Debt Servicing Burden among Working Adults in Malaysia

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Abstract

Malaysia's alarming level of household debt which stands at 86% of gross domestic product in 2013 and the high debt service ratio of 46% is a cause of concern on the financial fragility of the Malaysian households. Motivated by these concerns, this paper investigates the role of socio-economic, financial and behavioural factors in affecting the level of debt service burden among working adults in Malaysia. In the analysis, as debt service burden is divided into four levels according to the percentage of monthly income used for loan repayments, an ordered probit model is used. The results indicate that socio-economic factors such as age, gender, education, occupational status and number of dependents play a significant role while financial factors such as stability of income receipt, homeownership, being on government pension, job security, and financial savviness are also significant determinants of levels of debt service burden undertaken by individuals. The findings reflect the institutional aspects of the supply of credits, the life cycle hypothesis and the importance of financial knowledge in enabling individuals to optimize the use of financial services while being prudent to keep debt service within the recommended level.

Introduction

Over the years, as financial industry liberalized and financial innovations evolve rapidly, consumers are presented with new and ever more sophisticated financial products.   Apart from having to deal with greater demand of skills in financial judgement, there are strong temptations for consumers to spend on credit as access to credit is easier than before and opportunities to borrow are plentiful.

The apetite for credit among Malaysians is evident in the rising household debt in Malaysia in the recent years.   The household debt of Malaysia as a percentage of gross domestic product stands at a high 86.8 percent which amounts to US$266 billion is the highest among its neighbouring countries in the region such as Singapore, Hong Kong, the Philippines, Japan and Indonesia in 2013 (The Star, 2014; Jamil, 2013). Figure 1 shows the household debt as a percentage of GDP for Malaysia between 2003 to 2013.   Overall, it is evident that the household debt as a percentage of GDP has increased over the years from 65.7% in 2003 to 86.8% in 2013.   In fact, the household debt as a percentage of GDP in year 2000 was only 47%.   In other words, the household debt as a percentage of GDP has almost doubled since the turn of the century or in the last 13 years.

**Figure 1: Household debt as a percentage of GDP in Malaysia (2003 to 2013)**
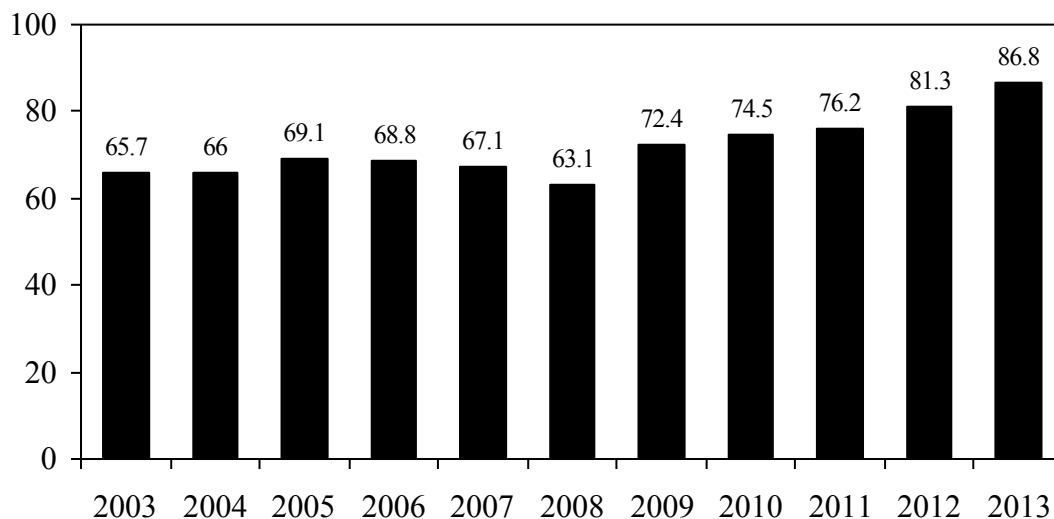
Source: Bank Negara Malaysia (2014, 2010 and 2007), Payment Systems and Stability Report.

In addition, the sustainability of household debt is also in question, as the debt service ratio (ratio of debt payments to disposable income) stood at 43.8% in 2013 (Bank Negara Malaysia, 2014).   In other words, almost half of households' disposable income is used for the repayment of debts. Figure 2 shows the debt service ratio in Malaysia between the year 2006 to 2013. Similar to the household debt as a percentage of GDP, the debt service ratio also has shown an increasing trend rising from 39.1% in 2006 to 43.8% in 2013.   This is above the recommended 30% debt service ratio.   Apart from this, the number of personal bankruptcy cases shows an

increasing trend with 13,238 cases reported in 2007 to 21,987 cases in 2013 (The Star, 2014). All these statistics do not paint an optimistic picture on the financial well-being of Malaysians and raise concerns on the financial fragility of the Malaysian households.

Figure 2: Debt service ratio in Malaysia (2006 - 2013)
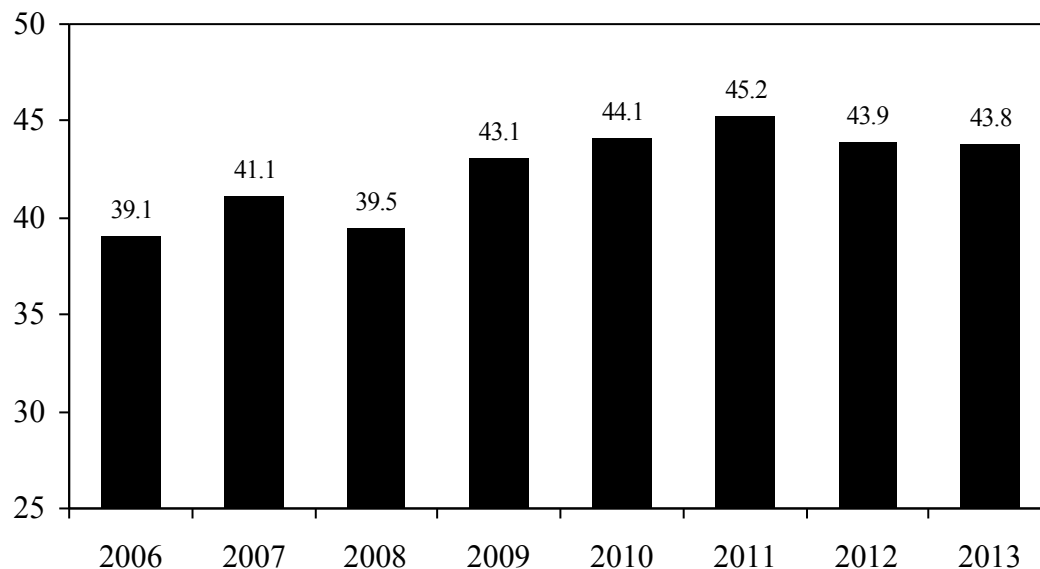
Source: Bank Negara Malaysia (2014 and 2010), Payment Systems and Stability Report.

The financial fragility of an individual can be measured in numerous ways. The debt service ratio can serve as one of the early indicators of the financial fragility or debts sustainability of an individual. Despite the growing household debts and personal bankruptcy cases in Malaysia, there is a paucity of empirical research studies on household debt in Malaysia. Related studies on household debt in Malaysia have so far; focus on the credit card debt holdings (Loke et al., 2013; Tan et al., 2011). With this in mind, the paper aims to investigate factors that are significant in determining the debt service ratio or the debt service burden of individuals in Malaysia.

Methodology: Data and Model

Model

The dependent variable in this study is the level of debt service burden where it is defined as zero, low, moderate and high. It is classified based on the percentage of income that is used for debt repayments. The dependent variable of the level of debt service burden in the ordered probit model, is characterized as follows:

- Zero: if the respondent does not have loan at all whereby 0% of income is used for debt repayments.
- Low: if respondent use less than 20% of income for debt repayments
- Moderate: if respondent use between 21%-30% of income for debt repayments
- High: if respondent use more than 30% of income for debt repayments

As the dependent variable is categorical and ordinal with a clear ordering, ordered probit model is an appropriate statistical model to explain the ordinal variations of the debt service burden levels (McCullaph 1980; McKelvey and Zavoina 1975). Debt service burden is given a value of 1, 2, 3 and 4 which indicates zero, low, moderate and high levels debt service burden.

The ordered probit (OP) model is usually justified on the basis of a latent variable, i.e. a variable that is not directly observed but rather inferred from other variables that are observed (directly measured). In general, the ordered probit model is written as:

$$y^* = \beta'x + \varepsilon \qquad\qquad (1)$$

where y^* is the latent and continuous measure of debt service burden levels coded as 0, 1, 2, 3 and 4; β' is the vector of estimated parameters and x is the vector of explanatory variables; ε is the error term $\varepsilon \sim N(0,1)$ with cumulative distribution denoted by $\Phi(\bullet)$ and density function denoted by $\varphi(\bullet)$.

The observed and coded discrete debt service burden level, y, is derived from the model as follows:

$$y^* = 1 \text{ (zero) if } y^* < \mu_1 \qquad\qquad (2)$$
$$y^* = 2 \text{ (low) if } \mu_1 < y^* < \mu_2 \qquad\qquad (3)$$
$$y^* = 3 \text{ (moderate) if } \mu_2 < y^* < \mu_3 \qquad\qquad (4)$$
$$y^* = 4 \text{ (high) if } y^* > \mu_3 \qquad\qquad (5)$$

μ_1, μ_2 and μ_3 are threshold variables in the probit model. The threshold variables are unknown and determine the maximum likelihood estimation procedure for the ordered probit.

Data

This study utilizes primary data which was obtained from a survey conducted between January to March 2013 in two locations (Penang and Klang Valley). The two locations represent the Northern and Central commercial hubs of Peninsular Malaysia. The total sample size used for the analysis is 850. The target respondents were Malaysian working adults between the age of 18 to 60 years old. A working adult is defined as an individual who works for at least 30 hours a week. The sample was stratified according to age, ethnic groups and gender based on the Census Labour Statistics 2010 (Department of Statistics, 2010). A prepared questionnaire is used for the survey and the a face to face interview was administered to each participant based on a prepared questionnaire. The data collected included information on respondent's financial status, financial knowledge, financial behaviour and attitudes and other socio-economic characteristics.

Variables

The explanatory variables can be broadly categorized into three groups namely; i) socio-economic variables, ii) financial variables, and iii) behavioural factors.

Gender, age, education level, ethnicity, marital status, income, occupational status, number of dependents constitute the socio-economic variables that are included in the model in order to analyse the significance of these factors on the levels of debt service burden among working adults in Malaysia.

Financial variables include homeownership, job security, reliability of income receipt, being in government pension scheme, the financial savviness in terms of the use of financial services and the financial knowledge score. In job security, respondents are asked if they feel that their job is secured or otherwise. In terms of reliability of income receipt, a distinction is made between those who have regular and predictable income and those with seasonal or irregular income.

The variable of government pension is unique to this study as this factor has so far not been considered in existing studies as the plausible factors that could explain the differences in individuals' financial capability. There are broadly two types of pension scheme available in Malaysia whereby one is private and another is government which is only offered to workers in the civil sector. Unlike the private pension scheme where all privately employed workers have to make compulsory monthly contribution to the Employees Provident Fund (EPF) based on the percentage stipulated by the government, the civil sector workers who agree to enrol in the government pension scheme need not make any monthly contribution. Furthermore, the civil sector workers who are under the government pension scheme will receive monthly pension until they pass away, the privately employed workers under EPF, will receive a lump sum of money upon retirement and it is up to these workers to plan their funds to ensure that it is sufficient to sustain them throughout their retirement until death. As a result, workers in the civil sectors who have opted for government pension scheme will have the security of retirement income and this may result in differences in the way they handle their finances compared to those in the EPF scheme. Hence, the variable government pension is added into the model.

The financial savviness in terms of the use of financial services is divided into four categories. The lowest being those with no bank accounts, followed by those with holdings of wealth in bank deposits only, and then those who holds wealth in bank deposits and have insurance and finally, those who diversify their wealth holdings to include holdings of financial instruments such as stocks and bonds. The latter group are considered the sophisticated financial service user.

The financial knowledge score is derived from the financial knowledge questions posed to the respondents. The financial knowledge questions are modified and conceptualized from various financial surveys. The concepts assessed relates to individuals' knowledge and understanding on inflation (Kempson and Collard, 2006) , interest compounding (Lusardi and Tufano, 2009; Lusardi and Mitchell, 2009; Chen and Volpe, 1998), cash flow management (Credit Counseling and Debt Management Agency of Malaysia, 2011), risk diversification (Lusardi, 2008), mutual funds (Lusardi, 2008) and the recommended debt repayments in relation to income ratio

(Credit Counseling and Debt Management Agency of Malaysia, 2011). A total of six questions were given and the score of the number of correct answer constitute the value of the financial knowledge variable.

Table 1: Definition of the explanatory variables

Variables	Definition
Socio-economic factors	
Male	The respondent is a male
Dependents	Number of dependents
Age	
Age1824*	The respondent is aged between 18 to 24 years old
Age2529	The respondent is aged between 25 to 29 years old
Age3039	The respondent is aged between 30 to 39 years old
Age4049	The respondent is aged between 40 to 49 years old
Age5060	The respondent is aged between 50 to 60 years old
Education	
Tertiary*	The respondent achieved tertiary education
Secondary	The respondent achieved secondary education
Primary	The respondent achieved primary education
Occupational status	
White Collar*	The respondent is a white collar worker
Blue Collar	The respondent is a blue collar worker
Self Employed	The respondent is self employed
Marital Status	
Married	The respondent is married
Widow	The respondent is a widow/divorced
Single*	The respondent is single
Ethnic groups	
Chinese	The respondent is a Chinese
Malay*	The respondent is a Malay
Indian	The respondent is an Indian or others
Household income	
H2500	Household income less than RM2,500
H4000	Household income is between RM2,501 to RM4,000
H5500	Household income is between RM4,001 to RM5,500
H7000	Household income is between RM5,501 to RM7,000
H8000	Household income is above RM7,000
Financial related factors	
Own House	If the respondent owns a home
Pension	If the respondent is enrolled in government pension scheme
Regular	If the respondent receives a predictable and regular income
Job security	If the respondent feels that his/her job is secured
Financial savviness	
No Bank	Respondent does not have a bank account
Bank Deposits	Respondent holds only bank deposits
Insurance	Respondent holds bank deposits and insurance
Finst*	Respondent holds bank deposits, insurance and financial instruments
Fknowledge	The financial knowledge score
Behavioural factors	

Self-control	Respondent shows lack of self-control
Risk tolerance	
No Risk	Respondent does not tolerate any risk
Low Risk	Respondent rejects new job offer if income cut is 10%
Moderate Risk	Respondent rejects new job offer if income cut is 20%
High Risk*	Respondent rejects new job offer if income cut is 33%

Note: * refers to reference variable. All variables are dummy variables except for dependents and fknowledge which are continuous variables.

Finally, the last group of explanatory variables is to elicit the influence of behavioural biases on the levels of debt service burden among working adults. Self-control and risk tolerance were the two behavioural biases that were considered in the model. To elicit self-control, the respondents were asked the following question: "When purchasing goods of value RM2500 and above, if instalment payment option is available, generally would you prefer to pay: by instalment if interest free, will not use the instalment option and pay the full product price, do not purchase at all unless you have sufficient money or will pay by instalment even when interest is chargeable". Those who choose the last option are considered those who display lack of self-control. On the other hand, to assess individual's risk tolerance level, Hanna et al.(2001) question was used whereby the individual were asked if they are willing to take a new and equally good job with 50% probability that it will double their income but another 50% probability that it will reduce their income by a x%. The x% will vary and based on that the risk tolerance level of an individual is captured.

Characteristics of the survey respondents

Of the 850 respondents, 210(24.7%) had 0% of their income that is used for debt repayments, 206 (24.2%) had low levels of debt service burden, 231 (27.2%) had moderate levels of debt service burden and (24.4%) had high levels of debt service burden. A cursory analysis of Table 2, which gives the summary of the respondent profiles and sample statistics, reveals that the young adult workers (18 to 24 years old) and those approaching retirement workers (50 to 60 years old) are more likely to have lower debt service burden compared to those aged between 24 to 29 years old. This is likely to be the case at those aged between 24 to 29 years old have probably just taken up car or home loan and their income levels are far lower than those in mid career such as those aged between 30 to 49 years old. Hence, it can be seen that among those with high levels of debt service burden, 46.8% are those aged between 24 to 29 years old.

Apart from age, male respondents also tend to have higher levels of debt service burden. While males constitute 60% of the total sample, they account for 69.1% of those who have high levels of debt service burden. This is not surprising as generally the men are the ones who are the primary loan holder and are responsible for debt repayments especially in home loans. Those who are married tend to have higher debt service burden than those single. For example, married respondents make up 64.9% and 71.4% of those with moderate and high levels of debt service burden respectively while those who are single, make up 46.7% and 42.7% of those without loans and with low levels of debt service burden respectively. Further, those who own home also have higher levels of debt service burden whereby they make up

62.3% and 73.4% of those with moderate and high levels of debt service burden respectively.

Table 2: Summary of sample characteristics

Variables	Levels of debt service burden				Total
	None	**Low**	**Moderate**	**High**	**Sample**
Male	0.538	0.587	0.597	0.691	0.603
	(0.500)	(0.494)	(0.491)	(0.463)	(0.490)
Dependents	1.652	1.956	2.234	2.541	2.098
	(1.886)	(1.892)	(1.711)	(1.837)	(1.856)
Age1824	0.214	0.150	0.074	0.072	0.126
	(0.411)	(0.358)	(0.262)	(0.260)	(0.333)
Age2529	0.133	0.223	0.156	0.145	0.164
	(0.341)	(0.417)	(0.363)	(0.353)	(0.370)
Age3039	0.195	0.286	0.381	0.469	0.334
	(0.397)	(0.453)	(0.487)	(0.500)	(0.472)
Age4049	0.233	0.199	0.268	0.237	0.235
	(0.424)	(0.400)	(0.444)	(0.426)	(0.424)
Age5060	0.224	0.141	0.121	0.077	0.141
	(0.418)	(0.349)	(0.327)	(0.268)	(0.348)
Tertiary	0.181	0.437	0.420	0.329	0.343
	(0.386)	(0.497)	(0.495)	(0.471)	(0.475)
Secondary	0.471	0.243	0.312	0.357	0.345
	(0.500)	(0.430)	(0.464)	(0.480)	(0.476)
Primary	0.152	0.049	0.022	0.034	0.063
	(0.360)	(0.215)	(0.146)	(0.181)	(0.244)
White Collar	0.400	0.684	0.675	0.671	0.609
	(0.491)	(0.466)	(0.469)	(0.471)	(0.488)
Blue Collar	0.390	0.199	0.190	0.193	0.242
	(0.489)	(0.400)	(0.394)	(0.396)	(0.429)
Self Employed	0.210	0.117	0.134	0.135	0.149
	(0.408)	(0.322)	(0.342)	(0.343)	(0.356)
Married	0.457	0.558	0.649	0.715	0.596
	(0.499)	(0.498)	(0.478)	(0.453)	(0.491)
Widow	0.076	0.015	0.022	0.029	0.035
	(0.266)	(0.120)	(0.146)	(0.168)	(0.184)
Single	0.467	0.427	0.329	0.256	0.369
	(0.500)	(0.496)	(0.471)	(0.438)	(0.483)
Chinese	0.300	0.374	0.346	0.266	0.322
	(0.459)	(0.485)	(0.477)	(0.443)	(0.468)
Malay	0.562	0.505	0.567	0.647	0.570
	(0.497)	(0.501)	(0.497)	(0.479)	(0.495)
Indian	0.138	0.121	0.087	0.087	0.108
	(0.346)	(0.327)	(0.281)	(0.282)	(0.310)
H2500	0.498	0.224	0.220	0.198	0.285
	(0.415)	(0.306)	(0.283)	(0.287)	(0.331)
H4000	0.244	0.293	0.208	0.295	0.258
	(0.431)	(0.456)	(0.407)	(0.457)	(0.438)
H5500	0.105	0.151	0.169	0.174	0.150

	(0.308)	(0.359)	(0.375)	(0.380)	(0.358)
H7000	0.053	0.107	0.156	0.159	0.120
	(0.224)	(0.310)	(0.363)	(0.367)	(0.325)
Own House	0.329	0.461	0.623	0.734	0.539
	(0.471)	(0.500)	(0.486)	(0.443)	(0.499)
Pension	0.057	0.204	0.286	0.329	0.220
	(0.233)	(0.404)	(0.453)	(0.471)	(0.415)
No Bank	0.057	0.019	0.004	0.010	0.022
	(0.233)	(0.138)	(0.066)	(0.098)	(0.148)
Bank Deposits	0.329	0.160	0.117	0.101	0.176
	(0.471)	(0.368)	(0.322)	(0.303)	(0.381)
Insurance	0.324	0.301	0.342	0.386	0.338
	(0.469)	(0.460)	(0.475)	(0.488)	(0.473)
Finst	0.290	0.520	0.537	0.502	0.464
	(0.455)	(0.501)	(0.500)	(0.501)	(0.499)
Job Security	0.752	0.908	0.931	0.908	0.876
	(0.433)	(0.290)	(0.254)	(0.289)	(0.330)
Regular	0.529	0.684	0.784	0.725	0.683
	(0.500)	(0.466)	(0.413)	(0.448)	(0.466)
Fknowledge	2.024	2.607	2.667	2.560	2.468
	(1.307)	(1.483)	(1.334)	(1.290)	(1.377)
Self-contorl	0.057	0.053	0.048	0.116	0.068
	(0.233)	(0.225)	(0.213)	(0.321)	(0.252)
No Risk	0.248	0.262	0.287	0.295	0.273
	(0.433)	(0.441)	(0.453)	(0.457)	(0.446)
Low Risk	0.386	0.403	0.359	0.338	0.371
	(0.488)	(0.492)	(0.481)	(0.474)	(0.483)
Moderate Risk	0.257	0.228	0.217	0.232	0.233
	(0.438)	(0.421)	(0.413)	(0.423)	(0.423)
High Risk	0.110	0.107	0.134	0.135	0.122
	(0.313)	(0.310)	(0.342)	(0.343)	(0.327)

Note: Standard deviation in parenthesis

22% of the respondents in the sample are enrolled in the government pension scheme but they make up 32.6% of those with high levels of debt service burden. This indicates that those with government pension have higher tendency to have higher levels of debt service burden than those without government pension. In terms of financial savviness, it is found that those who hold financial instruments such as stocks and bonds tend to have higher levels of debt service burden compared to those who save in bank deposits only. Lastly, it is found that those with lack of self- control have higher levels of debt service burden.

Empirical Results

Table 3 presents the estimates of the ordered probit (column 2) and the marginal effects of the explanatory variables on levels of debt service burden (columns 3-5). The ordered probit enables the identification of significant variables that are associated with different levels of debt service burden. A higher coefficient in the estimate for the ordered probit indicates a higher probability of membership in the highest category (high level of debt service burden) and a lower probability of

membership in the lower category (zero debt service burden). However, from the ordered probit estimates alone, the effects of the changes in the explanatory variables on the probability of membership in the intermediate group (low and moderate levels of debt service burden) is ambiguous. For this reason, the discussion of the empirical results focus on the marginal effects of each explanatory variable on the respective levels of debt service burden (columns 3-5). A positive value indicates the explanatory variable increases the probability that a respondent will be at a specific level of debt service burden compared to the reference variable.

In the socio-economic factors, it is found that gender, number of dependents, age, education and occupational status are significant in explaining the levels of debt service burden. Interestingly, the findings show that income groups have no significant influence on the levels of debt service burden. The econometric result is consistent with the mean statistics that were discussed in the earlier section. For example, males are more likely to have higher debt service burden than females. The marginal effects estimates show that a male will increase the probability of having high debt service burden by 3.6% but lowers the probability of zero debt service burden by 12.7% compared to a female respondent. Number of dependents will increases the levels of debt service burden. In other words, for every additional number of dependent that a respondent has, the probability that a respondent will have moderate and high level of debt service burden will increase by 1.2% and 0.7% respectively. Age is also found to be another significant factor. Those aged between 25 to 29 years old, 30 to 39 years old are more likely to have higher levels of debt service burden than those aged between 18 to 24 years old while those between 50 to to 60 years old have lower levels of debt service burden than those who are between 18 to 24 years old. For example, those aged between 25 to 29 years old and those aged between 30 to 39 years old are 3.1% and 3.3% more likely to have high level of debt service burden while those aged between 50 to 60 years old are 6.6% less likely to have high level of debt service burden than those aged between 18 to 24 years old.

While income groups have no significant effect on the levels of debt service burden, regularity of income receipt is found to have significant effect on levels of debt service burden. Those who have regular and predictable income receipt will increase the probability of having moderate and high levels of debt service burden by 3.5% and 2% than those with irregular income receipt. Job security is also another significant factor that could lead to higher levels of debt service burden. The results show that those who thinks that their current job is secured increases the likelihood of having moderate and high levels of debt service burden by 4.3% and 2.5% respectively.

As home loan may make up the main bulk of a respondents loan portfolio, it is not surprising to find that those with homeownership will increase the likelihood of having moderate and high levels of debt service burden by 12.8% and 7.5% respectively. Civil sector workers with government pension who has better retirement income security is found to have greater appetite for loan whereby, such respondents will increase the likelihood of having moderate and high levels of debt service burden by 8.2% and 4.8% respectively.

Table 3: Ordered probit estimates and marginal effects on the probabilities of the levels of debt service burden

| Variables | Coefficient estimates | Marginal effects on the probabilities | | |
| | | None | Moderate | High |
(1)	(2)	(3)	(4)	(5)
Male	0.323***	-0.128***	0.062***	0.036***
	(0.082)	(0.033)	(0.016)	(0.013)
Dependents	0.064**	-0.025***	0.012**	0.007*
	(0.025)	(0.010)	(0.005)	(0.004)
Age 2529	0.274*	-0.108*	0.053*	0.031*
	(0.146)	(0.058)	(0.027)	(0.017)
Age 3039	0.294**	-0.116**	0.056**	0.033*
	(0.148)	(0.059)	(0.028)	(0.018)
Age 4049	-0.124	0.049	-0.24	-0.014
	(0.172)	(0.068)	(0.033)	(0.021)
Age 5060	-0.585***	0.231***	-0.113***	-0.066**
	(0.194)	(0.077)	(0.040)	(0.034)
Secondary	-0.046	0.018	-0.009	-0.005
	(0.098)	(0.039)	(0.019)	(0.011)
Primary	-0.444**	0.175**	-0.085**	-0.050*
	(0.200)	(0.079)	(0.039)	(0.029)
Blue collar	-0.243**	0.096**	-0.047**	-0.027*
	(0.106)	(0.042)	(0.021)	(0.016)
Self employed	-0.158	0.062	-0.030	-0.018
	(0.124)	(0.049)	(0.024)	(0.016)
Married	0.018	-0.007	0.003	0.002
	(0.117)	(0.046)	(0.023)	(0.013)
Widow	0.021	-0.008	0.004	0.002
	(0.253)	(0.100)	(0.049)	(0.029)
H4000	0.094	-0.037	0.018	0.011
	(0.114)	(0.045)	(0.022)	(0.013)
H5500	0.088	-0.035	0.017	0.010
	(0.136)	(0.054)	(0.026)	(0.015)
H7000	0.180	-0.071	0.035	0.020
	(0.151)	(0.060)	(0.029)	(0.017)
H8000	-0.106	0.042	-0.020	-0.012
	(0.142)	(0.056)	(0.028)	(0.017)
Chinese	-0.087	0.034	-0.017	-0.010
	(0.097)	(0.038)	(0.019)	(0.012)
Indian	-0.244*	0.096*	-0.047*	-0.028
	(0.132)	(0.052)	(0.026)	(0.019)
Regular	0.181**	-0.072**	0.035**	0.020*
	(0.091)	(0.037)	(0.017)	(0.011)
Own House	0.667***	-0.264***	0.128***	0.075***
	(0.100)	(0.039)	(0.022)	(0.029)
Pension	0.427***	-0.169***	0.082***	0.048**
	(0.107)	(0.043)	(0.021)	(0.020)

No bank	-0.558*	0.221*	-0.107*	-0.063
	(0.302)	(0.119)	(0.059)	(0.042)
Bank deposits	-0.280**	0.111**	-0.054**	-0.032
	(0.121)	(0.047)	(0.025)	(0.020)
Insurance	0.014	-0.006	0.003	0.002
	(0.090)	(0.036)	(0.017)	(0.010)
Job security	0.224*	-0.088*	0.043*	0.025*
	(0.127)	(0.051)	(0.024)	(0.013)
Fknowledge	0.059*	-0.023*	0.011*	0.007
	(0.031)	(0.012)	(0.006)	(0.004)
Self-control	0.372**	-0.147**	0.072**	0.042*
	(0.157)	(0.062)	(0.031)	(0.023)
No Risk	-0.089	0.035	-0.017	-0.010
	(0.136)	(0.053)	(0.027)	(0.017)
Low Risk	-0.138	0.055	-0.027	-0.016
	(0.128)	(0.050)	(0.025)	(0.018)
Moderate Risk	-0.066	0.026	-0.013	-0.008
	(0.137)	(0.054)	(0.027)	(0.017)

Note: ***, **, * denotes 1% , 5% and 10% level of significance. Standard error in parenthesis

Respondents who have higher financial score will tend to have higher levels of debt service burden. An increase of a unit score in financial knowledge will increase the likelihood of having moderate levels of debt service burden by 1.1%. However, it is found that there are no significant marginal effects of financial knowledge on the probability of having high level of debt service burden. Respondents who have shown lack of self control are likely to have higher levels of debt service burden whereby lack of self control will increase the probability of having moderate and high levels of debt service burden by 7.2% and 4.2% respectively.

In summary, socio-economic factors, financial factors such as homeownership, job security, being on government pension, financial savviness, financial knowledge and lack of self control can significantly explain the differences in the levels of debt service burden undertaken by an individual.

Conclusion and Discussion

The paper has set out to explore the levels of debt service burden among working adults in Malaysia by identifying the socio-economic characteristics, financial and behavioural factors that might explain the different levels of debt service burden. There is a paucity of studies on household debt and indebtedness among Malaysians. The findings here show that there are differences in socio-economic factors, financial and behavioural factors that explain an individual's levels of debt service burden.

In terms of socio-economic factors, age, gender, number of dependents, education, marital status and occupational status can significantly explain the differences in the levels of debt service burden undertaken by each individual. On the other hand, in terms of the financial related factors, regularity of income, job security, homeownership, being on government pension scheme and financial savviness in the use of financial services have significant effect on the levels of debt service burden.

Furthermore, better financial knowledge is found to increase the levels of debt service burden but within the moderate levels while lack of self-control clearly increases the levels of debt service burden undertaken.

The findings highlight and confirm several observations that are observed with regards to the household debt situation in the country. Firstly, the findings reflect the institutional aspects of the supply of credits in the economy whereby credits are more accessible to those who are eligible and those with some forms of security or collateral. For example, those in tertiary education, white collar workers, regular receipt of income, homeownership are more likely to have higher levels of debt service burden. These individuals are more likely to qualify for loans and also for higher amount of loans given their economic status.

Secondly, the findings is consistent with life cycle income hypothesis whereby the young (those in mid-career phase) such as those aged 40 and below are more likely to have higher levels of debt service while those older ones aged between 50 to 60 years old have lower levels of debt service. The older generation would have fully paid most of their loan or their income has risen over the years resulting in lower debt repayment ratio to their income. On the other hand, the majority of those between 25 to 39 years old would be in the early phase of their loan tenure and with a lower level of income, the debt service burden would be higher for these individuals.

Thirdly, it is observed that those with higher financial knowledge tend to have higher levels of debt service burden. This suggest that financial knowledge may enable individuals to optimize the use of financial services but these individuals are prudent in their loan taking behaviour to keep their debt service burden within the recommended level.

Finally, while risk tolerance is found to have no significant effects on the levels of debt service burden, it is evident that lack of self-control has positive significant effects on the levels of debt service burden. In many studies, behavioural biases such as self-control are not explicitly modelled into the model of indebtedness. This finding shows the need to do so and the importance to incorporate behavioural biases in financial education.

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