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DRIVERS OF FUTURE SAVINGS OF MALAYSIAN HOUSEHOLDS

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Abstract
The households' savings in Malaysia have shown a deteriorating trend that negatively impacts their financial security. The Financial Inclusion and Capability Study of BNM (2016) indicates that merely 6 percent of Malaysians could survive for more than six months and 18 percent up to three months if they lose their main source of income. Thus, it is imperative to examine the drivers of future savings of Malaysian households. A sample of 1,106 bank customers in three cities of peninsular Malaysia was recruited, and the descriptive statistics, correlation analysis, and Seemingly Unrelated Regressions (SUR) were employed. The results reveal that about 25 percent of households are not likely to make any changes in their savings profile in various financial and physical assets. The drivers of future saving are found to be socio-demographic parameters, such as age, education level, the number of working members in the household, and income, and other parameters, such as the percentage of income saved, and the period of the saving plan, which have a significant relationship with the change in future savings of the households. The policy implications of the findings are also presented.

Keywords. *Future saving; seemingly unrelated regressions; bank customers*.
JEL Codes. *D12; G21; O16*

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Introduction

Malaysian economy is at the threshold of entering an era of major transformation under the economic transformation program (ETP) of the government. As one gleans at the projected profile of the Malaysian economy in 2020, it is pertinent to have a look at some key parameters of household savings behavior. A study on the financial fragility of urban households (Selamah et.al., 2015) indicated that merely 10.8 percent of these households are resilient to financial shocks caused by factors like unemployment, physical impairment, death, divorce, and changes in interest rate. Moreover, merely 20 percent of the urban household will only be able to survive for less than three months if their incomes were cut. On the whole, more than 50 percent of the household surveyed do not have any savings. This finding is consistent with the Financial Inclusion and Capability Study of BNM (2016) that indicates indicated that merely 6 percent of Malaysians could survive for more than six months and 18 percent up to three months if they were to lose their main source of income.

According to BNM (2016) assessment, the aggregate household balance sheet remains healthy as they accumulate more financial assets than debt: aggregate financial assets grew by RM97.9 billion in 2015 compared to an increase in household debt of RM70.4 billion. BNM avers that although 73.8 percent of household financial assets are held in the form of deposits, deposit-like instruments, and provident and pension savings, the proportion of assets invested in the higher yielding asset class like equities and unit trust has also increased. However, the recent volatilities eroded the value of such asset class by about 0.7 percent in 2015 and -3.6 percent

in 2014. A similar decline in value has also occurred in the investment-linked and other non-guaranteed insurance policies that are largely invested in equities and debt securities.

Households in Malaysia are facing a problem of low savings. The savings are far below the optimum level and insufficient to cope with external shocks, such as the crisis that occurred in 1997 and 2008. The questions that follow are: what are the drivers of future savings? Are the drivers like the current savings? To encourage savings, we need a good understanding of the future saving drivers at the micro-level. Thus, it is imperative to assess future savings behavior of Malaysian households in various forms of financial savings. However, previous studies on the drivers of savings in Malaysia focus primarily from the macro perspective and exclusively on previous or current saving behavior. Studies on the drivers of future savings using a micro-level approach are lacking. Hence, this paper aims to fill the gap by estimating the drivers of future saving in Malaysia using individual-level data.

The literature on the drivers of household savings in various countries, including Malaysia, is extensive. A study by Delafrooz and Paim (2011) aimed to identify the relationship between selected demographic variables and savings behavior and determine the factors affecting savings behavior among Malaysian employees. They found significant differences in financial behavior according to age, education, income, and financial literacy. The study reported that literacy, income, and marital status are the most influential predictors of savings behavior.

Berry and Williams (2009) argue that UK households' decisions to save or spend are influenced by an array of factors and driven both by the current developments and the changes in expectations of the households about the future. They also contend that given the importance of spending of households, any changes in saving are likely to have substantial consequences on the economic outlook of the country. In their analysis of 17585 households in Australia by using the method of ordered probit estimation, Harris, Loundes, and Webster (2002) found that current income is the key determinant of savings. They also observed that the demographics of the households and their optimism of economic growth play an important role.

In their study of the household savings in China, Kraay (2000) found evidence of two complementary explanations, i.e., the expectations of growth of future income and subsistence consumption. However, these factors explain only a fraction of the variation in the savings rate of households across various provinces of the country. They also found that savings for the purchase of consumer durables and events like marriage celebrations rank higher as the determinants of savings of Chinese households. In their study on the determinants of household savings in China, Horioka and Wan (2007) reported that the growth rate of income and lagged rate of savings are the key determinants. However, they observed that the impact of population age structure on savings rate is insignificant, providing mixed support to Life-Cycle Hypothesis (LCH) and the permanent income hypothesis.

Athukorala and Sen (2004) analyzed the determinants of private savings during the economic development process in India from 1954 to 1988. They found that the rate of savings has a positive relationship with the growth and level of disposable income. They also found that the real rate of interest paid on bank deposit has a positive and significant impact on private savings. Using the ARDL framework in their analysis of savings of Indian households from 1972 to 2012, Samantaraya and Patra (2014) found that GDP, interest rate, dependency ratio, and inflation significantly influence savings both in the short and long run.

In their analysis of the household savings behavior in ten central, eastern, and southeastern European countries, Beckmann et al. (2013) reported that age, education, and income are key drivers of the savings habits. Their findings support the life cycle hypothesis of savings behavior between age and savings. They also find that the portfolio choice of households in these countries depends on the age of savers. Bebczuk (2015) analyzed the profile and drivers of household savings in ten Latin American countries and found a significant role of income in driving the savings decisions of households. In addition, they found that female household head and dependency ratio negatively affect savings, but the age of the household head has a positive but a decreasing effect on household savings.

Suppakitjarak and Krishnamra (2015) examined the savings behavior and determinants of savings of households in Thailand. They reported that the savings are mainly to meet post-retirement requirements. They also reported that the households prefer traditional mode of savings, such as bank deposits, properties, gold etc. to financial assets. However, their preference changes with the rise in income and they become inclined to invest in capital market instruments. The highest proportion of savings is accounted for by investment in real estate.

Using the ARDL framework, Ang (2007) studied the relationship between savings and investment in Malaysia from 1965 to 2003. After controlling the effect of the Asian financial crisis on the domestic investment rate, they found that the relationship between savings and investment is stable and robust. Tang (2008) found that real income and dependency ratio are the major determinants of savings in Malaysian households. They reported that precautionary savings also drive the savings behavior of Malaysian households. They found that there is a weak relationship between the real rate of interest and savings. Thus, monetary policy is not an effective policy instrument in the country to encourage savings. Delafrooz and Paim (2011) found that income, marital status, and financial literacy of Malaysian employees are important determinants of their savings behavior. In their analysis of the nexus between savings-growth in Malaysia from 1971 to 2008, Tang and Chua (2012) observed that savings and economic growth mutually reinforce each other, and the hypothesis that savings lead to growth is stable. They argued that the government initiative to boost domestic savings needs to be in place to kindle the economic growth of the country.

In sum, previous studies have identified the drivers of savings in various countries. However, they focused exclusively on current savings and used the macro approach. To our knowledge, there is no study that focuses on future savings. Thus, the present study differs from previous studies in terms of its focus on future savings and the micro-level approach employed in the analysis. The present study aims to identify the drivers of future savings among the Malaysian households based on a primary survey conducted of the savings behavior of 1,106 bank customers in three cities peninsular in peninsular Malaysia.

Data and Method

The targeted population was the customers of both commercial banks and Islamic banks. Data were collected using selected bank customers in three major cities in peninsular Malaysia, namely Georgetown, Kuala Lumpur. and Johor Bahru. These cities represent the northern, central, and southern regions, respectively. Since these cities are presumed to have a more affluent population, they will have diverse financial needs. Furthermore, their savings behavior differs significantly from those in the semi-urban and rural areas. Eight local banks and five Islamic banks were selected to participate in this survey. However, two local commercial banks and three Islamic banks opted not to participate.

The sample was selected from customers who came to the bank premises using a systematic and probability sampling technique. In implementing systematic sampling, customers who had departed the bank as they finished their banking businesses were selected. Forty branches (approximately five branches from each of the eight banks selected) and 30 customers from each branch were involved, providing us with a sample size of 1,200 respondents from each city and a total of 3,600 respondents from the three cities.

The survey was conducted for one month from mid-January to mid-February 2013. Interviews and questionnaires were used to collect the data. Specially trained enumerators interviewed a total of 1,106 respondents during that period. A set of questionnaires was designed specifically for this study. The questionnaire was developed based on previous studies on savings and investment behavior. The questionnaire was divided into three sections, namely section (A) on customer profile, section (B) on savings and investment behavior, and section (C) on the service expectations of the customer.

The sample characteristics are presented in Table 1. The respondents consist of more male (54.83%) than female (45.17%). Most respondents are married (63.3%) as compared to those who are single (37.7%). On occupation, the sample consists of four major types: professional/managerial (17.62%), executive (31.89%), clerical (15.54%), and self-employed (10.03%). The other category of occupation, which includes retired persons, housewives, students etc., is merged to serve as a control variable to estimate the effect of occupation on savings. Most respondents earn a monthly income of more than RM2,000. Only a handful earn less than RM1,000. On the other hand, around 8 percent of the respondents are earning more than RM15,000 per month. Many respondents are graduates. The remaining respondents are either primary (3.7%) or secondary school leavers (23.40%). The mean age of the respondents is around 35 years. For those who are married, the average size of the household is five, with an average working family member of around two.

Table 1. Sample characteristics of the respondents

Characteristics		**Freq.**	**%**
Gender	Female	500	45.2
	Male	606	54.8
Marital status	Married	700	63.3
	Single	406	36.7
Family structure	Join	226	21.4
	Nuclear	831	78.6
Occupation	Professional/ managerial	195	17.6
	Executive	352	31.8
	Clerical/ non-clerical	172	15.6
	Self-employed	111	10
	Retired	43	3.9
	Housewife	53	4.8
	Student	116	10.5
	Others	64	5.8
Education	Primary education	41	3.7
	Secondary/ high school certificate	208	18.8

	College diploma	258	23.3
	Undergraduate degree	501	45.3
	Postgraduate degree	98	8.9
Characteristics		**Mean**	**SD**
Age (years)		34.37	10.48
Household size (hhSize)		4.86	1.86
Household working member (hhWork)		2.39	1.15

Results and Analysis

Descriptive statistics

Table 2 shows the distribution of savings among the different types of assets. It indicates that deposits (financial asset) have the largest share (29.3%), and it is expected to increase to 30.9% in the future. The distribution of savings is also expected to change in the future. In particular, the percentage of savings in real estate in the future is expected to increase to 27.8% from 22% currently, whereas the percentage of savings in other physical assets will decrease to 19.7% from the current level of 26.6%.

Table 2. Future and current savings (%)

Particulars	Future (%)	Current (%)
Fin. Asset deposit	30.9	29.3
Fin. Asset non-dep	21	22.1
Real estate	27.8	22
Other Physical Assets	19.7	26.6

To gain further insights, the mean and standard deviation of the percentage change in savings and the distribution are presented in Table 3. On average, the percentage change in savings in the form of deposits and real estate is likely to increase by 1.58% and 5.83%, respectively. On the other hand, the FA non-deposits and other physical assets are expected to drop by 1.03% and 6.84%, respectively.

Table 3. Change in savings (%)

Change of saving in:	Mean	Std Dev.
FA Deposit	1.58	20.19
FA Non-Deposit	-1.03	13.71
PA Real Estate	5.83	17.88
PA Others	-6.84	16.38

Table 4 shows that the percentage distribution of the change in households' savings in four types of assets seems to be normally distributed. Around a quarter of the respondents do not plan to change the percentage distribution of their savings in various assets. They tend to decrease their percentage of savings in financial assets in non-deposit (40.9% of the respondents plan to decrease non-deposits compared to 28.5% respondents that plan to increase) and other physical assets (54% decrease as compared to 18.8% increase). On the other hand, the respondents tend to increase their percentage of saving in the financial asset (deposits) and real estate with a percentage of increase of 48.7% and 49.2%, respectively (compared to the percentage of decrease of 24.4% and 25.3%, respectively). Figure 1 depicts these percentage distributions.

Table 4. Change in saving – percentage distribution

Change in Saving	FA Deposit	FA Non Deposit	PA Real Estate	PA others
Decrease more than 50%	2.7	0.2	0.1	1.3
Decrease 30-50%	1.7	1.4	0.8	5.2
Decrease 20-30%	3	2.5	4.3	7
Decrease 10-20%	5.3	9.6	5.3	13.5
Decrease 10% and less	11.7	27.2	14.8	27
No change	26.9	30.7	25.5	27.4
Increase 10% and less	30	15.8	20.9	10.9
Increase 10-20%	12.7	7.6	10.1	4.3
Increase 20-30%	3.4	3.8	11.6	3
Increase 30-50%	1.6	1.1	6.1	0.4
Increase more than 50%	1	0.2	0.5	0.2

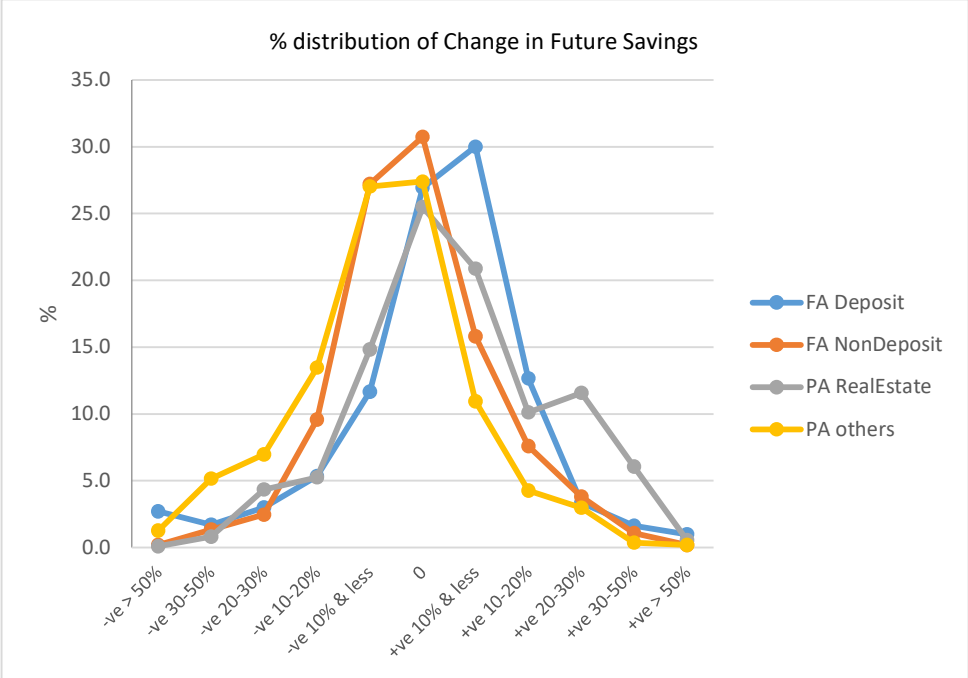

Figure 1. Percentage distribution of Change in Future Savings

Correlation Analysis

Table 5 presents the correlation between the percentage change in future savings and the parameters like the current savings (percentage), socio-demographic parameters, like age, education level, the number of household working number, and income, and other parameters like the percentage of income saved and the period of the saving plan. The current savings in various financial assets and real estate and other assets are found to be highly correlated with the percentage change in future savings. This could be because the change in savings is calculated based on the difference between future and current savings. The negative and significant correlation implies that the respondents with a low percentage of current savings are more likely to increase the percentage of change in future savings. The change in savings is also found to be significantly correlated with some socio-demographic characteristics, such as age, education level, the number of working members in the household, and income, the percentage of income saved, and the period of the saving plan.

Table 5. Correlation analysis

Particulars	Change in saving			
	FA Deposit	FA Non-deposit	PA Real Estate	PA Others
PSavFADep	-0.693***	0.156***	0.315***	0.384***
PSavFANDep	0.144***	-0.609***	0.186***	0.140***
PSavPAReal	0.354***	0.154***	-0.664***	0.160***
PSavPAOth	0.319***	0.138***	0.170***	-0.713***
Age	0.208***	-0.050*	-0.214***	0.019
Education level	-0.073**	0.029	0.01	0.048
hhSize	-0.036	-0.02	0.035	-0.008
hhWork	0.024	-0.070**	0.054*	-0.031
Income	0.023	-0.055*	-0.01	0.061**
PerIncSav	0.042	-0.077**	-0.032	0.065**
PeriodPlan	-0.060**	-0.024	0.070**	0.025

Note: ***,**, and *, represent 1%, 5% and 10% significant level respectively

The estimated Seemingly Unrelated Regressions (SUR)

Table 6 presents the estimated SUR for the change in savings of deposit, non-deposit, real estate, and other physical assets. The Breush-Pagan test of independence of errors terms is found to be significant at 1% with a p-value of almost zero, which justifies our use of the SUR framework for the analysis. The overall fit-test of the estimated models is found to be significant with a p-value of almost zero, with R2 of 0.5201, 0.3918, 0.4932 and 0.5478 for the deposit, non-deposit, real estate, and other physical assets, respectively.

The current percentage of savings is found to be a significant parameter that influences the change in savings of similar types of assets. The negative impact ranges from 0.7267 to 0.7672. Quantitatively, one percent increase in the current percentage of savings will decrease the change in savings by around 0.7%. This implies that the respondents currently with a high percentage of savings tend to decrease the percentage of savings in the future, whereas the respondents with a low current percentage of savings tend to increase the percentage of savings in the future. The variable 'age' is found to have a significant impact on the change of savings in deposit and non-deposit; it, however, has an insignificant impact on the change of savings in real estate and other physical assets. Older respondents tend to increase their future percentage of savings in deposit and decrease their future percentage of savings in non-deposit.

Table 6. The estimated Seemingly Unrelated Regressions for change in savings

Particulars	Percentage Change in Savings in			
	Financial assets		Physical assets	
	Deposit	Non-deposit	Real estate	Others
% saving in FA deposit (current)	-0.7502***	-	-	-
% saving in FA non-deposit (current)	-	-0.7267***	-	-
% saving in PA real estate (current)	-	-	-0.7493***	-
% saving in PA others (current)	-	-	-	-0.7672***
Age	0.6641**	-0.4320*	-0.3552	0.2541
Squared of age	-0.0068*	0.0047	0.0051	-0.0042
Male	-0.9471	0.1718	0.8165	0.3505
Single[3]	-2.3981*	0.3257	2.7830**	0.1321
O_prof[4]	-4.5246**	1.7965	1.0022	0.634

O_exec[4]	-2.4917	1.557	2.2815	0.1779
O_cler[4]	-2.2204	1.4346	0.8604	1.8022
O_rhso[4]	-3.8705**	0.309	2.4069	3.3795**
Household size	-0.4212	-0.125	-0.2277	0.3426
Working household member	1.1627**	-0.1259	-0.9361*	-0.1315
Nuclear family[5]	0.6275	1.1981	-1.3219	0.474
Income	-0.334	-0.08	2.0061***	-0.8612**
Primary[6]	0.5721	-0.6882	-8.2648***	10.1235***
Secondary[6]	0.5311	0.596	1.4217	-1.2054
Diploma[6]	0.3235	-0.9374	0.9606	-0.5926
% of income saved	0.0795	-0.1703	-0.136	0.4225
Length of saving plan	-0.4586	0.1571	0.0878	0.0408
Liquidity[7]	4.6677***	-1.141	-1.2666	-1.6615*
Risk[7]	3.9347***	-0.2763	-0.9817	-2.5528***
Retirement	1.7657*	-0.5286	0.8558	-1.7252**
Children's education	-3.4973***	1.1685	0.5177	2.3955***
Dream house	-0.069	-0.7701	1.8639**	0.2954
Children's marriage	2.6229**	-0.7638	-2.4313**	-0.6541
Acquisition of other properties	-0.3302	-2.1625***	2.1192**	1.5685**
Acquisition of business	-1.9454**	1.5434**	1.3065	0.142
Others	-4.5624	2.9632	7.0475**	-4.2777*
Constant	13.9725**	23.5614***	18.8022***	9.7999*
R^2	0.5201	0.3918	0.4932	0.5478

Note:

1. ***, **, and *, represent 1%, 5% and 10% significant level respectively
2. Breush-Pagan test of independent on errors terms is significant at 1% with p-value of almost zero.
3. Comparison group for single: married (mostly) and a few divorce/widow
4. Comparison group for occupation: self-employed
5. Comparison group for nuclear family: join family
6. Comparison group for education: first degree and above
7. Comparison group for short term goal: return

In terms of marital status, the respondents who are single are more likely to increase their percentage of savings in real estate and decrease their percentage of savings in deposit by 2.39% and 2.78%, respectively. Compared to those who are self-employed, the result reveals that the respondents who are professional and others are more likely to decrease their percentage of savings in deposits. On the other hand, the respondents who are in 'other' employment status are more likely to increase their savings in other physical assets.

The increase in the number of working members in the household will increase the percentage of future savings in deposit and decrease the percentage of future savings in real estate. Income is found to significantly impact the change in future savings: an increase in income will increase the percentage of future savings in real estate and decrease the percentage of future savings in other physical assets.

The level of education appears to have an insignificant effect on the change in savings, except in the respondents with primary school education. Compared to those who are university graduates, the respondents with primary school education tend to have a lower percentage of savings in real estate and a higher percentage of savings in other physical assets. The short-term and long-term goals of savings are found to be significant variables that influence the change in savings of the respondents. In relation to returns, the households that are risk-averse tend to put more on financial assets (deposit) that have low risks. Similarly, households that

have liquidity as their short-term savings goal will also tend to put more in financial assets (deposit) that have high liquidity.

On the long-term goal of savings, the respondents whose goals are retirement and children's marriage will increase their percentage of future savings in deposits and decrease the percentage of future savings in other physical assets or real estate. On the other hand, if the goal is the children's education, the percentage of future savings in deposits will decrease, and the percentage of future savings in other physical assets will increase. If the goal is achieving a dream house, the percentage of future savings in real estate will increase. If the goal is to acquire other properties, the percentage of future savings in real estate and other physical assets will increase, and the percentage of saving in non-deposit financial assets will decrease. If the goal is to acquire a business, the percentage of savings in non-deposit financial assets will increase, and the percentage of savings in deposits will decrease.

Conclusion

This paper estimates the drivers of future savings among the households in Malaysia. Our initial result suggests that socio-demographic parameters, such as age, education level, the number of working members in the household, and income, and other parameters, such as the percentage of income saved, and the period of the savings plan have a significant relationship with the change in future savings of the households. About 25 percent of the households are not likely to make any changes in their savings profile in various financial and physical assets. Moreover, we find that the percentage distribution of the change in savings of the households in four types of asset (deposits, other financial assets, real estate, and other physical assets) seems to be normally distributed. Around a quarter of the respondents are unlikely to change their percentage distribution of savings in various assets. They tend to decrease their percentage of savings in financial assets of non-deposit and other physical assets. They are also likely to increase their percentage of savings in deposits and real estate. It is also interesting to note that respondents who are single are more likely to increase their percentage of savings in real estate and decrease their percentage of savings in deposit.

The findings show that Malaysian households are risk-averse and tend to put more in financial assets (deposit) that offer low risks. Similarly, households with liquidity as their short-term savings goal will also put more in financial assets (deposit) with high liquidity. About the long-term goal of savings, the respondents whose goals are retirement and children's marriage are likely to increase their percentage of future savings in deposits and decrease the percentage of future savings in other physical assets or real estate. On the other hand, if the goal is for children's education, the percentage of future savings in deposits will decrease, and the percentage of future savings in other physical assets will increase.

If the goal is for a dream house, the percentage of future savings in real estate will increase. If the goal is to acquire other properties, the percentage of future savings in real estate and other physical assets will increase, and the percentage of saving in non-deposit financial assets will decrease. If the goal is to acquire a business, the percentage of savings in non-deposit financial assets will increase, and the percentage of saving in deposits will decrease. The findings have important policy implications. They indicate the directions of encouraging household savings in the future. The authorities should target the appropriate group with selected socio-demographic characteristics, and policy formulation should emphasize the identified drivers to encourage future savings.

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