

Determinants of Household Debt in Malaysia from the year 2010 to 2017

Zahariah Mohd Zain¹, Nurul Ainun Ahmad Atory², Sarah Amirah Hanafi³

^{1,2,3}Department of Economics and Financial Studies, Faculty of Business and Management,
University Teknologi MARA, Puncak Alam Campus, 42300 Malaysia

zahar297@uitm.edu.my
nurulainun@uitm.edu.my
sarahhanafi96@gmail.com

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Abstract

Household debt has become an issue in the Malaysian economy as it affects the country socially and economically. This study aims to examine the determinants of household debt from the year 2010 until 2017. This study employs the Ordinary Least Square (OLS) method and the macroeconomic variables used in this study are Gross Domestic Product (GDP), base lending rate, unemployment and housing price as independent variables. The results indicate that the trend of household debt in Malaysia has shown a continuous rise from the year 2010 to 2017. GDP, base lending rate and housing price indicate a positive relationship towards household debt while unemployment shows a negative relationship to household debt in Malaysia. All explanatory variables have shown a significant relationship except for GDP. Housing price has been found to be the most significant factor and positively related to household debt. The findings indicate that the higher the price of houses, the higher the household debt will be.

Keywords: Household debt, GDP, base lending rate, unemployment and housing price.

1. Introduction

Household debt has become an issue in the Malaysian economy as it affects the country socially and economically. It can be referred as the combination of all debts in a household, which includes consumer debt and mortgage loans. Malaysia's household debt is among the highest in Asian countries as stated by Central Bank of Malaysia. Household debt can be said as a serious problem as it brings many challenges such as financial insolvency stress, difficulties in settling outstanding loans and bankruptcy. The top reasons of bankruptcies are house loans, car loans, personal loans and business loans.

According to Malaysian Insolvency Department (2016) stated that Malaysia's youth are seeing a demanding vogue with those aged between 25 and 44 forming the largest group categorized as bankrupt in Malaysia. Those who have started to work after they have graduated tended to buy cars or getting easy credit cards without considering their ability to fulfil the instalment payments, as they made excessive spending. The consequences of that situation would bring them to bankruptcies at a young age.

Figure 1 below indicates the composition of household debt in Malaysia from the year 2002 to 2013. Major portion of household debt is loans for properties followed by motor vehicle loans, loans for personal use, loans for securities, credit cards and others. It is believed that loans for properties have been creeping up due to rising price of properties in Malaysia. According to National Property Information Centre or NAPIC, there is soaring increase in Malaysian House Price Index (MHPI) putting loans for properties as the major composition in household debt.

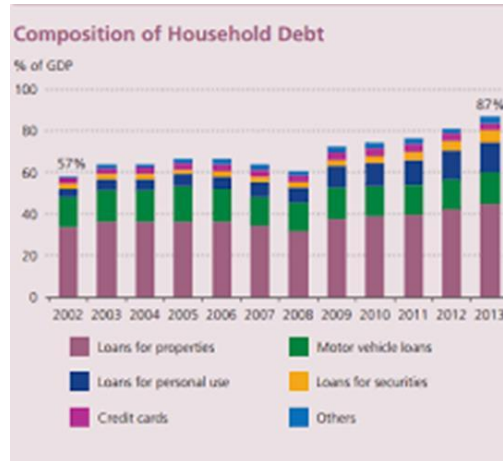


Figure 1: Source: Bank Negara Malaysia 2002 - 2013

An increase in household debt also affects the social aspect of a household. Stress, family break-ups and criminal issues are among the impact of household debt towards a household. According to Yusof et. al. (2016), the researchers stated that family understanding happened due to head of household become stressful and emotional as they brawl to pay back the loans.

Keese and Schmitz (2011), found that the higher the debt burden, the worse the mental health status for an individual. They believed that secured debts create more stress as it gives the possibility of losing a property due to the insolvency. This is line with a study by Sweet, Nandi and McDade (2014) where their investigation indicates that a rise in financial liability allied with higher perceived stress and depression.

Furthermore, household debt leads to divorce as the household face financial crisis among them. As mentioned in news by The Star Online (August 30, 2015), one of the reasons of marriage breakdown comes from financial problem. This is due to excess spending among them, which would bring to arguments on blaming each other and irresponsible act such as hands-off from the joint debt.

2. Literature Review

2.1 Household Debt

Dabelle (2004) investigated the factors that have contributed to the rise in debt. The greater the indebtedness of households has important implications on macro economy. The study found that the macro economy effect would only depend crucially on the disbursement of the debt across the household sector. Thaicharoen, Ariyapruchya, & Chuched (2004) from Thailand investigated on the cause and risk of household debt. The investigation affirmed that low interest rates, drooping borrowing constraints and demographics contributed to debt in Thai households. Both implied that the current debt levels in Thailand did not pose a threat to financial stability and the macro economy.

Rahman & Masih (2015) studied the relationship between household debts, GDP, house price, lending rate and investigates more on what contribute to the increase in household debts and which of the variables influence the increase in household debts. By using time series data from 1999 to 2014, the study found that there is the existence of a long-run equilibrium relationship between the household debts with the variables selected.

Observation from Pardo and Santos (2014) provided an informative discussion of household debt. From the investigation, it has been found that there is a negative influence between household debt and consumption. This is due to the changes of household behavior,

which has been applying the debt as a substitute for stagnant wages to support their consumption. Plus, Endut and Hua (2009) explained the trends of household debt in Malaysia, composition of household debt, factor contributed, implication on monetary policy and fiscal policy but the observations on their paper are not based in empirical analysis.

2.2 Gross Domestic Product (GDP)

Gross domestic product (GDP) can be defined as the total value of goods and services produced or provided in a country during a period, often annually. According to a study conducted by Nizar (2015), the study found that there is a long-run cointegration relationship between GDP and household debt. GDP is also associated with an increase in both mortgage debt and consumer debt and the greater the GDP which is reflected from positive economic growth become a supported theory for consumer in taking and issuing more debt. The results can be supported Meniago et. al. (2013) findings where their study indicated that there is a significant and positive relationship between GDP and household debt. This is because as GDP rise, household will be more encouraged to do more loans making the household debt to increase.

However, Rahman and Masih (2015) investigated on macroeconomic variables and household debt by using time series data collected from 1999 to 2014 on quarterly basis. The study revealed that there is a negative insignificant relationship between GDP and household debt. They believed although GDP was to be endogenous, the movement of GDP can still affect the household debt. Unfortunately, the researcher's clarification is not entrenched in empirical analysis.

2.3 Base Lending Rate

Base lending rate is the proportion of a loan that is charged as interest to the borrower, typically expressed as an annual percentage of the loan outstanding. Observations from Goodhart and Hofmann (2007) have studied the relationship between bank lending and property prices by using data from 1980 to 1999. The research found that there is cointegrating long run relationship between interest rate and household debt. This is in line with a study by Turk (2015). The researcher stated that low interest rate contributes to household debt as the low interest rate supported household consumption expenditure hence causing the household burden. Endut & Hua (2009) in their study revealed that a low interest rate reduced the cost of borrowing thus household would tend to apply for more loans to satisfy their needs and consumption. As stated in a study by Martins and Villanueva (2003), they indicated that an increase in household debt by 1 percent, will lower the probability of borrowing by 2.9 percent.

However, Hoang & Meng (2015) found a contradicting result whereby they explained that interest rate is the leading factor that influences household debt. This is because an increase in interest rate will lessen only a small sum of household debt. Rahman & Masih's (2014) study revealed that there is insignificant relationship between base lending rate and household indebtedness. This result can be supported by previous study. As eloquently stated by Meniago, et. al. (2013), the study found that the lending rate is insignificant towards household debt. Zimunya & Roboloko's (2015) study found that an increase in interest rate would lead to increase in household debt. This is because in the case Botswana, a decline in household income will encourage the household to borrow more therefore, regardless of rising interest rate household would still borrow

2.4 Housing Price Index (HPI)

Meng et. al. (2011) found that the possible causes or reason of increased in Australian household debt via Co-integrated Vector Auto-regression model analyze variables which include GDP, interest rate, housing price index, consumer price index, unemployment rate and population. The result-housing price is significant towards household debt. According to Nizar (2015), the researcher found that housing price is positively significant to household indebtedness thus an increase in housing price will contribute to high level of household debt. Also, a research by Turk (2015) has brought to a result where growth of housing price is to be broadly aligned to household debt. This is supported by a study Jacobsen & Naug (2004) that household indebtedness could increase because the rising housing price could bring to more final wealth and better borrowing terms. Hence, the household can have greater incentive to increase lends by collateral to support consumption and investment. Observation from Nomatye and Phiri (2017) from South Africa explored the possible causes of South African household debts. It is by implying a Vector Error Correction Model (VECM) and quarterly time series data period 1985 to 2012 was analyzed. HPI has been found to be positively significant to household debt.

However, research done by Hoang & Meng (2015) resulted that there is a negative relationship between household debt and housing price. This is because the researcher indicated that as mortgage loans increase, people will postpone on their decision on buying house as house prices have increased and they will take loans once the prices are stable. Meniago, et. al. (2013) supported the previous study from their result on household debt and housing prices. Their study resulted to positive relationship between housing price and household indebtedness, but the relationship is statistically insignificant.

2.5 Unemployment

Debelle (2004) revealed that unemployment is the major and most substantial negative shock to household salary. This is because evasion on payments will occur as the borrowers find it difficult to sustain their mortgage payments during the period of unemployment. The outcome is supported by Hoang & Meng (2015) where the researcher found that the rise of household indebtedness in Australia is mainly responsible due to the reduction of unemployment rate. Hamid, Sarmidi and Nor (2015) found that uncertainty would occur in labor force market and prevent households from having more debt due to unemployment.

3. Research Design

3.1 The model

In this study, the multiple linear regression techniques are shown below:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e \quad (1)$$

Multiple linear regression after logged

$$\text{LHD} = \alpha + \beta_1 \text{GDP} + \beta_2 \text{BLR} + \beta_3 \text{HPI} - \beta_4 \text{UN} + e \quad (2)$$

Where LHD is the household debt after logged, GDP refers to gross domestic product, BLR is the base-lending rate, HPI is house price index and un refers to unemployment.

3.2 Data description

Time series data analysis and secondary data has been used for this research. Both data for the dependent variable and independent variables, which are household debt and GDP, base lending rate, unemployment and housing price index are collected from Bank Negara Malaysia statistical highlights, National Property Information Centre (NAPIC). This research has been analysed from quarter 2010 until 2017 in quarterly basis. Data for household debt is attained in Central Bank of Malaysia’s monthly statistically bulletin and it is the loans disbursement by commercial banks and Islamic banks. House price index is retrieved from National Property Information Centre (NAPIC) using the base year 2010. Next, GDP is taken from Central Bank of Malaysia’s monthly statistical bulletin and measured in percentage growth. Unemployment rate is measured as percentage change in labor market and it is obtained from Malaysian Central Bank’s (2013) monthly statisticalbulletin. Lastly, interest rate is retrieved from the base lending rates charged by commercial and Islamic banks from Central Bank of Malaysia.

4. Analysis and findings

4.1 Trend analysis

Based on Figure 2 below, it illustrates the level of household debt of Malaysia in RM/Million from the year 2010 to 2017. This is constructed from loan disbursed by financial institutions including commercial banks and Islamic banks to borrowers by Central Bank of Malaysia.

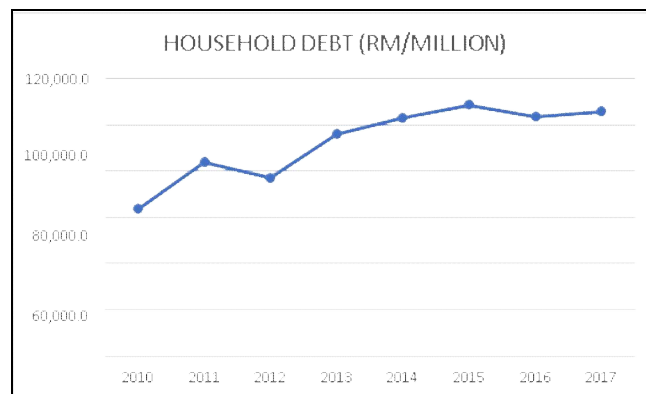


Figure 2: Sources: Central Bank of Malaysia

According to Central Bank of Malaysia, at the beginning quarter of 2010, household debt or household burden as end of first quarter stood at RM61,785 Million and has increased throughout the year as the household debt at the end of fourth quarter raised at RM63,394.5 Million. The rise in household debt continued until 2011. At the fourth quarter of 2011, the household debt level increased substantially from the last quarter of 2010 at RM83,705 Million.

Based on the facts and figures, although the level of household debt increased rapidly, the GDP keeps declining. This is due to rapid increase in interest rate and consumer price index. Also, the house price index has significantly grown from 2010 to 2011. The interest rate recorded within the period was 6.54% and the change in consumer price index was at 3%. The house price index was at 116 from the base year 2010. On 2012, according to Central Bank, the household debt based on loan disbursed by banks has declined to RM78,970 Million at the first quarter continually decreased until fourth quarter at RM77,085.1 Million. This is due to loan disbursed by banks have decreased throughout the year.

In the year 2013, the level of household debt began to rise continuously until the year 2015. At the fourth quarter of 2015, the household debt recorded was at the highest value stood at RM108,397.2 Million. According to Central Bank's report, the numbers of loan disbursed by commercial and Islamic banks have grown rapidly and the main purpose highlighted from the loan disbursed is housing loans and credit cards. The house price index from base year 2010 recorded for the year 2015 stood at 167.8, which is gradually increased as compared to the year 2013, which is 143.6.

On 2016, the level of household debt based from loan disbursed by banks recorded a slight declining stage. At the first quarter, the number of loan disbursed was RM92,201.5 Million. However, the number started to cultivate from second quarter to fourth quarter 2016. The number of loan disbursed by commercial banks and Islamic banks have increased up to RM103,448.0 Million on the fourth quarter. This situation continued to end of 2017 where at the end of fourth quarter, the number of loan disbursed by banks were RM105,576.1 Million. During this period, house price index based from year 2010 were at 190 hence this would explain the rising number of household debt.

4.2 Regression Analysis

Table 1: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	0.0015	0.0108	0.1353	0.8934
BLR	0.1853	0.0618	2.9972	0.0058
UN	-0.1271	0.0500	-2.5428	0.0170
HPI	0.0041	0.0006	7.4106	0.0000
C	3.0499	0.4239	7.1952	0.0000
R-squared	0.8539			
Adjusted R-squared	0.8322			
F-test	39.4357			
Durbin-Watson stat	1.8171			

Based on the result on the Table 1 above, three variables are found to be significant to the dependent variables. The variables are namely base lending rate (BLR), unemployment (UN) and house price index (HPI). All three variables are statistically significant at 5% level of significance. Meanwhile, as for gross domestic product (GDP), it is found to be statistically insignificant to household debt. As for the F-stat, it is found to be statistically significant at 5% level of significance. This indicates that at least one of the independent variables has an influence on the dependent variable, household debt (HD), thus the estimated equation has a significant overall fit. On the other hand, the coefficient of determination (R^2), shows that 85.39% of the household debt in Malaysia can be explained by the variation in all independent variables which are gross domestic product (GDP), base lending rate (BLR), unemployment (UN) and house price index (HPI) while the other 14.61% of the household debt in Malaysia is explained by other factors which not included in the study.

Gross Domestic Product has positive and significant relationship with household debt. The coefficient for GDP is 0.0015. Thus, an increase of GDP by 1 unit will bring to an increase in household debt by 0.15% ($0.001460 \times 100\%$) while holding other variables as constant. The results have shown a positive relationship between these two variables. This result can be supported by previous study, which is Nizar (2015) found that there is positive relationship between GDP and household debt. Plus, GDP is associated with an increase in both mortgage debt and consumer debt hence the greater the GDP which is reflected from

positive economic growth become a supported theory for consumer in taking and issuing more debt.

Based on the analysis gained, the coefficient for base lending rate is 0.1853. Therefore, 1 unit increase in lending rate will lead to 18.53% increase in household debt while holding other variables constant. The positive sign indicates that the lending rate and household debt have positive relationship between those two. The result is supported by previous research done by other researchers. A study conducted by Debelle (2004) found that an increase in lending rate will affect new borrowers because of the aggregate level of household debt. Zimunya & Roboloko’s (2015) study found that an increase in interest rate will lead to increase in household debt.

Unemployment has negative and significant relationship towards household debt. The coefficient is -0.1271. Hence, 1 unit increase in unemployment will lead to 12.71 % (-0.1271 x 100%) decrease in household debt while holding other variables as constant. The negative sign indicates that there is negative relationship between unemployment and household debt. High unemployment indicates the household will have lower source of income. Hence, the household would not be able to do more loans as they could not have enough power to do loans. Once the household are unable to purchase loans, household debt will decline. This can be supported by previous study by Hoang & Meng (2015) where the researcher found that the rise of household indebtedness in Australia is mainly responsible due to the reduction of unemployment rate.

House price has positive and significant relationship with household debt. The coefficient is 0.004116. Thus, an increase in house price by 1 unit will lead to an increase in household debt by 0.42% (0.004116 x 100%). The positive sign shows the positive relationship between house price and household. This indicates that new borrowers must accept with more debt in order to purchase a house. This result can be supported by previous study, according to Nizar (2015), the researcher found that housing price is positively significant to household indebtedness thus an increase in housing price will contribute to high level of household debt.

Since the probability of F-statistic, $p = 0.000000$ is less than the level of significance which is $\alpha = 0.05$, therefore reject the null (H_0) hypothesis. F-stat is statistically significance at 5% level of significance level. In conclusion, at least one of the independent variables either gross domestic product (GDP), base-lending rate (BLR), unemployment (UN), and house price index (HPI) has an influence on the dependent variable household debt (DD), thus the estimated equation has a significant overall fit.

4.3 Diagnostic Check

4.3.1 Variance Inflation Factor (VIF)

Table 2: Variance Inflation Factor (VIF)

Variance Inflation Factor (VIF)			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
GDP	0.0001	25.5489	1.3398
IR	0.0038	1091.028	1.9633
UN	0.0025	180.2709	1.0722
HPI	3.09E-07	45.6210	1.7798
C	0.1797	1216.857	NA

Based on the Table 2 above, it shows the VIF for each independent variable. The rule of thumb for VIF is all centered VIF must be less than 5. All of the independent variables, which are GDP, base lending rate, unemployment and housing price, have VIF less than 5. Hence, no severe multicollinearity presents in all independent variables.

4.3.2 Simple Correlation Coefficient (*r*)

Table 3: Correlation analysis of the independent variables (*r*)

	LHD	GDP	BLR	UN	HPI
LHD	1.0000				
GDP	-0.3933	1.0000			
BLR	0.7432	-0.5007	1.0000		
UN	0.2381	-0.0480	0.1138	1.0000	
HPI	0.8708	-0.3567	0.6352	0.2515	1.0000

Based on the value obtained above, all four variables have absolute value of *r* that is less than 0.8. HPI indicates high correlation with 0.8708. GDP and unemployment show low correlation at 0.3933 and 0.2381 respectively. Hence, it can be round off that no severe multicollinearity problem exists in this model.

4.4 Serial Correlation

4.4.1 Durbin-Watson

Based on the result on the table above (Table 4.1), we can see that the *d* statistic for this regression analysis is 1.8171 which falls between *d*U (1.732) and 4 – *d*U (2.268), *d*U < *DW < 4 – *d*U. Since the *DW falls in between that, therefore the researcher fails to reject H0. It indicates that no serial correlation presents.

5.0 Conclusion and recommendations

The data and reports were gained from Central Bank of Malaysia and news reports from online based. After analyzing the trends, it has been found that the level of household debt in Malaysia from 2010 until 2017 has fluctuated and starts to increase at the end of quarter 2017. Along with this trend, it gives an indication to the Malaysian government that the household debt began to rise from the number of loans disbursed by commercial banks and Islamic banks.

According to Central Bank of Malaysia, the number of loans disbursed by banks has increase up to RM105,576.1 Million. Chucherd (2017) indicated that the rise in household debt affects positively to household consumption hence will affect the household well-being. Thus, Malaysian need to achieve high awareness on household debt as the number of loans disbursed recorded by Central Bank of Malaysia has increased which indicates the high level of household debt. The second objective from this study is to investigate the relationship between GDP, base lending rate, unemployment and house price towards household debt.

Based from the results obtained, the regression equation model used in this paper presents no problem of multicollinearity and autocorrelation.

Furthermore, the GDP and household debt has shown a positive relationship between those two variables. The positive sign is proven by previous study such as research done by Nizar (2015). The researcher stated that GDP positively related to household debt as the researcher believed substantial GDP growth lead to higher household earnings hence it encourages household to issue more loans. Interesting result was obtained from the relationship between base lending rate and household debt. Many previous studies revealed negative relationship between base lending rate and household debt. However, the result gained in this study is vice versa. A study that can support this finding is by Debelle (2004) whom found that an increase in lending rate will affect new borrowers because of the aggregate level of household debt. Zimunya & Daboloko (2015) on their study on household debt in Botswana indicated that an increase in interest rate will lead to increase in household debt because when the household income decreased, they will issue loans regardless the rising interest rate.

As for unemployment, the negative sign shows that unemployment and household debt has negatively related. Plus, the sign was expected to be negative as previous studies indicate same result. Debelle (2004) whom revealed that unemployment is the major and most substantial negative shock to household salary. This is because evasion on payments will occur as the borrowers find it difficult to sustain their mortgage payments during the period of unemployment. Housing price resulted to positive relationship towards household debt. Rising house prices causing the household to have higher debt in order to purchase a house. This can be supported with Nizar's (2015), study where the researcher found that housing price is positively related to household indebtedness thus an increase in housing price will contribute to high level of household debt.

After examining the explanatory variables towards the dependent variable, it has been found that housing price is the most significant factor to household debt. Rahman & Masih (2014) sited that residence price are the leading issue that increases household debt in the long-run. As mentioned by Nomatye & Phiri (2017) from South Africa whom explored the possible causes of South African household debts indicated that HPI has been found to be positively significant to household debt.

Pertaining to the results and findings from this study, housing price can be the most crucial variable in determining the household debt in Malaysia. Since housing price is the most contributing factor to household debt in Malaysia, it is best for the Malaysian government to review and pay attention to the hike of house prices. The new buyers are burdened with the increase of house prices. This is because the household's average income is not in line with rising house prices. Furthermore, the household itself has to consider their ability before issuing loan for a house. There are other choices on selecting houses to buy such as government schemes houses like My First Home Schemes and "Rumah Selangorku" which is to help middle income rners in Malaysia to buy their first home. Lastly, it is best for every household to reach out with Credit Counselling and Debt Management Agency or AKPK (Agensi Kaunselling dan Pengurusan Kredit), before taking loans. AKPK are able to give advices on financial planning in order to avoid insolvency among borrowers.

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