communicating

and interacting with their neighbour and friends. They are also able to derive supports from their social networks emotionally and financially. Therefore, it may lead to higher housing satisfaction.

Household stability is significantly and positively associated with housing satisfaction. It is interesting to note that the effect is statistically significant at the 0.01 level in the first model, but the effect of the second model is only significant at the 0.05 level. Similar to previous findings, the longer the households stay the more satisfied they become. As explained by Amerigo and Aragones (1997) and Amole (2009), this is usually attributed to the tendency of households conforming or adapting to their housing and residential environment over time, and consequently reporting a high level of satisfaction towards their housing and neighbourhood conditions.

As expected, positive and significant relationships are reported on the impact of local amenities investment on housing satisfaction in both models. Similar to the effects of household stability, one is significant at the 0.01 level and the other one is only significant at the 0.05 level. It appears that the active involvement in local improvement groups in this survey may contribute to higher housing satisfaction. It is reasonable to believe that households in this survey generally agree that they will benefit economically and socially if these types of neighbourhood attachments are successful (Rohe and Steward 1996).

However, this study does not support the hypotheses that property appreciation of homeownership is significantly related to housing satisfaction. In other words, financial benefits of home owning might not be seen to increase housing satisfaction according to the survey.

Table 5 Regression Analysis

	Equation 1		Equation 2	
	B	t	B	t
(Constant)	.690*	2.212	-3.107**	-3.621
SCI	.330**	5.053	.245**	4.565
PA	-.028	-.390	.004	.068
LAI	.250**	4.424	.097*	2.148
S	.230**	3.645	.107*	2.175
Landed			.188	1.886
G&G			.239**	3.089
Freehold			.203**	2.653
Price			.625**	4.252
EPF			.210**	2.901
Work			.190**	2.625
Retail			-.060	-.667
Hospital			-.083	-.917
Sport			-.049	-.656
S10-90			.342**	4.207
RPGT			-.005	-.067
H. Exp			-.072	-.835
Age < 30			.342**	2.824
Age 30 - 50			.255**	2.803
Primary			.032	.120
Tertiary			.033	.406
Married			-.010	-.119
(RM) 2500 - 4000			-.092	-.958
(RM) 4000 - 8000			-.079	-.834
> (RM) 8000			.151	1.271

R square	.362	.682
Adj R square	.352	.651
Std error estimate	.67186	.49333
F	37.425	21.805

** Significant at the 0.01 level; * significant at the 0.05 level

Conclusion

Meeting housing needs is an important objective in the country's social and economic development goals. Malaysian housing policies are developed in such a way that adequate, affordable and accessible houses are provided to all levels of society. However, the efficiency and effectiveness of housing provision to meet their housing needs requires a careful estimation of determinants of housing satisfaction as different households have different perception of housing satisfaction based on their requirements and needs.

Results from previous studies show a strong statistical correlation between homeownership and housing satisfaction. Housing satisfaction is much higher among homeowners compared to renters. Even with similar quality of housing units, homeowners are likely to be more satisfied than renters due to the fact that homeownership makes them psychologically proud (Kaitilla 1993). However, these relationships may be spurious because the degree of housing satisfaction may depend on the types of positive externalities of home owning that homeowners are expected to receive.

To measure whether expected homeownership externalities matter, this paper includes several externalities of homeownership. These include social capital investment, local amenities investment, household stability, and property value appreciation. In other words, households choose to be homeowners because they expect to invest in the relationships by socializing and interacting with their neighbors and

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friends (social capital investment), improve the quality of neighborhood by participating local improvement groups (local amenities investment), hedge against inflation by investing in housing (property appreciation), and lastly avoid relocating costs by remaining in a neighborhood for a long time (household stability). There is little evidence demonstrating how homeownership externalities affect housing satisfaction. Therefore, this paper focuses on the relationship between externalities of homeownership and housing satisfaction.

From the analysis, externalities of homeownership, as defined by social capital investment, household stability and local amenities investment, appear to enhance the relationship between homeownership and housing satisfaction. It may suggest that some of the effects of homeownership on housing satisfaction may be attributed to positive externalities of homeownership in which homeowners are expected to receive. In other words, households evaluate their housing situations based on expected benefits of becoming homeowners.

In line with the findings of Vera-Toscana and Alteca-Amestoy (2008), the effect of social interactions on housing satisfaction is statistically significant. In other words, homeowners evaluate their housing situations based on informal contacts with neighbors as they are able to reach a desired social status by interacting and socializing with them in the public space. Also, they can derive financial and emotional support from their social networks. It is reasonable to believe that increased social links may lead to higher housing satisfaction.

Similarly, household stability may enhance the positive relationship between homeownership and housing satisfaction. The length of stay in residence appears to have a positive effect on housing satisfaction. As pointed earlier, households choose to be homeowners because they may not consider relocating or shift to another neighborhood. Therefore, they have the tendency to conform or adapt to their housing and environment situations over time, which may result in a higher level of housing satisfaction.

Since homeowners have an interest in their neighborhoods, they are expected to improve the quality of their neighborhoods by contributing time and effort into local pressure groups. Thus, better neighborhood quality often has significant effect on housing satisfaction.

Homeownership creates wealth through property values appreciation. The appreciation of the property is regarded as a financial benefit of home owning (Tan 2008). Therefore, a positive and significant effect is expected since price appreciation strengthens the wealth of homeowners (Vera-Toscana and Alteca-Amestoy 2008). However, this study does not support the hypotheses where the higher the property appreciation, the more likely homeowners are satisfied. The inconsistencies may be attributable to the fact that there seem to be other expected externalities that may significantly explain households' housing satisfaction variance more significantly.

Additionally, varying assortment of determinants to be significant to housing satisfaction ranging from housing, neighborhood, locational and socio-demographic variables are shown in the study. These include age of the household, land tenure (freehold), gated-guarded property, price of owning, EPF withdrawal, and proximity to the workplace.

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