

Article



Factors Influencing the Purchase Decision of Affordable Housing Among Middle Income Earner: A Case Study of School teachers in Malaysia

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Abstract— Affordable housing is a significant issue that has been a concern among Malaysians nowadays, especially in the middleincome group. The demand for housing has been increasing, and thus, the preferences of this group must be taken into consideration. The focus of this study is to identify the factors influencing house buyers in purchasing affordable housing among middle-income groups. The data was collected through a questionnaire survey distributed among school teachers in Malaysia. Two hundred twentyfive respondents returned the questionnaire, which was used for data analysis. Descriptive and statistical analysis was performed to analyze the data collected using Minitab software, Microsoft Excel, and Statistical Package for Social Science (SPSS). It revealed that house prices, location, and structure of housing had a significant relationship with the purchase decision of affordable housing among the middle-income group. In contrast, the neighbourhood factor had an insignificant relationship. It is also found that middle-income groups are aware of Malaysia's affordable housing scheme and have a chance to be exposed to the scheme. Thus, this research will help the developers in developing housing schemes based on consumer's orientation for future demand in Malaysia.

Keywords-House; affordable; Malaysia; middle income; purchase decision

I. INTRODUCTION

The physiological need is the lowest level in Maslow's Theory Hierarchy of Needs, which contains basic needs. Shelter is one of the basic needs crucial to human beings to protect them against harm, followed by food, sleep, and air. This hierarchy of human needs must be satisfied first from the lower to a higher level [1]. This clearly shows that housing forms are the foremost essential desires and life goals for people, leading the Malaysian government to enable homeownership [2]–[4]. However, [5] stated that housing is a family life class that acts as an essential factor and does not merely fulfill the basic needs of accommodation.



Affordable housing refers to housing units that are affordable by that section of society whose income is below the median household income. Though different countries have different definitions for affordable housing, but it is largely the same, i.e., affordable housing should address the housing needs of the lower- or middle-income households. Affordable housing becomes a key issue especially in developing nations where most of the population isn't able to buy houses at the market price. Disposable income of the people remains the primary factor in determining the affordability. As a result, it becomes the increased responsibility of the government to cater to the rising demand for affordable housing. The Government of India has taken various measures to meet the increased demand for affordable housing along with some developers and stressing on public-private partnerships (PPP) for development of these units.

Affordable housing is known by people in the community who can buy a house required by the lower- or middle-income households. Another researcher stated that it is an idea that explains the position of an individual's social structure and change in surroundings [6], [7], which contemplate as a household commitment between houses and non-houses invention expenses, including earnings [2], [8]. This ensures the affordability is viewed through the holistic side, or else it will be challenging for the household to reach the equilibrium between those expenditures [9]. Owning a house is a dream and the top priority of everyone that need shelter, especially for those with a big family. A house is exemplified as a shelter, to remake and foster the relationship between the family members and eloquent place to gain a sense of peace and rest after going through the tired and fatigue day [10].

Governments stated that in this developing country, the lower-income group is more critical of the accessibility in housing [2]. According to [7], a family in a small to a middleincome group can afford reasonable housing if they can save their spending of not more than 30% of their income. Affordability becomes one of their concern as they are thinking about their capability to purchase a house and can purchase the desired structure of the house, for example, the size and type of the house [2]. Affordable housing is known as the need for middle-income households where in this issue, people are more concerned about the market price, especially in this developing nation. Hence, the governments have responsibilities to account for all the possible factors to ensure the houses built meet their specific demands and needs.

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MAXIMUM AFFORDABLE HOUSE PRICE BY HOUSEHOLD INCO							
	Household Income Brackets ¹ ,	Percentage of Households by	Maximum Affordable House Price				
	RM	Income Brackets ¹ , %	RM				
	≤ 1,999	8.8	112,200 - 124,700				
	2,000-3,999	26.1	222,150 - 247,200				
	4,000-5,999	22.6	318,600 - 354,100				
	6 000 7 000	14.6	408 300 453 600				

10,000-14,999 11.3 699,560 - 777,600 Source: Department of Statistics, Malaysia and Bank Negara Malaysia estimates, 2019

9.3

493,500 - 556,100

8,000-9,999

In forecasting housing demand, it is essential to look at the preferences of house buyers, especially in a housing market that will help the government to control the housing policies and encourage homeownership [7]. For the first-timers, house buyers need to understand housing preferences to help them decide [11]. The need to own an affordable house has many factors that must be considered to ensure wise judgment in buying a house, such as the preferences of the house buyers. People must have their imagination of how their house would look like and the surrounding. This includes the location, type [12], size, price, and material. So, how do they decide? What are the factors they look at before buying a house? All this must be taken seriously, especially by the house developers.

Nowadays, buying a house has become an extremely indurated decision to make, in terms of affordable housing among middle-income earners, house prices, structural of housing, location, and neighbourhood in determining the affordability of homeownership. Kuala Lumpur and Selangor are the example of cities in Malaysia that has a more prominent concern regarding this issue [7]. Previously, the research made by [13] stated that Malaysian people are unable to purchase their own houses, especially among the middle-income population, constituting 40 percent. However, current research revealed that the middle-income group is the suggested target group that can afford buying houses in Malaysia [14]. World Bank and United Nations proposed that dividing the average of household earners measures the affordability of housing, which is called the median multiple [15]. Hence, this study aims to identify the causes that influenced the acquisition choice for the middle-class income group.

According to [7], there are many ranges of different factors influencing the housing market that need to be considered in purchasing a "dream home" as the top bucket list for the majority of people. Thus, the government, including developers, need to verify the key factors that appeal to people to become house owners. It can also deliver good quality and affordable housing that satisfies the proprietor's expectations and to avoid the construction projects from being abandoned.

The leading cause affecting homeownership are income and assets, which involve increasing homeownership affordability in the rise of monthly income and property assets [10]. Nowadays, first-buyer will have difficulties and massive encounter to become a homeowner in the market. The reason is due to nonstop rising in property prices and the living cost [16]. So, the aim is to identify the causes influencing the acquisition choice depending on middle-class preferences. There is a small number of housing studies from the point of view of middleincome earners in Malaysian assets. Previous studies frequently only take into account the viewpoint of the general homeowner; hence, the aim of this research is to provide rare insights into understanding the reasons behind the choice of middle-income earners to buy a residential property in Malaysia. In addition, for owners, developers, investors, financial advisors, mortgage bankers and real estate brokers, this research will be vital for a deeper understanding of middle-income earners' decisionmaking when buying residential properties. The focus of this study is to identify the factors influencing house buyers in purchasing affordable housing among middle-income groups considering house prices, structural of housing, location, and neighborhood.

II. MATERIALS AND METHOD

Data collection for this research is based on a questionnaire survey due to inexpensive and reasonable technique. This random sampling was distributed among the middle-income group of school teachers using electronic surveys or email. There are four main segments for the structured questionnaire, which are Section 1 (socio-demographic profile), Section 2 (existing house), Section 3 (Housing preference), and Section 4 (Housing scheme). In this study, the five-point Likert scale was used to rate the level of importance for the determinants of house buying. A total of 225 respondents of school teachers consisting of current house owners amongst the middle-income households and potential buyers that currently live in renting units, were considered.

The survey data collected were analyzed using descriptive analysis and statistical tests, such as multiple linear regression, t-test, the goodness of fit model, Pearson correlation test, and F-test. Minitab software, Microsoft Excel, and Statistical Package for Social Science (SPSS) was utilized, which provided convenient features to simplify the workflow of this analysis. The variables included are the purchase decision of affordable housing among middle-income earners, house prices, structural of housing, location, and neighborhood.

An of average index using the variables in the study are also ranked, using the following formula:

Average index = SR/TR

where

SR – Sum of scales given by respondent

TR – Total respondents.

The following are the hypotheses tested in this study:

H1: There is a significant effect of house prices on the purchase decision of affordable housing among middle-income earners. H2: There is a significant effect of structural housing on the purchase decision of affordable housing among middle-income earners.

H3: There is a significant effect of locational on the purchase decision of affordable housing among middle-income earners. H4: There is a significant effect of the neighbourhood on the purchase decision of affordable housing among middle-income earners.

III. RESULTS AND DISCUSSION

Table III shows that the majority of the respondents were female (80%) and 20% were male. In terms of age, 42% are between the age of 31-40, followed by 35% that fall in the age group of 41 - 50, the age between 22 - 30 is 13%, and the least was only 9% in the age group of 51 - 60. About 94% of the respondents were dominated by Malay, 1% by Chinese and Kadazan while others (2%) consist of Bumiputera Sarawak, Indian, Pribumi, Iban, and Sungai. Furthermore, 93% of educational backgrounds were from University, 5% were from college or polytechnic, and 2% from secondary school or SPM. Table 1 shows that most of the respondents earned between RM 4001 - RM 6000 of monthly income, followed by 34% between RM 2001 - RM 4000, and only 2.2% earned below RM 2000 of monthly income. There was a total of 76% of household expenditures that fall between RM 2001 - RM 8000, while 40 people were below RM 2000, and only 13 people had a higher household expenditure a month (RM 8000 - RM 10,000). Besides, there was a total of 68% that lived with 4 to 10 people in their house, while 32% had 1 to 3 people in their household. For other demographic profiles, please refer to Table III below.

Characteristics	Categories	Frequency	Percentage (%)
Gender	Male	46	20
	Female	179	80
Age	Between 22 to 30	30	13
	Between 31 and 40	95	42
	Between 41 and 50	78	35
	Between 51 and 60	21	9
Race	Malay	212	94
	Chinese	2	1
	Melanau	4	2
	Kadazan	2	1
	Others	5	2
Education Level	Secondary School/SPM	4	2
	College/Polytechnic	11	5
	University	209	93
Monthly Income	Below RM2000	5	2
	Between RM2001 and RM4000	36	16
	Between RM4001 and RM6000	132	59
	Between RM6001 and RM8000	40	18
	Between RM8001 and RM10000	12	5
	Below RM2000	40	18

TABLE IIIII RESPONDENT'S SOCIO-DEMOGRAPHIC (N=225)

Household Expenditures	Between RM2001 and RM4000	114	51
	Between RM4001 and RM6000	46	20
	Between RM6001 and RM8000	12	5
	Between RM8001 and RM10000	13	6
Household size	1 to 3 people	71	32
	4 to 6 people	123	55
	7 to 10 people	30	13

Based on Table IV, concerning the house price factor, most of the respondents considered the Mortgage Loan to Value Ratio (LTV) as the essential factor before deciding to buy a house (mean = 7.42) compared to the house price itself (mean = 3.55). From the aspect of location factor, respondents were not looking for the presence of shops when buying a house (mean = 3.47). The availability of retail centers (mean = 3.64) and public infrastructures (mean = 3.66) were not much of a concern by the respondents when buying a house. Moreover, most of the respondents would consider the distance travelled to work when buying a house (mean = 17.97), and this was supported by the presence of schools (mean = 3.75) as they were teachers and probably most of them also had children.

In terms of the structure of housing, most of the respondents would consider the quality of the house before deciding to buy it (mean = 7.56) and not looking for design characteristics (mean = 3.79) for their house. Furthermore, concerning the neighborhood, most of the respondents agree that safety is the crucial factor they will consider before buying a house, especially for those that have big families and children, since nowadays, the level of crime has increased. This was supported by respondents that consider the level of crime around the area of their future house (mean = 3.82). Lastly, in terms of the purchase decision, most of them buy a house to fulfill their necessities (mean = 7.59) rather than taking into account many other factors (mean = 3.74).

TABLE IV MEAN OF EACH QUESTIONNAIRE ITEMS

Variable	Mean	Std. Dev
House Price		
I would consider the house price when I decide to buy affordable housing	3.55	1.329
I would consider the importance of Mortgage Loan to Value Ratio (LTV) before deciding to buy an affordable housing	7.42	2.648
Locational		
I would consider the presence of shops when buying a house	3.47	1.292
I would consider the availability of retail centres when buying a house	3.64	1.349
I would consider the presence of public infrastructures when buying a house	3.66	1.370
I would consider the presence of schools when buying a house	3.75	1.376
I would consider the distance travelled to work when buying a house	17.97	6.334
Structural of Housing		
I would consider the design characteristic when buying a house	3.79	1.422
I would consider the construction quality when buying a house	7.56	2.759
Neighbourhood		
I would consider the level of crime rate when buying a house	3.82	1.431

I would consider the safety of the neighbourhood when	7.61	2.837
buying a house		
Purchase decision		
I take into account many factors in buying a house	3.74	1.413
I buy a house to fulfill my necessities	7.59	2.784

The analysis in Table V shows that house prices had the highest rank with an average index of 4.20, supported by [7]. This result implies that house price is an essential factor in determining the house-buying decision. It is challenging for middle-income earners nowadays to afford an affordable house due to rising house prices. Meanwhile, the neighborhood factor is ranked at the second-highest index of 4.13, which is similar to the past research of [7] and the current study of [17] using a similar method. This indicates that safety and security is the second important factor affecting the purchase decision of house buyers. Living in a safe neighbourhood is one of the desires where buyers opt for security guards patrolling all-time in the area when purchasing a house and will not buy it if the area cannot provide this service. Nowadays, the crime situation is rising quickly in Malaysia, such as theft and burglary, and they are concerned about this safety, especially those with family.

The location factor follows at the third rank with the index of 4.09, and this contrast with the result of [1], where the location was ranked first in this study. This shows that people are not concerned if the workplace, school, and public facilities, such as hospitals and police stations, are far from their house. The structure of housing was found to be in the last rank with the index of 4.07, which implies that this factor is the least important for determinants of house buying. This concludes that respondents were not very concern about the quality and design of the house as house price is the first factor they are looking for. Moreover, high quality and modern design characteristics usually require lots of money, which is unaffordable as being in the middle-income group.

TABLE V AVERAGE INDEX OF EACH FACTOR

Factor	Rate			Average	Rank		
	1	2	3	4	5	Index	
House Price	4	29	15	46	131	4.20	1
Structural of	3	32	17	68	105	4.07	4
Housing							
Locational	4	31	16	63	111	4.09	3
Neighbourhood	2	31	18	59	115	4.13	2

The correlation coefficient in Table VI shows that all the variables have a robust correlation, which is at least 0.9, significant at level 0.01 denoted as "r". This table also shows that all variables have a positive relationship between each of the two variables. Although all four factors give a strong positive correlation toward the dependent variable, which is the purchase decision of affordable house, the weakest positive relationship is the house price, which contrasts with the result from average index analysis (r = 0.912) that house price is the essential factor to the determinant of house purchasing. This result implies that when house prices increase, the respondents will consider the purchase decision of an affordable house. Meanwhile, the strongest positive relationship is the structural of housing that influences the purchase decision of respondents in buying affordable housing with r = 0.936. This indicates that an increase in structural housing will increase the purchase decision of respondents in buying their future house.

The correlation coefficient of house price and the location was r = 0.903, which shows that house price was affected by the location of the property. Location close to the workplace will be preferred for working citizens, which causes the house price to rise significantly in the city center due to the high demand. In addition, there is a significant relationship between the structure of housing and house price with r = 0.922. This indicates that the quality and design of the house do affect the house price. Moreover, the neighborhood factor (r = 0.907) showed a positive relationship with the house price. A safe place clean from crimes usually has guards patrolling around that area, which affects the house price as the neighborhood needs to pay extra for maintenance and guards' salary. Overall, all the factors show a significant correlation in this Pearson correlation test.

TABLE VI
PEARSON CORRELATION OF EACH FACTOR

Variables	Purchase	House	Structural	Locational	Neighborh
	Decision	Price	of housing		ood
Purchase	1	.912**	.936**	.920**	.927**
Decision					
House	.912**	1	.922**	.903**	.907**
Price					
Structural	.936**	.922**	1	.922**	.983**
of housing					
Locational	.920**	.903**	.922**	. 1	.908**
Neighborh	.927**	.907**	.983**	.908**	1
ood					

**. Correlation is significant at the 0.01 level (2-tailed).

Table VII shows that the house price, locational and structural of housing factors are statistically significant determinants of house buying among the middle-income group with a beta coefficient of 0.227, 0.132, and 0.304. In contrast, the neighbourhood factor is an insignificant determinant of house buying with a beta coefficient of 0.160. Based on Tables VII and VIII, house price (t-stat = 3.775) and location (t-stat = 5.240) manage to accept the hypothesis at 1% significance level (p<0.01) with a t-stat value greater than 2.576. On the other hand, the structure of housing manages to accept the hypothesis at 5% (p<0.05) significance level with a t-stat greater than 1.96. However, based on the t-stat values, only the neighbourhood factor rejects the hypothesis even at the 10% significance level (p>0.10) as the t- stat value is lower than t-critical at 1.645.

This shows that house prices have a significant impact on the purchase decision of house buyers. Thus, house buyers must consider it carefully as it is related to the household's long-run financial commitment, where it is the biggest decision in one's life. Usually, buyers assume they can afford a house based on their salary. Thus, for people who earn only RM 2000 per month, they cannot afford to buy a house that cost 1 million. Besides, the location was found to have a significant effect on the determinants of house purchasing. This is because living close to the workplace and public facilities provide them with extra ease, especially for the women to buy groceries and household necessities.

The neighbourhood factor does not have a significant relationship due to a lower significant level (p>0.10) with the purchase decision of affordable housing among the middle-income group. This is in line with the research of [18], caused by focusing more on the location factor, which is near to the public facilities. The respondents are all schoolteachers, and as

long as they are located close to their school, it would still be an excellent choice to buy a house regardless of the neighborhood conditions. Although it has an insignificant effect on the purchase decision, a 1% increase in the neighbourhood will increase by 16% in the purchase decision. Therefore, hypotheses H_1 , H_2 , and H_3 are accepted, while hypothesis H_4 is rejected. It can be concluded that house price and location have the most prominent impact on the purchase decision of affordable housing as it can reject the null hypothesis at a 99% confidence interval. This was supported by past researches [17], [18]. The following regression model was adopted:

Purchase decision of affordable housing among middle income earner = $0.020(\beta) + 0.227$ (House Price) + 0.304(Structural of housing) + 0.132(Location) + 0.160(Neighbourhood)

TABLE IVII MULTIPLE LINEAR REGRESSION ANALYSIS OF EACH FACTOR ON PURCHASE DECISION

	Coefficients ^a					
Model		Unstandardized		Standardized		
		Coefficients		Coefficients	t-stat	Sig.
	-	В	Std. Error	Beta		
	(Constant)	.020	.177		.115	.909
	House price	.227	.060	.216	3.775	.000
1	Structural of housing	.304	.128	.301	2.366	.019
	Location	.132	.025	.300	5.240	.000
	Neighborhood	.160	.111	.163	1.434	.153
a.	a. Dependent Variable: Purchase decision					

TABLE VII OVERALL RESULTS OF HYPOTHESIS

Hypothesis	Result	Significance value
H ₁ : There is a significant effect of house prices on the purchase decision of affordable housing among middle-income earners.	Accept	0.000
H ₂ : There is a significant effect of structural housing on the purchase decision of affordable housing among middle-income earners.	Accept	0.019
H ₃ : There is a significant effect of locational on the purchase decision of affordable housing among middle-income earners.	Accept	0.000
H ₄ : There is a significant effect of the neighbourhood on the purchase decision of affordable housing among middle-income earners.	Reject	0.153

Based on Table IX, the coefficient of determination Rsquared is 0.9054. This implies that 90.54% variation in the dependent variable (purchase decision of affordable housing) is caused and explained by the independent variables: the house price, structure of housing, location, and neighborhood. Meanwhile, another 9.46% is explained by other extraneous variables, such as the developer's reputation and probably the family life cycle. Higher R-squared implies that the model is good, indicating that the independent variable chosen is good enough to explain the variation in the dependent variable. On the other hand, F-value is 526.4491, while the significance F is less than alpha (0.05), as shown in Table VIII. This indicates that the F-value is significant as the hypothesis is accepted. Therefore, all independent variables affect the purchase decision of affordable housing among middle-income earners, supported by the higher R-squared value in the model.

TABLE IX COEFFICIENT OF DETERMINATION R – SQUARED

Regression Statistics				
Multiple R	0.9516			
R Square	0.9054			
Adjusted R Square	0.9037			
Standard Error	0.8641			
Observations	225			

TABLE X F-TEST VALUE RESULT					
	df	SS	MS	F	Significance F
Regression	4	1572.296 6	393.074 2	526.449 1	0.000
Residual	22 0	164.2634 9	0.7467		
Total	22 4	1736.56			



Fig. 1 Percentage distribution of location

In Fig. 1, the result was divided into two sections; the current homeowner and tenant. The figure showed that most of the respondents preferred to stay close to the city and suburban as they can only afford to buy or rent it around that location, rather than in the city center where the price of the houses are more expensive. This reflects the reason house price was ranked in the first place for determinants of house buying from the average index analysis. Both homeowners and tenants more favored the rural area than in the city center. This would be their forever house, where they probably want to experience a peaceful environment where they can avoid the bustling city life.



Fig. 2 Percentage distribution of the type of house

On the other hand, Fig. 2 indicates the percentage distribution of type of house based on the purpose of buying a house either for own stay or for investment purposes. Most of the respondents (90%) wanted to purchase the house for their own stay, while another 10% wanted to buy a house for investment purposes (refer Fig. 3). The findings revealed that bungalow appears to be the most preferred amongst the people who buy a house for their own staying, while bungalow and *kampung* type of houses were preferred for investment purposes. This shows that respondents who buy their house for their own staying focus more on desire than necessity without thinking either they can afford it or not. Besides, this is probably because the area around the bungalow offers a good location with security guards patrolling 24 hours.



Fig. 3 Distribution of purpose of buying a house

For the investment purposes, *kampung* and bungalow were preferred by them because *kampung* offers affordable price and the peacefulness of the surrounding, while for the bungalow, it is probably because they want to sell it later to increase their current income level. Double and single-story terrace house is the second house preferred for their own stay, and the least preferred by them is the townhouse. The findings also illustrate that the townhouse was not listed in the investment preference.



Fig. 4 Percentage distribution of awareness to the housing scheme

The affordable housing scheme's policy provides house buyers with the most affordable price range, essential to the middle-income group. By this scheme, they can know whether they can afford or are eligible to purchase a house. According to the cross-tabulation analysis in Fig. 4, teachers in Malaysia with respect to the income group showed that a large number of them were aware of these housing schemes, which means that they were already acquainted with these types of housing.



Fig. 5 Percentage distribution of chance to be exposed to a housing scheme

From Fig. 4 and 5, most of the income groups are aware and have a chance to be exposed to the housing schemes. This is due to the house price that increasingly rises, making people more mindful of the scheme. Even though most of them were exposed to this scheme, the lower-income group has a lower percentage than the other income groups. This might be because the interest rate of housing increases, which affects them in applying for a housing loan, thus may not be able to afford it. For the income group between RM6001 to RM8000, 100% were aware of the housing schemes and had a chance to be exposed. This concludes that some of them did purchase their house using the schemes as the house price was found to be the most important factor towards the decision in buying a house. Thus, it would result in them being concern with Malaysia's affordable housing schemes.

IV. CONCLUSIONS

The study was conducted to identify the significant variables affecting the house buyer in purchasing affordable housing among middle-income groups limited to school teachers. Based on the survey, this study concludes that house prices, location, and structural housing factors have a statistically significant relationship with the purchase decision of house buyers. This means that these factors have a big impact on house buyers, especially those living in major cities. Their criteria when buying a house is essential to the housing developers so that they can build a house based on the consumer's orientation. This study also revealed that house price is the crucial factor for homeownership, followed by the neighbourhood factor. The bungalow was found to be the type of house preferred by these income groups as their future house. This study concludes that most middle-income earners are aware of the housing scheme, and they had a chance to be exposed to housing schemes. This indicates that the housing scheme plays an essential role in those groups as they can know the price of a house that suits their income. For future study recommendation, there are various other factors, but in this study, the authors only analyzed the top four most affecting variables in house purchase decision according to the literature review. Also, as a recommendation, more variables could be added and a wider population of M40 could be taken into consideration, not only focusing on school teachers. But the authors should then figure out on how to assure that only those respondents that fit the criteria of M40 will answer the questionnaire.

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