

# RELATIONSHIP BETWEEN HOUSING AFFORDABILITY AND HOUSE OWNERSHIP IN PENANG

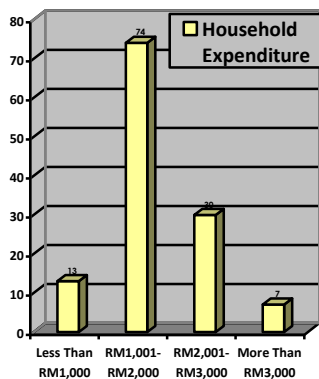
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## Graphical abstract



## Abstract

There are many variables affected housing affordability. The variables are household income, household expenditure, monthly household payment, type of work, level of education, number of children, house price, housing location etc. These variables have been used as an indicator for future housing buyer before they make a decision to own a house. The objectives of this research are to determine the relationship between housing affordability and house ownership. The sample of this research comprises individuals who own a house at Flat Setia Vista, Relau, Pulau Pinang. The convenience sampling technique is used for this research with Binary Logistic Regression method as its analytical tool. The findings indicate that from six variables were tested in this research, namely household income, household expenditure, monthly household payment, type of work, level of education and number of children, only two variables have a relationship of housing affordability in housing ownership in Penang such as household income and number of children.

**Keywords:** Housing affordability, house ownership, binary logistic regression method, convenience sampling technique, variable of housing affordability

## Abstrak

Terdapat banyak pemboleh ubah yang mempengaruhi kemampuan perumahan. Pemboleh ubah berkenaan ialah pendapatan isi rumah, perbelanjaan isi rumah, bayaran bulanan perumahan, jenis pekerjaan, tahap pendidikan, bilangan anak, harga rumah, lokasi rumah dan sebagainya. Pemboleh ubah-pemboleh ubah ini seringkali dijadikan pengukur kepada bakal pembeli sebelum membuat keputusan untuk memiliki rumah. Objektif kajian ini adalah untuk mengenal pasti hubungan kemampuan perumahan dalam pemilikan perumahan. Sampel kajian ini terdiri daripada individu-individu yang memiliki sebuah rumah di Flat Setia Vista, Relau, Pulau Pinang. Teknik persampelan 'convenience' digunakan untuk kajian ini dengan menganalisis menggunakan kaedah Binary Logistik Regresi. Dapatan kajian menunjukkan bahawa daripada enam pemboleh ubah yang dikaji iaitu pendapatan isi rumah, perbelanjaan isi rumah, bayaran bulanan perumahan, jenis pekerjaan, tahap pendidikan dan bilangan anak, hanya dua pemboleh ubah sahaja yang mempunyai hubungan kemampuan perumahan dalam pemilikan perumahan di Pulau Pinang iaitu pendapatan isi rumah dan bilangan anak.

**Kata kunci:** Kemampuan perumahan, pemilikan rumah, kaedah binary logistik regresi, teknik persampelan 'convenience', pemboleh ubah kemampuan perumahan

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## 1.0 INTRODUCTION

Housing is a multi-faceted product that can be considered as a durable consumer item and as an asset for investment in order to earn returns in the form of rental or capital gains [1]. While many people see housing as the biggest single investment of their lives, others view it as being just a form shelter and the fulfilment of a basic need [2]. Affordability has to do with acquiring a particular standard, or different standards, of housing at a price or a rent which, in the opinion of a third party (usually the government), does not exert an unreasonable strain on household incomes [3]. Affordability can be defined as a person's financial capacity to obtain something. According to [4] if a person's income is sufficient to cover payments for a house and other household expenses, then the person can be said to possess housing affordability. Housing affordability is usually used to determine whether a person's income is enough to pay the monthly installments for a house. It has been shown that socioeconomic aspects such as the type of housing unit, duration of stay, employment and income have a positive influence on the housing satisfaction as a whole [5]. Hence, there is a connection between the concept of housing affordability and the total income available to make payments for housing installments and other necessary expenses each month [6].

Housing affordability can be considered in terms of purchase affordability, repayment affordability, and income affordability [7]. Purchase affordability is taken into account when determining whether a household has access to sufficient funds in order to buy a house. On the other hand, repayment affordability has to do with the burden that is placed on the household to pay the mortgage, while income affordability is measured in terms of the ratio of the house price to the income of the buyer. In the US, [8] examined the change in the affordability of a single-family housing unit by evaluating whether a house of a certain quality 30 years ago is now more affordable for a family in similar circumstances as the one that was lived in then. Housing affordability dropped in Japan during the crisis due to soaring land prices, as a result of which fewer people were qualified to purchase houses. This shows the importance of understanding the method for measuring housing affordability. Housing ownership has frequently been taken to mean 'accessibility' in debates on housing in Australia [9]. When home buyers express their concerns about affordability it usually has to do with the accessibility to home ownership, or the ability of younger households to buy a house for the first time. Hence, house ownership is determined by a person's capacity to pay for a house. There are six criteria for housing affordability in house ownership are household income, household expenditure, monthly household payment, type of work, level of education and number of children.

Owners of low-cost houses at Flat Setia Vista, Relau, Penang were selected as the sample for this research as per shown in Figure 1. The houses were purchased by them in 2014 at prices ranging from RM40,000.00 to RM45,000. SP Setia Sdn. Bhd. had built 165 housing units, each having three (3) bedrooms and a floor space of 650 square feet. For this study, the convenience sampling technique was employed together with the Binary Logistic Regression as an analytical tool.



Figure 1 Flat Setia Vista, Relau, Penang [10]

## 2.0 CONCEPT OF HOUSING AFFORDABILITY AND HOUSING OWNERSHIP

Housing affordability is the ability of a household to pay for the purchase or rental of a house by taking into consideration the income and expenditure of that household. 30 percent of the monthly income of a household is assigned for the purchase of a house. Affordable housing has to do with the capacity of a household to pay for a house. [4] mentioned that the concept of affordable housing refers to the amount of income required to pay for a house and other household expenses. It can also be defined as the amount of income that is needed to own a house without incurring any serious financial risk. Most countries throughout the world have set a limit of 30 percent of a person's income for affordable housing. Most families plan to ultimately own a home, not just for shelter and comfort, but also as a symbol of their personal success.

Housing affordability can be recognized in the on-going mortgage or rental payments in proportion to income, issues of having access to affordable housing (for example, owning one's first home), the inability to meet housing costs after paying for other expenses, or the problem of having an income that is too low or house prices that are too high. What is

even more challenging is the fact that affordability is experienced in different ways depending on the type of household. For example, singles, single parents and couples with children have sometimes to sacrifice in terms of employment, transport, health and other necessities while they adjust their circumstances in an attempt to cope with high housing costs and/or low incomes.

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### 3.0 VARIABLES OF HOUSING AFFORDABILITY

There are six variables, namely household income, household expenditure, monthly household payment, type of work, level of education and number of children, were tested in this research.

#### 3.1 Household Income

According to Table 1, 69.4% of the respondents at Flat Setia Vista, Relau, Penang have a monthly household income exceeding RM3,000, indicating that the majority of them are medium income earners.

Table 1 Household income

Household Income (RM)	Frequency	Percent (%)
Less Than RM1,000	1	0.8
RM1,001-RM2,000	10	8.1
RM2,001-RM3,000	27	21.8
More than RM3,000	86	69.4
TOTAL	124	100.0

Bank Negara (2014) defines the poor as those who are earning below RM3,000. Therefore, since 69.4% of the respondents are earning a monthly household income of more than RM3,000, they cannot be regarded as low income earners but as middle income earners. They therefore are purchasing the houses meant for low income earners by using the names of their parents or relatives. Once the application for the purchase of the house is approved, the children will take over the ownership of the house and will make the housing payments. The names of their parents or relatives who are earning less than RM3,000 are used merely to ensure that they meet the requirements for purchasing the house [11].

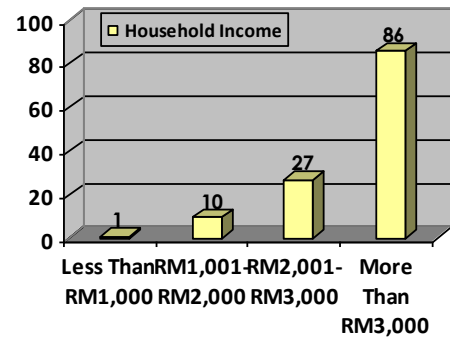


Figure 2 Household Income

On the other hand, 27 respondents earn a monthly household income ranging from RM2,001 to RM3,000, 10 respondents earn from RM1,001 to RM2,000, and only one respondent earns a household income that is below RM1,000, as can be seen in Figure 2. This means that the respondents in Flat Setia Vista, Relau, Penang are not only medium income earners, but also low income earners who are buying the houses for which they are qualified to own.

#### 3.2 Household Expenditure

According to Table 2, 59.7% of the respondents at Flat Setia Vista, Relau, Penang have monthly household expenditures of between RM1,001 to RM2,000. The amount spent for household expenditure indicates that the respondents are correctly allocating their money for their various expenses every month, and thus they can afford to purchase a house in Penang.

Table 2 Household expenditure

Household Expenditure (RM)	Frequency	Percent (%)
Less Than RM 1,000	13	10.5
RM 1,001-RM 2,000	74	59.7
RM 2,001-RM 3,000	30	24.2
More than RM 3,000	7	5.6
TOTAL	124	100.0

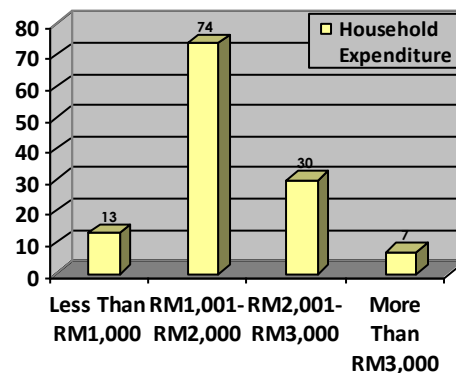


Figure 3 Household expenditure

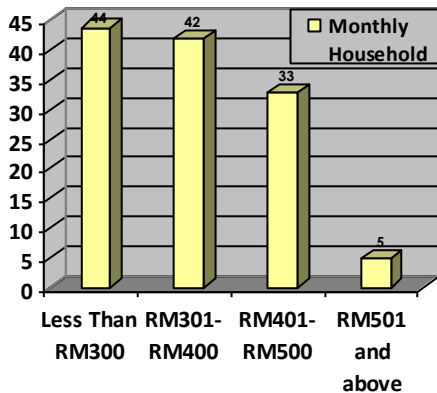
On the other hand, Figure 3 shows that the monthly household expenditure of 30 respondents is between RM2,001 to RM3,000, of 13 respondents is below RM1,000 and of 7 respondents is above RM3,000, thus indicating there are respondents who are spending either more than or less than their income, while included among those respondents who have savings are those who can afford and cannot afford to own a house in Penang.

**3.3 Monthly Household Payment**

According to Table 3, a monthly household payment of less than RM300 is made by 35.5% of the respondents, which is considered as cheap for them since the majority of them are middle income earners.

**Table 3** Monthly household payment

Monthly Payment (RM)	Household	Frequency	Percent (%)
Less Than RM 300		44	35.5
RM 301-RM 400		42	33.9
RM 401-RM 500		33	26.6
RM 501 and above		5	4.0
TOTAL		124	100.0



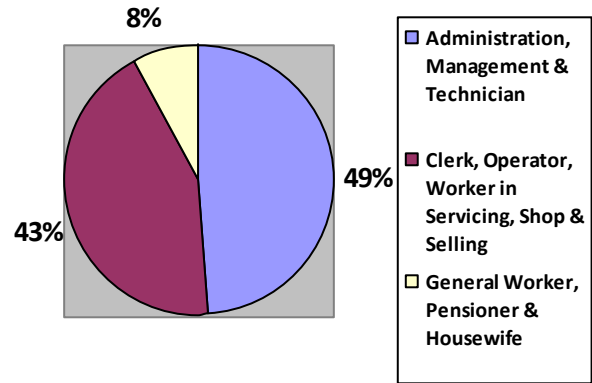
**Figure 4** Monthly household payment

From Figure 4 it can be seen that the monthly house payments by the respondents are almost similar as 42 respondents are paying between RM301 to RM400, 33 respondents are paying between RM401 to RM500, and 5 respondents are paying RM501 and above, but the majority of them, i.e. 44 respondents, are paying below RM300, which is the actual payment for this category of houses.

**3.4 Type of Work**

According to Figure 5, 49% of the respondents are employed as clerks, operators and workers in the servicing, shop and sales departments, 43% are employed in the administration, management and technical departments, and 8% are general workers,

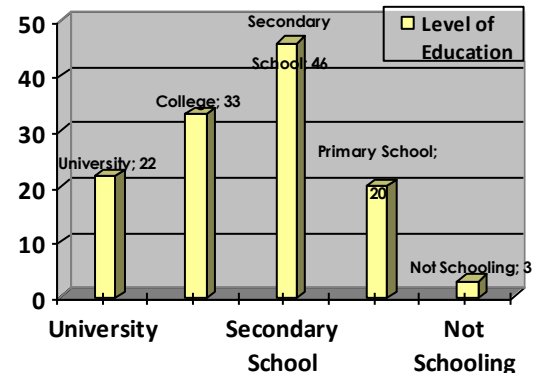
pensioners and housewives. This corresponds with the household income that they earn every month, as explained above.



**Figure 5** Type of work

**3.5 Level of Education**

According to Figure 6, 46 respondents have studied up to secondary school level, 33 respondents have been educated up to college level, and 22 respondents have received a university education. This means that there is a balance in their levels of education.



**Figure 6** Level of education

From Table 4 it can be seen that 16.1% of the respondents attended primary school, while only 2.4% of the respondents did not attend school.

**Table 4** Level of education

Level of Education	Frequency	Percent (%)
University	22	17.7
College	33	26.6
Secondary School	46	37.1
Primary School	20	16.1
Not Schooling	3	2.4
TOTAL	124	100.0

### 3.6 Number of Children

According to Table 5, 36.3% of the respondents have no children as most of them are singles, 22.6% of them have 2 children, while 11.3% of them only have one child. However, 3.2% of the respondents have 6 children.

**Table 5** Number of children

Number of Children	Frequency	Percent (%)
0	45	36.3
1	14	11.3
2	28	22.6
3	23	18.5
4	7	5.6
5	3	2.4
6	4	3.2
<b>TOTAL</b>	124	100.0

## 4.0 RESULTS AND DISCUSSION

It can be seen from Table 6 that the value for the R Square Change is 0.188, which indicates that these six variables are significant since R<sup>2</sup> is more than 10%, and that the number of variables used in this research is good and adequate. It also means that the regression method was a good choice for this analysis.

**Table 6** Model summary

Change Statistics								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	Sig. F Change
1	.434 <sup>a</sup>	.188	.146	.264	.188	4.516	6	.000

a. Predictors: (Constant), Number of Children, Household Income, Monthly Household Payment, Type of Work, Household Expenditure, Level of Education.

Out of the six variables assessed in this research, namely household income, household expenditure, monthly household payment, type of work, level of education and number of children, only two variables, household income and number of children, are related to housing affordability. From Table 7 it can be seen that the t-value for household income is 4.10, while the t-value for number of children is 0.97, whereby household income is more strongly related to housing affordability in house ownership than number of children. This is because household income is a primary indicator of the affordability of a household to buy a house. The number of children is related to housing affordability

in house ownership as 36.3% of the respondents have no children, so their income is spent on buying a house and to pay for other expenses.

**Table 7** Significant variables

Coefficients <sup>a</sup>					
Model	Un standardized Coefficients	Std. Error	Beta	t	Sig.
1	(Constant)	.864	.128	6.762	.000
	Household Income	7.409E-5	.000	.436	4.104
	Household Expenditure	-	.000	-.126	-
	Monthly Household Payment	4.428E-5	.000	-	1.307
	Type of Work	.000	.000	-.186	2.148
	Level of Education	-.024	.043	-.054	-.555
	Number of Children	-.002	.030	-.007	-.066
		.015	.016	.086	.970

a. Dependent Variable: Affordable Un Affordable

## 5.0 CONCLUSION

From the above explanation, when considering the relationship between housing affordability and house ownership in Penang, it is important to know the affordability of a household to own a house. Two variables, namely household income and number of children, are related to housing affordability in house ownership. This is because household income is a primary indicator of the affordability of a household to own a house. 69.4% of the respondents have a monthly household income of above RM3,000, meaning that the majority of them are middle income earners since household income is a primary indicator of the affordability of a household to own a house [12]. The number of children is related to housing affordability in house ownership as 36.3% of the respondents have no children. Hence, they can use their income to buy a house and to pay for other expenses.

Meanwhile, four variables, namely household expenditure, monthly household payment, type of work and level of education, are not related to housing affordability in house ownership as these variables have no influence on the capacity of the respondents to purchase a house since they are medium income earners. The medium income earners have enough income to pay for their household expenditures and the monthly household payment, where 49% of the respondents are employed as clerks, operators and workers in the servicing, shops and sales departments, and 46 of them have studied up to secondary level.

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