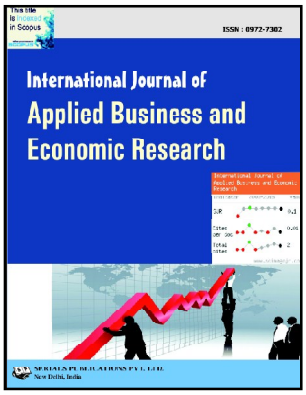

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Financial Health: Examining the Ability of Malaysian Household in Servicing Their Debts

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Abstract: This study is motivated by the persistent increased in household debts among Malaysian. The increasing trend of household debts raised concerns about the ability of the households to service their debts; especially when bankruptcies rates among Malaysian increase rapidly. Hence, this study seeks to examine the ability of the households in servicing their debts by looking at the association between loan features and types of household loans, and the post-loan debt service ratio. Using estimated logit model, the results show that household loans are associated with different loan features, which also indicates the ability condition of the household to service their debts. The post-loan debt service ratio shows that borrowers of certain types of loans have difficulties or less ability to service their debts. Further, the socio-demographic factors present the association of the borrowers' characteristics with types of household loans. The results show that the ability to repay debts is different between gender, races, education and employment. The study is conducted on households in three northern states of Malaysia.

Keywords: household debts, debt service ratio, Malaysia

I. INTRODUCTION

The rapid increased of household debt among Malaysians has raised questions about the financial health of the households. Large amounts of credit borrowed and broader distribution of consumer credit imply that the households are facing greater financial stress. The situation raises concern about the stability of the financial system as well as the macroeconomic implications. This is due to the fact that high level of indebtedness will place households in a vulnerable position, especially when the economic environment turns against their favour; hence may increase the bankruptcies rate and affects the financial and the economic system as a whole (Ampudia *et al.*, 2014).

Over the years, the household debts of Malaysian have increased persistently. The households' debt increased at a rapid rate of 11.1 percent per annum from 2004 to 2009. The household debt to gross

domestic products (GDP) increased constantly from 60.4 percent in 2008 to 80.5 percent in 2012; contrary to that, the debt repayment ratio grows at a very slow pace; from 39.7 percent in 2008 to 43.9 percent in 2012. The Edge (2010) reports that the ratio of Malaysia's household debt is 140.4 percent; indicating that on average the loans taken by each household in Malaysia are 1.4 times more than the household incomes; the ratio is above Singapore, USA, Korea, Thailand and Indonesia. The ratio has made Malaysia's household debt among the highest in the world. As of March 2013, the Malaysia's household debt to GDP is 82.9 percent and increased sharply to 87.9 percent in 2014. As of 2015, the Malaysia's household debt is as high as 89.1 percent (BNM, 2015), which is the highest in the region. The Malaymail (2016) reports that Malaysian household debts are approaching levels that could force them to deleverage at a time when the economy is in dire need of domestic consumer support. In the same vein, The Standard Chartered Bank Report (2016) indicates that Malaysian households are stretched on debt servicing, even beyond the USA and Korea, and stress out that the rising household debt is a major risk to financial stability.

The persistent elevation of household debts creates high concerns among economists and the government. Their main concern is that highly indebted households may ultimately unable to service their debts, which might trigger a financial crisis and affects the financial stability of the country. However, the worries of the economists and the government are not shared by the financial institutions. This is evidenced by the high percentage of loans given to the households. The household loans continued to accelerate from 34.4 percent to 55.9 percent in 2007. As of 2014, household financing constitutes about 77 percent of the financial institutions' total loans; indicating that household loans are the major business of the banking institutions. The high percentage of loans to the household sectors raise questions on the true creditworthiness of the households. In other word, do the household financially qualify to receive the loan or is it that the financial institutions are too lenient in their loan assessment? This is because despite the worries of the economists and the government that the households may default in their loan payment, the financial institutions continue to grant lots of loans to the household sector. Hence, this study tries to investigate the ability of the households in servicing their debts by looking at four loan features and debt service ratio; the amount of money required over a period of time to repay debts.

This study is in line with Beer and Schurz (2007), who argue that a growth in household indebtedness is not a problem per se; but it does become an issue when the debt turns out to be a burden to the borrower which cause them failing to service their debt. Hence, this study will examine the ability of the households to service their debts by answering two questions; (i) Do household loans associated with certain types of loan features? (ii) Do Malaysian household borrowers have the financial ability to service their debts?

II. LITERATURE REVIEW

Household debts play an important role in most of the recent financial crisis (Charpe & Flaschel, 2011). Beer and Schurz (2007) stress the importance of household debts by dividing it into three levels of concern; (i) the macro level - macroeconomic risks resulting from a fall in consumer demand; (ii) the financial sector level – the risk of financial instability resulting from households being unable to service their debts and (iii) the individual level – the risk of household over indebtedness which may force them to bankruptcies; indicating the crucial role of household debts to financial stability. Debelle (2004) contends that household debt accelerate in a number of developed countries over the past two decades, which raises concerns about the stability of the financial system as well as the macroeconomic implications.

Bandyopadhyay (2016) indicates that a borrower's loan problem relate to their trend of instalment problem, collateral, academic failure and employment. Sengupta and Emmons (2007) indicate that one of the approaches in identifying prime or subprime, borrowers, is to focus on the borrowers credit attributes. Jimenez and Saurina (2002) include the loan amount, maturity, collateral and type of lenders as measures for probability of default. Lawrence *et al* (1992) in their analysis on the default risk of mobile home credit has used payment history, loan terms and borrower's characteristics as determinants of default and delinquency. The quantum of the mortgage payment relative to the borrower's income has a significant role in a default decision in low income households (Quercia *et al*, 1993).

Faruqi (2008) indicates that debt service ratio (DSR) is one of the important indicators of household financial health; used to gauge the burden of debt servicing for households. Caju, Rycx and Tojerow (2016) argue that over-indebtedness ensues when the debt service ratio or debt repayment over income is above a certain threshold. In Malaysia, DSR is used to measure household debts (Bank Negara Malaysia, 2016). The DSR is also used by financial institutions as one of the parameters to determine the capacity of a potential borrower to take a loan after taking into account his or her existing debts and income. The objective is to protect the banks' interests, as well as the borrower, by ensuring that the borrower do not borrow above his or her means and fall into bankruptcy, thereby causing the banks to lose money via bad loans. The guideline used by Malaysian banks in measuring the DSR of the borrower is 60 percent; meaning, the total financial commitment of the borrower should not exceed 60 percent of his or her income.

Johnson and Li (2010) indicate that DSR is a useful measure of household borrowing constraints. A household with a DSR in the top two quintiles of the distribution (above about 20% than the DSR) is significantly more likely than other households, to have been turned down for credit in the past 5 years. Despite having access to credit in the past, a household in the top quintiles (with a DSR above about 30%) has a likelihood of being turned down for credit that is 8.0 percentage points higher than it is for a household without any debt at all. The DSR level above which a household has limited access to credit is in line with mortgage origination guidelines, providing confidence that this result indeed reflects borrowing constraints. They also find that the consumption growth of a household with a very high DSR reacts more to past income than the consumption growth of other households.

III. DATA AND METHODOLOGY

In order to achieve the objective of the study, a quantitative research approach is employed in which primary data are collected using questionnaires. The questionnaire is developed based on measures use in previous related studies to gain information on the indebtedness of households. There are four loan features involved in this study, such as repayment trend, loan amount, instalment amount and amount of deposits paid.

Further, DSR is calculated in this study, in order to ascertain the financial ability of the household to service their debts. However, the DSR involved in this study is a post-loan DSR whereby it is calculated based on the current level of debts and income of the respondents. The post-loan DSR is essential as it may serve as an indicator for the ability of borrowers to service their debts. This is due to the reason that borrowers become bankruptcies due to their inability to service their debts; meaning, they are able to grant loans from the financial institutions (based on pre-loan DSR) but fail to service their debts continuously for a certain period of time. In this study, it is assumed that the respondents have met the pre-loan DSR

level required by the central bank when they apply for loans from the financial institutions. All of the respondents involved in this study are those who are currently have loans with the financial institutions.

This study focuses only on households located at three northern states of Malaysia, namely, Perlis, Kedah and Penang; with a total population of 4 million people as of 2015 (Statistic Department of Malaysia, 2016). Following the sampling rules introduced by Krejcie and Morgan (1970) in determining a sample size, this study distributes a total of 600 questionnaires to the households. Krejcie and Morgan (1970) indicate that the sample size for a population of more than 75,000 is 382; hence, 600 respondents as sample for this study is considered as enough to represent the whole population of the three focus areas. Following Zikmund and Babib (2007), and Creswell (2008), the questionnaires are distributed using the convenience sampling method. Creswell (2008) indicates that convenience sampling is appropriate when researchers select participants because they are willing and available to be studied. However, of the 600 questionnaires, only 289 can be analysed. This is due to inadequate information provided by the respondents.

In this study, the term debt denotes to loans taken by households, The loans were differentiated into housing loan, hire purchase loan, credit card loan and personal loan; the type of loans that normally associated with household debt (Beer & Schurz, 2007). The definition of each type of loans is according to the definition used by the financial institutions. This is an attempt to create consistency between survey-based indicators with the loan definitions given in the financial accounts and, to facilitate the households in understanding and answering the questions in the questionnaire. Housing loan is defined as loan earmark for the purchase or construct a house or building; hire purchase loan refers to loan taken to buy private vehicle; credit card loan refers to users who continue to carry a balance on their credit cards after the grace period (the number of days between a customer's credit card statement date and payment due date when interest does not accrue) has expired and the debt begins to bear interest while, personal loan is defined as an unsecured loan taken by household for personal use such as buying a refrigerator, computer, vacation, medical, education, etc.

In analysing the data, estimated logit models are employed. In an attempt to get an accurate result for DSR, this study divides the DSR into three categories; less than 40 percent, between 40 to 60 percent, and more than 60 percent. The DSR is calculated by dividing debts to income where the lower level DSR implies a better ability to service debts. Hence, as the DSR is divided into three levels, ordered logit model which designs for the ordered categories are employed.

III. ANALYSIS AND FINDINGS

Table 1.0 shows that overall fit tests for the estimated logit model is found to be significant, with p-values of almost equal to zero. The Pseudo R^2 ranges from 0.5039 to 0.8662; indicating that the estimated models are fit into the sample. The table presents four loan features (i.e., repayment trend, loan amount, instalment amount, deposit paid), DSR and socio-demographic factors of the households. Repayment categories are divided into four categories (i.e., repayment made in less than 1 month, 2-3 months, 3-4 months, more than 4 months), where the highest categories indicate poor repayment trends or inability to service debts. The socio-demographic factors are included in the analysis as an attempt to provide a more comprehensive analysis of the respondents (borrowers) and their ability to repay debts.

As shown in Table 1.0, repayment trend has significant relationship only with hire-purchase loan, with a high coefficient value (0.4750); indicating that respondents with hire-purchase loan tend to pay their

debts late or not paying their debts on time (lower values imply a better customer). Delay in loan payment implies the financial ability and attitude of the borrower which might affect the borrower's credit report. The late or missed repayments may be recorded in the borrower's credit report for at least six years and are likely to impact the borrower's credit score; meaning, it might damage the respondent's ability to acquire credit for many years or the financial providers might charge higher cost to the borrower for future loan (Edwin, 2015).

As for loan and instalment amount, it is found that these loan features have significant relationship with housing loan, hire-purchase loan and credit card loan. Among the three types of loans, credit card loan has the highest beta coefficient; indicating the strongest relationship of loan amount and instalment

Table 1
The estimated logit models for the four types of loan

Overall	*Housing loan*		*Hire-purchase loan*		*Credit card loan*		*Personal loan*	
	Coeff.	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*
Repayment[3]	0.2505	0.510	0.4750*	0.071	-0.0505	0.913	0.3520	0.190
Loan amont	0.0001***	0.004	0.0001***	0.006	0.0004***	0.000	0.0001	0.155
Instalment amt	0.0134***	0.006	0.0046***	0.000	0.0323***	0.000	0.0060*	0.085
Deposit paid	0.0001*	0.098	0.0002	0.348	n.a[2]	n.a.[2]	n.a.[2]	n.a.[2]
DSR	-1.2104***	0.005	-0.1083	0.405	-1.5872**	0.037	-0.0198	0.742
Dmale[4]	-1.2616	0.473	0.4179	0.442	0.9030	0.229	-0.3353	0.464
DMalay[4]	-1.7597	0.105	-0.5970	0.412	-1.8667*	0.088	0.2482	0.701
Ddegree[4]	0.5389	0.459	-0.2722	0.739	2.8598**	0.004	-0.2304	0.663
Dpostgrad	-1.9150	0.219	-1.2401	0.403	2.8035**	0.032	-1.8497*	0.062
DeduOther	1.3231	0.456	1.0915	0.189	1.6147	0.343	-0.6977	0.239
DSingle[4]	-0.2473	0.835	-0.3662	0.574	0.3385	0.757	0.0127	0.980
Demployed[4]	0.9887	0.288	-0.5026	0.583	8.0482***	0.000	0.7655	0.135
DEPF[4]	0.8634	0.600	3.2496**	0.030	-2.3026	0.170	0.1324	0.839
DPension,Othr	0.8002	0.644	3.4546**	0.028	-4.3069**	0.042	0.5464	0.399
AGE1[5]	0.2234	0.752	-0.8771*	0.079	1.8705**	0.015	0.2885	0.426
_cons	-3.8998**	0.021	-3.9423**	0.019	-12.2***	0.000	-3.2251**	0.016
Number of obs	188		188		188		188	
Overall fit test (p-values)	0.0001		0.0024		0.0000		0.0119	
Pseudo R^2	0.8662		0.6718		0.7881		0.5039	

Note:

1. ***, **, and * represent 1%, 5% and 10% significant level respectively
2. n.a. = not applicable
3. Repayment in categories of: 1=" less than 1 month"; 2="2 to 3 months"; 3="3 to 4 months"; 4 = "more than 4 months".
4. Comparison group of dummy variables: Dmale (female); DMalay (Non-Malay); Ddegree, Dpostgrad, DeduOther (Diploma); DSingle (Married); Demployed (employed); DEPF, DPension & Othr (non-retirement scheme)
5. AGE1 in categories of: 1="less than 30"; 2="30 to 49"; 3="50 to 69"; 4="over 70"

payment with credit card loan. The significant result implies the high dependency on credit card loan as an alternative source of financing among the respondents. In terms of amount of deposit, it is found that the loan feature has significant relationship only with housing loan. The result is as expected, as most financial institutions in Malaysia normally do not provide full financing for housing loan. Next, the result shows that DSR has significant relationship with housing loan and credit card loan; with low coefficient values. The low DSR (debts to income) suggests that the respondents with housing loan and credit card loan have low debts in relative to their income, thus have high ability to service their debts.

As for the relationships of socio-demographic factors and types of loan, it is found that credit card loan has significant relationship with most of the socio-demographic factors. Credit card loan is associated with Malay respondents, respondents with high qualification such as degree and postgraduate, employed, have pension and at a young age. Hire-purchase loan on the other hand, has significant relationship with respondents who have EPF, pension and also young; age below 30 years old. Personal loan is found to have significant relationship only with respondents with postgraduate qualification while, housing loan has insignificant relationship with all of the socio-demographic factors of the respondents.

The estimated Logit Models for debt service ratio (DSR)

Table 2.0 presents the estimated ordered logit models for debt service ratio. The overall fit tests are found to be significant with p-values of almost zero, except on the credit card loan where due to the low number of observations (47 observations), the p-values are not able to be estimated and some of the standard errors of the estimated coefficients are also missing. Out of the four loan features (repayment trend, loan amount, instalment amount, deposit paid), only repayment trend is found significant to DSR. Hence, only repayment trend is included in the estimated logit model for DSR.

As shown in Table 2, the repayment trend of respondents with housing loan and credit card loan has positive and significant relationship with the level of DSR, with high values. The result suggests that higher values of repayment trend (late in payment) are associated with high DSR; indicating that the respondents delay their loan repayment due to low financial ability. In terms of socio-demographic characteristics, Table 2.0 shows that male respondents with hire purchase loan, likely to have higher values of DSR than female, *ceteris paribus*; suggesting less capability of the male respondents to service their debts in relative to the female respondents. As race is concerned, Malay respondents with housing loan and credit card loan are found to have low values of DSR *ceteris paribus*'. However, for the hire-purchase loan, Malay respondents are found to have high values of DSR than the non-Malay. Thus, relatively, the Malay respondents with housing and credit card loan have better ability to service their debts than those with hire-purchase loan.

In terms of education level, it is found that respondents with higher education level (either first degree, or postgraduate degree) have significant and low values of DSR. This could be due to a better job and salary earned by the respondents with higher qualifications. Next, as for marital status, the single respondents with credit card loan are found to have significant and high values of DSR compared to the married respondents. However, unlike personal loan, socio-demographic factors such as employment and retirement scheme (either pension, EPF or others) are found insignificant to housing loan, hire-purchase loan and credit card loan.

Table 2
The estimated ordered logit models for debt service ratio (DSR) by types of loan

	Housing		*Hire-purchase*		*Credit card*		*Personal*	
DSR	*Coeff.*	*P-values*	*Coeff.*	*P-values*	*Coeff.*	*P-values*	*Coeff.*	*P-values*
REPAYMEN	15.991***	0.000	-0.603	0.104	15.251***	0.000	-0.327	0.553
Dmale	0.544	0.503	1.383*	0.095	-0.845	0.587	0.269	0.706
DMalay	-18.24***	0.000	1.850**	0.037	-15.30***	0.000	1.540	0.163
Ddegree	0.108	0.921	1.893**	0.020	-0.192	0.910	1.598*	0.099
Dpostgrad	17.138***	0.000	1.825**	0.046	17.01***	0.000	0.182	0.846
DeduOther	-0.892	0.391	-1.023	0.148	-1.241	0.459	0.179	0.818
DSingle	-1.766	0.325	0.524	0.574	15.49***	0.000	0.664	0.594
Demployed	0.754	0.760	-0.290	0.730	-17.346	n.a.	0.128	0.906
DEPF	2.277	0.174	0.590	0.620	1.297	n.a.	-15.58***	0.000
DPensionOth	2.337	0.141	0.054	0.964	2.045	n.a.	-14.91***	0.000
AGE1	-0.036	0.980	0.266	0.700	0.093	0.936	0.943	0.212
/cut1	-2.166	0.337	-1.226	0.251	-19.909	n.a	-14.04***	0.000
/cut2	-0.888	0.432	0.603	0.630	-18.302	n.a.	-12.97***	0.000
Number of obs	81		97		47		83	
Overall fit test	0.0000		0.0000		n.a.		0.0000	
Pseudo R^2	0.2677		0.1797		0.2462		0.1066	

Note:

1. Repayment in categories of: 1=" less than 1 month"; 2="2 to 3 months"; 3="3 to 4 months"; 4 = "more than 4 months".
2. Comparison group of dummy variables: Dmale (female); DMalay (Non-Malay); Ddegree, Dpostgrad, DeduOther (Diploma); DSingle (Married); Demployed (employed); DEPF, DPension & Othr (non-retirement scheme)
3. AGE1 in categories of: 1="less than 30"; 2="30 to 49"; 3="50 to 69"; 4="over 70"

V. CONCLUSION

Overall, the results show that each type of household loans is associated with different loan features. As expected, loan and instalment amount are found significant to all of the household loans, except for personal loan, while deposit paid is significant with housing loan. However, repayment trend is found significant only with hire-purchase loan. As for the post-loan DSR, the significant relationships of repayment trend with housing loan and credit card loan, with high values, show the low ability of the respondents to service their debts; a sign or "red flags" for loan default. The long term repayment period (normally up to 25-30 years) for housing loan is associated with higher risk of defaults among borrowers. This is because, the long repayment period allows for various things to happen such as changes in the economy, financial conditions, life-style, unemployment etc, which may affect the ability of the borrowers to repay debts. As for credit card loan, the high interest and charges imposed on the outstanding balance may become a burden to the borrowers and thus, lower the ability of the borrowers to service their debts.

Hence, although the respondents meet the pre-loan DSR during their loan application from the financial institutions, the post-loan DSR shows a low ability of the respondents to service their debts. The

post-loan DSR is crucial as it reveals the current financial condition of the respondents and may serve as a sign for loan default. However, the results are limited to respondents of the three states only. Hence, a more thorough future study which includes more or all states in Malaysia is needed to verify the ability of the Malaysian household to service their debts. As Malaysia consists of several states, where each state stands with unique characteristics such as size of the states (i.e., small or large states), income, main economic activities, population, and the culture of the states, a future reseach which takes into consideration of all these factors are needed. This is very crucial as all of these factors may influence the lifestyle of the borrowers and hence affects their needs and ability to service the loans.

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