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The Linkages between Household Consumption and Household Debt Composition in Malaysia

Hafizah Hammad Ahmad Khan[1]*, Hussin Abdullah[2], Shamzaeffa Samsudin[3]

[1]Faculty of Business and Management, Universiti Teknologi MARA, 08400 Merbok, Kedah, Malaysia, [2]School of Economics, Finance & Banking, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia, [3]School of Economics, Finance & Banking, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia. *Email: hafizah0486@gmail.com

ABSTRACT

This study intends to examine the relationship between household consumption and household debt composition in Malaysia. Specifically, this study employs the Toda-Yamamoto non-causality test since it is suitable for variables with different levels of integration. Results obtained in this study suggest that the direction of causality runs from consumption to debt. Moreover, the result of the cointegration test also supports that long run relationship exists between the two variables. It also supports the Life Cycle Model, which predicts that a household has been borrowing in order to finance their consumption and expenses. Therefore, this result indirectly suggests that the household has been depending on debt to finance their consumption and thus any negative shocks that occur in the economy can causes serious consequences on the economic performance of the country. Hence, any attempts by policymakers to control the mounting debt level should be focusing on restricting the supply of loans.

Keywords: Household Debt, Consumption, Causality, Cointegration, Malaysia
JEL Classifications: E00, E21, E51

1. INTRODUCTION

Previously, both the classical and neoclassical theories have agreed that consumption has been identified to play an important role in influencing the household to go into debt. Excessive spending may lead to less income available for savings which indirectly entices the household to borrow some money in order to ease their consumption over time especially when there is a negative shock in their income level.

Unfortunately, with the expansion of the credit facilities and rising supply of fund in the market, this indirectly gives impact to the household behavior over time. As a response to easy access to credit market, the household is enticed to borrow excessively and thereby affects their consumption pattern. In addition, the fast growing of goods and services together with credit facilities offered in the market may indirectly generate more hardship for them in making a right choice (Karlsson et al., 2004).

As to date, there are very limited studies which have investigated the relationship between a household debt and expenditure especially among the developing countries. Understanding the link between a household debt and consumption can provide some guidance for macro prudential policy and help the country to sustain its economic performance. Thus, this paper will help to shed some light.

The structure of this paper is as follows. Section 2 highlights the background of the study and followed by the overview of the theoretical and empirical literature in Section 3. Section 4 outlines the methodology used to examine the relationship between a household debt and consumption while Section 5 reports the outcome of this study. Finally, Section 6 concludes and provides some recommendations on policy implications and future study prospect.

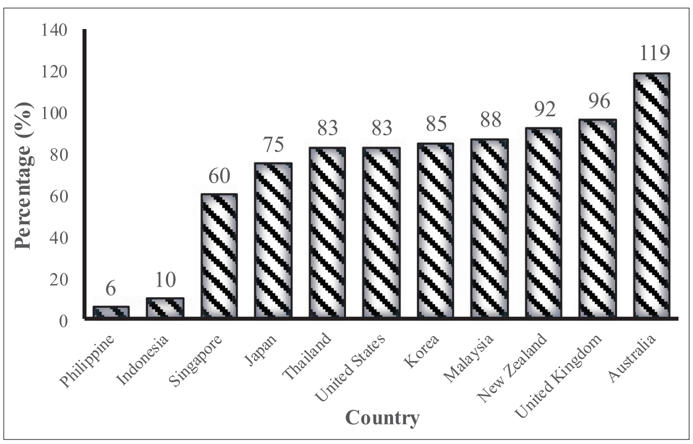
2. BACKGROUND OF THE STUDY

Recently, studies conducted on the issue of household debt are expanding due to excessive growing of the debt level following the Global Financial Crisis. Data shows that, the household debt in Malaysia has been found to be growing excessively with the current debt level has exceeded those of the developed nations such as the United States and Japan. As shown in Figure 1, the household debt in Malaysia is among the highest in the region and at par with the developed nations and thereby this has become an issue of concern on the economic stability of the country and its ability to manage debt while focusing on achieving its economic goals in becoming a high income country.

From one perspective, the growth in household debt indicates that the household has a good access to the credit market which not only help to stimulate the aggregate demand but also contribute to bank profit and thereby help to boost the economic growth. Consistently, as shown in Figure 2, over the past decade, the household debt and private consumption in Malaysia are recorded to be rising significantly. Although there is a weak consumption between the 2008 to 2009 due to the financial crisis that had hit the economy, the consumption has continued to grow onwards. Hence, this indirectly suggests that there is a close relationship between household debt and consumption but the direction of causality between the two variables remains unclear.

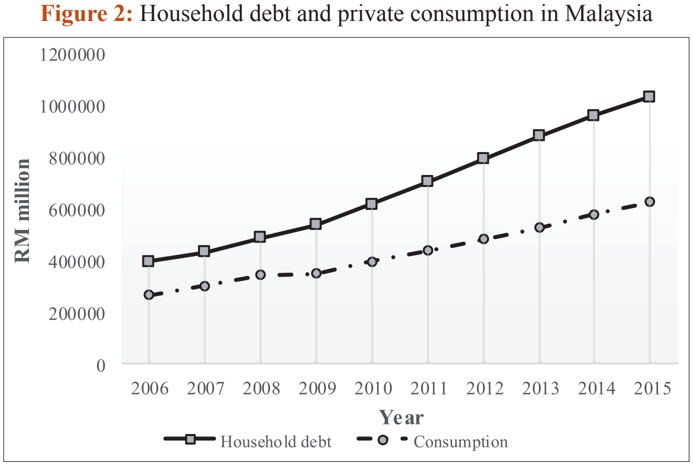
From other viewpoint, high dependency of the household on the debt to support their consumption will threaten the economy when any negative shocks occur in the economy and thereby can trigger

Figure 1: Household debt (% of gross domestic product) in 2014



Source: CEIC data

Figure 2: Household debt and private consumption in Malaysia



Source: Bank Negara Malaysia Monthly Statistical Bulletin

the economic crisis. As the household will face the risk of personal bankruptcies, the lenders will also become vulnerable to continue their operation when the level of non-performing loans are rising as the result of the household inability to service their debt. Hence, it is crucial for the policymakers to control the debt level and reduce the dependency of the household on the credit facilities so that any serious economic consequences can be avoided.

Correspondingly, a household debt may affect the consumption through various channels. From one perspective, the escalating household debt level has resulted in the expansion of the consumption and helps to stimulate the economy. Moreover, the rise in competition among lenders has led to the expansion of credit due to cheaper cost of borrowing and easy access to credit facilities hence generates higher consumption (Prinsloo, 2002).

On the other hand, even though the household consumption is one of the important sources for economic growth, if the rise in the consumption is financed mainly by household borrowing, thus, it may hinder the long run growth if the household is unable to meet their financial obligations. This is due to the fact that as the debt service ratio rises, the household will eventually cut off their spending to maintain their financial position and may dampen the economic growth. Moreover, high level of borrowing will also affect the banking sector to become vulnerable if any negative shocks occur in the economy and consequently worsen the economic performance of the country.

Although both classical and neoclassical theories claim that a household opts for borrowing in order to finance the rising consumption, with the availability of credit facilities and easier access to credit such as the usage of credit cards, this may eventually affect the household behavior over time. Hence, it is also possible that easy access to credit has influenced the household borrowing behavior in which resulted in rising consumption. Thus, as Malaysia is aiming in becoming a developed nation by 2020, a closer look on the link between consumption and debt is useful to provide helpful guidance for policymakers in managing the debt level and help in forecasting future consumption and growth.

3. THEORETICAL FRAMEWORK

Theoretically, the classical theory proposed by Keynes (1936) postulates that the household consumption is determined by the current income. If the household consumption exceeds their current income, the gap will be financed by using the household borrowing. Consistently, the neoclassical theory based on the Life Cycle Model and Permanent Income Hypothesis also support that the household utilizes the credit facilities to smooth consumption over time. Although the former theory assumes that the household behavior is irrational, both theories agree that the household ops for borrowing to finance their consumption.

In deriving the debt model, the following basic equations as proposed by Keynes (1936) which relate the savings and consumption are presented in Equation 1 and Equation 2. Based on this theory, the household income is the sum of household consumption and saving. When consumption level exceeds the income level, the household saving will start to dissave or go into debt to finance the rising consumption. Thus, there is a very close relationship between household debt and consumption.

$$Y=C+S \tag{1}$$

$$S=Y-C \tag{2}$$

Where Y is the income level, C is consumption and S is saving. Basically, if the income, Y, is greater than the consumption level, C, the balance will be regarded as saving. However, when the consumption level exceeds the income level, the household will choose to stop saving and indirectly reflects the borrowing concept. According to the intertemporal budget constraint, the variable S which is used to denote the savings can be used to represent either the saving or borrowing thus, the equation holds in both cases. If consumption in the first period is less than the income level in that period, it reflects that the household is saving. On the other hand, if consumption exceeds the income in the first period, indicates that the household is borrowing. Thus, the dissaving is now regarded as the debt which denotes as D as shown in Equation 3 below:

$$D=-S \tag{3}$$

By substituting Equation 3 into the savings equation shown in Equation 2, the following debt model is derived, in which relates debt with consumption as shown in Equation 4.

$$D=C-Y$$

$$\text{Where, } D>0 \text{ when } C>Y \tag{4}$$

In this case, Y refers to the income level which is expected to rise due to greater skills and experiences of the household while C represents the consumption over the life cycle with the gap between the income and consumption is financed by the household borrowing. Moreover, since the debt is used to finance the consumption, the rise in the consumption will influence the debt to rise, $\Delta C=\Delta D$. Hence, consumption plays an important role in influencing the household to go into debt. For instance, a study carried out by Meniago et al. (2013) in South Africa supports that there is a strong positive influence of household consumption on the household debt.

Consistently, findings in a study conducted by Dynan and Kohn (2007) based on the U.S household, highlight that majority of the household chooses to borrow money to finance living expenses instead of on unimportant consumption which is consistent with a study done by Boushey and Weller (2008). Thus, it can be concluded that the rise in the household debt is due to the responses of the household on the rising consumption level which is consistent with the theories.

Similarly, Johnson and Li (2007) supported that debt has an indirect effect on consumption through its influence on income. Moreover, with the stagnant income level, the credit facilities such as credit cards has become an important instrument for the household to maintain their family consumption (Sullivan et al., 2000). This is due to the fact that household has been treating the debt as a substitute for income in financing their consumption (Nau et al., 2015).

In a study conducted by Chucherd (2006) in Thailand, on the link between a household debt and consumption during the Asian Financial Crisis and its recovery period, finds that the household debt has a positive impact on consumption both on durable and non-durable goods with greater effects on the former. This study supports the idea that debt is not harmful for the household and the economy since it can help them to meet their preferences and maintain their lifestyle. However, it is important to ensure that future consumption will not be negatively affected.

Apart from that, Ogawa and Wan (2007) who investigate the impact of a household debt on spending, following the bubble burst period in Japan, detect that the debt to asset ratio has a negative influence on consumption. However, a study carried out by McCarthy (1997) in the United States claims that there is less evidence that the household indebtedness will give negative influence on the household consumption.

In a more recent study, Pardo and Santos (2014) discover that a household debt has a negative influence on consumption in the early 2000s but the relationship has shifted significantly from 2005 onwards. This is due to the changes in the household behavior which has been utilizing the debt as a substitute for stagnant wages in order to finance their consumption. Similarly, a study conducted by Andersen et al. (2014) based on Danish households also find that there is a negative relationship between a household debt during the pre-crisis period with a household consumption following the crisis with the effect is more significant among highly indebted household.

Furthermore, Bunn and Rostom (2014) who investigate the impact of household debt on consumption in the United Kingdom reveal that there is a negative impact of debt on consumption which is consistent with a study done by Kim et al. (2014) in the United States. Particularly, the former study found that highly indebted household cut more of their spending following the Global Financial Crisis due to the rise in borrowing constraint and greater concern on their ability to repay their debt.

In a study conducted in Malaysia based on composition of debt, Nizar (2015) claims that the household consumption is a significant contributor for consumer debt whereas the findings on the mortgage debt indicate that the results are insignificant. Hence, it can be concluded that the impact of household consumption on the debt level differs according to the types of debt. In addition, Murugasu et al. (2015) who examine the effects of household balance sheet on private consumption in Malaysia reveal that the rise in household debt will exert a negative influence on consumption but the result is insignificant. However, the authors claim that the result is under estimated due to small sample size.

Based on the discussion above, most of the past studies support the significant roles of household consumption on the household debt which is consistent with the theories. However, with the rapid expansion in the credit market, it is also possible that the consumption is rising as a response of excessive borrowing of the household. Hence, further investigation on the link between household consumption and debt is crucial to determine whether the easy access to the credit market has influenced the household behavior over time. Moreover, an investigation based on the composition of debt is also useful to determine which component of debt is closely related to the consumption pattern and thereby can provide a significant contribution to the study of household debt.

In particular, this study aims to investigate the direction of causality between consumption and the household debt composition in Malaysia since the level of household debt in this country has been growing rapidly since the past decades and currently has exceeded the debt level of some of the developed nations. In addition, with the country is moving towards the status of high income nation, an investigation on the issue of consumption and debt is necessary since it also plays an essential role as a source of economic growth. However, a highly leveraging country may also be risky in the long run if no appropriate measures are taken to control the debt level since it will increase the risk of financial instability. Thus, the findings of this study can provide some valuable insight for policymakers in maintaining the nation economic performance.

4. MATERIALS AND METHODS

This study investigates the relationship between a household consumption and household debt composition in Malaysia mainly on the direction of causality between two variables. In order to examine the direction of causality, this study uses the Toda-Yamamoto non-causality test. This approach is selected since the standard Granger non-causality test requires the variable to be integrated at level which may invalidate the result if any of the variables are integrated at a different order. This study utilizes a quarterly data from first quarter of 1999 to the fourth quarter of 2015 taken from Bank Negara Malaysia monthly statistical bulletin and Department of Statistics Malaysia.

By following Toda and Yamamoto (1995), the non-causality test is conducted to determine whether a household consumption generates the household debt or *vice versa* and the estimation equations are specified as follows.

$$LHD_t = a_0 + \sum_{i=1}^{p} a_{1i} LHD_{t-i} + \sum_{j=p+1}^{dmax} a_{2j} LHD_{t-j} + \sum_{t=1}^{p} g_{1i} LC_{t-1} + \sum_{j=p+1}^{dmax} g_{2j} LC_{t-j} + u_{1t} \quad (5)$$

$$LC_t = \beta_0 + \sum_{i=1}^{p} \beta_{1i} LC_{t-i} + \sum_{j=p+1}^{d\max} \beta_{2j} LC_{t-j} + \sum_{i=1}^{p} \delta_{1i} LHD_{t-i} + \sum_{j=p+1}^{d\max} \delta_{2j} LHD_{t-j} + u_{2t} \quad (6)$$

$$LMD_t = \mu_0 + \sum_{i=1}^{p} \mu_{1i} LMD_{t-i} + \sum_{j=p+1}^{d\max} \mu_{2j} LMD_{t-j} + \sum_{i=1}^{p} \varphi_{1i} LC_{t-i} + \sum_{j=p+1}^{d\max} \varphi_{2j} LC_{t-j} + \upsilon_{1t} \quad (7)$$

$$LC_t = \sigma_0 + \sum_{i=1}^{p} \sigma_{1i} LC_{t-i} + \sum_{j=p+1}^{d\max} \sigma_{2j} LC_{t-j} + \sum_{i=1}^{p} \theta_{1i} LMD_{t-i} + \sum_{j=p+1}^{d\max} \theta_{2j} LMD_{t-j} + \upsilon_{2t} \quad (8)$$

$$LCD_t = \omega_0 + \sum_{i=1}^{p} \omega_{1i} LCD_{t-i} + \sum_{j=p+1}^{d\max} \omega_{2j} LCD_{t-j} + \sum_{i=1}^{p} \phi_{1i} LC_{t-i} + \sum_{j=p+1}^{d\max} \phi_{2j} LC_{t-j} + z_{1t} \quad (9)$$

$$LC_t = \pi_0 + \sum_{i=1}^{p} \pi_{1i} LC_{t-i} + \sum_{j=p+1}^{d\max} \pi_{2j} LC_{t-j} + \sum_{i=1}^{p} \tau_{1i} LCD_{t-i} + \sum_{j=p+1}^{d\max} \tau_{2j} LCD_{t-j} + z_{2t} \quad (10)$$

Where *LHD*, *LMD* and *LCD* refer to the log of a household debt and its composition which refers to the mortgage and consumer debt while *LC* represents the log of household consumption. Besides that, *d* refers to the maximum order of integration of the variables used in the study and optimal lag, *p*, is chosen based on the Schwarz Bayesian Criterion. The null hypothesis of the non-causality test represents that the household consumption does not Granger caused the household debt and its composition and vice versa. If the result obtained confirms the presence of causality, the cointegration test will be applied to determine the validity of the result of the non-causality test.

5. FINDINGS AND DISCUSSION

Firstly, this study conducts the unit root test in order to determine the order of integration of the variables used in this study. By using the Augmented Dicky-Fuller (ADF) unit root test, the result obtained supports that all variables are integrated at order *I(1)*. The result of the test is presented in Table 1. In addition, further investigation based on the Phillips-Perron test also supports the result of the ADF test that all variables are integrated at first difference.

Next, this study proceeds with the Toda-Yamamoto non-causality test to determine the direction of causality between the household debt composition and household consumption and the result obtained is presented in Table 2. Based on the findings, this study finds that there is a unidirectional causality that runs from consumption to debt which is consistent with the theories. In addition, an investigation based on composition of debt reveals that the direction of causality only presence in the case of consumer debt while the there is no evidence of an existence of causation between consumption and the mortgage debt.

Consistently, the results of the cointegration test based on Johansen and Juselius (1990) cointegration test shown in Table 3 also support that the long run relationship exists between the household debt and consumption while the result based on the composition of debt shows that the relationship only exists in the case of consumer debt. Hence, this result indirectly suggests that as the consumption level rises, the household has been utilizing the consumer debts such as credit cards and personal loans to finance their expenditure while less dependent on the mortgage equity withdrawal although the asset prices in Malaysia has been rising tremendously.

Table 1: Unit root test

Variable	Level		1st difference	
	Intercept	Intercept and trend	Intercept	Intercept and trend
LHD	−0.863914	−0.845530	−6.642948***	−6.859360***
LMD	2.594438	−1.586390	−6.901392***	−7.011265***
LCD	−3.871453	−0.062603	−4.503253***	−6.279182***
LC	−0.096063	−3.053629	−3.098190**	−3.054592*

The lag selection is based on the Schwarz Bayesian Criterion. ***,**,*Indicate the significance level at 1%, 5% and 10% respectively

Table 2: Toda-Yamamoto non-causality test

Direction of causality	df	Chi-square	Decision
Model 1			
LC→LHD	5	12.89355** (0.0244)	Reject H_0
LHD→LC	5	2.528420 (0.7722)	Do not reject H_0
Model 2			
LC→LMD	1	0.198761 (0.6557)	Do not reject H_0
LMD→LC	1	0.024170 (0.8765)	Do not reject H_0
Model 3			
LC→LCD	5	11.50757** (0.0422)	Reject H_0
LCD→LC	5	5.491206 (0.3589)	Do not reject H_0

**Indicates the significance level at 5% significance level. The value in parenthesis represent the P value

Table 3: Johansen's cointegration test

Number of CE (s)	Trace statistic	Critical value (5%)
Model 1: LHD		
None	16.35911**	15.49471
At most 1	3.877316**	3.841466
Model 2: LMD		
None	9.768027	15.49471
At most 1	1.468471	3.841466
Model 3: LCD		
None	18.75780**	15.49471
At most 1	8.193127***	3.841466

The lag is chosen based on the Schwarz Bayesian Criterion. ***,**Denote the rejection of the null hypothesis of no cointegration at 1% and 5% significance level

Correspondingly, any attempt by policymakers to control the bulk of household debt should focus on controlling the consumer debts since this type of debt is riskier and thereby can lead to serious economic consequences if any negative shocks occur in the economy. However, the policy formulation should be done carefully so that it will not hamper the household consumption since it is one of the most important sources of economic growth.

6. CONCLUSION

This study investigates the link between the household consumption and household debt composition in Malaysia by using the Toda-Yamamoto non-causality test. Findings of this study show that there is a unidirectional causality that runs from consumption to debt but the investigation based on the composition of debt reveals that the relationship only exists in the case of consumer debt. Hence, any attempts by policymakers in controlling the high debt level should focus on moderating the level of consumer debt since this type of debt is riskier for the economy as it is not secured with any assets. Given the limitation of this study, further analysis can be done to determine which component of the consumer debt is highly influenced by the household consumption.

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